Dec. 25, 1934. A. L. KRONQUEST 1,985,864

MACHINE FOR ATTACHING KEYS TO CONTAINERS

Filed March 2, 1933 8 Sheets-Sheet 1

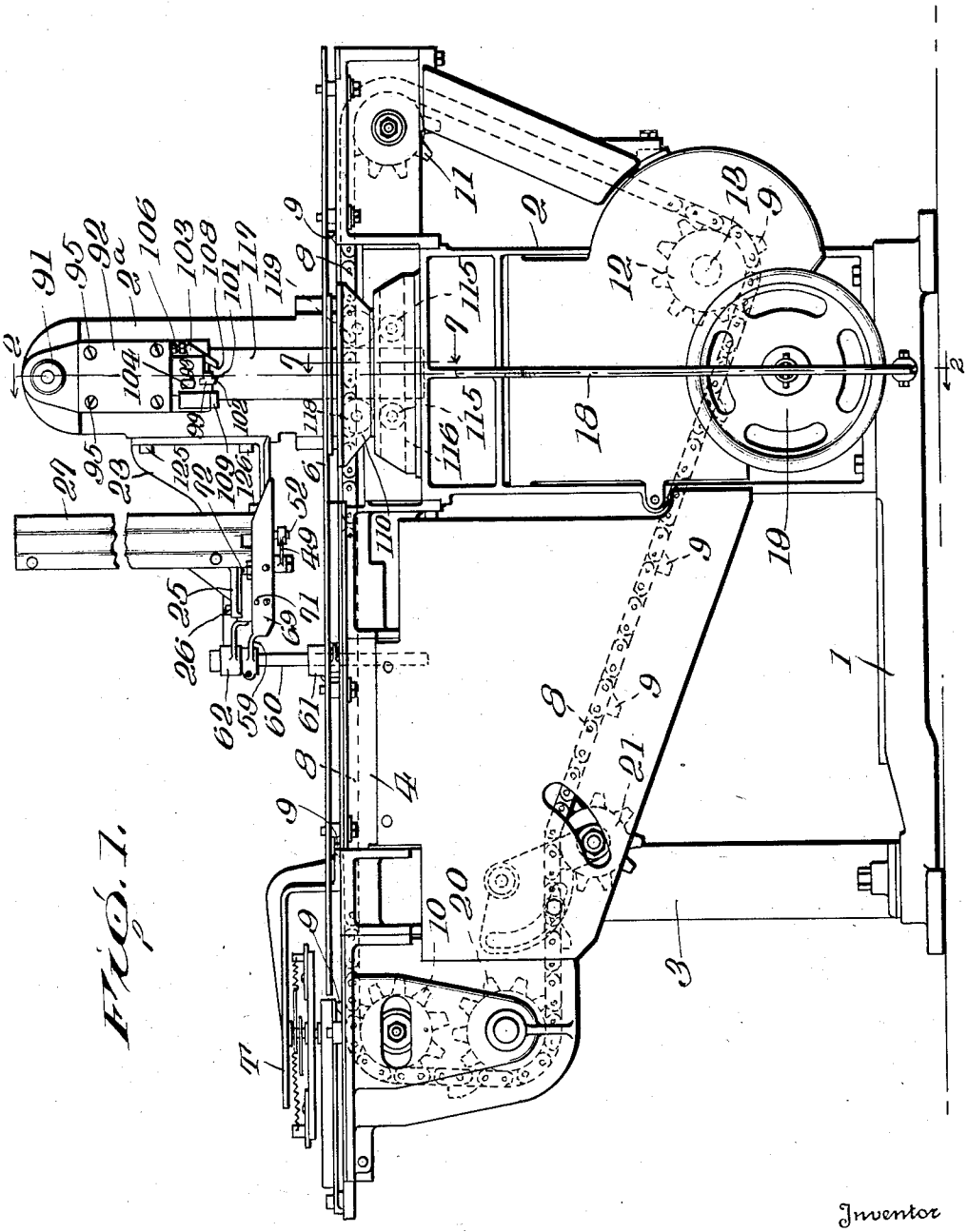


Fig. 1.

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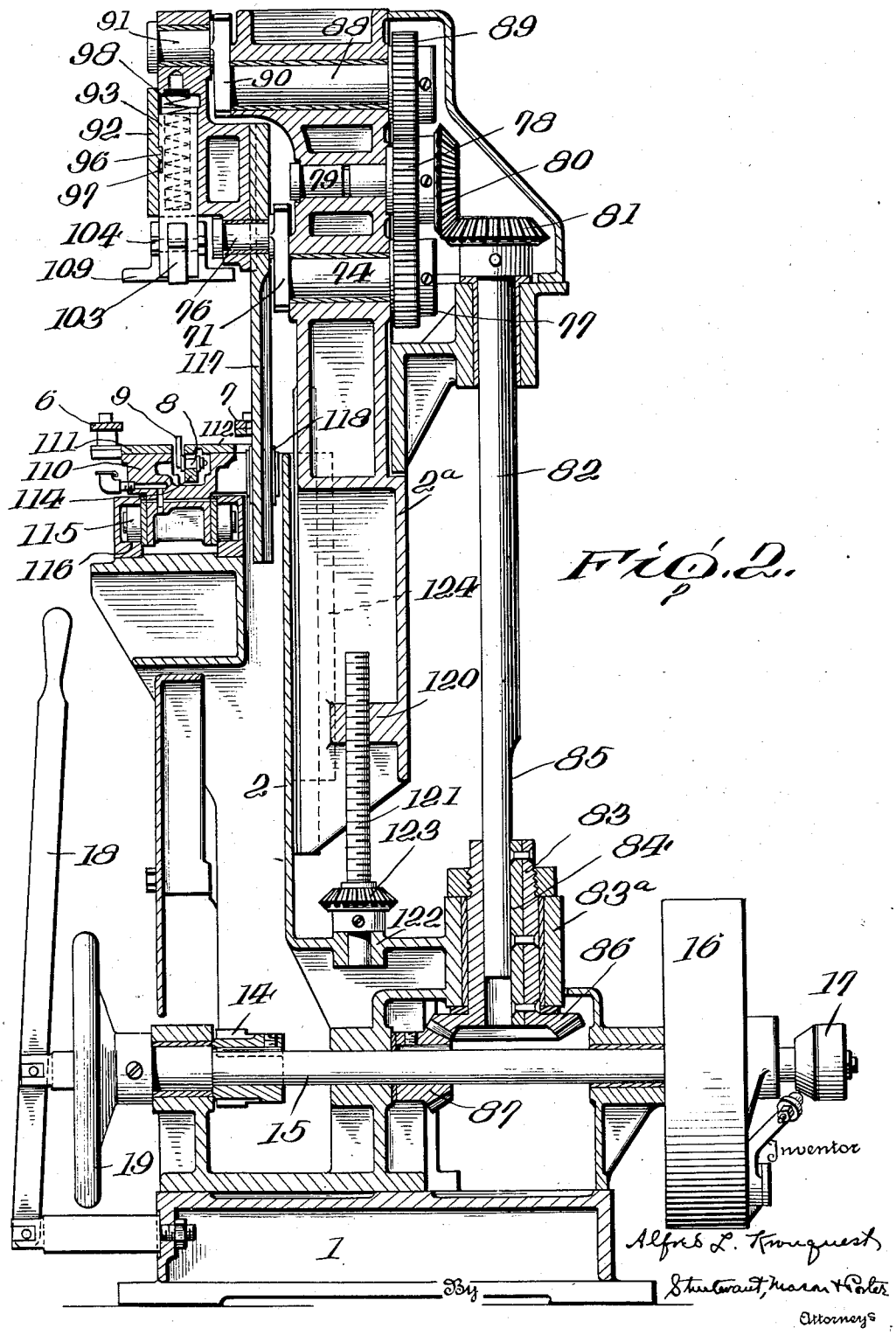


Fig. 2.

