R. F. STUART.

PACKAGE MARKING MACHINE.

APPLICATION FILED JUNE 7, 1920.

1,417,781.

Patented May 30, 1922.

2 SHEETS—SHEET 1.

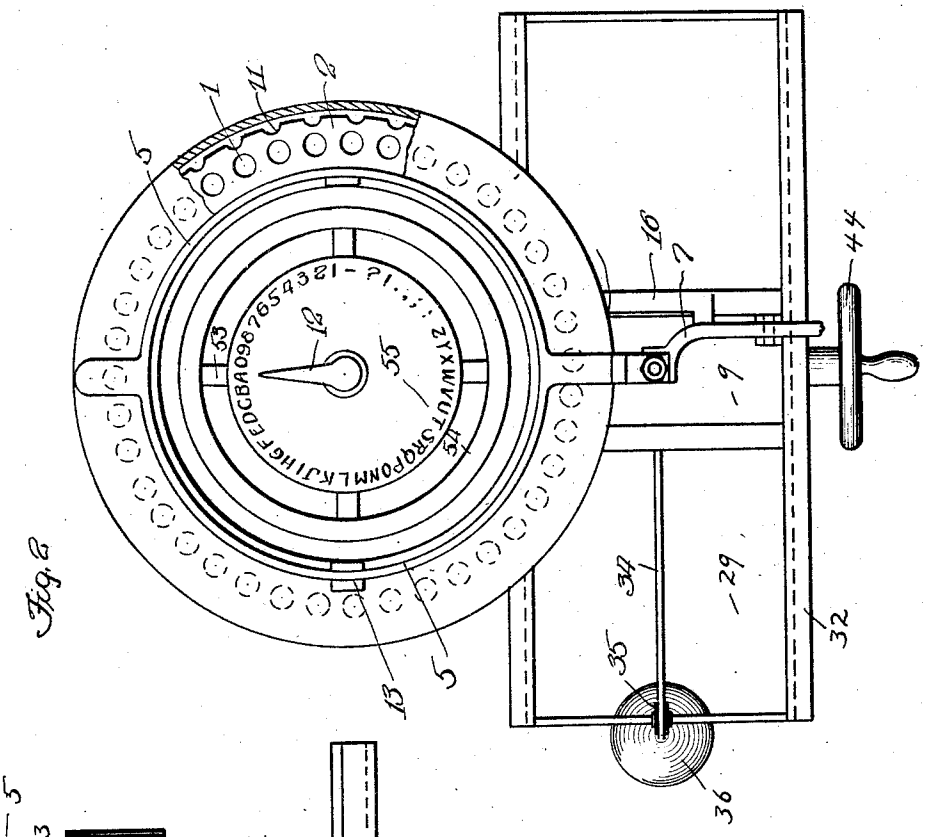


Fig. 2.

