

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

The Hillman Group, Inc.

Petitioner

v.

Hy-Ko Products Company

Patent Owner

Patent No. 10,421,133 B2

Filing Date: September 12, 2016

Issue Date: September 24, 2019

Title: KEY DUPLICATION MACHINE

Inter Partes Review No. IPR2022-00169

**PETITION FOR *INTER PARTES* REVIEW
UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. § 42.100 *ET SEQ.***

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c.	[1b] a key cutting system for cutting keys, wherein the key cutting system includes a retention mechanism panel and at least one cutting member, wherein the retention mechanism panel includes a slot to receive a blade of a key to be retained by the retention mechanism panel and cut by said at least one cutting member;.....	20
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c.	[11b] at least one key cutting system for cutting keys; and	29
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c.	[24b] a key cutting system for cutting keys, wherein the key cutting system includes a retention	

	mechanism panel and at least one cutting member, wherein the retention mechanism panel is positioned within a housing and includes a slot to receive a blade of a key to be retained by the retention mechanism panel and cut by said at least one cutting member wherein a portion of said key is positioned outside said housing when said blade is retained by said retention mechanism panel	34
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b.	[11a] at least one key blank identification system for identifying key blanks wherein the at least one key blank identification system includes a retention mechanism that includes a slot for receiving a blade of a master key such that an image of the blade of the master key may be captured;	40

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Petitioner's Exhibit List

Exhibit No.	Description
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EX-1002	File History of U.S. Patent No. 10,421,133 (U.S. Patent Application No. 15/262,787)
EX-1003	U.S. Patent No. 6,064,747 (“Wills”)
EX-1004	SpeedyPik National Locksmith Publication (“SpeedyPik”)
EX-1005	U.S. Patent No. 4,666,351 (“Marchal”)
EX-1006	U.S. Patent No. 4,899,391 (“Cimino ’391”)
EX-1007	U.S. Patent No. 6,543,972 (“Cimino ’972”)
EX-1008	U.S. Patent No. 6,175,638 (“Yanovsky”)
EX-1009	U.S. Patent No. 5,807,042 (“Almblad”)
EX-1010	U.S. Patent No. 3,172,969 (“Haggstrom”)
EX-1011	U.S. Patent No. 3,796,130 (“Gartner”)
EX-1012	U.S. Patent No. 5,351,409 (“Heredia”)
EX-1013	U.S. Patent No. 6,839,449 (“Campbell”)
EX-1014	U.S. Design Patent No. D348393 (“Neitzke”)
EX-1015	U.S. Patent No. 3,442,174 (“Weiner”)
EX-1016	U.S. Patent No. 3,358,561 (“Roxburgh”)
EX-1017	Declaration of George Heredia
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Exhibit No.	Description
EX-1022	Hy-Ko Complaint for Patent Infringement filed in <i>Hy-Ko Products Company LLC v. The Hillman Group, Inc.</i> , Case No. 2:21-cv-00197-JRG (E.D. Tex.)
EX-1023	Scanned Copy of the SpeedyPik Publication

Listing of Challenged Claims

Claim	Lim.	Claim Text
1	1pre	An integrated key duplication machine, comprising:
	1a	an optical key blank identification system to identify keys including a housing and an imaging device wherein said imaging device is positioned within said housing such that a portion of said key is positioned outside said housing when a blade of said key is positioned within an imaging zone of said housing; and
	1b	a key cutting system for cutting keys, wherein the key cutting system includes a retention mechanism panel and at least one cutting member, wherein the retention mechanism panel includes a slot to receive a blade of a key to be retained by the retention mechanism panel and cut by said at least one cutting member;
	1c	wherein the optical key blank identification system is configured to operate individually from the key cutting system wherein the optical key blank identification system and the key cutting system may interact and share information.
2		The integrated key duplication machine of claim 1 wherein the key blank identification system includes an optical imaging device, a database and a logic wherein said optical imaging device captures an image of a master key, said logic identifies features of the master key, and said logic compares said features of the master key with data in said database.
3		The integrated key duplication machine of claim 2 wherein said data in said database relates to key blanks.
4		The integrated key duplication machine of claim 2 wherein said data in said database relates to physical dimensions of key blanks.
5		The integrated key duplication machine of claim 2 wherein said logic aids in determining a proper key blank for the master key.
6		The integrated key duplication machine of claim 5 wherein said logic aids in selecting the proper key blank.
9		The integrated key duplication machine of claim 2 wherein said master key is imaged and compared with a plurality of key blanks to aid in

Claim	Lim.	Claim Text
		determining an appropriate key blank while utilizing the image to provide key pattern information to be cut into a key blank.
10		The integrated key duplication machine of claim 9, wherein said key blank identification system and said key cutting system are within a single apparatus.
11	11pre	A plurality of key duplication systems, comprising:
	11a	at least one key blank identification system for identifying key blanks wherein the at least one key blank identification system includes a retention mechanism that includes a slot for receiving a blade of a master key such that an image of the blade of the master key may be captured;
	11b	at least one key cutting system for cutting keys; and
	11c	a housing wherein said at least one key cutting system is positioned within said housing such that a portion of a key blank is positioned outside said housing when a blade of said key blank is to be cut by the cutting system;
	11d	wherein the key blank identification system is configured to operate individually from the key cutting system wherein the key blank identification system and the key cutting system may interact and share information.
12		The systems of claim 11 wherein the at least one key blank identification system includes an optical imaging device, a database and a logic wherein said optical imaging device captures an image of a master key, said logic identifies features of the master key and compares said features of the master key with data in said database.
13		The systems of claim 12 wherein said data in said database relates to key blanks.
14		The systems of claim 12 wherein said data in said database relates to physical dimensions of key blanks.
15		The systems of claim 12 wherein said logic aids in determining a proper key blank for the master key.
16		The systems of claim 15 wherein said logic aids in selecting the proper key blank.
18		The systems of claim 11 wherein said at least one key cutting system includes a retention mechanism, and at least one cutting member.

Claim	Lim.	Claim Text
20		The systems of claim 12 wherein said master key is imaged and compared with a plurality of key blanks to aid in determining an appropriate key blank while utilizing the image to provide key pattern information to be cut into a key blank.
21		The systems of claim 20, wherein said key blank identification system and said key cutting system are within a single apparatus.
23		The integrated key duplication machine of claim 11 wherein said retention mechanism is vertically movable.
24	24pre	A key duplication system, comprising:
	24a	an optical key blank identification system to identify key blanks wherein the optical key blank identification system includes a housing having at least one slot to receive a master key or key blank; and
	24b	a key cutting system for cutting keys, wherein the key cutting system includes a retention mechanism panel and at least one cutting member, wherein the retention mechanism panel is positioned within a housing and includes a slot to receive a blade of a key to be retained by the retention mechanism panel and cut by said at least one cutting member wherein a portion of said key is positioned outside said housing when said blade is retained by said retention mechanism panel;
	24c	wherein the optical key blank identification system is configured to operate individually from the key cutting system wherein the optical key blank identification system and the key cutting system may interact and share information.

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I. Preliminary Statement

Petitioner The Hillman Group, Inc. (“Hillman” or “Petitioner”) respectfully requests *inter partes* review and cancellation of claims 1-6, 9-16, 18, 20, 21, 23, and 24 of U.S. Patent No. 10,41,133 (“the ’133 Patent”) under 35 U.S.C. §§ 311-319 and 37 C.F.R. § 42.100 *et seq.*

The ’133 Patent claims a key duplication machine that includes an imaging system and a cutting system for identifying a key blank and then duplicating a master key using that key blank. However, as described in detail below, the same technology was well known in the prior art almost ten years before the ’133 Patent application was filed. Importantly, the very art that renders the ’133 Patent claims unpatentable is owned by Hillman, whom the owner of the ’133 Patent has accused of infringement in a parallel district court proceeding in the Eastern District of Texas. While the Patent Owner sought to introduce claims that would ensnare Hillman, it is now subject to the Hillman prior art, as well as other prior art references, that show that there is a reasonable likelihood that one or more of the Challenged Claims is unpatentable.

This Petition, supported by the Declaration of Mr. George Heredia, explains why there is a reasonable likelihood that claims 1-6, 9-16, 18, 20, 21, 23, and 24 of the ’133 Patent are unpatentable as anticipated by and/or obvious to a person of ordinary skill in the art (“POSITA”) in view of the prior art cited herein and the

knowledge and understanding of a POSITA. Accordingly, claims 1-6, 9-16, 18, 20, 21, 23, and 24 of the '133 Patent should be cancelled.

II. Identification of Challenge and Relief Requested

Hillman requests review under 35 U.S.C. § 311 of Challenged Claims 1-6, 9-16, 18, 20, 21, 23, and 24 of the '133 Patent, and that the Board cancel the same as being unpatentable in view of the cited prior art and the Grounds described below.

Ground 1: Claims 1-6, 9-16, 18, 20, 21, 23, and 24 are anticipated by U.S. Patent No. 6,064,747 (“Wills”) under pre-AIA 35 U.S.C. §§ 102(a) and/or 102(b).

Ground 1A: Claims 1-6, 9-16, 18, 20, 21, 23, and 24 are obvious under pre-AIA 35 U.S.C. § 103(a) in view of Wills and SpeedyPik.

Ground 2: Claims 1-6, 11-16, 18, and 24 are obvious under pre-AIA 35 U.S.C. § 103(a) in view of U.S. Patent No. 4,666,351 (“Marchal”) and SpeedyPik.

Ground 2A: Claims 9, 10, 20, and 21 are obvious under pre-AIA 35 U.S.C. § 103(a) in view of Marchal, SpeedyPik, and Wills.

III. Challenged Claims

The Challenged Claims are claims 1-6, 9-16, 18, 20, 21, 23, and 24. The elements of the challenged claims are listed and identified in the Listing of Challenged Claims included above.

IV. Level of Ordinary Skill

A person of ordinary skill in the art at the time of the alleged invention would have had a degree in engineering and three years of experience involving key duplication equipment. EX-1017, ¶ 14-15. This level of skill is approximate and more experience would compensate for less formal education, and vice versa. For example, an individual having no degree in engineering, but ten years of key duplication equipment experience would qualify as a person of ordinary skill in the art. *Id.* A person having no key duplication experience but a masters or doctorate degree in engineering may also qualify as a person of ordinary skill in the art. The experience in the field of key duplication equipment may include experience with various types of key duplication equipment, including vending machines. *Id.*

V. Claim Construction

Claim construction in *inter partes* review is governed by the same standard as it would be in a district court. 37 C.F.R. § 42.100(b). Terms should be interpreted in view of “their ordinary and accustomed meaning as understood by one of ordinary skill in the art.” *Dow Chem. Co. v. Sumitomo Chem. Co.*, 257 F.3d 1364, 1372 (Fed. Cir. 2001); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc). “The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Phillips*, 415 F.3d at 1316. For the purpose of this proceeding

and the analysis presented herein, Hillman does not believe any terms require express construction and analyzes each claim term according to its plain and ordinary meaning.¹

VI. Claimed Priority Date

Hy-Ko Products Company (“Patent Owner” or “Hy-Ko”) filed the ’133 Patent in the United States on September 12, 2016, and claimed priority to U.S. Provisional Patent Application 60/761,293, which it filed on January 23, 2006. EX-1001, Cover. For purposes of this petition, Hillman assumes that the ’133 Patent is entitled to its claimed priority date because all of the cited references applied to the Challenged Claims predate the filing of the aforementioned provisional patent application.

VII. The ’133 Patent

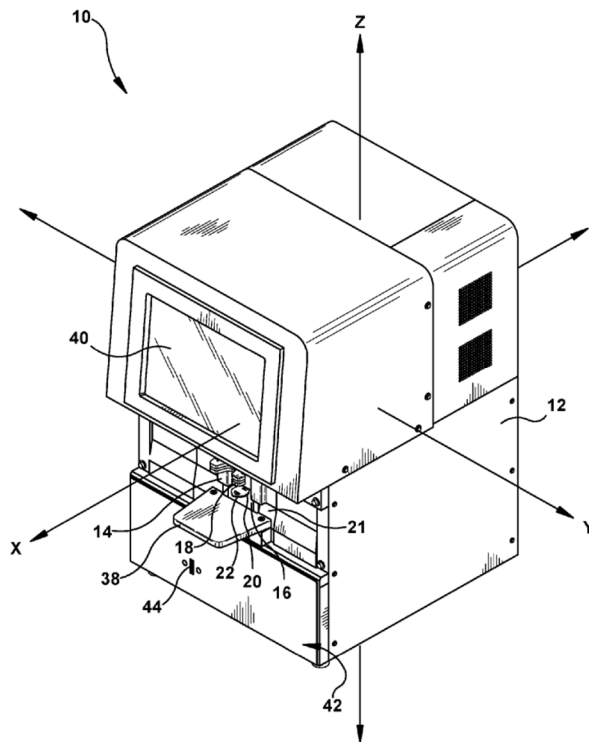
A. Overview of the ’133 Patent

The ’133 Patent is entitled “Key Duplication Machine.” Relevant to the Challenged Claims, the ’133 Patent describes an apparatus and method for using an imaging device to capture images of a master key and to use those images to make a duplicate. Specifically, Hy-Ko characterizes the invention as including “an optical

¹ Petitioner does not admit that the Challenged Claims are valid under § 112 and reserves the right to challenge the validity of the claims under § 112 in other proceedings and forums.

