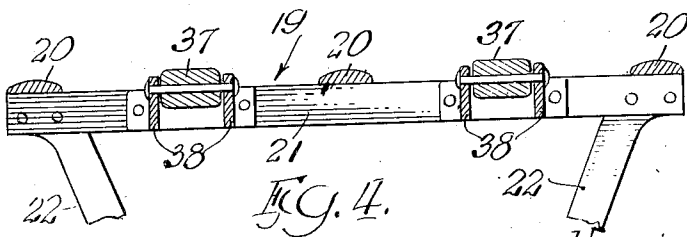
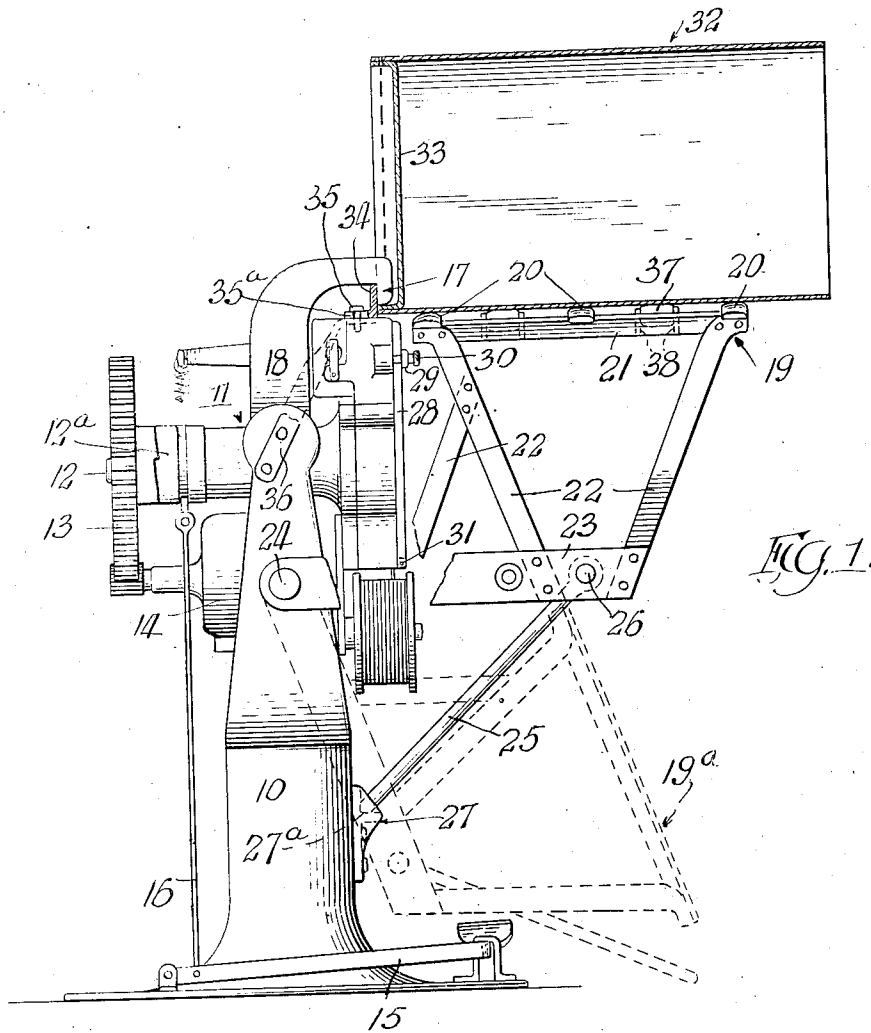


Nov. 23, 1926.

1,608,049

H. B. WALTER
BOX STAPLING MACHINE
Filed Nov. 9, 1923

3 Sheets-Sheet 1



Inventor
Harrison B. Walter
by Charles E. Melrose Atty.