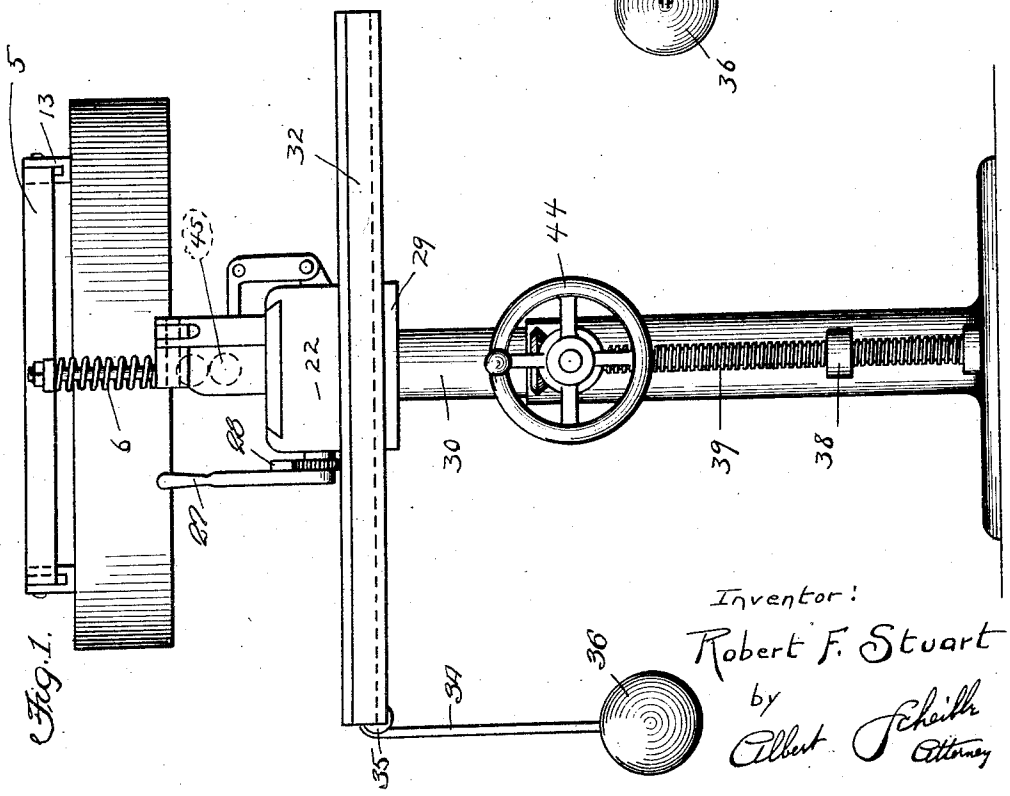


Fig. 1.

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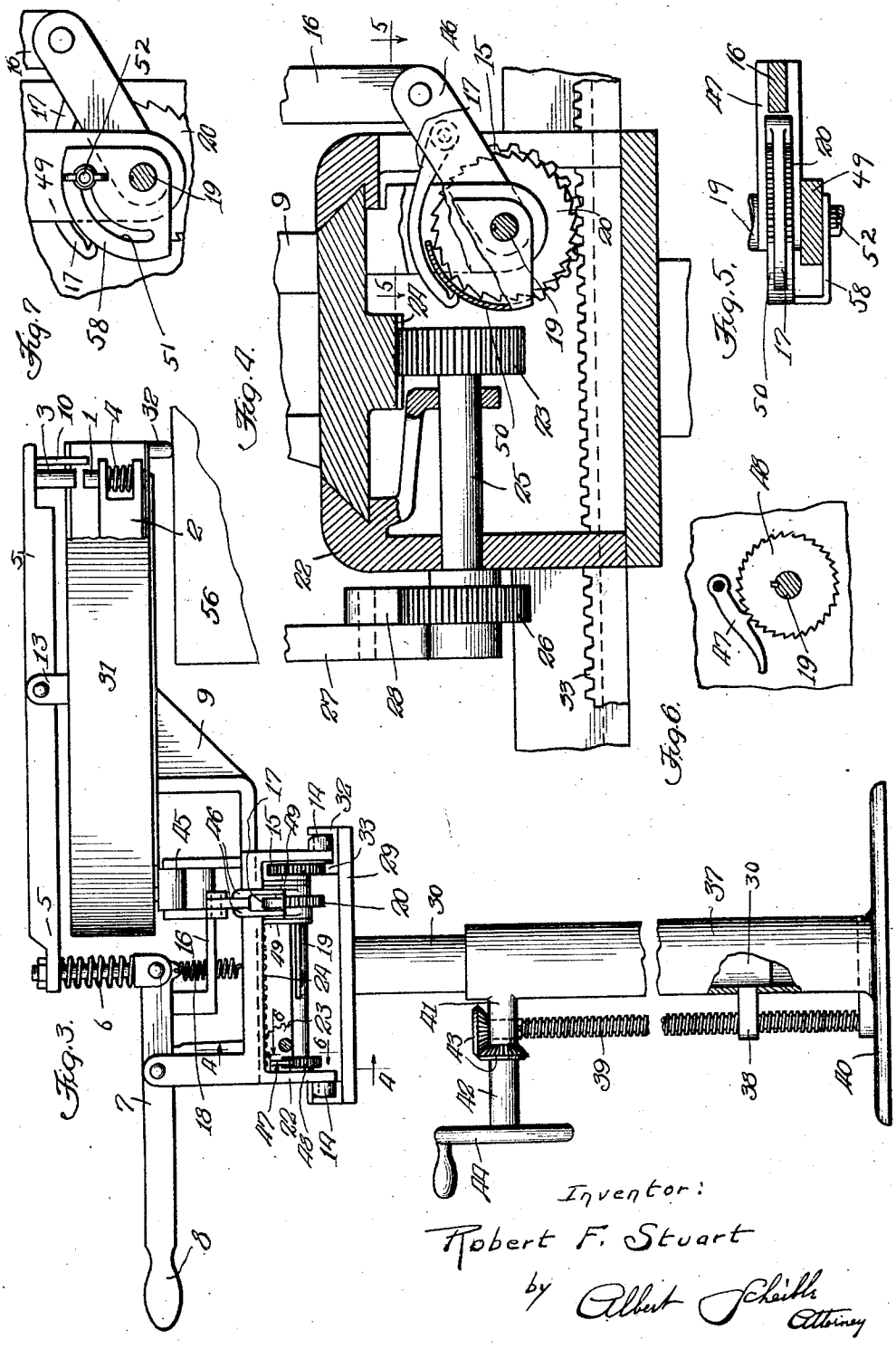