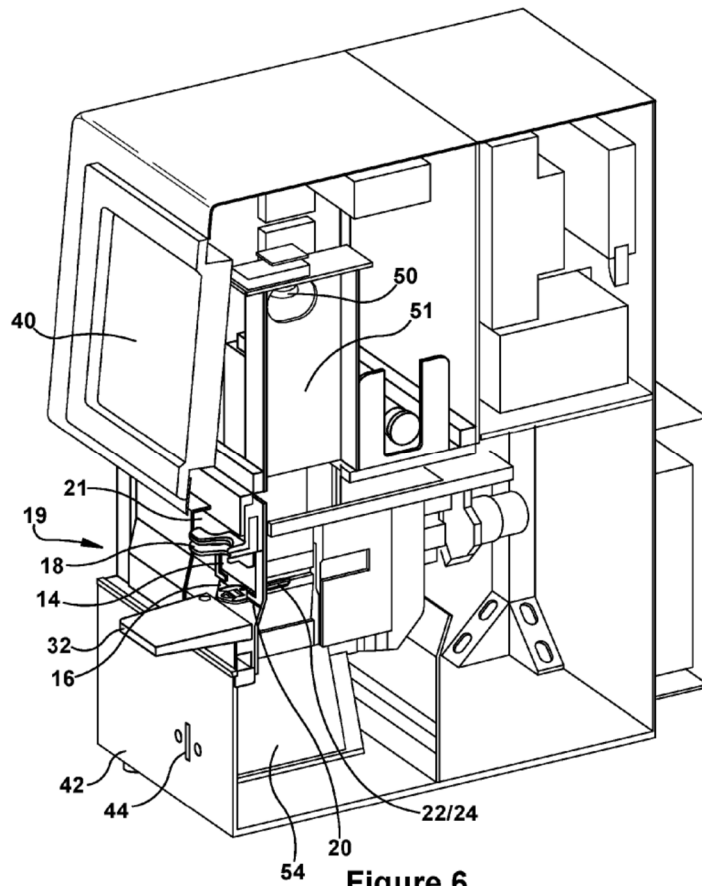
imaging device, a logic, a clamping assembly, and a cutting member” where the “optical imaging device is capable of capturing an optical image of at least a portion of the master key” and “[t]he logic is capable of determining a key pattern of the master key from the optical image of the master key.” EX-1001, Abstract. Once the optical image is used to determine the key pattern, the cutting member is capable of cutting a key pattern into the key blank. *Id.*

The key duplicating machine disclosed in the '133 patent includes an outer shell 12, a touch-screen monitor 40, a slot 22 for holding a master key, and a door clamp 14 for holding the master key in place. EX-1001, 6:1-23.



EX-1001, Figure 1. The machine also includes internal elements that capture an image of the master key so that the system can use “logic” to select the appropriate

key blank to use when seeking to supPLICATE the master key. Internal elements include a lighting panel that shines light onto a reflector plate 54 that backlights the master key 22 or key blank 24 so that an image of the key can be captured by an optical imaging device 50, which is a camera capable of taking, for example, a digital image. *Id.*, 7:55 – 8:44.



EX-1001, Figure 6. Additional imaging of the master key blade can be performed using, for example, a light beam so that surface features of the master key (such as a keyway groove) can be analyzed. *Id.*, 9:40-64. Internal logic can then be used to identify the appropriate key blank for use in duplicating the master key. *Id.* The

'133 Patent also discloses a system for using the data gathered by the imaging devices to cut the master key pattern into the key blank to duplicate the master key.

Id. 10:41 – 14:47.

However, as will be discussed in detail below, all of these features were disclosed in prior art years before Hy-Ko decided to file the application that issued as the '133 Patent.

B. Prosecution History

The '133 Patent was granted Track I status and, therefore, had an accelerated prosecution at the request of Hy-Ko. EX-1002, 1012. On September 20, 2016, four days after filing the '787 Application, Hy-Ko submitted over 400 references in an 1100 page Information Disclosure Statement (“IDS”). EX-1002, 95-1222. None of the prior art asserted in this Petition was cited as a basis for rejection by the Examiner during the prosecution of the '133 Patent.

VIII. Cited Prior Art

A. Wills

U.S. Patent No. 6,064,747 (“Wills”) issued on May 16, 2000. Accordingly, Wills is prior art under at least pre-AIA §§ 102(a) and 102(b). Unsurprisingly, Wills is assigned to Hillman (EX-1021) and, as in many cases before this Board and in district courts, the party accused of infringement is the true inventor of the wrongfully-patented technology.

Wills is entitled “Method and Apparatus for Using Light to Identify a Key” and teaches an apparatus and method for identifying the type of key blank onto which the master key is to be reproduced.” EX-1003, 1:48-49. Specifically, Wills teaches the use of a backlighting system to illuminate a master key so that the biting pattern—what is referred to in the ’332 Patent as the “key pattern”—can be optically analyzed and reproduced to cut a duplicate key. A backlight 26 is positioned below the key to be imaged, as shown in Figure 6 from Wills, which is reproduced below. The backlit image is captured using a camera 28, which can be, for example, a charge coupled device (CCD) designed to capture a digital image of the silhouette of the backlit master key. EX-1003, 7:38-50; 8:10-16. The digital image captured by the CCD 28 is processed using a detection algorithm and compared to a plurality of reference key patterns stored on, for example, a hard disk drive associated with a computer subsystem. *Id.*, 9:24-49.

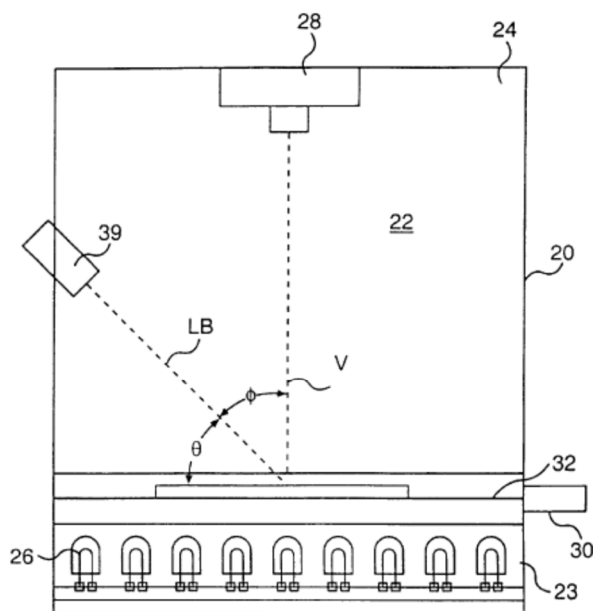
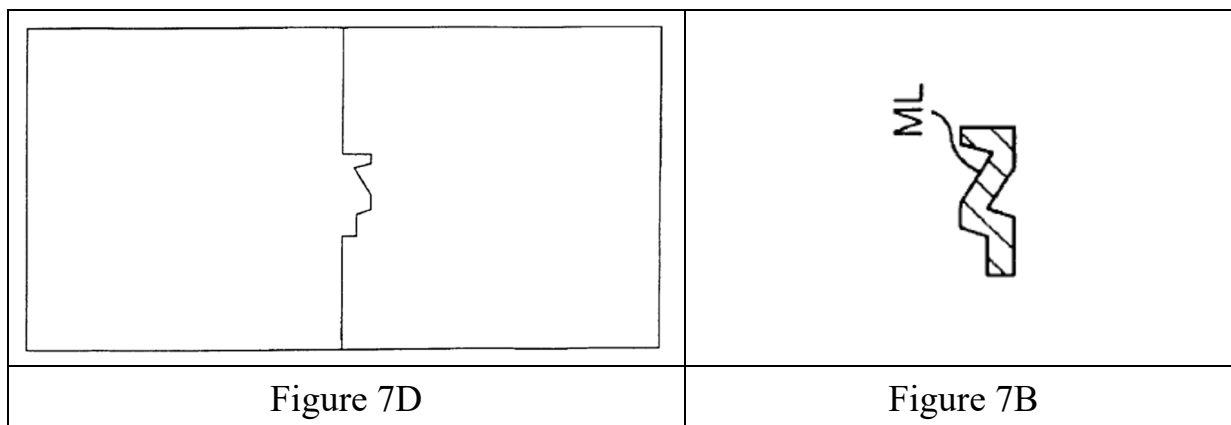


FIG. 6

The logic stored in the computer subsystem then compares certain aspects of the master key, including the length and width of the master key, to determine which key blank should be used when creating a duplicate key. *Id.* 9:41-11:33.

Wills also discloses a second light source 39, such as light beam LB, that is used to analyze the master key. EX-1003, 11:35-50. The second light source 39 can be, for example, a light beam generator that can be used to capture a three dimensional image of the surface of the master key to enable the computer subsystem to identify potential key blanks that are appropriate for duplication of the master key. *Id.*, 11:35-63; 15:34-64. For example, the second light source 39 can scan a portion of the master key to discern the keyway, as shown in Figures 7D and 7B. *Id.* 11:51-63; Figure 7D; Figure 7B.



The surface information about the master key may be used in the blank selection process. Wills teaches that the light beam generator can be used to identify the correct key blank for duplicating the master key. EX-1003, Claim 26.

Wills also discloses a detailed key cutting process using a key cutting system that is located in the housing. EX-1003, 20:3-31:40. The cutting system uses the information captured by the imaging system to cut the bitting pattern (the key pattern) into the proper key blank. *See, e.g., Id.*, 4:64-5:10; 29:55-66.

B. SpeedyPik

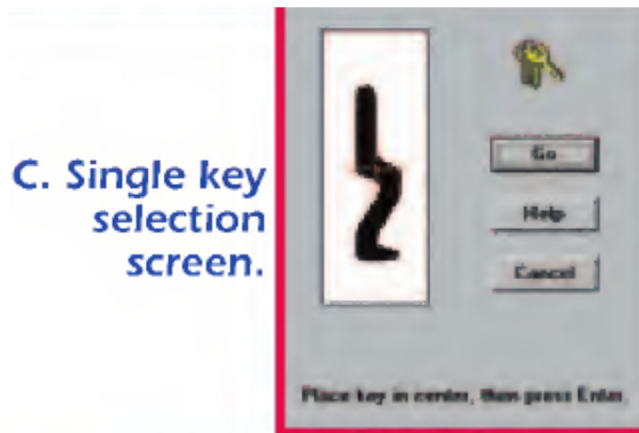
SpeedyPik was a key duplication systems made and sold by the SpeedyPik Corporation of Woburn, Massachusetts. The SpeedyPik device is described in pages 52-54 of the July 2000 publication *The National Locksmith*. *The National Locksmith*, Vol. 11, No. 7, pp. 52-54, National Publishing Co. (July 2000) (“SpeedyPik Article”); EX-1004; EX-1019. At the time of publication, this was a well-known publication in the key duplication industry in the U.S. EX-1017, ¶55. Accordingly, SpeedyPik is prior art under at least pre-AIA §§ 102(a) and 102(b).

The SpeedyPik Article shows an example of the SpeedyPik device.