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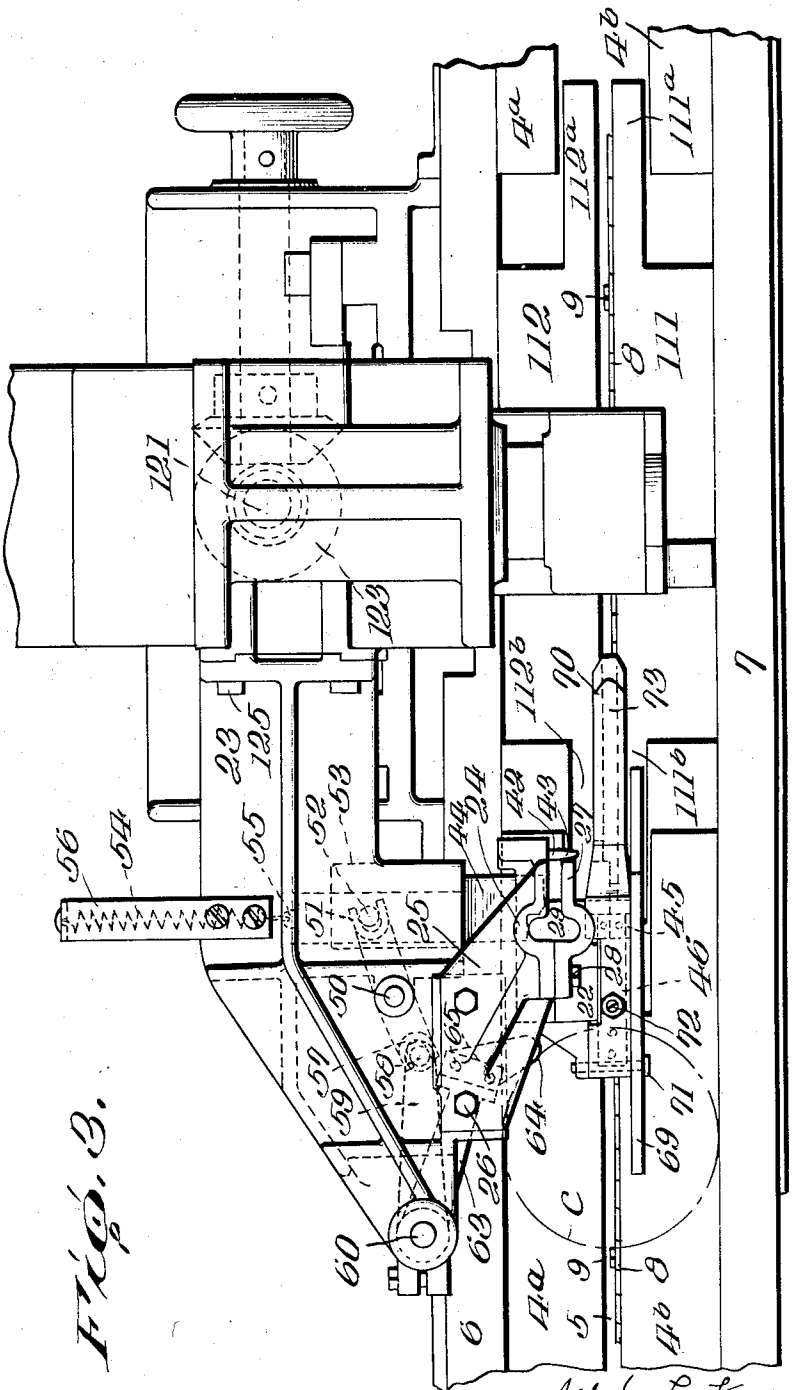


Fig. 3.

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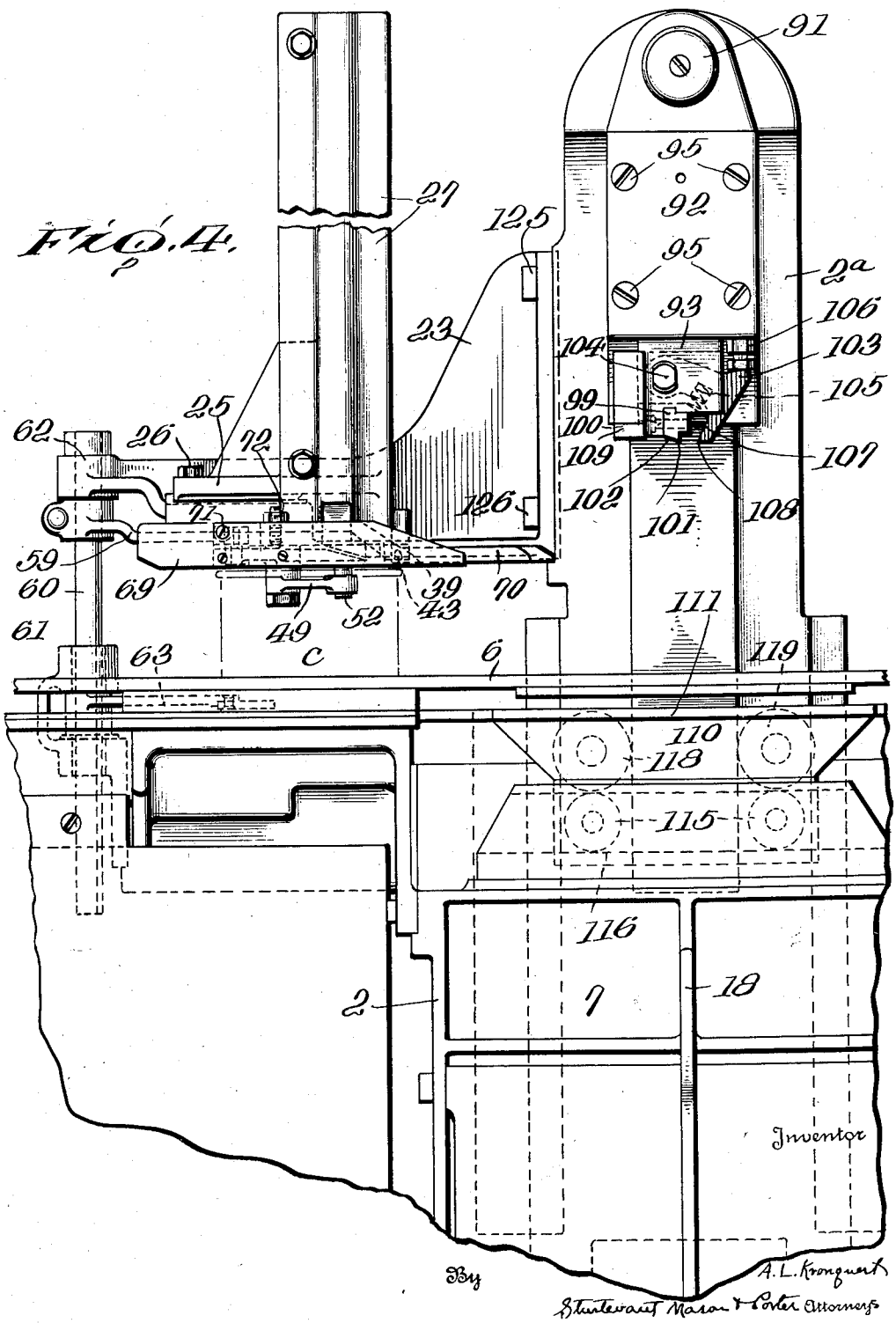
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MACHINE FOR ATTACHING KEYS TO CONTAINERS

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FIG. 4.



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Fig. 5.