Fig. 1.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 3.

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UNITED STATES PATENT OFFICE.

ROBERT F. STUART, OF KOKOMO, INDIANA.

PACKAGE-MARKING MACHINE.

1,417,781. Specification of Letters Patent. **Patented May 30, 1922.**

Application filed June 7, 1920. Serial No. 387,216.

To all whom it may concern:

Be it known that I, ROBERT F. STUART, citizen of the United States, residing in the city of Kokomo, Howard County, Indiana, have invented certain new and useful Improvements in a Package-Marking Machine; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to package marking machines, its general objects being that of providing a simple, inexpensive and easily manipulated machine for imprinting addresses or other marks on boxes or the like. Heretofore, numerous machines have been devised for this purpose, but for various reasons have been objectionable and therefore have not come into any extensive use. For example, appliances of this kind have been designed which had to be lifted bodily into position upon the box or package, thus involving a heavy lifting, making it difficult to reach some portions of the package, and risking serious damage to the machine in case it slipped off. Likewise, such machines have been designed for imprinting upon the vertical face of a box, but this has made it difficult to offer the desired resistance to the imprinting pressure and to adjust the position of the box with respect to the machine so that the type plunger would make a good impression while the mechanism associated with it was operated through a sufficient range to insure an automatic spacing of the letters. So also, where machines of this class have had the imprinting mechanism arranged for actuation by the foot of the operator (as in the box marking machine of my copending application No. 267422, filed December 19, 1918, on which my present invention is an improvement) it has been difficult for the operator to gage the desirable foot pressure.

My present invention aims to overcome these and other objections to the appliances heretofore devised for such a purpose, and particularly aims to provide a stationary machine adapted to print legends upon the upper face of a box or other package, to provide simple and novel means for adjusting the appliance to various heights of packages and for spacing the letters, to provide positive means for gaging the stroke of the type plungers and of the mechanism operating the same, and to attain other objects which will appear from the following specification and from the accompanying drawings.

In these drawings,

Fig. 1 is a front elevation of a machine embodying my invention.

Fig. 2 is a plan view of the same.

Fig. 3 is a side elevation of the same.

Fig. 4 is a fragmentary and enlarged vertical section taken along the correspondingly numbered line in Fig. 3.

Fig. 5 is a fragmentary horizontal section taken along the correspondingly numbered line in Fig. 4 and showing part of the ratchet means for operating the part of the letter spacing mechanism.