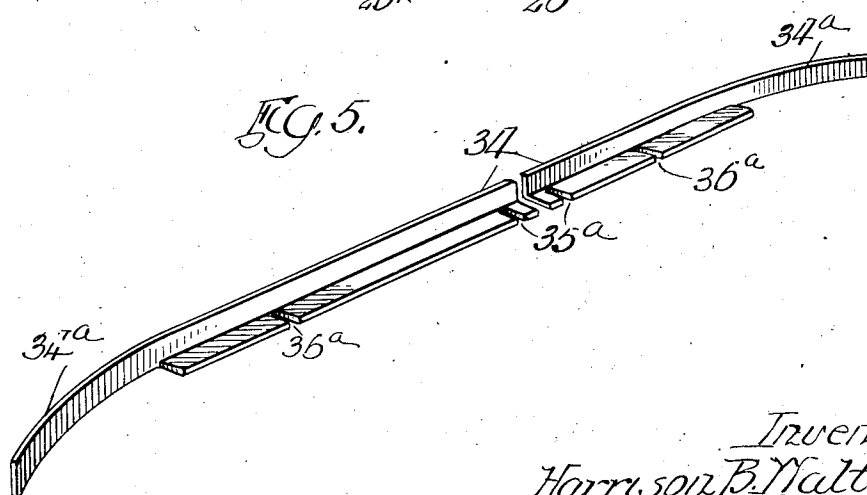
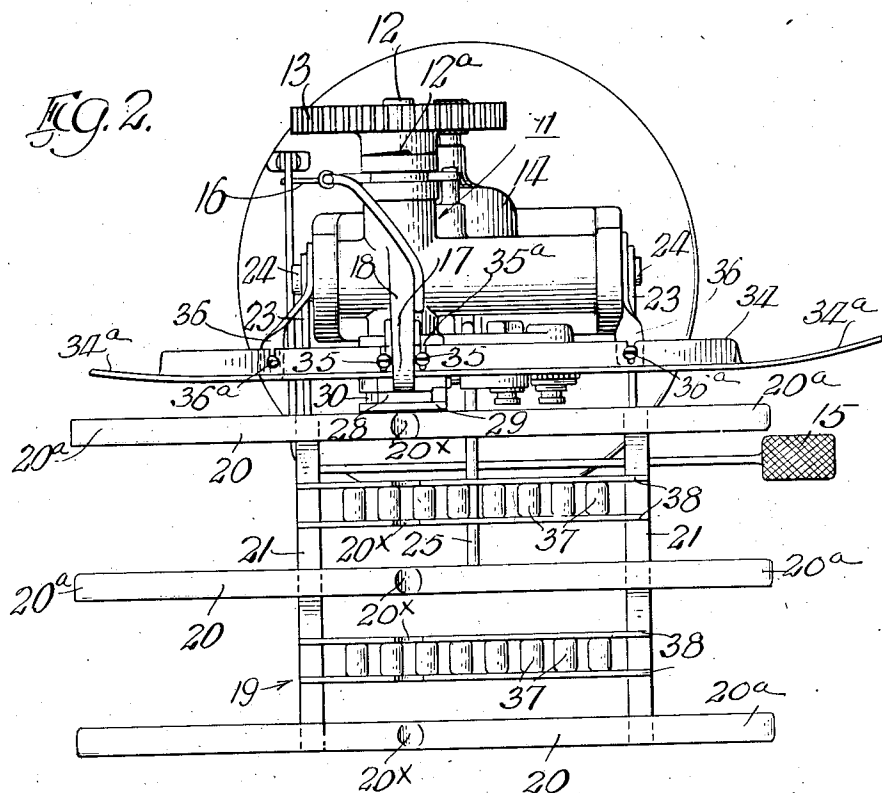
Nov. 23, 1926.