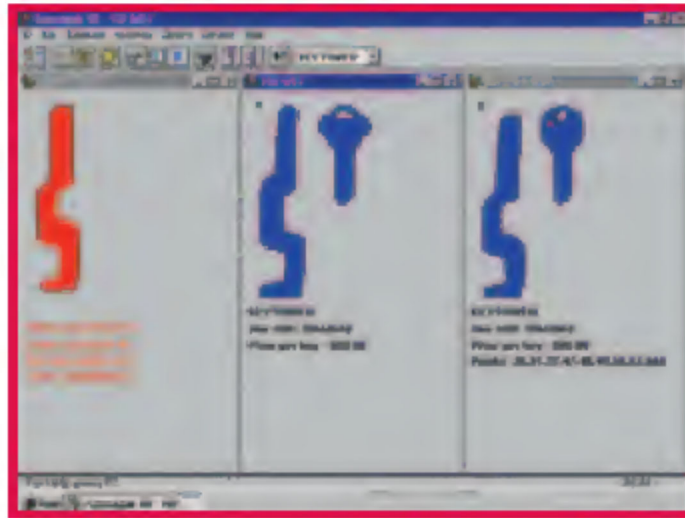


10. KW1 key blank inside the Speedypik.

EX-1004 at 54. The SpeedyPik device includes a slot and a retention mechanism that are designed to hold the master key. Once in place the master key is scanned to reveal the keyway profile (surface information) of the master key to determine the keyway to aid in the blank key selection process. *Id.*



The surface information of the master key is processed by computer software to identify the best match in the key blank inventory. *Id.* Those results are presented graphically to the user via the computer software on a computer display. *Id.*

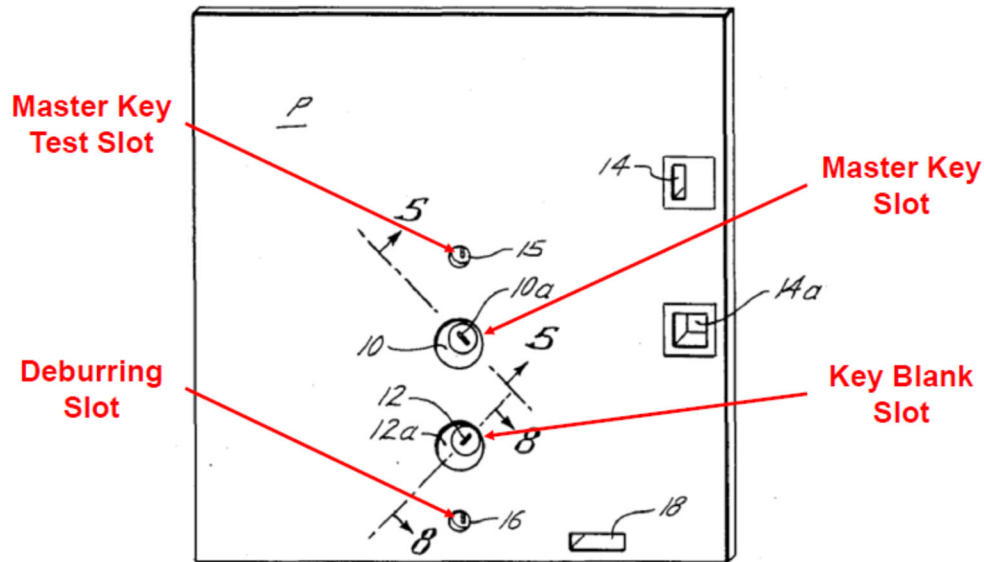


E. Unit returned various results.

C. Marchal

U.S. Patent No. 4,666,351 (“Marchal”) was filed on August 7, 1985 and issued on May 19, 1987. Accordingly, Marchal is prior art under at least pre-AIA §§ 102(a) and 102(b). Marchal is entitled “Apparatus and Method for Automatically Making a Duplicate Key” and discloses “[a] key duplicating apparatus having [an] automatic key clamping mechanism for a master key and a key blank” and a key cutter that can be used to duplicate the master key. EX-1005, Abstract.

Figure 1 of Marchal shows an embodiment of the key duplicating system.



EX-1005, Figure 1. The apparatus includes a test slot 15 that can be used “to assist the customer in deciding if the apparatus is suitable for duplicating” a master key. *Id.*, 3:36-39. The customer then inserts the master key in the master key slot 10a and the key blank in the key blank slot 12a for duplication. *Id.*, 3:18-23. Once the master key has been duplicated, the customer can insert the duplicated key in the brushing slot 16a so that the duplicate key can be deburred. *Id.*, 3, 40-43. These slots enable the master key to be duplicated while a portion of both the master key and the key blank are positioned outside the mounting plate P and the key duplicating apparatus.

IX. Claims 1-6, 9-16, 18, 20, 21, 22, and 24 of the '133 Patent are Unpatentable

A. Ground #1: Wills Anticipates Claims 1-6, 9-16, 18, 20, 21, 23, and 24 of the '133 Patent

As noted above, Wills issued in May 2000. Wills includes extensive disclosure addressing the same problems identified in the '133 Patent. As described in detail below, Wills discloses each and every element of the Challenged Claims.

1. Wills Anticipates Claim 1

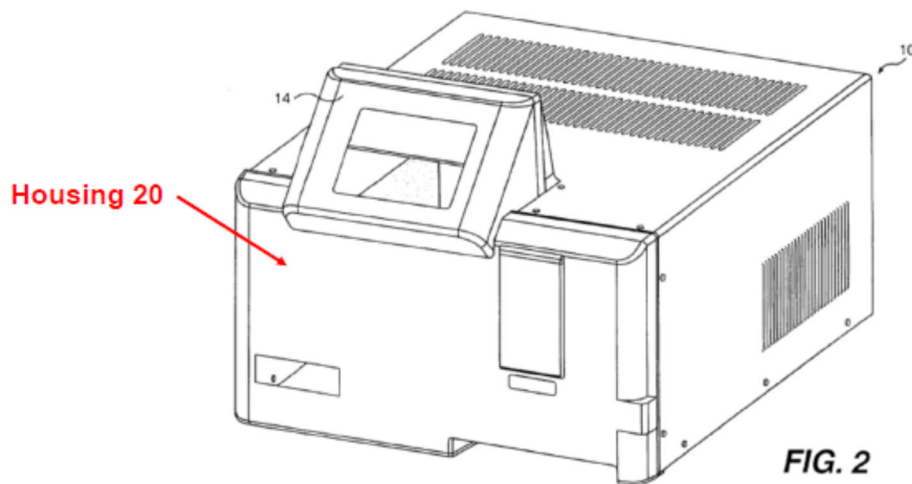
a. [1pre] An integrated key duplication machine, comprising:

Wills discloses an integrated machine for duplicating keys. For example, Wills describes determining “the type of master key so that the appropriate blank can be chosen to duplicate the master key.” EX-1003, 6:32-38. “[I]nformation about the master key is obtained by backlighting the master key and digitizing the image and/or directing a substantially planar light beam, such as a laser, at a portion of the master key and digitizing the image of the intersection thereof.” *Id.*, 1:56-60. The image is used to “identify[] the type of key blank onto which the master key is to be reproduced.” *Id.*, 1:48-49. Once the optical images of the master key have been analyzed, the Wills system uses information collected from the optical images to duplicate the master key. *Id.*, 20:7-8. The computer subsystem 16 controls the motion of the cutter wheels of the key blank cutting system “based on the bitting

information and key blank dimensions to regenerate or duplicate the biting patter of the master key onto the key blank.” *Id.*, 29:52-30:3.

- b. **[1a] an optical key blank identification system to identify keys including a housing and an imaging device wherein said imaging device is positioned within said housing such that a portion of said key is positioned outside said housing when a blade of said key is positioned within an imaging zone of said housing; and**

Wills discloses a key imaging and duplication system 10 that includes a housing 20. EX-1003, Figure 2.



The housing 20 forms an outer shell of the key duplicating machine 10 and includes a slot into which a user can place a master key to be imaged for duplication.

Wills discloses an embodiment that includes “a plurality of clear protrusions (not shown) projecting into the interior 22 of the housing 20 on which the master key is disposed.” EX-1003, 7:11-16. The plurality of clear protrusions form a slot to support the master key so that the system can be used to image the profile of the

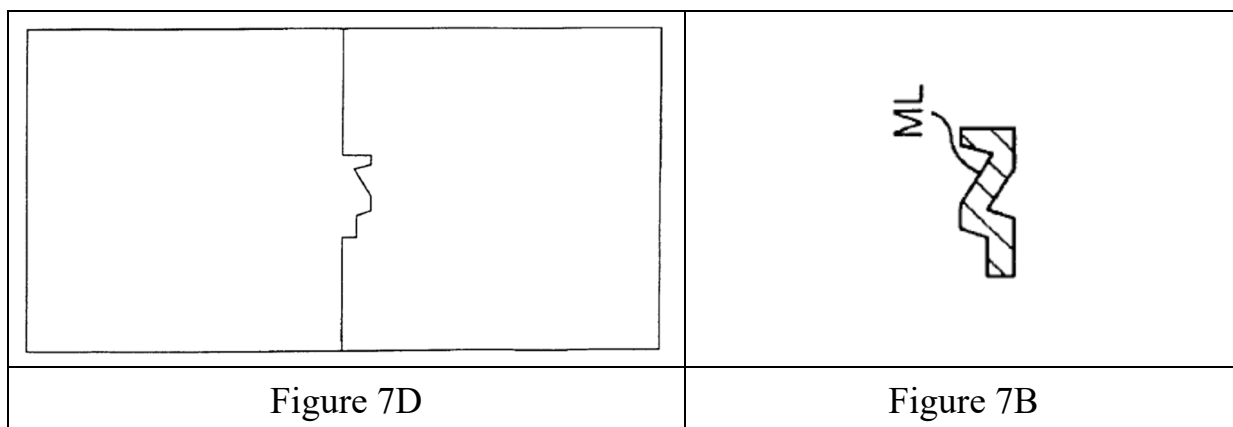
master key. *Id.*; EX-1017, ¶¶68-69. When the master key is placed on the clear protrusions that project into the interior of the housing, a portion of the key must extend into the interior of the housing “to allow at least the relevant portion of the profile of the master key to be imaged.” EX-1003, 7:11-16; Claim 26 (reciting an “apparatus for identifying a key” in which “a substantially planar light beam” is used to identify a key blank based on an imaged “portion of one side of the [master] key”); Claim 60 (reciting a “method of identifying a key” in which the identification is based on the backlit image of “at least a portion of the profile of the key”). Accordingly, the remainder of the master key that is supported by the clear protrusions (*e.g.*, the head of the master key) may be positioned outside of the housing 10. EX-1017, ¶¶68-69.

Wills discloses an optical imaging system inside the housing 20 that includes a backlight that is disposed below the master key to be imaged. EX-1017, ¶¶70-71. Wills describes the backlight as a “light source means” that “emits light at one end of the housing 20 and the receiving means at the other end of the housing 20 receives the image of the profile of the of the master key outlined by the light passing through the supporting means.” *Id.*, 6:52-64. “The preferred light source means is an array of LEDs 26.” *Id.*, 6:65. Other types of lights, including electroluminescent or fluorescent light panels can be used with the invention “to outline the master key so that the receiving means can distinguish the profile of the master key from a

background.” *Id.*, 6:66 – 7:3. The receiving means is described as, for example, “a camera 28 that views the profile of the silhouette of the master key because it is the only nontransparent item disposed between the LEDs 26 and the electronic cameras, thereby backlighting the master key.” *Id.*, 8:1-10.

Wills further discloses the use of a second light to analyze surface features of the master key. EX-1017, ¶70-73. The second “light emitting means . . . emits a substantially planar light beam LB at the key to form an image as the light beam LB interfaces with the side of the master key.” EX-1003, 11:44-51. Wills discloses a light beam generator 39 as the additional light emitting means. The light beam generator is disposed on the side of the housing 20 and projects a substantially planar light beam LB onto the surface of the master key.

One of the objects of the light beam scan is to determine, for example, the keyway profile of the master key. This is shown in Figures 7B and 7D below.



EX-1003, Figures 7B; 7D. Other embodiments contemplate the use of a light beam to capture a complete three-dimensional surface image of the master key. *Id.* 15:33-

54. Wills teaches that this embodiment “provide[s] a three-dimensional representation of the entire surface of the key so that additional key characteristics can be measured, thus eliminating the need for the backlighting process.” *Id.*, 15:50-54. Wills further discloses that the light beam can also be used to identify the proper key blank for duplicating the master key. *Id.*, 39:10-14; Claim 26; EX-1017, ¶73.

The optical imaging system further includes a device (*e.g.*, a camera, which is preferably a CCD camera) for capturing a first, backlit, silhouette image of the master key. EX-1017, ¶74-77.

When the LEDs 26 are energized, the electronic camera 28 receives the characteristics of the profile of the key, in particular, the length of the key and the outline (*e.g.*, head shape and blade) of the key. That is, the camera 28 views the profile or silhouette of the master key because it is the only nontransparent item disposed between the array of LEDs 26 and the electronic camera, thereby backlighting the master key.

EX-1003, 7:64-8:4. The camera also captures a second image created when the second light (*e.g.*, the light beam LB formed by the light beam generator 39) is reflected from the surface of the key.

The same receiving means used to receive the image of the backlit master key preferably also receives the image of the light beam LB interfacing with the side of the master key. The receiving means receives the image along a viewing axis V.