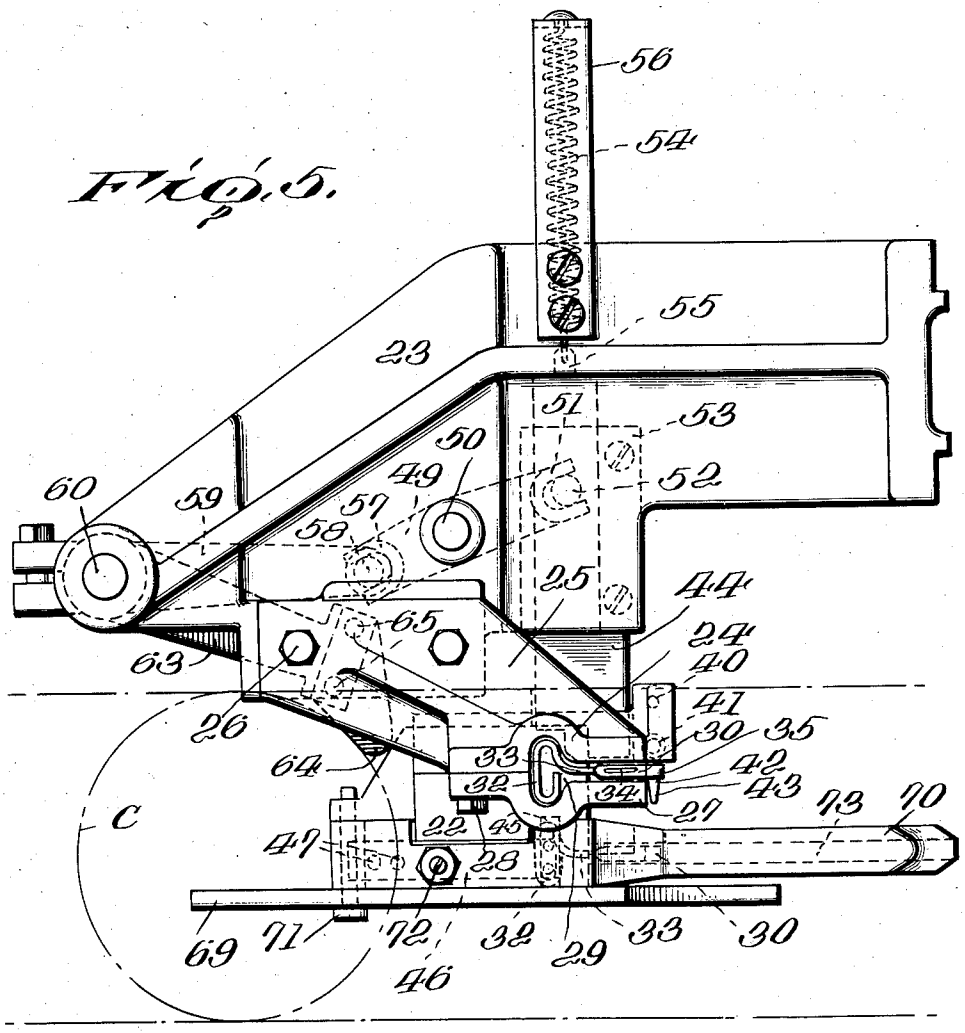
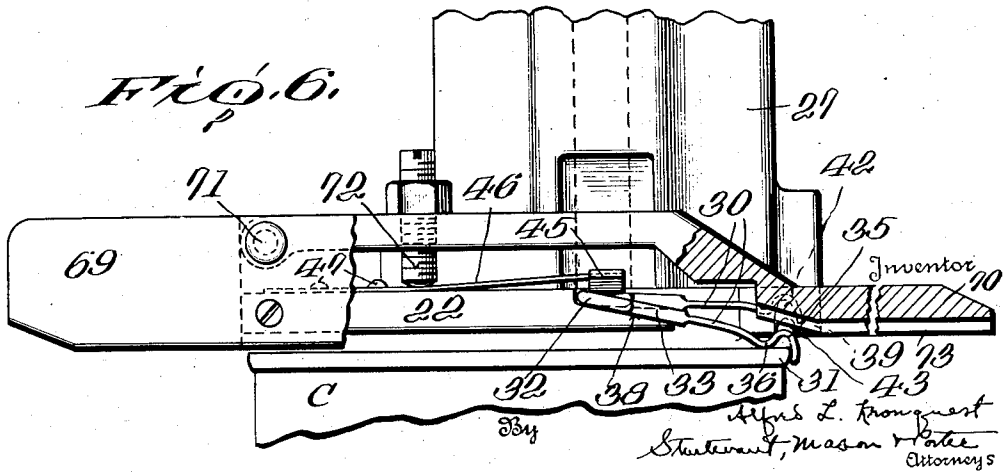


Fig. 6.



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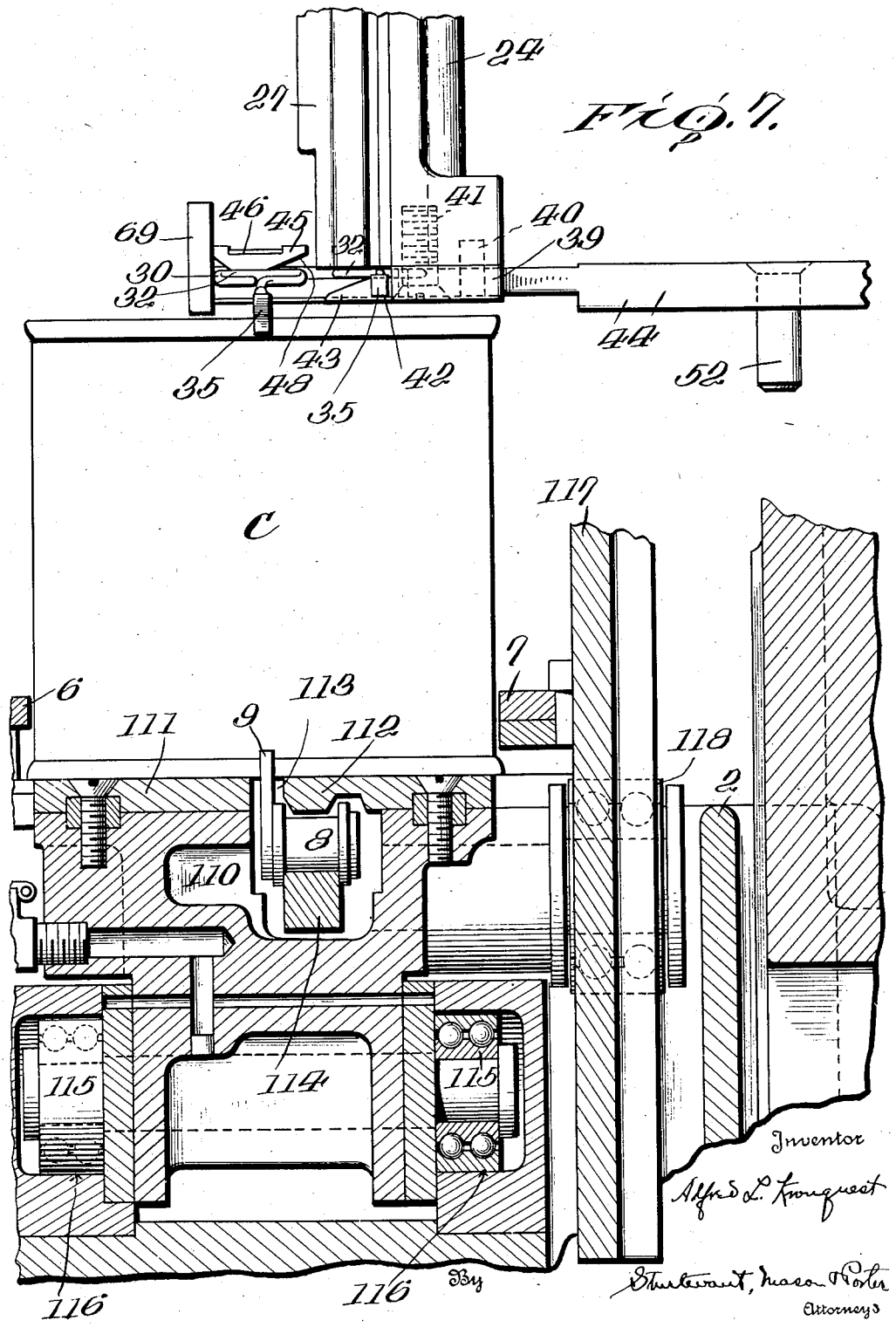


FIG. 7.