1,608,049

H. B. WALTER
BOX STAPLING MACHINE

Filed Nov. 9, 1923

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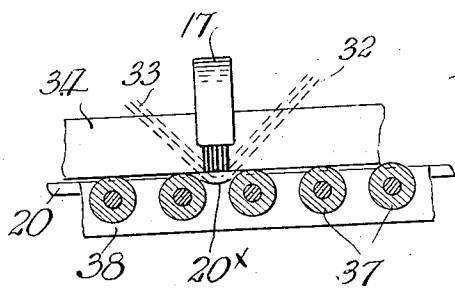
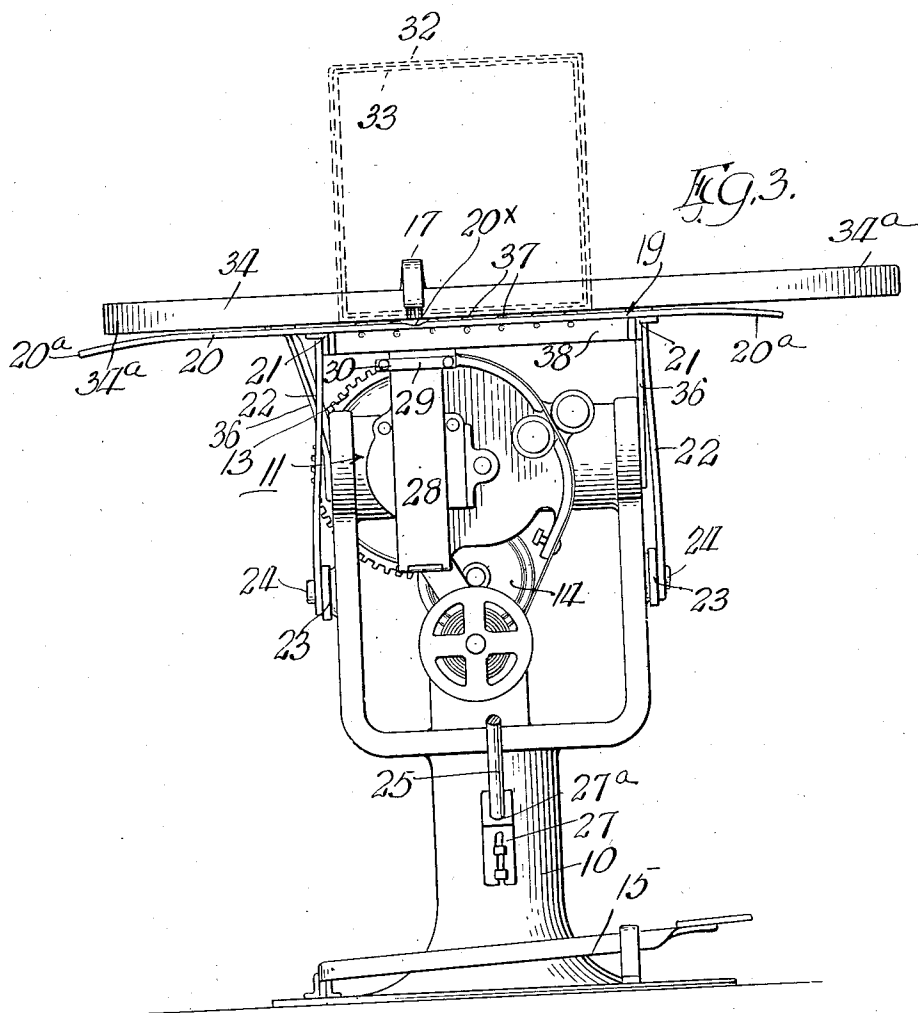
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Nov. 23, 1926.

1,608,049

H. B. WALTER
BOX STAPLING MACHINE
Filed Nov. 9, 1923

3 Sheets-Sheet 3



Inventor
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UNITED STATES PATENT OFFICE.

HARRISON B. WALTER, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CONTAINER CORPORATION OF AMERICA, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

BOX-STAPLING MACHINE.

Application filed November 9, 1923. Serial No. 673,632.

This invention relates to an improvement in box-stapling machines of the kind designed for use in applying and securing the flanged heads to the tubular body of the familiar recessed-end box made of fibre board, paper board or the like, and consists of the matters hereinafter described and more particularly pointed out in the appended claim.

It has been necessary heretofore, when stapling the flanged heads of boxes of the kind to the tubular ends of the box body, to use a rolling deck and box-form, such as shown in Patent No. 1,253,754, issued to me on January 15, 1918, and a stapling machine with a vertically adjustable head and movable clinching block such as shown in Patent No. 1,250,735, also issued to me, on December 18, 1917. A form of the cross section and length corresponding to the inner dimensions of the box is required for every size of box, thus necessitating a number of forms corresponding to the number of different sizes of boxes to be operated upon. In addition, the stapling head being capable of vertical adjustment is required to be adjusted to accommodate boxes of different lengths. And by a movable clinching block only may the flange and body of the box be brought into proper position for clinching purposes.

The object of the present invention is to provide improvements in a combined stapling machine and fixed deck or box support, by means of which a box of any size, either as to cross section or as to length, may have its flanged head stapled within the tubular end of the body without the use of any form within the box, and without any adjustment of the stapling head.