Id., 11:64-12:1; 12:31-54.

Wills teaches that the backlit, silhouette image captured by the CCD camera and the surface information from the light beam can be used to help determine the proper key blank for duplicating the master key. The Wills key duplicating machine 10 includes a computer subsystem to control the backlight and the camera. EX-1003, 7:60- 8:9. The digital images of the backlit master key are stored in memory using a digitizer.

The digitizing means, which is electrically coupled to the receiving means, converts the image of the profile of the master key received or captured by the receiving means into a digital image. As shown in FIG. 5, the digitizing subsystem is a frame grabber 36, which is also known as a capture board.

Id. 8:46-51. The machine also includes a compilation means that uses the backlit, silhouette images of the master key to help determine the appropriate key blank to use for duplication. *Id.*, 9:24:40. The information collected by the camera is compared to reference keys stored in memory so that the proper key blank can be determined. *Id.*, 9:41-49. Wills provides an extensive discussion concerning the manner in which the silhouette image of the master key captured by the camera is used to aid in eliminating possible key blanks in order to arrive at the best key blank that most closely matches the characteristics of the master key. EX-1003, 9:50 – 11:44.

The light beam generator is used to form a second image of surface characteristics of the master key, and the captured surface characteristics can be used to determine the appropriate key blank to duplicate the master key. EX-1017, ¶ 77.

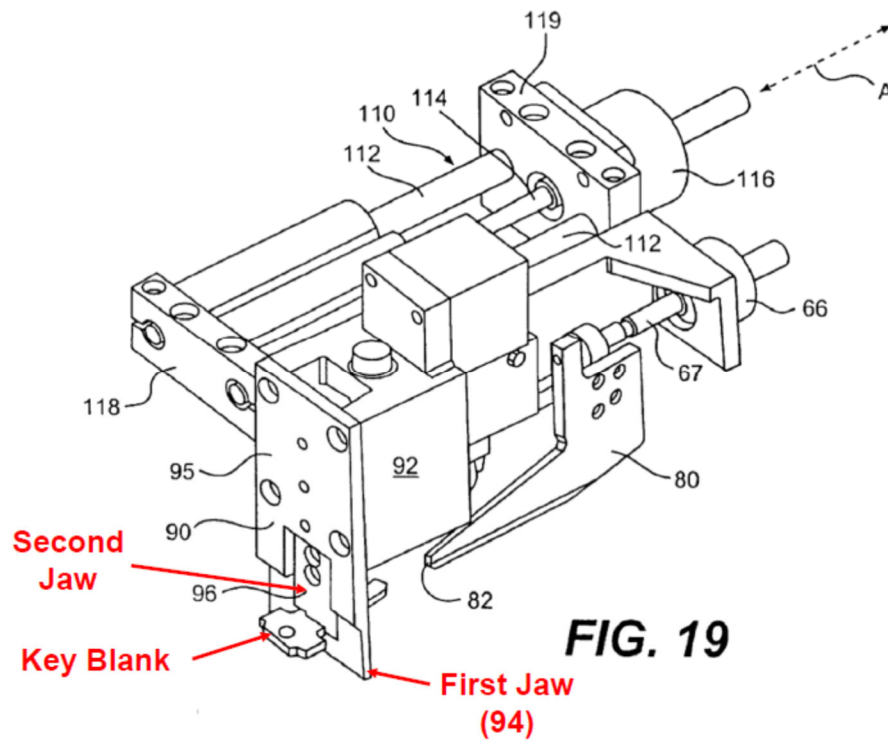
In the presently preferred embodiment, the sequence of steps entails first backlighting the profile of the key and digitizing that information, next recording the surface data, and then starting the elimination analysis steps. As one skilled in the art will appreciate, the sequence can be altered. For example, the order of steps could be backlighting, starting the elimination analysis, and then, if necessary, using the light beam to narrow the subset of keys. In this example, the KW1 would not require the step of using a light beam to eliminate similar keys, whereas a B44E master key would require the step.

EX-1003, 16:14-32. As noted above, in other embodiments the information collected from the light beam generator (alone) can be used to duplicate the master key. *Id.*, 15:34-54; 39:10-14; Claim 26; EX-1017, ¶77. In addition, the information captured from the backlit image alone can be used to identify the key as well as duplicate it. *Id.*, 20:6-8; 1:57-61.

- c. **[1b] a key cutting system for cutting keys, wherein the key cutting system includes a retention mechanism panel and at least one cutting member, wherein the retention mechanism panel includes a slot to receive a blade of a key to be retained by the retention**

mechanism panel and cut by said at least one cutting member;

Wills discloses a key cutting system for cutting keys. *See* § IX.A.1.a; EX-1017, ¶¶78-82. The key cutting system includes a gripper that forms a retention mechanism panel to secure the key blank in place.

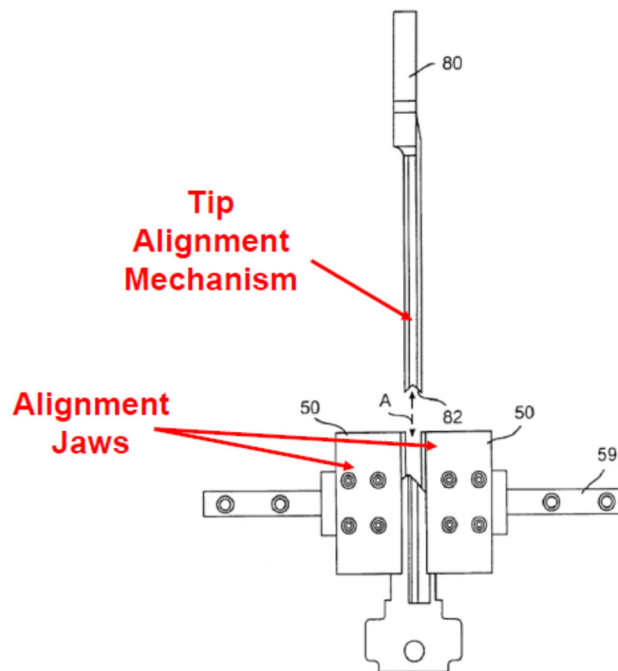


EX-1003, Figure 19. For example, the first jaw 94 and the second jaw 95 form parts of the retention mechanism panel (the gripper 90) that “securely hold[s] the key blank” in place so that it can withstand “the significant forces placed on the key while cutting it” *Id.*, 25:30-42.

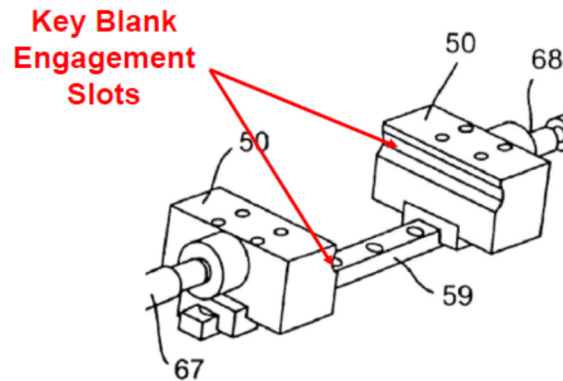
Because the significant forces placed on the key while cutting it, a portion of the head and/or the top portion of the blade (shank) of the key blank must be placed into a vice, called a gripper 90.

The gripper 90 shown in FIGS. 3 and 19-21 comprises a support member 92 mounted to the machine 10, a first jaw 94 fixedly attached to the support member 92 and having a first engaging surface 95, and a second jaw 96 slidably connected to the support member 92 and having a second engaging surface 97. A rail 98 is also used to guide the second jaw 96.

Id., 25:32-42; EX-1017, ¶79-82. The gripper 90 includes a slot into which the key blank is placed before the jaws of the gripper 90 close to secure the key blank in place. Wills also discloses alignment jaws 50 and a tip alignment mechanism 80 that help position the key blank in the correct alignment so that the key blank can be accurately cut to duplicate the master key. An exemplary embodiment is shown in Figure 15.



EX-1003, Figure 15 (annotated). The clamping jaws 50 also include slots for aligning the key blank, as shown in the portion of Figure 14 reproduced below.



Id., Figure 14 (reproduced in part and annotated). The embodiments disclosed in Wills enable the cutting system to duplicate both tip gauged and shoulder gauged master keys. *See, e.g., id.*, 20:5 – 21:45.

Once the key blank has been clamped in position in the slots, the computer subsystem energizes the cutter motors which turn the cutter wheels, moves the key blank into position, and uses the cutter wheels (the cutting members) to cut the master key pattern into the key blank. EX-1003, 29:22-30:3.

- d. **[1c] wherein the optical key blank identification system is configured to operate individually from the key cutting system wherein the optical key blank identification system and the key cutting system may interact and share information.**

Wills discloses a key cutting system in which an optical key blank identification system is configured to operate individually from the key cutting system but where the optical imaging system and the key cutting system interact

and share information. EX-1017, ¶¶83-84. The optical imaging system is described above in § IX.A.1.b (Element [1a]), and the key cutting system is described in § IX.A.1.c (Element [1b]). Wills discloses that the information acquired by the optical imaging system is used to duplicate the master key via the key cutting system. EX-1003, 20:5-24; 2:22-24 (key blank biting “information is communicated to the cutting algorithm that is used to cut the pattern of the biting pattern into the key blank”). Once the imaging process has been completed, the user is prompted to insert the key blank in the slot for the key cutting operation. EX-1003, 20:5-24. When a key is cut, the cutters are controlled “based on the biting information and key blank dimensions” obtained from the optical imaging system in order to “duplicate the biting pattern of the master key onto the key blank.” EX-1003, 29:66-30:3. If the key identified by the optical imaging system is known, the biting pattern cut into the key blank is “cut to the factory specified widths and spaces for keys with known” specification; else, it is “cut to the previously measured widths and spaces” for unknown keys. *Id.*, 30:13-18. Wills also discloses that “the machine 10 could be used to perform the biting analysis only. That is, the operator could initially start the process without performing the steps to identify the key blank as discussed above if he knew the type of master key from a visual inspection.” *Id.*, 16:63-67. The key cutting components of the key cutting system can initialize

concurrently with the scanning of the biting information of the key identification system to save time. *Id.*, 20:20-24.

2. Wills Anticipates Claim 2

Claim 2 of the '332 Patent recites “**the integrated key duplication machine of claim 1 wherein the key blank identification system includes an optical imaging device, a database and a logic wherein said optical imaging device captures an image of a master key, said logic identifies features of the master key, and said logic compares said features of the master key with data in said database.**” As discussed above in § IX.A.1.b, Wills discloses an optical imaging device that captures images of the master key so that they appropriate key blank can be identified for duplication.

Wills also discloses a database that stores information regarding key blanks that can be used to duplicate master keys.

The preferred embodiment determines the type of blank from a set of more than three hundred different types of blanks, and information about more than four hundred key silhouettes since each blank type may have multiple master key silhouettes. The preferred embodiment performs this by extracting information from digitized images of the master key and comparing the information to a database of key blanks. In the preferred embodiment, the information about the master key is obtained by backlighting the master key and digitizing the image and/or

directing a substantially planar light beam, Such as a laser, at a portion of the master key and digitizing the image of the intersection thereof. Algorithms compare the information of the master key to reference keys in the database and elimination those that are different, thereby leaving one correct match or a small subset of keys ranked by the likelihood of a match.

EX-1003, 1:50-65. Wills also discloses determining “information about the length of the key” and comparing it with “information about a length of each of the reference keys” to identify an appropriate key blank. *Id.*, Claim 13.

Accordingly, Wills describes logic that identifies features of the master key, compares the features of the master key with data in said database, and determines the correct reference key (key blank) to use when duplicating the master key. EX-1017, ¶85-86.

3. Wills Anticipates Claim 3

Claim 3 of the '133 Patent recites “**the integrated key duplication machine of claim 2 wherein said data in said database relates to key blanks.**” Wills discloses this limitation. *See* § IX.A.2; EX-1017, ¶87.

4. Wills Anticipates Claim 4

Claim 4 of the '133 Patent recites “**the integrated key duplication machine of claim 2 wherein said data in said database relates to physical dimensions of key blanks.**” Wills discloses this claim element. Specifically, Wills discloses that

information on reference keys is stored in the database, including physical dimensions of the reference key blanks. “The key information for reference keys consists of key length, head shape information, and surface information. This information may be kept in a memory means, such as a database.” EX-1003, 32:47-60; EX-1017, ¶88.

5. Wills Anticipates Claim 5

Claim 5 of the ’133 Patent recites “**the integrated key duplication machine of claim 2 wherein said logic aids in determining a proper key blank for the master key.**” Wills discloses this limitation. *See* § IX.A.2; EX-1017, ¶89.