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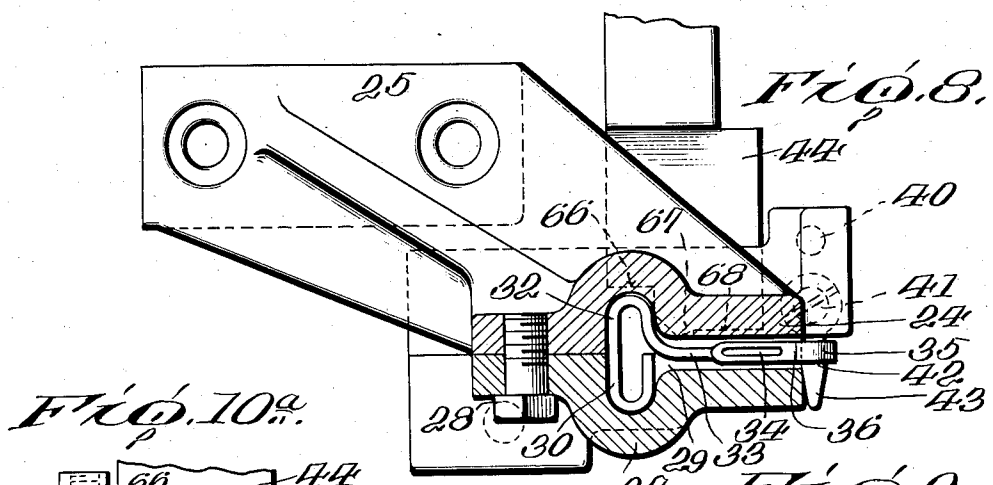


FIG. 8.

FIG. 10a.

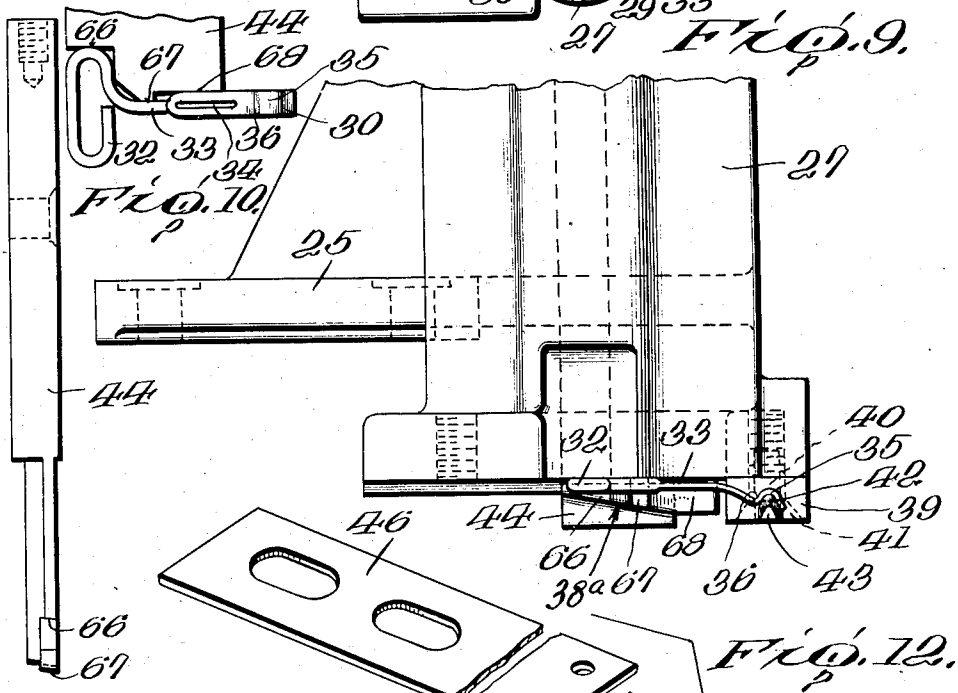


FIG. 9.

FIG. 10.

FIG. 12.

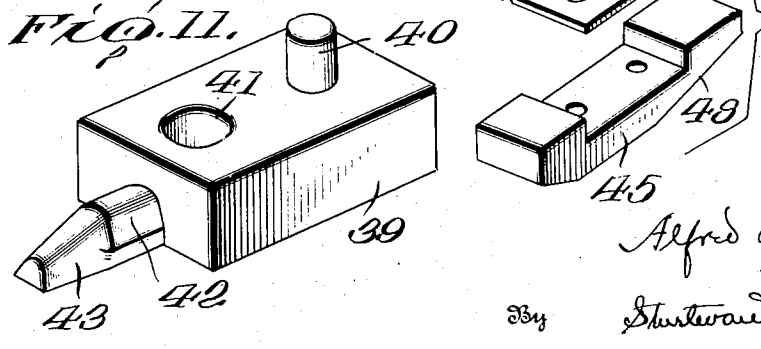


FIG. 11.

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MACHINE FOR ATTACHING KEYS TO CONTAINERS

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FIG. 13.

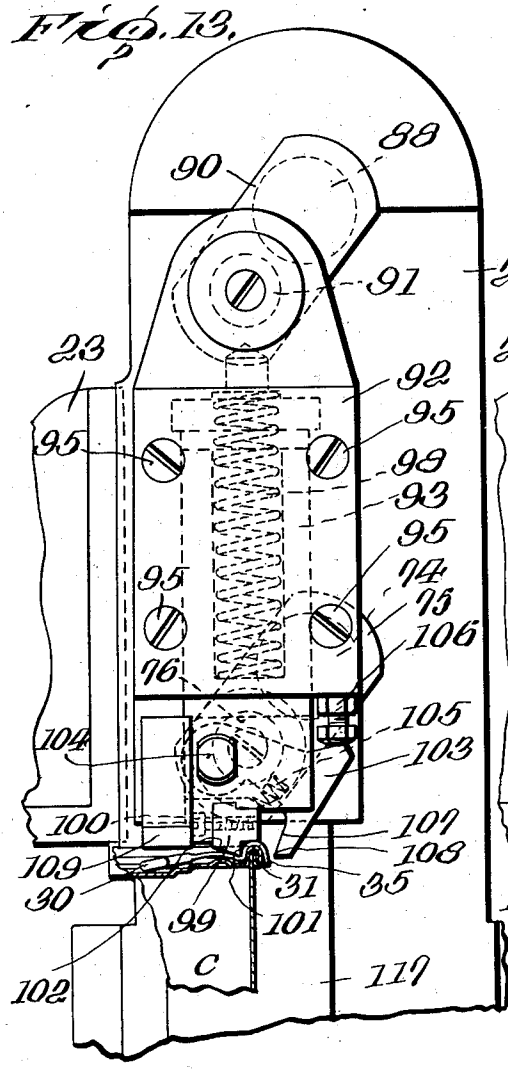


FIG. 14.

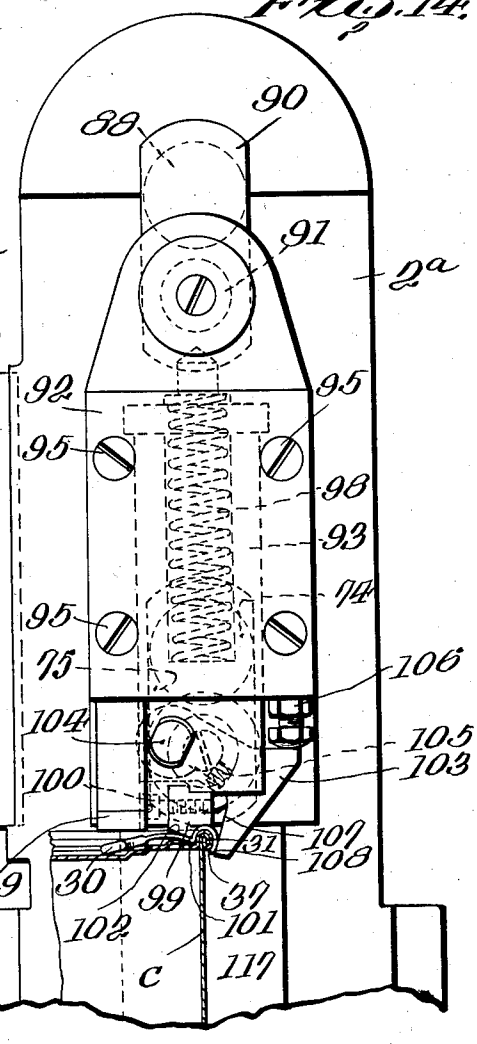


FIG. 15.

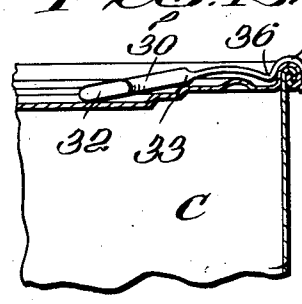
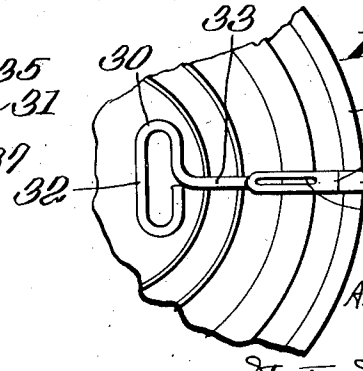


FIG. 16.