Fig. 6 is a fragmentary elevation showing the means for adjusting the spacing between letters.

Fig. 7 is a fragmentary elevation taken from the left hand side of Fig. 3 and showing the means for adjusting the letter-spacing mechanism.

In the embodiment of the drawings, the machine of my invention includes a series of plungers 1, each of which has a different type face at its lower end for imprinting a letter, numeral or the like. These plungers are all carried by a drum 2 which is rotatably supported upon a vertical axis by a carrier 9, and the hollow shaft of this drum is connected by arms 53 with a ring-shaped handle 54 by means of which the drum may readily be rotated to bring any one of the said plungers opposite a striker 3 for operation by this striker. Normally, each type plunger is held in a retracted position by a spring 4 which holds the plunger drawn within a casing 31 having a lower opening opposite the striker 3.

This striker is fast upon the rear arm of a lever 5 mounted upon a pivot 13 and connected through a rather light compression spring 6 with an operating lever 7 having a handle 8 at the front of the machine, this lever 7 being also pivoted on the carrier 9. The carrier is slidably mounted upon a carriage 22, as for example after the manner shown in Fig. 4, so that it can be moved backwards or forwards with respect to the carriage of the machine to enable various lines to be imprinted without moving the object, which is here shown as a box 51. The movement of the carriage can readily be effected towards the rear of the machine.

or for sliding the type mechanism into position for imprinting the upper of a series of lines, by manually sliding the carrier 9 upon the carriage. To move it in the opposite direction, I provide the carrier 9 on its under side with a rack 24 having its teeth in engagement with a gear 23 which is pivoted to the carriage 22 and which also has fastened to it a ratchet wheel 26. This ratchet wheel can be moved in one direction by rocking a hand lever 27 which is pivoted on the outer end of the shaft 25 and which has a pawl 28 pivoted to it as shown in Fig. 1 and Fig. 4, so that the desired forward movement of the carrier can be obtained by a corresponding number of reciprocating movements of this hand lever.

To space the successively imprinted letters, I provide means operating automatically after the imprinting of each letter for moving the entire carriage 22 longitudinally of the imprinted line. For this purpose, the carriage is here shown as mounted on rollers 14 traveling between the guides 32 on the top 29 of a plunger 30 which forms the support for the parts heretofore mentioned. This top 29 also carries a rack 33 meshing with a gear 15, which gear is fast upon the same shaft 19 with a ratchet wheel 20. The operating lever 7 has at its rear end an extension 16 connected by a forked link 46 to a pivoted pawl 17 which rides freely over the teeth of this ratchet wheel 20 during its return movement so as to move this ratchet wheel a predetermined distance during every retraction of the lever 7. This retracting is effected by a spring 18 which normally holds this lever in its inoperative position of Fig. 3. When the handle 8 is fully depressed against the tension of this spring, the striker 3 is pressed against the particular type plunger 1 which happens to be opposite this striker and forces that plunger downward into imprinting contact with the top of the box or package 1. While the plunger is thus being moved, the drum 2 is kept from rotating about its shaft by a guide finger 10 which enters a groove 11 opposite the operating type plunger, there being such a groove opposite each of the plungers as shown in Fig. 2. When the downward pressure on the handle 8 is relaxed the spring 18 returns the lever 7 and the extension 16 to their normal positions, in doing which the extension 16 moves the pawl 17 in a clockwise direction in Fig. 4, the extent of this movement being proportioned to the desired spacing of the levers. At the same time, the relaxing of the pressure transmitted to the striker through the lever 5 and the spring 6 permits the spring 4 to retract the previously depressed type plunger entirely within the casing 31, so that the drum 2 can be rotated to bring the next desired letter or figure opposite the striker. To facilitate the selection of the desired type, I desirably provide the top of the drum 2 with a dial 55 having letters and figures corresponding to the locations of the various type faces, so that the selected type will be indicated by a pointer 12 which is fast on the stationary shaft on which the drum revolves.