6. Wills Anticipates Claim 6

Claim 6 of the ’133 Patent recites “**the integrated key duplication machine of claim 5 wherein said logic aids in selecting the proper key blank.**” Wills discloses this limitation. *See* § IX.A.2. Wills discloses an output subsystem connected to the computer subsystem. EX-1003, 6:1-12. The output subsystem can be an LCD screen, and Wills contemplates that the output subsystem can display the appropriate key blank so that it can be selected by the user and used to duplicate the master key. *Id.*, 15:65 – 16:10; 16:50-62; EX-1017, ¶90.

7. Wills Anticipates Claim 9

Claim 9 of the ’133 Patent recites “**the integrated key duplication machine of claim 2 wherein said master key is imaged and compared with a plurality of**

key blanks to aid in determining an appropriate key blank while utilizing the image to provide key pattern information to be cut into a key blank.” Wills discloses this limitation. *See* § IX.A.2. Further, the captured image data is used to cut the master key pattern into the appropriate reference key (key blank). EX-1003, 20:6-9 (“After completing the biting analysis, the key blank is ready to be cut to reproduce the biting pattern captured from the silhouette of the master key.”); 39:10-26, Claim 26; EX-1017, ¶91.

8. Wills Anticipates Claim 10

Claim 10 of the ’133 Patent recites **“the integrated key duplication machine of claim 9, wherein said key blank identification system and said key cutting system are within a single apparatus.”** Wills discloses this limitation. EX-1017, ¶92 The housing 20 encloses both the optical identification system and the key cutting system. EX-1003, Figure 3 (showing that the imaging system, including the camera 28, and the cutting system, including the cutter wheels 122, are within the housing 20 of the key duplication machine 10).

9. Wills Anticipates Claim 11

a. [11pre] A plurality of key duplication systems, comprising:

Wills discloses a plurality of key duplication systems, including at least one optical key imaging system, at least one surface information analysis system, and at least one key cutting system. *See* §§ IX.A.1.b, IX.A.1.c; EX-1017, ¶94.

- b. **[11a] at least one key blank identification system for identifying key blanks wherein the at least one key blank identification system includes a retention mechanism that includes a slot for receiving a blade of a master key such that an image of the blade of the master key may be captured;**

Wills discloses this limitation. Wills discloses a retention mechanism that includes a slot for receiving a blade of a master key. For example, in one embodiment, a drawer that is removably inserted in a slot had “a cut-out template 34, shown in phantom line FIG. 7C, in which the master key is placed.” EX-1003, 7:17-24, claim 60 (imaging a portion of the key). Other embodiments disclose a retention mechanism including a slot through a “plurality of clear protrusions projecting into the interior of the housing” that hold the key in a slot so that “the relevant portion of the profile of the master key” can be imaged. *Id.*, 7:11-16; EX-1017, ¶95.

- c. **[11b] at least one key cutting system for cutting keys;
and**

Wills discloses this limitation. *See* § IX.A.1.c; EX-1017, ¶96.

- d. **[11c] a housing wherein said at least one key cutting system is positioned within said housing such that a portion of a key blank is positioned outside said housing when a blade of said key blank is to be cut by the cutting system;**

Wills discloses this limitation. *See* § IX.A.1.c. When the key blank is to be cut by the cutting system, the Wills system prompts the operator to insert a key

blank into the gripper 90, which closes and clamps the key blank in place. EX-1003, 27:56 – 28:16; EX-1017, ¶97-98.

The operator then inserts the key blank tip first into and through the gripper 90 until further insertion is not possible, e.g., the shoulder portion of the key blank contacts one of the alignment jaws 50 or the tip of the key blank contacts the tip alignment mechanism 80 shown in FIG. 19. If the key is a Single sided, the operator is provided instructions to orient the key so that the correct side of the blade is aligned to be cut. When the operator prompts the machine 10 that the key has been inserted by responding to the continue prompt, the gripper 90 then closes, clamping the Selected portion of the key blank between the jaw 94, 96. Thus, the key blank is firmly secured by the gripper 90 and the key blank is at a known position for cutting.

Id., 28:4-16.

- e. **[11d] wherein the key blank identification system is configured to operate individually from the key cutting system wherein the key blank identification system and the key cutting system may interact and share information.**

Wills discloses this limitation. *See* § IX.A.1.d; EX-1017, ¶99.

10. Wills Anticipates Claim 12

Claim 12 of the '133 Patent recites “**the systems of claim 11 wherein the at least one key blank identification system includes an optical imaging device, a database and a logic wherein said optical imaging device captures an image of**

a master key, said logic identifies features of the master key and compares said features of the master key with data in said database.” Wills discloses this limitation. *See* § IX.A.2; EX-1017, ¶100.

11. Wills Anticipates Claim 13

Claim 13 of the ’133 Patent recites “**the systems of claim 12 wherein said data in said database relates to key blanks.**” Wills discloses this limitation. *See* § IX.A.3; EX-1017, ¶101.

12. Wills Anticipates Claim 14

Claim 14 of the ’133 Patent recites “**the systems of claim 12 wherein said data in said database relates to physical dimensions of key blanks.**” Wills discloses this limitation. *See* § IX.A.4; EX-1017, ¶102.

13. Wills Anticipates Claim 15

Claim 15 of the ’133 Patent recites “**the systems of claim 12 wherein said logic aids in determining a proper key blank for the master key.**” Wills discloses this limitation. *See* § IX.A.5; EX-1017, ¶103.

14. Wills Anticipates Claim 16

Claim 16 of the ’133 Patent recites “**the systems of claim 15 wherein said logic aids in selecting the proper key blank.**” Wills discloses this limitation. *See* § IX.A.6; EX-1017, ¶104.

15. Wills Anticipates Claim 18

Claim 18 of the '133 Patent recites **“the systems of claim 11 wherein said at least one key cutting system includes a retention mechanism, and at least one cutting member.”** Wills discloses this limitation. *See* § IX.A.1.c; EX-1017, ¶105.

16. Wills Anticipates Claim 20

Claim 20 of the '133 Patent recites **“the systems of claim 12 wherein said master key is imaged and compared with a plurality of key blanks to aid in determining an appropriate key blank while utilizing the image to provide key pattern information to be cut into a key blank.”** Wills discloses this limitation. *See* § IX.A.9; EX-1017, ¶106.

17. Wills Anticipates Claim 21

Claim 21 of the '133 Patent recites **“the systems of claim 20, wherein said key blank identification system and said key cutting system are within a single apparatus.”** Wills discloses this limitation. *See* § IX.A.10; EX-1017, ¶107.

18. Wills Anticipates Claim 23

Claim 23 of the '133 Patent recites **“the integrated key duplication machine of claim 11, wherein said retention mechanism is vertically moveable.”** Wills discloses this limitation. *See* § IX.A.1.c. Specifically, Wills

below.



109.

19. Wills Anticipates Claim 24

a. [24pre] A key duplication system, comprising:

Wills discloses a plurality of key duplication systems, including at least one optical key blank identification system, at least one surface information analysis system, and at least one key cutting system. *See* §§ IX.A.1.b, IX.A.1.c; EX-1017, ¶110-111.

b. [24a] an optical key blank identification system to identify key blanks wherein the optical key blank identification system includes a housing having at least one slot to receive a master key or key blank;

Wills discloses this limitation. *See* IX.A.1.b, c (elements 1a, 1b). Wills discloses this element. Further, Wills discloses a slot to receive a master key to be imaged and slot to receive a key blank to be cut. EX-1017, ¶112.

c. [24b] a key cutting system for cutting keys, wherein the key cutting system includes a retention mechanism panel and at least one cutting member, wherein the retention mechanism panel is positioned within a housing and includes a slot to receive a blade of a key to be retained by the retention mechanism panel and cut by said at least one cutting member wherein a portion of said key is positioned outside said housing when said blade is retained by said retention mechanism panel

Wills discloses this limitation. *See* IX.A.1.c, IX.A.9.d; EX-1017, ¶113.

d. [24c] wherein the optical key blank identification system is configured to operate individually from the key cutting system wherein the key blank

identification system and the key cutting system may interact and share information.

Wills discloses this limitation. *See* §§ IX.A.1.d; EX-1017, ¶114.

B. Ground #1A: The Combination of Wills and SpeedyPik Renders Claims 1-6, 9-16, 18, 20, 21, 23, and 24 Obvious

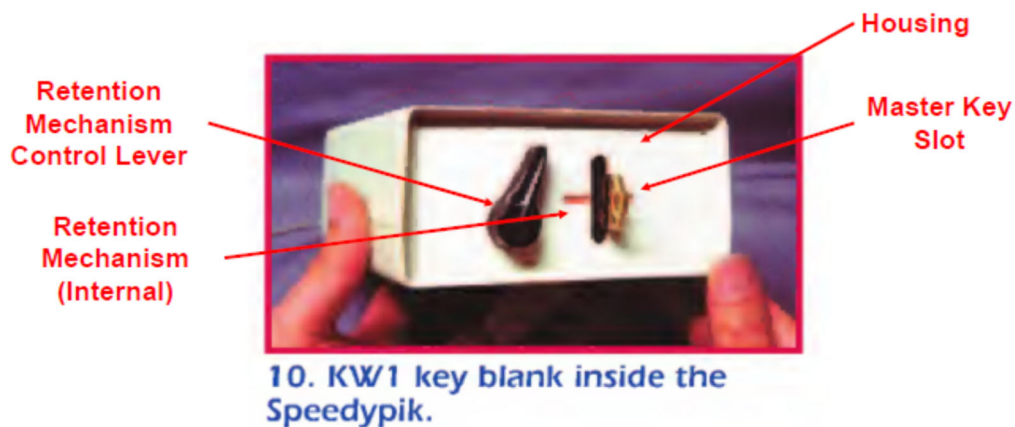
As noted above, Wills discloses each and every element of, and therefore anticipates, each Challenged Claim. However, to the extent that Hy-Ko contends that Wills does not disclose a slot and retention mechanism in which “a portion of said key is positioned outside said housing when a blade of said key is positioned within an imaging zone of said housing” as recited in the Challenged Claims, the combination of Wills and SpeedyPik render those specific claim elements obvious to a POSITA. Accordingly, while Wills discloses each and every element of the key duplication system disclosed in the '133 Patent, the following discussion details how the Wills/SpeedyPik combination further renders at least Claim Elements [1a], [11a], and [24a] obvious to a POSITA.

1. It Would Have Been Obvious to a POSITA to Combine the Slot and Retention Mechanism of SpeedyPik in the Wills Key Duplication System

At the time of the invention, digital imaging technology was known in the key duplication field and was well-understood by those of ordinary skill in the art. EX-1017, ¶116. It would have been a natural fit to use the slot insertion and retention mechanism of SpeedyPik with the key imaging system of Wills in order

to make the Wills system even easier to operate and to eliminate the need for the drawer that is inserted in the slot in the Wills housing. The use of SpeedyPik slot configuration would have been simple to implement and would have achieved the advantages presented by both Wills and SpeedyPik. EX-1017, ¶117.

For example, Wills already includes *an express motivation to combine* its invention with SpeedyPik because it describes an embodiment with “a plurality of clear protrusions (not shown) projecting into the interior 22 of the housing 20 on which the master key is disposed” EX-1003, 7:11-16. Wills also discloses that both the backlight system and the light beam system (the light beam generator) can be used to image a portion of the master key and that the imaged portion of the master key can be used to identify the correct key blank. *Id.*, Claim 26 (using the light emitting means to image “a selected portion of one side of the [master] key disposed within the housing”, Claim 60 (using the backlight “to form an image of at least a portion of the profile of the [master] key.”). These alternative embodiments are very similar to the slot mechanism described in SpeedyPik, where a master key is inserted into a slot in the front of the imaging device and held in place with a manually operable retention device while a portion of the master key remains outside the housing. EX-1017, ¶118-119. As shown below, a master key is inserted into the SpeedyPik slot as the user operates the clamping/retention mechanism to hold the master key in place.



EX-1004, 54. The SpeedyPik imaging system then captures an image of the keyway profile of the master key. EX-1017, ¶120-121. The use of the slot mechanism in Wills would eliminate the need for a drawer and would enable a user of the Wills system to simply insert the key into the slot so that the imaging process could begin.

Wills states that the surface information collected from the light beam image data “may be used for identifying the key” *Id.*, 39:10-15; Claim 26 (“digitizing the image of the light beam interfacing with the selected portion of the key” for use in “eliminating reference keys”); 15:34-54. Moreover, the light beam scan can likewise be accomplished with the use of a slot like that shown in SpeedyPik. EX-1017, ¶122.