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Patented Dec. 25, 1934 1,985,864

UNITED STATES PATENT OFFICE

1,985,864

MACHINE FOR ATTACHING KEYS TO CONTAINERS

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Application March 2, 1933, Serial No. 659,423

20 Claims. (Cl. 113—1)

The invention relates to new and useful improvements in a machine for attaching keys to a container, which keys are to be separated from the container and used for removing the tearing strip when the container is to be opened.

An object of the invention is to provide a key attaching machine wherein the keys may be placed on the containers and attached thereto.

A further object of the invention is to provide a machine of the above type wherein the key is clinched to the container by a traveling clinching device moving in timing with the container during the operation of the clinching device.

A still further object of the invention is to provide a machine of the above type with a key feeding means which places the key on the container in proper position for clinching thereto while the container is moving.

These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

In the drawings which show by way of illustration one embodiment of the invention—

Figure 1 is a front view of a key attaching means embodying the improvements;

Fig. 2 is a vertical sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a plan view of the part of the machine containing the key feeding mechanism and the clinching mechanism;

Fig. 4 is a view on an enlarged scale and in front elevation of the key feeding mechanism, the clinching mechanism, and the portion of the conveyor immediately associated therewith;

Fig. 5 is an enlarged detail in plan of the key feeding mechanism;

Fig. 6 is a view in front elevation of a portion of the key feeding mechanism, the guide for the key being in section;

Fig. 7 is a vertical sectional view on the line 7—7 of Fig. 1 and showing diagrammatically the lower end of the magazine and the key placing means with a container beneath the key placing means;

Fig. 8 is a transverse sectional view through the magazine in which the keys are stored;

Fig. 9 is a front view of the lower end of the magazine and showing the lowermost key in the magazine, and also the feed slide;

Fig. 10 is an edge view of the feed slide which feeds the keys from the magazine into position for engagement with the container;

Fig. 10^a is a detail showing the shape of the end of the feed slide which delivers the keys from the magazine;

Fig 11 is a perspective view showing the key supporting finger at the lower end of the magazine;

Fig. 12 is a perspective view showing the presser foot and the spring which supports the same with the parts separated;

Fig. 13 is a view showing the traveling clinching device when first brought into engagement with the key;

Fig. 14 is a similar view showing the clinching device as having bent the end of the key beneath the double seam;

Fig. 15 is a sectional view through the container showing a key applied thereto, and

Fig. 16 is a plan view of the container with the key attached thereto.

In carrying out the invention, a support is provided along which the closed containers are fed by a traveling conveying chain having fingers which engage the containers and slide the same along the support. At the receiving end of the support, there is a timing device for timing the containers on to the conveyor so that they will be received by the conveyor properly spaced for engagement with the traveling fingers. The containers are first fed beneath a key supporting means with which is associated a magazine having the keys stacked therein one on another. The lowermost key is removed from the magazine by a reciprocating slide which forces the key from beneath the stack on to a supporting ledge where the key is held by a yielding presser foot with the hook end of the key positioned so as to be engaged by the double seam of the container as it passes beneath the support. The container with the key thereon is next fed to the clinching means, and a suitable guide is provided for holding the key from lateral shifting along the double seam and for directing the key into engagement with the clinching device. The container is moved by the traveling finger of the conveying chain on to a support which has a reciprocating movement and is so timed as to receive the container, carrying the same away from the finger to a slight extent for controlling the movement of the container during clinching. There is a clinching device which moves in timing with this support on which the container rests. This clinching device includes an anvil member which contacts with the key, holding it firmly against the double seam and serving as an abutment so that the movable clinching finger can bend the end of the key about the double seam.

It is believed the invention will be better understood by a detail description of the present em-

bodiment thereof. The machine includes a frame structure having a base member 1 to which is attached an upright frame member 2. Mounted on the base member 1 is a second upright frame member 3, and carried by these upright members 2 and 3 is a table 4 on which the containers rest and along which they are moved beneath the key placing means to the clinching station and away from the clinching station after the key has been attached to the container. Said table 4 consists of spaced supporting members 4^a and 4^b between which is a slot 5. It also includes guide rails 6 and 7 between which the containers one of which is indicated in broken lines at C, in Fig. 3, moves. A conveyor chain 8 having a series of fingers 9, 9 passes beneath the slot 5 so that the fingers extend up through the slot projecting a slight distance above the table for engagement with the container. This conveyor chain runs over a sprocket wheel 10 at the left of the machine, as viewed in Fig. 1, and over a sprocket wheel 11 at the right of the machine. It also runs over a sprocket wheel 12 mounted on a shaft 13 which is provided with gears meshing with a gear 14 on the main driving shaft 15. This main driving shaft 15 is operated by a belt wheel 16 which is connected to the shaft 15 through a suitable clutch operated by a cone-shaped member 17 and controlled by a lever 18. This clutch may be of any suitable construction and forms no part of the present invention. On the shaft 15 is a hand wheel 19 which enables the parts of the machine to be turned by hand when the belt wheel 16 is unclutched from the shaft 15. The conveyor 8 also runs over the sprocket wheel 20 and a sprocket wheel 21 carried by the bracket arm which is capable of being adjusted for taking up slack in the chain. The containers are fed on to the table through a suitable timing mechanism indicated at T which may be of any desired construction. The purpose of the timing mechanism is to place one container at a time in front of a traveling finger 9 so that the containers will be moved along the table in spaced relation to each other. The containers are carried by the travelling chain beneath a supporting plate 22 carried by a bracket 23. Mounted on this bracket 23 is a key supporting magazine in which the keys are stacked one on another. This magazine includes a vertically extending rear section 24 provided with an arm 25 which is secured to the bracket 23 by bolts 26, 26. Attached to the vertically extending rear section 24 is a vertically extending front section 27 which is secured thereto by bolts 28. These two sections 24 and 27 are shaped so that they are spaced from each other at the righthand side as viewed in Figures 5 and 8. The sections 24 and 27 are also provided with recesses to receive the handle portion of the key. This provides a storage space 29 in which the keys 30 are stacked one on another.

Referring to Figures 13 to 16, inclusive, the construction of the key and the manner of attaching the same to the container will be clearly understood. The container is indicated at C and the double seam joining the end of the container to the body portion thereof as indicated at 31. The key 30 is provided with a handle portion 32 and a shank or body portion 33 which is slotted at 34 so as to receive the tongue of a tearing strip. The tearing strip is rolled on to the key as it is turned, and thus the strip is forcibly torn away and the container opened. The shank or body portion of the key is extended and formed into a hook 35. The hook includes a shoulder 36 which is adapted to engage the double seam or vertical wall of the can end at the inner side of the double seam. The hook end extends down along the outer face of the double seam and is so proportioned that it may be turned underneath a portion of the double seam as indicated at 37. Thus it is that the key is attached to the container in a way which holds the key firmly on the container and prevents any dislodgment thereof during the handling and shipping of the container. When, however, it is desired to remove the key, the operator grasping the handle end of the key raises the same and this will bend the metal at the hook end of the key so as to release it from the double seam.

The plate 22 extends beneath the magazine and the keys rest on this plate. The plate has a tapered face indicated at 38 in Figure 6. Attached to the magazine is a bracket 39 shown in detail in Fig. 11. This bracket 39 is provided with a pin 40 adapted to engage a socket in the magazine section 24 and a bolt passing up through the opening 41 rigidly secures the bracket to the rear section of the magazine. Said bracket is provided with a key supporting finger 42 which has a horizontal section shaped to conform to the hook end of the key, and a tapered section 43 leading therefrom. The lowermost key in the magazine rests on this finger 42 at the hook end, and on the plate 22 at the handle end.