This and other objects of the invention will appear more fully as I proceed with my specification.

In the drawings:—

Fig. 1 is a view representing a side elevation of the improved machine with a box shown thereon in the position which it occupies when a flanged head is being secured to one end of its tubular body.

Fig. 2 is a top plan view of the machine.

Fig. 3 is a view representing a front elevation of the machine.

Fig. 4 is a view representing on an enlarged scale, a transversed section through the top of the table on which the box is to be operated upon is supported.

Fig. 5 is a view representing in perspective a gauge stop rail embodied in the machine.

Fig. 6 is a fragmentary view representing a front elevation of the table with a part of the box body indicated in dotted lines as it appears when being shifted from side to side in the stapling operation.

Referring now to that embodiment of the invention illustrated in the drawings:—10 indicates an upright standard or frame; 11 indicates a stapling head of familiar construction; 12 indicates an operating shaft, 13, a gear thereon and 14, a motor operatively connected to the said gear; 12^a indicates a clutch for operatively connecting the gear 13 to the operating shaft 12; and 15, 16 indicate the familiar treadle and spring controlled link for throwing the clutch 12^a into and out of operative connection with the operating shaft 12 of the stapling machine.

These parts are all of familiar construction and may be substantially as shown in the above named Letters Patent No. 1,250,735 heretofore granted to me on December 8, 1917, except in details now to be mentioned.

The stapling head 11 is in this case rigidly attached to the standard and is arranged in a vertical position so as to form and drive the staple upwardly, instead of horizontally as in the patent above referred to. In addition, the stapling machine is provided with a fixed clinching block 17, located vertically above the stapling head in position to be operatively engaged thereby,—said stapling head being fixed to an overhanging arm 18 which is fixed to the main frame of the stapling machine.

19 indicates a horizontal table located adjacent to the vertical plane of operation of the stapling head 11 and clinching block 17. Said table may be of any convenient construction and, as shown, consists of a plurality of longitudinally extending, parallel spaced rails 20 mounted on transversely extending angle bars 21. The angle bars 21 are attached to upright end frames comprising vertically disposed bars 22, 22 and horizontal bars or arms 23, 23. The arms 23, 23 project rearwardly beyond the vertical driving plane of the stapling mechanism and are mounted at their ends on studs 24 fixed to the sides of the frame 10. The con-

struction is such that the table 19 may be swung on the studs from its normal horizontal position shown in Fig. 1, to a lower position as shown by the dotted lines 19^a in said figure. To support the table in the normal horizontal position there is provided an upwardly inclined strut rod 25 which is pivotally connected at its upper end to a longitudinal rod 26, connecting the bottom bars 23 of its end frame members. The bottom end of said strut bar is engaged in the angle of a shouldered plate 27, secured in any convenient manner for vertical adjustment to the front of the frame 10. When it is desired to swing the table 19 from horizontal position to the dotted position shown in Fig. 1, it is only necessary to raise the table high enough to disengage the bottom end of the strut rod from the angle 27^a in the said shouldered plate 27, whereupon the strut rod may be swung out of the way and the table may be lowered.

The stapling head, as in the case of the machine shown in the patent heretofore referred to, is provided with a hinged cover plate 28 which encloses the forming, cutting and driving members of the stapling head (not shown). Said cover plate is normally held in closed position by means of a strap 29 and thumb nuts 30 at its upper end. By disengaging said strap from the upper end of the plate, the plate may be swung downwardly on its pivotal connection with the stapling head (indicated at 31) so as to get at the inner mechanism of said stapling head for purposes of adjustment, renewals or sharpening. The table 19 in its normal horizontal position stands somewhat in the way, for easy access to the cover plate 28; but by bringing the table into its lower position as above described, ready access to said cover plate 28 is given.