As discussed throughout this Petition, Wills and SpeedyPik use similar techniques to solve the same problem of the ’133 Patent, including using a scanning system to identify surface information related to master keys so that an appropriate key blank can be identified for duplicating an existing key based on its scanned

attributes. EX-1017, ¶123. Further, a POSITA would have had *a reasonable expectation of success* in using the combined optical imaging systems in Wills and SpeedyPik since both include scanning devices that analyze the keyway profiles of master keys. Indeed, using the SpeedyPik slot and retention mechanism in combination with Wills have been *a simple substitution* of a drawer with a key slot, an embodiment that is already disclosed in Wills. The combination would have produced *predictable results* in view of the express motivation described in the Wills embodiment disclosed in Column 7. EX-1003, 7:11-16 (disclosing using a slot of “clear protrusions (not shown) projecting into the interior 22 of the housing 20 on which the master key is disposed, and other designs that allow *at least the relevant portion of the profile of the master key to be outlined*”); Claim 26; EX-1017, ¶123.. In addition, there are a limited number of ways to position a master key so that it can be scanned both in profile and for discerning the keyway, and the combination of Wills and SpeedyPik would have been an obvious way to implement a slot insertion and retention mechanism to perform these types of scans. EX-1017, ¶123.

2. The Wills/SpeedyPik Combination Renders Claim Elements [1a], [11a], and [24a] Obvious to a POSITA

- a. [1a] an optical key blank identification system to identify keys including a housing and an imaging device wherein said imaging device is positioned within said housing such that a portion of said key is positioned outside said housing when a blade of said**

key is positioned within an imaging zone of said housing; and

As discussed in § IX.A.1.b, Wills discloses an optical key blank identification system to identify keys including a housing and an imaging device positioned within the housing. Wills likewise teaches that only a portion of the master key needs to be inside the housing when the master key is imaged. EX-1003, Claim 26; Claim 60. EX-1017, ¶124-125. SpeedyPik, as shown below in Figure 10, also discloses a housing for a key duplication system as well as a slot formed in the housing to receive a master key.



EX-1004, 54 (annotated). A master key can be inserted into the slot as the user operates the lever to first open and then close the retention mechanism. The retention mechanism itself is positioned within the housing and is activated by movement of the lever shown in Figure 10. EX-1004, 53-54; EX-1017, ¶126. For example, Figure 8 of SpeedyPik shows a user moving the lever to the left so that a master key can be inserted in the slot. *Id.* When the lever is released, the master key

is secured in the slot so that it can be imaged. *Id.*; EX-1017, ¶126-127. When positioned in the slot, a portion of the master key is positioned outside said housing while the blade of the master key is positioned within the imaging zone of the housing. *Id.*

- b. [11a] at least one key blank identification system for identifying key blanks wherein the at least one key blank identification system includes a retention mechanism that includes a slot for receiving a blade of a master key such that an image of the blade of the master key may be captured;**

As discussed in § IX.A.1.b, Wills discloses a key blank identification system for identifying the correct key blank to be used when duplicating a master key. SpeedyPik discloses a retention mechanism that includes a slot configured to receive the blade of the master key so that an image of the blade of the master key can be captured. *See* § IX.B.2.a; EX-1004, 54; EX-1017, ¶128.

- c. [24a] an optical key blank identification system to identify key blanks wherein the optical key blank identification system includes a housing having at least one slot to receive a master key or key blank; and**

As discussed in § IX.A.1.b, Wills discloses a key blank identification system for identifying the correct key blank to be used when duplicating a master key. SpeedyPik discloses a retention mechanism that includes a slot configured to receive the blade of the master key so that an image of the blade of the master key can be captured. *See* § IX.B.2.a; EX-1004, 54; EX-1017, ¶129.

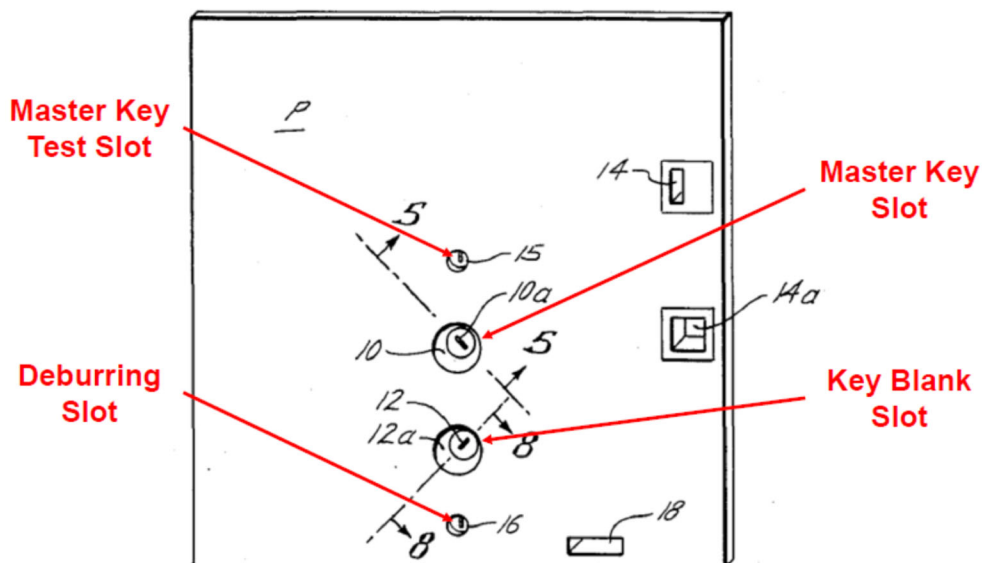
C. Ground #2: The Combination of Marchal and SpeedyPik Renders Claims 1-6, 11-16, 18, and 24 Obvious

As noted above, Wills discloses each and every element of, and therefore anticipates, each Challenged Claim. However, to the extent that Hy-Ko contends that Wills does not anticipate each Challenged Claim, the combination of Marchal and SpeedyPik renders the Challenged Claims obvious to a POSITA. EX-1017, ¶130.

1. It Would Have Been Obvious to a POSITA to Combine Marchal and SpeedyPik

Marchal discloses “[a] key duplicating apparatus having [an] automatic key clamping mechanism for a master key and a key blank” and a key cutter that can be used to duplicate the master key. EX-1005, Abstract.

Figure 1 of Marchal shows an embodiment of the key duplicating system.



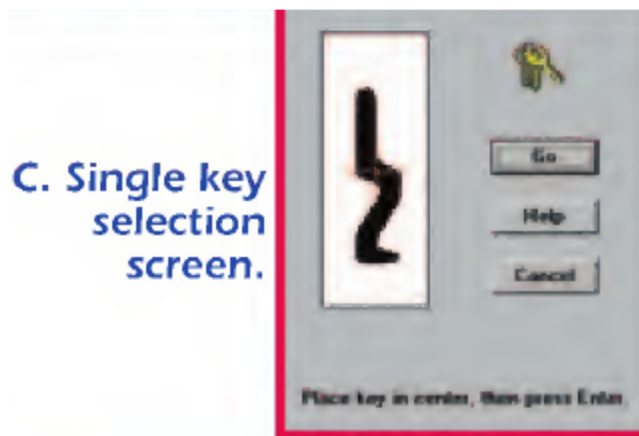
EX-1005, Figure 1. Marchal includes a test slot 15 that can be used “to assist the customer in deciding if the apparatus is suitable for duplicating” a master key. *Id.*, 3:36-39. The customer then inserts the master key in the master key slot 10a and the key blank in the key blank slot 12a for duplication. *Id.*, 3:18-23. Once the master key has been duplicated, the customer can insert the duplicated key in the brushing slot 16a so that the duplicate key can be deburred. *Id.*, 3:40-43. These slots enable the master key to be duplicated while a portion of both the master key and the key blank are positioned outside the mounting plate P and the key duplicating apparatus.

Marchal further includes a “microprocessing circuit that instructs customers when to insert the master key and the key blank and automatically operates various components of the apparatus.” EX-1005, 2:17-21. Once the master key has been inserted into the master key slot 10a, switches are engaged to clamp the master key in place. *Id.*, 4:57 – 5:10. Similarly, the key blank is properly positioned, aligned, and clamped by the system after being inserted into the key blank slot 12a. *Id.*, 5:13-59. A key follower then moves along the profile of the master key, and the movement of the key follower is translated to the “key cutter 68 to cut the key blank B to form a duplicate of the master key K.” *Id.*, 6:17-51. EX-1017, ¶130-134.

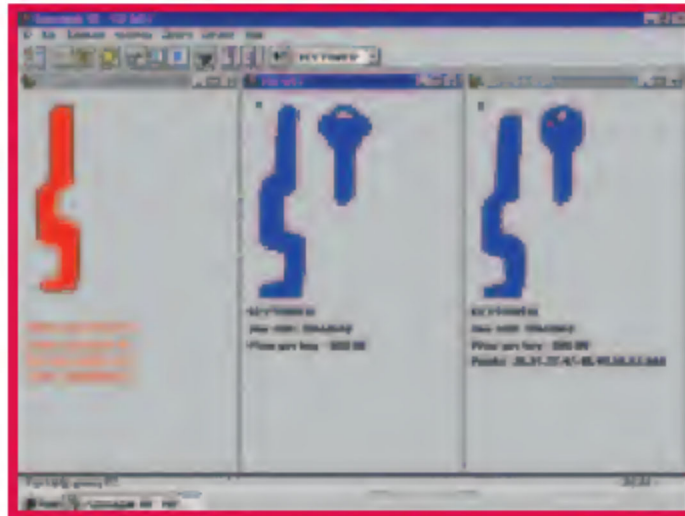
SpeedyPik discloses an optical imaging system that can be used to identify the proper key blank to be used to duplicate a master key. An example of the SpeedyPik system is shown below.



EX-1004, 54. SpeedyPik includes a slot and a retention mechanism that are designed to hold the master key. *See* § IX.B.2.a. Once in place the master key is scanned to reveal the keyway profile of the master key to aid in the blank key selection process. EX-1004, 54.



The optical image of the master key is processed by computer software to identify the best match in the key blank inventory. *Id.* Those results are presented graphically to the user via the computer software on a computer display. *Id.*



E. Unit returned various results.

It would have been obvious to use the optical imaging system of SpeedyPik with the key duplication and key cutting system of Marchal to form an integrated system in which a master key is imaged to determine an appropriate key blank and in which the correct key blank is inserted into the key blank slot of Marchal so that the master key can be duplicated. The use of the SpeedyPik slot configuration would have been simple to implement and would have achieved the advantages presented by both Marchal and SpeedyPik. EX-1017, ¶138.

A POSITA would be motivated to combine Marchal and SpeedyPik because the use of optical imaging devices to capture images of master keys in the key duplication process was well known in the art prior to the priority date of the '133 patent. Similar optical imaging devices are disclosed in prior art systems. EX-1006; EX-1007; EX-1008; EX-1009. It would have been obvious to integrate these optical imaging systems into the key cutting system of Marchal so that the identification

and duplication mechanisms could be combined in a single device. Wills and similar systems were known in the art at the time SpeedyPik was published. EX-1003; EX-1009; EX-1017, ¶139. It would have been obvious to include the optical imaging system of SpeedyPik in the key cutting system of Marchal so that the image data collected by the imaging system could be used to identify the proper key blank for duplicating the master key. EX-1017, ¶139.

The advantages of such a system are described in SpeedyPik and include helping “inexperienced key cutters” determine the proper key blank. EX-1004, 54. Other advantages include the ability of the SpeedyPik system to identify a larger number of key blanks, which would enable the Marchal system to duplicate more types of keys than only the keys that fit into Marchal’s master key test slot. For example, Marchal teaches that only keys that fit in the test slot can be duplicated using the system. EX-1005, 46-52; EX-1017, ¶140. If the key cannot be duplicated by the Marchal system the user is informed by a light on the display. *Id.* Thus, Marchal is limited by the geometry of the master key test slot, whereas the inclusion of the SpeedyPik imaging system in Marchal would enable more keys (and more key types) to be duplicated. EX-1017, ¶140. The inclusion of the SpeedyPik imaging system in Marchal could also enhance the efficiency and accuracy of the Marchal system by creating a robust system that enables a user to take advantage of the optical imaging capabilities of the SpeedyPik system to enhance the number

of keys that could be reproduced while maintaining the manner in which Marchal uses a key follower system to cut duplicates of the master key. *Id.*

Further, a POSITA would have had *a reasonable expectation of success* in combining Marchal and SpeedyPik since both key identification systems and the combination of key identification systems with key cutting systems were well known in the art at the time SpeedyPik was published. EX-1003; EX-1009; EX-1017, ¶141. The combination would have produced *predictable results* in view of the knowledge of a POSITA and the desirability of having an imaging system coupled with a key cutting system to aid a user in determining the proper key blank to use when duplicating a master key. In addition, there are a limited number of ways to assist end users in selecting a key blank for copying a master key, and the combination of Marchal and SpeedyPik would have been an obvious way to implement a slot insertion and retention mechanism to scan and duplicate a master key. EX-1017, ¶141.