There is a feed slide 44 which moves beneath the magazine and above the plate 22, and strips the lowermost key from the stack, forcing it laterally along the plate 22 to a position at one side of the magazine. This slide moves the key from the position shown in full lines in Fig. 5, to a position shown in broken lines in said figure. As the key moves from beneath the stack, the hook end moves down the inclined face 43 and finally off from the end thereof. This brings the key handle into contact with the inclined face 38 of the plate 22, as clearly shown in Fig. 6 of the drawings. Before the key passes off from the extreme end of the finger 43, the handle end passes beneath a presser foot, shown in detail in Fig. 12. The presser foot includes a foot portion 45 which is fixed by means of screws to the free end of a spring plate 46. This spring plate 46 is in turn clamped to the upper face of the plate 22 by screws 47, 47. The foot portion 45 is inclined as indicated at 48, so that the handle of the key may be readily forced beneath this yielding presser foot. The purpose of the yielding presser foot is to frictionally grip the key, holding it on the inclined face 38 with the hook end projecting from the plate into the path of the container which is moved by the traveling conveyor beneath the plate 22. As shown in Fig. 6, the hook end of the key is so placed that the double seam 31 of the container C will contact with the hook end and then will forcibly pull the key from beneath the presser foot and the key will drop on to the container and be supported solely by the container and carried along with the container as it moves to the clinching means.

The slide 44 for releasing the keys from the magazine and placing the same beneath the presser foot on the inclined portion 38 of the plate 22 is reciprocated by means of a lever 49. This lever 49 is pivoted at 50 to the bracket 23 and is provided with a forked end 51 adapted to engage a pin 52 carried by the feed slide 44. This pin projects downwardly from the slide and into the fork 51 of the lever 49. The slide is guided in the recess in the under face of the bracket 23 and is

held therein by a plate 53. The slide is retracted by a spring 54 which is attached to a lug 55 at the rear end of the slide 44, and to an arm 56 carried by the bracket 23 and projecting upwardly therefrom.

The lever 49 is provided with a forked end 57 adapted to engage a pin 58 carried by an arm 59 attached to a shaft 60. The shaft 60 is mounted in a bearing bracket 61 carried by the table, and in a bearing bracket 62 carried by the bracket member 23. Secured to this shaft 60 between spaced collars in the bearing bracket 61 is an arm 63. This arm 63 is provided with a head to which a cam finger 64 is secured by suitable bolts 65, 65. This cam finger normally lies in the path of travel of the container, as indicated in Fig. 5. The spring retracts the slide, and as it retracts the slide, it will swing the lever 49 in a counter-clockwise direction and this will swing the arm 63 in a clockwise direction, holding the cam finger 64 in the path of travel of the container. When the container contacts with this cam finger, it will force the same out of the path of travel of the container, and this will swing the arm and the lever 49 so as to move the slide forward and force a key from the stack on to the plate 22. If there is no container passing so as to contact with the cam finger 64, the slide will not be operated, and therefore, one key is released from the magazine and placed on the plate 22 in position to be engaged by the double seam by the movement of the container beneath the plate 22.

The slide 44 for feeding the keys from the magazine is shaped so as to contact with the key and move the same bodily from beneath the magazine on to the plate without twisting or turning key. In Fig. 10[a], the end of the feed slide 44 is shown, and the key with which it contacts is indicated therein. The handle portion 32 contacts with the face 66. The shank portion 33 contacts with the two faces 67 and 68 which are so placed as to contact with the rounded portion of the key and the flat portion of the key containing the slot. It will thus be seen that the key is given this bodily movement on to the plate 22 over the path of travel of the container without any twisting or turning of the key. This will position the key with the longitudinal axis thereof parallel with the path of travel of the container beneath the plate 22. The under face of the forward end of the slide 44 is inclined to correspond to the inclination of the surface 38 of the plate 22 as indicated at 38[a] (Fig. 9). This insures that the key will be pushed along this inclined face beneath the presser foot and properly positioned for engagement with the double seam of the container as it passes beneath the plate 22.

Extending along the front edge of the plate 22 is an abutment or guide plate 69. This guide plate is fixed to the plate 22 by suitable screws, and the handle end of the key is brought up into contact with this plate which will serve as a guide for the key as it passes off from the inclined face 38 and drops on to the end of the container. When the key is moved forward on the inclined face 38, it is placed beneath the guiding member 70 which is pivoted at 71 to the guide plate 69. The weight of this guiding member 70 normally tends to turn it in a clockwise direction, and the movement of the guiding member is limited by a stop screw 72 which is adjustably mounted in the shank portion of the guiding member 70. This stop screw bears against the spring supporting the presser foot and against the plate 22 as an abutment. By adjusting the screw, the position of this guide member can be accurately placed. In the under face of the guiding member 70 is a groove 73 which receives the upper portion of the hook end of the key and prevents any lateral movement of the key along the double seam, as the container moves the key off from the inclined face 38 of the supporting plate 22. This guiding member 70 insures the accurate placing of the key on the container as it falls off from this plate 22 on to the container. The key has now been placed on the container, and the container as it moves forward with the key thereon, will carry the key into range of action of the key clinching mechanism.

Mounted on the upright frame member 2 is a vertically shiftable frame member 2[a] which carries the clinching head. Mounted for rotation in this frame member 2[a] is a shaft 74. This shaft 74 carries a crank 75 having a crank pin 76 mounted thereon. The shaft 74 carries a gear 77 which meshes with a gear 78 carried by a shaft 79. The shaft 79 in turn carries a bevel gear 80 meshing with a bevel gear 81 at the upper end of a vertical shaft 82. This vertical shaft 82 engages a sleeve 83. The sleeve 83 has a key 84 therein engaging a flat face 85 on the shaft 82. This permits the shaft to have an endwise movement in the sleeve 83, but any rotating movement of the sleeve 83 will impart a rotating movement to the shaft 82. The sleeve 83 is mounted for rotation in a bearing 83[a] carried by the upright frame member 2. At the lower end of the sleeve is a bevel gear 86 meshing with a bevel gear 87 on the main shaft 15. Thus it is that the shaft 79 is rotated from the shaft 15, and through a train of mechanism it permits the head carrying the clinching devices to be raised and lowered when it is desired to clinch keys to containers of different heights.

Also mounted in this upright member 2[a] is a shaft 88 carrying a gear 89 meshing with the gear 78. The shaft 88 is also provided with a crank 90 carrying a crank pin 91. Mounted on the two crank pins 76 and 91 is a clinching head 92. These cranks are so proportioned that the clinching head will travel with the cranks, but remain always in an upright position. Mounted in the clinching head is a sleeve 93 which has a limited movement in the head. There is a cover plate 94 which covers the recess in the head in which this sleeve is mounted. The cover plate is secured to the head by suitable screws 95. On the cover plate is a lug 96 which engages an elongated recess 97 in the sleeve 93. The recess is longer than the lug and permits of this limited movement. A spring 98 located in the sleeve and bearing against the closed lower end thereof as an abutment, and against the head at the upper end thereof as an abutment, normally forces the sleeve in a downward direction until the lug 96 contacts with the upper end of the groove or recess 97. Fixed to the lower end of the sleeve is a clinching anvil and key supporting member 99. Said member is secured to the sleeve head by a bolt 100. This anvil member of the clinching device is provided with a vertical shoulder 101 and an inclined face 102. Cooperating with this anvil clinching member 99 is a movable clinching finger 103. Said clinching finger 103 is pivoted at 104 to the head at the lower end of the sleeve. There is a spring 105 which normally tends to move the clinching finger 103 in a counterclockwise direction as seen in Figures 13 and 14. An adjustable stop 106 is carried by the clinching head, and the clinching finger 103 is held in con-

tact with this stop by the spring. The clinching finger has an inclined inner face 103 and an operating shoulder 108 which contacts with the key for the bending of the same beneath the double seam. Also mounted on the head at the lower end of the sleeve 93 is a bar 109. This bar is rigidly fixed to the sleeve head and has laterally projecting members which overlie the double seam of the container when it is placed beneath the clinching head. The clinching head is so timed in its movements as to travel with the container. It will move downward bringing the bar 109 on to the double seam of the container, and this will limit the downward movement of the sleeve. At this time, the anvil clinching member 99 contacts with the key, placing the abutment shoulder 101 of the anvil directly in rear of the inner portion of the hook end of the key, firmly holding the same against the inner wall of the double seam. Inasmuch as the sleeve is restrained against further downward movement, the continued downward movement of the traveling clinching head will cause the stop 106 to force the finger 103 downward and into contact with the extreme outer portion of the hook, and this will bend the hook under the double seam as indicated in Fig. 14 of the drawings. As soon as the hook end is clinched beneath the double seam and the key firmly attached to the double seam, the continued travel of the head causes it to raise, releasing the finger 103 which is moved upward by the spring 105, holding it in contact with the stop 106. The continued movement of the clinching head will carry the clinching anvil 99 out of contact with the key and the bar 109 out of contact with the double seam. From the above it will be noted that a clinching mechanism has been provided which is very simple in construction and which travels with the container, clinching the key thereto while the container is moving.