In rotating the ratchet wheel 20 and the gear 15 during the return stroke of the lever 7 and to an extent corresponding to the previous pushing of the pawl over the teeth of this ratchet wheel, the gear 15 on the same shaft with this ratchet wheel causes the carriage 22 to travel towards the right of the machine for a corresponding amount. To prevent this sideward travel from being more than the desired extent, I provide suitable means continuously urging the carriage against such movement, such as a cord 34 attached to the carriage and leading over an idler 35 to a weight 36, and I prevent the weight from normally drawing the carriage out of position by providing a gravity actuated pawl 47 engaging a ratchet wheel 48 which is fast on the shaft 19 as shown in Figs. 3 and 6. By thus urging the carriage continuously in one direction but moving it positively in the other lateral direction by the said ratchet and rack mechanism, I secure the desired positive spacing automatically between the consecutive letters. To secure additional spacing between the consecutive words, I also provide auxiliary means for manually moving the ratchet wheel 20, such as the lost motion afforded by the compression spring 6 which permits the lever 7 and the pawl 17 to be moved shorter distances without actuating the printing plunger, so that I can secure any desired additional spacing between letters or words by a shorter reciprocating movement of the lever 7.

In operating the machine as above described, the mechanism is first raised by means of the hand wheel 44 and the screw 39 to easily clear the height of the box which is to be marked. Next the box is slid into position, the hand wheel 44 is turned backward until the gage lug 32 barely clears the top of the box, and the carrier 9 is moved to the desired starting point for the first line. Then the dial 55 is turned successively to bring one after another of the desired letters or figures on it opposite the tip of the pointer 12, and the handle 8 is depressed after each letter has thus been selected. Each such movement of the handle imprints one letter or figure and also moves the pawl 17 into position for advancing the carriage while the spring 18 is returning the handle to its initial posititon. During the imprinting, the pressure is transmitted through the spring 6 which affords such variations in the effective stroke of the type plunger as may

be demanded by irregularities in the contour of the box. This intermediary spring also prevents any possible overstraining of the parts, so that the machine can safely be entrusted to an inexperienced operator.

After the first line has been imprinted in this manner, the handle 27 is reciprocated for such a number of times as to cause the pawl 28 and the ratchet wheels 26 to cooperate with the pinion 23 and the rack 24 in moving the slide 9 the desired distance between the consecutive lines, after which the pawl 47 is raised and the weight is allowed to draw the carriage back to the desired starting point, after which the next line is imprinted in the same manner. To allow for the spacing between the lines without interfering with the mechanism for spacing the letters, I do not fasten the ratchet wheel 20 rigidly to the shaft 19, but spline the wheel to this shaft through a long key 21 which maintains these two parts interlocked against rotation while permitting a relative movement longitudinally of the shaft.

However, the pawl 17 is continuously kept in alinement with the pawl ratchet wheel 20 by the forked link 46 to which the pawl is pivoted. This forked link straddles the ratchet wheel and itself is straddled by a pair of downwardly directed arms 49 on the carrier 9 as shown in Fig. 3. One of these arms 49 is also straddled by a fork 48 pivoted on the shaft 19 and carrying a curved guard 50 which overhangs a part of the teeth of the wheel 20, this guard being so disposed that the pawl 17 will ride up on the guard during the latter portion of its initial movement. Consequently, the number of teeth which this pawl engages during each reciprocation and the extent to which it therefore actuates the letter spacing mechanism will depend on the position of this guard. To adjust the latter, I desirably provide the outer arm of the said fork with a curved slot 51 and fasten the fork in position by a bolt 52 extending through this slot, so that I can readily vary the position of the guard 50 by first loosening the said bolt.

I also desirably provide automatically operating means for inking the type faces of the plungers 1 when the drum carrying them is rotated during the selection of the different letters, as by employing the inking rolls 45 of Fig. 3. However, while I have illustrated and described my invention in a desirable embodiment, I do not wish to be limited to the details of the construction, arrangement and use as above recited. Obviously various additions, omissions or changes might be made without departing from the spirit of my invention or from the appended claims.