2. Claim 1 is Obvious in View of Marchal/SpeedyPik

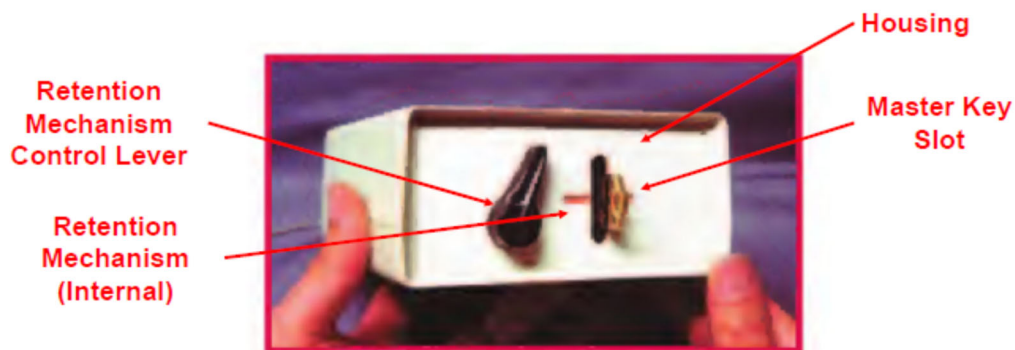
a. Element [1pre]

Marchal discloses an integrated key duplication machine. EX-1005, Abstract (“A key duplicating apparatus...”); 7:46-68 (disclosing key identification within the apparatus). In addition, the combination of Marchal and SpeedyPik is an integrated key duplication machine. As discussed above, it would be obvious to a POSITA to

incorporate the SpeedyPik master key imaging system into the Marchal key duplication system so that both the imaging system and the key cutting system are integrated into a single key duplication machine. EX-1017, ¶142.

b. Element [1a]

Marchal discloses a key blank identification system within a housing that accepts blade of a key, but does not disclose that the key blank identification system is optical. EX-1005, Fig. 1, 7:46-68, Abstract. SpeedyPik discloses a housing that includes an optical key blank identification system. The imaging device is enclosed in the housing. EX-1004, 54. As shown below in Figure 10, the housing includes a key retention mechanism that includes a slot to receive a master key.



10. KW1 key blank inside the Speedypik.

EX-1004, 54 (annotated). A master key can be inserted into the slot as the user operates the lever to first open and then close retention mechanism, which includes the slot and structure that holds the key that is located inside the housing. *See* § IX.B.2.a. A portion of the master key is positioned outside the housing when the

blade of the master key is positioned in the imaging zone of the housing. *See* § IX.B.2.a; EX-1004, 54; EX-1017, ¶143.

c. Element [1b]

Marchal discloses a key cutting system for cutting keys. EX-1005, Abstract; 2:5-30. The Marchal key cutting system includes a retention mechanism panel as shown in Figure 1. EX-1005, Figure 1. The retention mechanism panel may include a slot to receive a key blade of a key blank while the key blank is cut by a cutting member, a clamping mechanism, a mounting plate, and a beveled opening. *Id.*, 3:14-23; 8:11-23 (“The insertion of the key blank B into the slot 12a engages the indexing switch SW-5 as previously described and causes the microprocessor 96 to operate the key blank clamping solenoid S-3 to clamp the key blank B. . . . The microprocessor 96 then automatically operates the key cutter motor M2 and the transport motor M-1 causing the key follower to trace the edge variations of the master key K and the key cutter 68 to cut duplicate variations in the key blank B . . .”). A portion of the key blank is positioned outside the housing the key blank is in position to be cut. EX-1017, ¶144.

d. Element [1c]

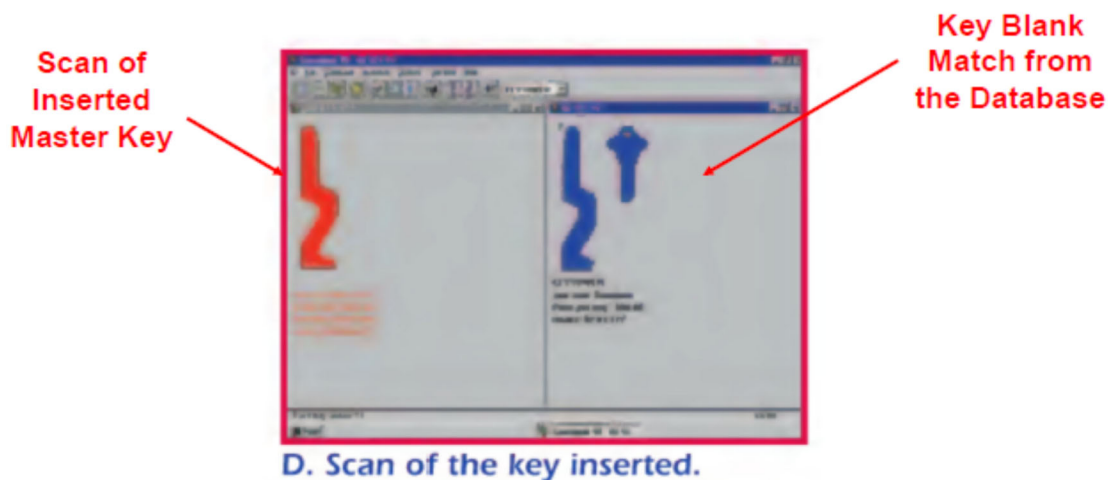
Marchal discloses a key blank identification system and a key cutting system, but not an optical key blank identification system. EX-1005, Fig. 1, 7:46-68, Abstract. SpeedyPik discloses an optical key blank identification system.

§ IX.C.2.b. In the Marchal/SpeedyPik combination, the optical imaging system would operate individually from the key cutting system and interact and share information. The master key (which is imaged by the SpeedyPik optical imaging camera) is placed in a separate slot (*e.g.*, slot 10a in Figure 1 of Marchal) from the slot in which the key blank (which is cut to duplicate the master key by the Marchal key cutting system) is placed (*e.g.*, slot 12a in Figure 1 of Marchal). The optical key blank identification system serves to identify the proper key blank to use when duplicating the master key, and that key blank is placed in a separate slot so that the cutting system can reproduce the key pattern of the master key. In addition, the microprocessor in Marchal is connected to both the master key slot 10a and the key blank slot 12a and interacts and shares information between the key identification and key cutting systems. If, for example, a customer is instructed to insert a key blank into the key blank slot 12a of the cutting system but fails to do so, the microprocessor will release the master key from the master key slot 10a in the imaging system. Ex-1005, 8:1-10; EX-1017, ¶145.

In addition, SpeedyPik's key blank identification could be connected to Marchal's system via cables just as expressly disclosed in the SpeedyPik publication, further showing a combination in which an optical key identification system and key cutting system operate individually but interact and share information. EX-1004, 52, 54. EX-1017, ¶140.

3. Claim 2 is Obvious in View of Marchal/SpeedyPik

SpeedyPik discloses a key blank identification system that includes an optical imaging device that scans the keyway profile of a master key. EX-1004, 54. SpeedyPik also includes a database and logic to compare the scanned image to key blanks stored in the database in order to identify the correct key blank to duplicate the master key. Figure D of SpeedyPik shows the “scan of the key inserted” in the optical imaging device.



EX-1004, 54 (annotated). The image on the left is the scanned image of the master key generated by the optical imaging device. The image on the right shows “the key match from the database.” *Id.* Logic included in the SpeedyPik imaging device (*e.g.*, software) performs the comparison and identifies the correct key blank. *Id.*, 53-54; EX-1017, ¶146-147.

4. Claim 3 is Obvious in View of Marchal/SpeedyPik

SpeedyPik discloses an optical imaging system where data in the database relates to key blanks that match the imaged master key. EX-1004, 54 (“The image on the right [of Figure D] is the [key blank] match from the database.”); EX-1017, ¶148.

5. Claim 4 is Obvious in View of Marchal/SpeedyPik

The data in the SpeedyPik database includes information about the physical dimensions of key blanks. Specifically, the optical imaging system captures images of the keyway profiles of the master key. As shown in the Figures, different keyway profiles have different physical dimensions, and the physical dimensions stored in the database are used by the SpeedyPik software to identify the correct key blank. The same is true of Marchal. Marchal includes a test slot 15 in the front plate P. EX-1005, 3:36-39. A customer can insert a master key into the test slot, and if the physical dimensions are appropriate for duplication a key blank will be dispensed by the system after a user inserts a coin into the coin slot. *Id.*, 24-39. The microprocessor facilitates the comparison by comparing the master key to information stored in memory. *Id.*, 7:30-52; EX-1017, ¶149.

6. Claim 5 is Obvious in View of Marchal/SpeedyPik

SpeedyPik discloses this limitation. *See* §§ IX.C.3; IX.C.5. The combination of Marchal and SpeedyPik helps a user determine which key blank should be used to duplicate a master key. EX-1017, ¶150.

7. Claim 6 is Obvious in View of Marchal/SpeedyPik

SpeedyPik discloses this limitation. *See* §§ IX.C.3; IX.C.5. The combination of Marchal and SpeedyPik displays the correct key blank to be used to duplicate the master key. The user can view the display and use that information to select the correct key blank. EX-1017, ¶151.

8. Claim 11 is Obvious in View of Marchal/SpeedyPik

a. Element [11pre]

The combination of Marchal and SpeedyPik discloses a plurality of key duplication systems. Specifically, both the optical imaging system in SpeedyPik and the key cutting system in Marchal are key duplication systems. EX-1017, ¶152.

b. Element [11a]

The combination of Marchal and SpeedyPik discloses this limitation. *See* § IX.C.2.b; EX-1017, ¶153. The key blank identification system of SpeedyPik includes a retention mechanism. § IX.B.2.a.

c. Element [11b]

The combination of Marchal and SpeedyPik discloses this limitation. *See* § IX.C.2.c; EX-1017, ¶154.

d. Element [11c]

The combination of Marchal and SpeedyPik discloses this limitation. *See* § IX.C.2.c; EX-1017, ¶155.

e. Element [11d]

The combination of Marchal and SpeedyPik discloses this limitation. *See* § IX.C.2.d; EX-1017, ¶156.

9. Claim 12 is Obvious in View of Marchal/SpeedyPik

The combination of Marchal and SpeedyPik discloses this limitation. *See* § IX.C.3; EX-1017, ¶157.

10. Claim 13 is Obvious in View of Marchal/SpeedyPik

The combination of Marchal and SpeedyPik discloses this limitation. *See* § IX.C.4; EX-1017, ¶158.

11. Claim 14 is Obvious in View of Marchal/SpeedyPik

The combination of Marchal and SpeedyPik discloses this limitation. *See* § IX.C.5; EX-1017, ¶159.

12. Claim 15 is Obvious in View of Marchal/SpeedyPik

The combination of Marchal and SpeedyPik discloses this limitation. *See* § IX.C.6; EX-1017, ¶160.

13. Claim 16 is Obvious in View of Marchal/SpeedyPik

The combination of Marchal and SpeedyPik discloses this limitation. *See* § IX.C.7; EX-1017, ¶161.

14. Claim 18 is Obvious in View of Marchal/SpeedyPik

The combination of Marchal and SpeedyPik discloses this limitation. *See* § IX.C.2.c; EX-1017, ¶162.

15. Claim 24 is Obvious in View of Marchal/SpeedyPik

a. Element [24pre]

The combination of Marchal and SpeedyPik discloses a key duplication system. § IX.C.2.a; EX-1017, ¶163.

b. Element [24a]

The combination of Marchal and SpeedyPik discloses this limitation. *See* §§ IX.C.2.b; EX-1017, ¶164.

c. Element [24b]

The combination of Marchal and SpeedyPik discloses this limitation. *See* §§ IX.C.2.c; EX-1017, ¶165.

d. Element [24c]

The combination of Marchal and SpeedyPik discloses this limitation. *See* §§ IX.C.2.d; EX-1017, ¶166.