In order to provide a traveling support for the container which conveys the container during the clinching of the key thereto, a machine has been constructed with a carriage 110. This carriage is provided with spaced supporting plates 111 and 112 on its upper face, and the upper faces of these plates are in alinement with the upper faces of the table 4 on which the container travels. These plates 111 and 112 are spaced from each other so as to provide a slot 113. The finger 9 of the conveyor chain moves through this slot in the table, and there is a support 114 extending through a recess in the table which supports the chain and holds it out of contact with the table. This table is provided with rollers 115. There are four of these rollers, and they are mounted on ball bearings attached to the carriage. The rollers run on tracks 116 carried by the frame of the machine. The carriage is moved back and forth in timing with the travel of the clinching head by the direct connection therewith. The clinching head carries a depending arm 117. This arm extends down beneath the carriage and alongside of the same. Extending laterally from the carriage are supporting bearing studs on which are mounted rollers 118 and 119. These rollers are located on opposite sides of the depending arm 117 and are mounted on suitable ball bearings. The faces of the rollers are shaped so as to contact with the depending arm 117 and prevent any lateral movement of said depending arm relative to the carriage in a direction at right angles to the path of travel of the carriage. Said depending arm, however, is free to move up and down, and the lateral movements of the clinching head through this depending arm 117 will impart lateral movements to the carriage. The clinching head moves down into operative position for clinching the key, and during this movement it travels in a forward direction. It will impart a similar movement to the container through this connection with the carriage. The speed of travel of the head of the carriage is slightly faster than the travel of the conveyor fingers 9, so that the container is under control of the movements of the carriage on which it rests during the clinching of the key to the container. When the clinching head is raised from its contact with the key and moves through its idle or retracting movements for operation on the next container, the carriage will also be retracted to receive the container from the main table, which container is placed on the carriage by the traveling conveyor chain 8.

As clearly shown in Fig. 3 of the drawings, the supporting plate 112 has a forwardly projecting portion 112^a and also a rearwardly projecting portion 112^b. Likewise, the plate 111 has a forwardly projecting portion 111^a and a rearwardly projecting portion 111^b. The supporting members 4^a and 4^b of the table 4 are, of course, cut away to provide a space in which the carriage reciprocates, and they are also recessed to receive these projecting members. The purpose of these projecting members is to prevent the container leaving the table 4 before it is moved on to the carriage. That is to say, a portion of the carriage overlaps the table, and the container will pass on to the carriage before it leaves the table, and after it is clinched it will pass on to the table before the carriage leaves it. This provides a means for supporting and conveying the container so that there is no possible chance of the container being stopped by any projecting portion of the machine while it is passing from the table on to the carriage and from the carriage again on to the table. The guide rails 6 and 7 extend alongside of the traveling carriage so that the container is continuously under control as it passes through the machine.

The clincher head is raised or lowered by raising or lowering the upright frame member 2^a. The upright frame member 2^a is provided with a lug 120 which is threaded and a threaded shaft 121 engages the same. This shaft is seated in a bearing 122. The shaft carries a worm gear 123, and means, not shown, is provided for manually turning this gear 123. The upright member 2^a slides vertically between guiding members 124, 124, one of which is shown in broken lines in Fig. 3. By turning this shaft 121, the upright frame member 2^a may be raised, and this will raise the clinching head. It is not necessary to disconnect any of the actuating parts when this shifting of the clinching head takes place, for the reason that the operating shaft 82 for the parts in the clinching head, has a shiftable connection with the sleeve 83 which is provided by the key 84 and the slabbing of the side of the shaft 82.

The bracket 23 is attached to this upright frame member 2^a by bolts 125 and 126. The shaft 60 has a splined connection with the arm 63 so that it may be raised and lowered without disconnecting the shaft from the arm. When the clinching head is raised, it will likewise raise the bracket 23 and the magazine, so that by the one adjustment, the magazine is positioned and the clinching head is also positioned for operating upon containers of different heights.

The operation of the key attaching machine is thought to be obvious from the detail description which has been given. The containers are

delivered one at a time by a timing mechanism on to a supporting table, and properly positioned relative to traveling fingers carried by the conveyor chain, so that they are moved along the table in spaced relation to each other. The keys are stacked in a magazine, and are delivered one at a time from the lower end of the magazine, and positioned on the supporting plate directly over the container by an operating slide which is actuated by the traveling container, so that if there is no container to receive a key, no key will be delivered from the magazine. The key is yieldingly retained on the supporting plate in a proper position so that the double seam will engage the hook end and pull it from the plate, and the key will then drop on to the container. At this time, there is a guide which aids in the positioning of the key on the container, so that when the container moves beneath the clinching mechanism, the key will be properly placed on the container for engagement by the clinching devices. The key is placed on the container while it is traveling and without any retarding of the movement of the container. The container with the key placed thereon moves beneath the clinching head, and it is transferred to a traveling carriage moving in timing with the clinching head, which receives, supports and carries the container along during the clinching operation. This carriage is moved by the clinching head itself, so that they must move in absolute timing. The clinching head in its travel places the clinching anvil against the key, holding the key against the container end, and with the hook portion thereof against the inner face of the double seam. Then it is that the movable finger is brought into action for bending the end of the key beneath the double seam. The movement of the clinching finger is controlled by the container itself, as it is the downward movement of the sleeve carrying the clinching finger contacting with the container that brings about the operation of the movable finger. It will be noted that this clinching of the key to the container takes place while the container is traveling and without any retarding movement of the container. This placing of the key on the container and the clinching of the key to the container while the container is traveling, greatly contributes to a high-speed key attaching machine.

While the clinching unit has been described as used in connection with a continuously traveling conveyor, it will be understood that it may be used as a stationary unit, and is so shown, described and claimed in the copending application Serial No. 659,422, filed of even date herewith.

While the machine has been described as for the purpose of attaching keys with slots therein for attachment to the tongue of a tearing strip, it will be understood that it may be used with other types of keys for opening containers, and in fact, with any can opening device which it is desired to connect to the container so that it may be associated with the container and sold therewith, and later removed from the container for the opening of the same. It is also obvious that changes in the details of construction and the arrangement of the parts may be made without departing from the spirit of the invention as set forth in the appended claims.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is—

1. A machine for attaching keys to containers comprising means for conveying the container, means for placing a key on the container while it is moving, means for clinching the key to the container and means for supporting and moving said clinching means with the container while clinching the key thereto.

2. A machine for attaching keys to containers comprising means for conveying the container, means for placing a key on the container, means for clinching the key to the container, and means for supporting and moving said clinching means with the container while clinching the key thereto.

3. A machine for attaching keys to containers comprising means for conveying the container, means for placing a key on the container while it is moving, means for clinching the key to the container, and means for supporting and moving said clinching means with the container while clinching the key thereto.

4. A machine for attaching keys to containers comprising means for continuously conveying a container through the machine, a magazine for holding stacked keys, means controlled by the passing container for delivering a key from the magazine on to the container, and means traveling with the container for clinching the key thereto.

5. A machine for attaching keys to containers comprising means for continuously conveying a container through the machine, a magazine for holding stacked keys, a supporting plate at the lower end of the magazine having a downwardly inclined face, a finger at the lower end of the magazine for supporting the hook end of a key, a slide operated by a traveling container for forcing the key along said plate and off the end of said finger so as to place the hook end of said key in the path of travel of the double seam of the container, and yielding means for holding the key on the supporting plate until removed therefrom by the container.

6. A machine for attaching keys to containers comprising means for continuously conveying a container through the machine, a magazine for holding stacked keys, a supporting plate at the lower end of the magazine having a downwardly inclined face, a finger at the lower end of the magazine for supporting the hook end of a key, a slide operated by a traveling container for forcing the key along said plate and off the end of said finger so as to place the hook end of said key in the path of travel of the double seam of the container, and yielding means for holding the key on the supporting plate until removed therefrom by the container, the end of said slide being shaped so as to move the key bodily and place the same with the longitudinal axis thereof in alinement with the path of travel of the container.