I claim as my invention:

1. In a package imprinting machine, a supporting member, a vertically adjustable platform supported thereby, printing means carried by the platform, and laterally overhanging the latter and mounted for bodily movement in two relatively transverse horizontal directions, the printing means being disposed for downward actuation to print upon the upper face of a package disposed laterally of the supporting member.

2. A package imprinting machine as per claim 1, in combination with means associated with the printing means for engaging the top of the package to space the printing means vertically with respect to the package.

3. In a package imprinting machine, a supporting member, a horizontally movable carrier mounted thereon, printing means upon the carrier mounted for imprinting upon the face of a package disposed laterally of the supporting member; means to move the carrier, a reciprocable handle; and connections between the handle and the printing means whereby a full reciprocating movement of the handle first moves the printing means to printing position and then moves the printing means parallel to the imprinted face of the package, and whereby the reciprocation of the handle through a portion only of this stroke effects a smaller movement of the printing means parallel to the said face of the package without moving the printing means to printing position.

4. In a machine for imprinting a stationary package, a stationary supporting member; a plurality of printing means supported by the said member, spacing means for moving the printing means upon the supporting member parallel to the imprinted face of the package, striker means for moving any one of the printing means to printing position, the printing means being movable under the striking means to bring any one of the former into operative relation to the latter, and single means for actuating both the striker means and the spacer means.

5. In a machine for imprinting a stationary package, a stationary supporting member, plural and separately operable printing means supported by the said member, spacing means for moving all of the printing means upon the supporting member parallel to the imprinted face of the package, striker means below which the printing means are movable to bring any one of the printing means into operative relation to the striker means, the latter being arranged for moving the operatively disposed one of the printing means, and spring-retracted reciprocable means for actuating the striker means and thereafter actuating the spacer means.

6. Mechanism as per claim 5, in combination with means for adjusting the spacing effected by the spacer means.

7. In a machine for printing upon the horizontal top of a stationary package, a

stationary supporting member, a track carried thereby, a horizontal carriage traveling upon the track, printing means mounted on the carriage and overhanging a package disposed alongside the supporting member and movable horizontally with respect to the carriage in a direction transverse of the said track, means associated with the supporting member for raising and lowering the track, and means upon the printing means for limiting the downward approaching of the latter to the face of the package.

8. Mechanism as per claim 7, in which the printing means are arranged for overhanging the package laterally of the supporting member and in which the said limiting means comprise a projection extending downward from the printing means and adapted to engage the top of the package when the printing means are lowered.

9. In a package imprinting machine, plural and separately slidable printing means, a single carrier for the same movable parallel to the surface which is to be imprinted, a striker disposed for slidably moving any one of the printing means to imprinting position, and single means for actuating the striker and for moving the carrier in the said direction; there being lost motion between the said actuating means and the striker, whereby a partial movement of the actuating means will move the carrier without causing the striker to actuate the printing means.

10. In a package imprinting machine, plural and separately slidable printing means, a carrier for the same movable parallel to the surface which is to be imprinted, a striker disposed for slidably moving any one of the printing means to imprinting position, and a reciprocable mechanism arranged for actuating the striker when moved in one direction and for moving the carrier during the return movement of the reciprocable mechanism.

11. In a package imprinting machine, slidable printing means, a carrier for the same movable parallel to the surface which is to be imprinted, a striker disposed for moving the printing means to imprinting position, and to a reciprocable mechanism arranged for actuating the striker when moved in one direction and for moving the carrier during the return movement of the reciprocable mechanism; there being lost motion between the said mechanism and the striker, whereby a partial initial movement of the said mechanism will not actuate the striker and will cause the return movement of the said mechanism to move the carrier for a lesser distance than that following a full initial movement of the said mechanism.

12. Mechanism as per claim 3, including a compression spring forming part of the said connections and also serving to cushion the imprinting action.

Signed at Kokomo, Indiana, June 4, 1920.

ROBERT F. STUART.