D. Ground #2A: The Combination of Marchal, SpeedyPik, and Wills Renders Claims 9, 10, 20, and 21 Obvious

As noted above, it would have been obvious to combine Wills/SpeedyPik and Marchal/SpeedyPik to arrive at the elements recited in the Challenged Claims. *See* §§ IX.B.1, IX.C.1. It would have been equally obvious to combine the imaging system of Wills with Marchal and Speedypik to create an integrated key duplication machine in which the captured image of the master key was used to provide key (or biting) pattern information to the cutting system for duplicating the master key. This would improve the accuracy of the key duplication process and would enhance the performance of the Marchal key vending system. EX-1017, ¶167.

Specifically, Marchal, SpeedyPik, and Wills all disclose key duplication systems. While SpeedyPik discloses a system that is capable of capturing the keyway profile of a master key that can be used to identify an appropriate key blank for duplication, Wills discloses an imaging system that is capable capturing the key pattern of a master key that can be used to cut a duplicate. Wills discloses both backlit and light beam systems that can be used to capture the key pattern of master keys. EX-1003, 16:50-62 (noting that the Wills system can discern the biting pattern of the master key using images captured via the backlighting system); 15:50-64 (noting that in certain embodiments the light beam can capture all relevant information about the master key, eliminating the need for the backlighting process).

It would have been obvious to integrate these optical imaging systems into the key cutting system of Marchal so that the identification and duplication mechanisms could be combined in a single, more efficient and accurate device. Wills and similar systems were known in the art at the time SpeedyPik was published. EX-1003; EX-1009; EX-1017, ¶¶168-169. It would have been obvious to include the optical imaging system of Wills in the combined imaging and key cutting system of Marchal/SpeedyPik so that the image data collected by the imaging system could be used to cut the imaged key pattern into the key blank. *Id.*

As discussed throughout this Petition, Marchal, SpeedyPik, and Wills use similar techniques to solve the same problem identified in the '133 Patent, including using a scanning system to identify surface information related to master keys so that an appropriate key blank can be identified for duplicating an existing key based on its scanned attributes. Further, a POSITA would have had *a reasonable expectation of success* in using the combined optical imaging systems in Marchal, SpeedyPik, and Wills in a single key imaging and key cutting apparatus since the combination of scanning systems with key cutting systems were well known in the art. EX-1003; EX-1009; EX-1017, ¶¶170. The combination would have produced *predictable results* in view of the knowledge of a POSITA and the desirability of having an imaging system coupled with a key cutting system to aid a user in determining the proper key blank to use when duplicating a master key. *Id.*

1. The Marchal/SpeedyPik/Wills Combination Renders Claim 9 Obvious

As discussed in § IX.A.1.b, Wills discloses an optical key blank identification system to identify keys including a housing and an imaging system to capture a backlit image of the master key pattern (described in Wills as the “bitting pattern”). *Id.* Wills discloses that both the backlit image system and the light beam system can be used to capture an image that can be used for both key identification and key bitting. *See* EX-1003, claim 60 (profile image used for key identification); col. 16, ll. 50-62 and col. 17, ll. 16-20 (backlit image used to identify the master key bitting pattern); col. 15, ll. 50-54 (noting the light beam system can be used to capture a three-dimensional representation of the master key, which could eliminate the need for the backlighting process). It would have been obvious to include the SpeedyPik and Wills imaging systems in combination with Marchal so that a single device could be used to both image the master key to identify the master key pattern and then cut that master key pattern in a key blank to duplicate the master key. EX-1017, ¶171.

2. The Marchal/SpeedyPik/Wills Combination Renders Claim 10 Obvious

Marchal/SpeedyPik and Wills both disclose integrated key imaging and key cutting systems that are combined in a single apparatus. §§ IX.C.3, IX.C.5. It would have been obvious to include the Wills imaging system in the Marchal/SpeedyPik

combination so that the imaged key pattern could be used to cut the key blank and duplicate the master key. EX-1017, ¶172.

3. The Marchal/SpeedyPik/Wills Combination Renders Claim 20 Obvious

The combination of Marchal, SpeedyPik, and Wills discloses this limitation.

§ IX.D.1; EX-1017, ¶173.

4. The Marchal/SpeedyPik/Wills Combination Renders Claim 21 Obvious

The combination of Marchal, SpeedyPik, and Wills discloses this limitation.

§ IX.D.2; EX-1017, ¶174.

X. Discretionary Factors

A. 35 U.S.C. § 325(d) Does Not Favor Denial of Institution

The Board uses a two-part framework to analyze denial under 325(d):

- (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and
- (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, Paper 6 at 7 (PTAB Feb. 13, 2020). When considering the first prong, the PTAB considers the

prosecution of the patent, and any post-issuance proceedings like *ex parte* reexams. *Id.*, 7-8. As to the second prong, the PTAB provided examples of “material errors,” including whether the office overlooked a specific teaching of the relevant prior art or an error of law, such as misconstruing a claim term. *Id.*, n. 9. In *Advanced Bionics* the Board explained that the *Becton Dickinson* factors are used within this framework to provide useful insight into how to apply each prong. *Id.*, 9.

With respect to the first prong, the ’133 Patent was granted Track I status and, therefore, had an accelerated prosecution at the request of Hy-Ko. EX-1002, 1012. On September 20, 2016, four days after filing the ’787 Application, Hy-Ko submitted over 400 references in an 1100 page Information Disclosure Statement (“IDS”). EX-1002, 95-1222. None of the prior art asserted in this Petition was cited as a basis for rejection by the Examiner during the prosecution of the ’133 Patent. Accordingly, this factor weighs heavily in favor of institution. Further, SpeedyPik is not cited on the face of the ’133 Patent, and while Marchal is listed among the references cited, it was not the subject of any office action, nor was it substantively addressed by the Examiner or, for that matter, discussed in any way by the applicant. In such circumstances, the Board has granted institution. *See, e.g., Digital Check Corp. d/b/a ST Imaging v. E-Imagedata Corp.*, IPR2017-00178, Paper 6 at 12-13 (P.T.A.B. April 25, 2017) (instituting trial where “[t]he evidence supports Patent Owner’s assertion that [the prior art references] were cited in an IDS and the

Examiner considered both references. But there is no indication in the record that the Examiner rejected any claims based on either reference or that the Examiner or applicant substantively discussed either reference during prosecution[.]”).

B. 35 U.S.C. § 314(a) Does Not Favor Denial of Institution

Hillman respectfully submits that the six factors set out in *Apple v. Fintiv*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential), do not support a discretionary denial of this Petition.

First, if the IPR is instituted, Hillman will seek a stay and the District Court is likely to grant it. Trial in the District Court action is scheduled to occur, at the earliest, approximately two months after an institution decision. The District Court has issued stay orders in favor of IPRs in cases that were much closer to trial. For example, in *SEVEN Networks, LLC v. Apple Inc.*, the District Court issued a stay—*sua sponte*—approximately five weeks before jury selection. *See SEVEN Networks, LLC v. Apple Inc.*, No. 2:19-cv-00115-JRG, D.I. 313 (Sept. 22, 2020); *see also id.* D.I. 114 (setting trial date on November 2, 2020).

Second, while the current trial date (July 11, 2022) predates the statutory deadline for the Board’s final written decision, this is mitigated by the fact that Hy-Ko filed its complaint in a “rocket docket” jurisdiction. Trial in the District Court action is to commence approximately 13 months after Hy-Ko filed its complaint. Given the lightning speed with which the District Court manages its

docket, it would have been impossible for Hillman to file this Petition under a timeline that ensured that the Board’s written decision would pre-date the trial date.

Third, Hillman filed this Petition as expeditiously as possible, nearly seven months before the statutory 12-month deadline. Notably, Hy-Ko’s infringement contentions—which identified the 67 claims Hy-Ko is asserting against Hillman—were served just eight weeks ago, and invalidity contentions have not been served. *See Taiwan Semiconductor Mfg. Co. v. Fraunhofer Gesellschaft*, IPR2020-01669, Paper 13 at 28 (PTAB Apr. 15, 2021) (granting petition filed “less than two months after receiving Patent Owner’s infringement contentions, [and] more than four months before the statutory deadline”); *DISH Network L.L.C. v. Broadband iTV, Inc.*, IPR2020-01359, Paper 15 at 19-20 (PTAB Feb. 12, 2021) (finding diligence when petition filed “approximately three months after first receiving notice of Patent Owner’s infringement positions for all asserted claims”).

Fourth, this Petition raises different issues than the District Court. Petitioner hereby stipulates that it will not pursue, in District Court, invalidity based on any instituted IPR ground.² In addition, this Petition will decide different

² For clarity, “grounds” refers to the specific obviousness combinations and anticipation challenges in Section II. EX-1020. Hillman reserves its rights to

claims. Claim 23 is challenged in this Petition but not in District Court. In addition, Petitioner has agreed to narrow its claims before trial, and pending before the District Court is a motion to limit Petitioner to 16 of its 67 claims.

Fifth, there is complete identity of parties in this proceeding and the District Court action.

Sixth, as shown above, the invalidity of the Challenged Claims is not a close question. It is plain that, after Hy-Ko’s prior art “dump” and faced with a Track I designation, the Examiner was overwhelmed, failed to fairly consider the cited prior art, and, as a result, erred in allowing the Challenged Claims. There is a significant public interest against “leaving bad patents enforceable.” *Thryv, Inc v. Click-To-Call Techs., LP*, 140 S. Ct. 1367, 1374 (2020). Furthermore, this Petition is the sole pending IPR challenging the ’133 Patent—a “crucial fact” favoring institution. *Google LLC v. Uniloc 2017 LLC*, IPR2020-00115, Paper 10 at 6 (PTAB May 12, 2020).

XI. Conclusion

For the reasons set forth above, claims 1-6, 9-16, 18, 20, 21, 23, and 24 of the ’133 Patent are unpatentable. Trial should be instituted, and the claims should

assert other obviousness combinations that may involve these or related references, or to assert anticipation challenges on related references.

be cancelled because Hillman has shown that there is a reasonable likelihood that one or more of the Challenged Claims is unpatentable in view of the foregoing Grounds.

XII. Mandatory Notices Under 37 C.F.R. §42.8

A. Real Parties-In-Interest

Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner certifies that The Hillman Group is the real party-in interest and it is not barred or estopped from requesting IPR of the '133 Patent.

B. Related Matters

Hillman is not aware of any other related matters before the Patent Office concerning the '133 Patent.

The '133 Patent has been asserted against Hillman by Hy-Ko in *Hy-Ko Products Company LLC v. The Hillman Group, Inc.*, Case No. 2:21-cv-00197-JRG (E.D. Tex.).

C. Lead and Back-Up Counsel

Lead Counsel:

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Back-Up Counsel:

Christopher P. McNett (Reg. No. 64,489), attorney at McKool Smith, P.C., 1999 K Street, N.W., Suite 600, Washington, D.C. 20006 (cmcnett@mckoolsmith.com).

D. Service Information

Hillman consents to service by e-mail at the following address:

Hillman_Hy-Ko-IPRs@mckoolsmith.com.

XIII. Certification Under 37 C.F.R. §42.24(d)

As calculated by the “Word Count” feature of Microsoft Word 2010, this Petition contains 12,643 words, excluding the following: Table of Contents, Table of Authorities, List of Exhibits, Mandatory Notices Under 37 C.F.R. §42.8, Certification Under §42.24(d), and Certificate of Service.

XIV. Payment of Fees

The Office may charge any additional fees to Deposit Account No. 50-5723.

XV. Time for Filing Petition

This Petition is being filed more than nine months after the ’133 Patent was granted. *See* 37 C.F.R. §42.102(a)(1). The first service of a complaint alleging infringement of the ’133 Patent occurred on June 2, 2021. *See* EX-1022.

Accordingly, the earliest possible § 315(b) bar date for this petition is June 2, 2022. Hillman has not filed a civil action challenging the validity of a claim of the '133 Patent.

XVI. Grounds for Standing

Under 37 C.F.R. §42.104(a), Hillman certifies that the '133 Patent is available for *inter partes* review and that Hillman is not barred or estopped from requesting *inter partes* review based on the Grounds identified in this Petition.

Respectfully submitted,

Dated: November 9, 2021

By: /s/ Scott W. Hejny
Scott W. Hejny, Reg. No. 45,882

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing Petition was served on November 10, 2021, by FedEx overnight delivery directed to the attorney of record for the patent at the following address:

McDonald Hopkins LLC
600 Superior Avenue, East
Suite 2100
Cleveland, OH 44114-2653

A courtesy copy was also served by electronic mail on the attorneys of record for the following related matter:

Hy-Ko Products Company LLC v. The Hillman Group, Inc., Case No. 2:21-cv-00197-JRG (E.D. Tex.).

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