7. A machine for attaching keys to containers comprising means for continuously conveying a container through the machine, a magazine for holding stacked keys, a supporting plate at the lower end of the magazine having a downwardly inclined face, a finger at the lower end of the magazine for supporting the hook end of a key, a slide operated by a traveling container for forcing the key along said plate and off the end of said finger so as to place the hook end of said key in the path of travel of the double seam of the container, yielding means for holding the key on the supporting plate until removed therefrom by the container, and a guiding member overhanging the container and having a groove in its under face parallel with the path of travel

of the container for guiding the key and preventing lateral movement thereof on the container.

8. A machine for attaching keys to containers comprising means for continuously conveying a container through the machine, a magazine for holding stacked keys, a supporting plate at the lower end of the magazine having a downwardly inclined face, a finger at the lower end of the magazine for supporting the hook end of a key, a slide operated by a traveling container for forcing the key along said plate and off the end of said finger so as to place the hook end of said key in the path of travel of the double seam of the container, yielding means for holding the key on the supporting plate until removed therefrom by the container, and a guiding member overhanging the container and having a groove in its under face parallel with the path of travel of the container for guiding the key and preventing lateral movement thereof on the container, said guiding member being yieldably moved toward the container, and an adjustable stop for positioning the same.

9. A machine for attaching keys to containers comprising means for continuously conveying a container through the machine, a magazine for holding stacked keys, a supporting plate beneath said magazine having a downwardly inclined face, a finger at the lower end of said magazine for supporting the keys, and off from the end of which the keys may be forced on to said plate and supported directly over the path of travel of the container with the hook end of the key positioned for engagement with the double seam of the container, yielding means for holding the key on the supporting plate, a slide for moving the key from beneath the magazine into position for engagement with the container, a spring for retracting the slide, an arm having a cam finger lying normally in the path of travel of the container and movable thereby, and devices for connecting said arm to the slide whereby the container will move the slide to place the key through contact with said arm.

10. A machine for attaching keys to containers comprising means for continuously conveying a container through the machine, a magazine for holding stacked keys, a supporting plate at the lower end of the magazine having a downwardly inclined face, a finger at the lower end of the magazine for supporting the hook end of a key, a slide operated by a traveling container for forcing the key along said plate and off the end of said finger so as to place the hook end of said key in the path of travel of the double seam of the container, and yielding means for holding the key on the supporting plate until removed therefrom by the container, and means traveling with the container for clinching the hook end of the key to the double seam thereof.

11. A machine for attaching keys to containers comprising means for continuously conveying a container through the machine, a magazine for holding stacked keys, a supporting plate at the lower end of the magazine having a downwardly inclined face, a finger at the lower end of the magazine for supporting the hook end of a key, a slide operated by a traveling container for forcing the key along said plate and off the end of said finger so as to place the hook end of said key in the path of travel of the double seam of the container, yielding means for holding the key on the supporting plate until removed therefrom by the container, the end of said slide being shaped so as to move the key bodily and place the same with the longitudinal axis thereof in alinement with the path of travel of the container, and means traveling with the container for clinching the hook end of the key to the double seam thereof.

12. A machine for attaching keys to containers comprising means for continuously conveying a container through the machine, a magazine for holding stacked keys, a supporting plate beneath said magazine having a downwardly inclined face, a finger at the lower end of said magazine for supporting the keys, and off from the end of which the keys may be forced on to said plate and supported directly over the path of travel of the container with the hook end of the key positioned for engagement with the double seam of the container, yielding means for holding the key on the supporting plate, a slide for moving the key from beneath the magazine into position for engagement with the container, a spring for retracting the slide, an arm having a cam finger lying normally in the path of travel of the container and movable thereby, devices for connecting said arm to the slide whereby the container will move the slide to place the key through contact with said arm, and means traveling with the container for clinching the hook end of the key to the double seam thereof.

13. A machine for attaching keys to containers comprising a support for the container, a clinching head, means for raising and lowering said clinching head relative to said container support, said clinching head including a supporting member movable with the clinching head and having a limited vertical movement therein, a spring for yieldingly holding said supporting member at the lower end of its movement, clinching devices carried by said supporting member, and means carried by said head for actuating the clinching devices when said head is moved relative to the supporting member.

14. A machine for attaching keys to containers comprising a support for the container, a clinching head, means for raising and lowering said clinching head relative to said container support, said clinching head including a supporting member movable with the clinching head and having a limited vertical movement therein, a spring for yieldingly holding said supporting member at the lower end of its movement, a clinching anvil fixed to the supporting member, a clinching finger pivoted to said supporting member, an abutment carried by said head and adapted to engage said clinching finger for moving the same toward the anvil when the downward movement of the supporting member is stopped, and a spring for normally holding said clinching finger in contact with said abutment.

15. A machine for attaching keys to containers comprising a support for the container, a clinching head, means far raising and lowering said clinching head relative to said container support, said clinching head including a supporting member movable with the clinching head and having a limited vertical movement therein, a spring for yieldingly holding said supporting member at the lower end of its movement, a clinching anvil fixed to the supporting member, a clinching finger pivoted to said supporting member, an abutment carried by said head and adapted to engage said clinching finger for moving the same toward the anvil when the downward movement of the supporting member is stopped, a spring for normally

holding said clinching finger in contact with said abutment, and means whereby said abutment contacting with the clinching finger may be adjusted for varying the movement of the clinching finger relative to the anvil.

16. A machine for attaching keys to containers comprising a support for the container, a clinching head, means for raising and lowering said clinching head relative to said container support, said clinching head including a supporting member movable with the clinching head and having a limited vertical movement therein, a spring for yieldingly holding said supporting member at the lower end of its movement, clinching devices carried by said supporting member, and means carried by said head for actuating the clinching devices when said head is moved relative to the supporting member, said supporting member having a cross bar attached thereto adapted to contact with the container for limiting the downward movement of the supporting member.

17. A machine for attaching keys to containers comprising a support for the container, a clinching head, means for raising and lowering said clinching head relative to said container support, said clinching head including a supporting member movable with the clinching head and having a limited vertical movement therein, a spring for yieldingly holding said supporting member at the lower end of its movement, a clinching anvil fixed to the supporting member, a clinching finger pivoted to said supporting member, an abutment carried by said head and adapted to engage said clinching finger for moving the same toward the anvil when the downward movement of the supporting member is stopped, and a spring for normally holding said clinching finger in contact with said abutment, said supporting member having a cross bar attached thereto adapted to contact with the container for limiting the downward movement of the supporting member.

18. A machine for attaching keys to containers comprising a clinching head, rotating members arranged one above the other, cranks carried thereby and connected to said clinching head for supporting and bodily moving the same, said clinching head including a supporting member movable with the head and having a limited vertical movement therein, a spring for yieldingly holding said supporting member at the lower end of its movement, clinching devices carried by said supporting member, and means carried by said clinching head for actuating the clinching devices when said head is moved relative to the supporting member.

19. A machine for attaching keys to containers comprising a clinching head, rotating members arranged one above the other, cranks carried thereby and connected to said clinching head for supporting and bodily moving the same, said clinching head including a supporting member movable with the head and having a limited vertical movement therein, a spring for yieldingly holding said supporting member at the lower end of its movement, clinching devices carried by said supporting member, means carried by said clinching head for actuating the clinching devices when said head is moved relative to the supporting member, and a bar carried by said supporting member adapted to contact with the container for limiting the downward movement of the supporting member.

20. A machine for attaching keys to containers comprising a clinching head, rotating members arranged one above the other, cranks carried thereby and connected to said clinching head for supporting and bodily moving the same, said clinching head including a supporting member movable with the head and having a limited vertical movement therein, a spring for yieldingly holding said supporting member at the lower end of its movement, a clinching anvil removably connected to the supporting member, a clinching finger pivotally connected to said supporting member, a bar fixed to said supporting member and adapted to contact with the container for limiting the downward movement of the supporting member, an adjustable abutment carried by said clinching head and adapted to engage the clinching finger for moving the same toward the anvil when the bar contacts with the container and stops the downward movement of the supporting member, and a spring normally holding said clinching finger in contact with said abutment.

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