The table 19 is adapted to support a tubular box body 32 with a flanged head 33 inserted therein in a position so that the stapling head will drive staples vertically through the body and the flanges of the head to be clinched against the fixed clinching block 17 on the inside of the said flanges. To determine the position of the box body 32 on the table 19, a longitudinally extending stop bar 34 is fixed to the stapling head in position to engage the edges of the tubular body and of the flanged head, when the body has been brought to the proper position for stapling. Said stop bar, as shown, consists of an angle bar with one flange vertical for engagement with the box body and the other flange horizontal for attachment to the stapling head. Said bar is preferably attached to said stapling head by lag screws or bolts 35 in such manner as to make it horizontally adjustable with reference to the vertical plane of operation of the stapling head, and to this end the horizontal flange of the

connecting bar constituting said stop bar is provided with transverse slots 35^a through which the bolts or lag screws 35 extend. The stop bar is also supported by straps 36 from the frame 10,—the said straps having bolt and slot connections 36^a to permit the adjustment described. By loosening said bolts the bar may be adjusted in one direction or the other with reference to the vertical plane of operation of the stapling head. The clinching bar 17 depends downwardly in front of said stop bar, as clearly shown in Fig. 1, so that there is room back of said clinching block for the adjustment described. In practice the stop bar 34 is adjusted with reference to the plane of operation of the stapling head to correspond with the depth of the flange on the head of the box, so that the tubular body with the flanged head inserted therein by hand, may be brought with its ends against the stop bar 34, without the clinching block 17 striking the head 33 of the box. This is important, as otherwise in the rapid operation of applying the heads and placing the boxes on the table 19, the head 33 of the box would be apt to be struck by the clinching block and dislodged from its proper position in the end of the body. The horizontal adjustment provided for the bar 34 is required to accommodate boxes with heads of varying depth of flange. The heads of the boxes are, by preference, made large enough to fit snugly within the ends of the tubular body, so as to be retained by friction in the proper position while being handled preliminary to and during the stapling operation.

The bar 34 is preferably curved at its ends, as indicated at 34^a, to prevent the ends from engaging in the recessed ends of the box when the box is placed upon the table. The longitudinal rails 20, constituting the top of the table are, for the same purpose, curved downwardly at their ends as indicated at 20^a.

To facilitate the movement of the box body on the top of the table in moving it, particularly when loaded, to apply staples successively in spaced positions through the marginal end of the tubular body and the flange of the head, antifriction devices are preferably provided on the table. As shown, these consist of a plurality of rows of anti-friction rollers 37 supported in any convenient manner,—as shown, by parallel spaced, longitudinally extending rails 38. In operation, a box with the head applied is placed upon the table and its end is brought into engagement against the stop bar 34, with the clinching block near one corner of the box. The treadle 15 is then pressed and the box is pushed rapidly across the table, the staples being applied in the usual way until the next adjacent corner of said box is reached. The treadle is then

released and the box is turned or rotated on its corner to bring the next adjacent side upon the table and the operation is continued until the four sides of the box have been operated upon. To facilitate the turning of the box on the table, grooves 20* are preferably formed in the bars 20 and in the rails 38, (see Fig. 2), said grooves being in a row extending transversely across the table in the vertical plane of operation of the stapling mechanism. When the box has been fed along the table until the last staple is applied to the side that is being operated upon and it is necessary to turn the box on its next adjacent corner to bring the next side of the box into operative position, the corner will slip easily in the line of grooves 20*, which thus facilitates the turning operation.

The new machine presents a table and associated stapling mechanism for rapidly stapling in the ends of boxes of the kind and for their rapid and easy handling with the little attention capable of being given by workmen of ordinary intelligence. Boxes of any size may be headed on the machine. No forms are required, as in the case of machines of the kind heretofore used. No adjustment of the stapling head on the standard frame is required for boxes of different lengths, the stapling head being fixed and always occupying the same relation to

the horizontal position of the box supporting deck or table. At the same time, the deck or table may be readily moved to give full and easy access to the stapling head, to remove or repair the parts therein. And the clinching block is rigidly fixed with reference to the stapling head, thus insuring a perfect clinching of the staples, which are driven vertically from the outside and clinched against the inside of the end flange of the box.

While in describing my invention I have referred to certain details of mechanical construction and arrangement of parts, it is to be understood that the invention is in no way limited thereto except as may be pointed out in the appended claim.

I claim as my invention:

In a machine of the class described, a stapling head adapted for driving staples in a vertical plane, a clinching block in said plane above the stapling head, and a horizontal table at one side of the driving plane of said stapling head, said table being provided with a transverse groove substantially in line with said stapling head of sufficient depth to facilitate the turning of substantially rectangular boxes.

In testimony that I claim the foregoing as my invention, I affix my signature this 30th day of October, A. D. 1923.

HARRISON B. WALTER.