H. B. WALTER.

CLENCHING BLOCK FOR STAPLING MACHINES.

APPLICATION FILED FEB. 10, 1916.

1,250,735.

Patented Dec. 18, 1917.

3 SHEETS—SHEET 1.

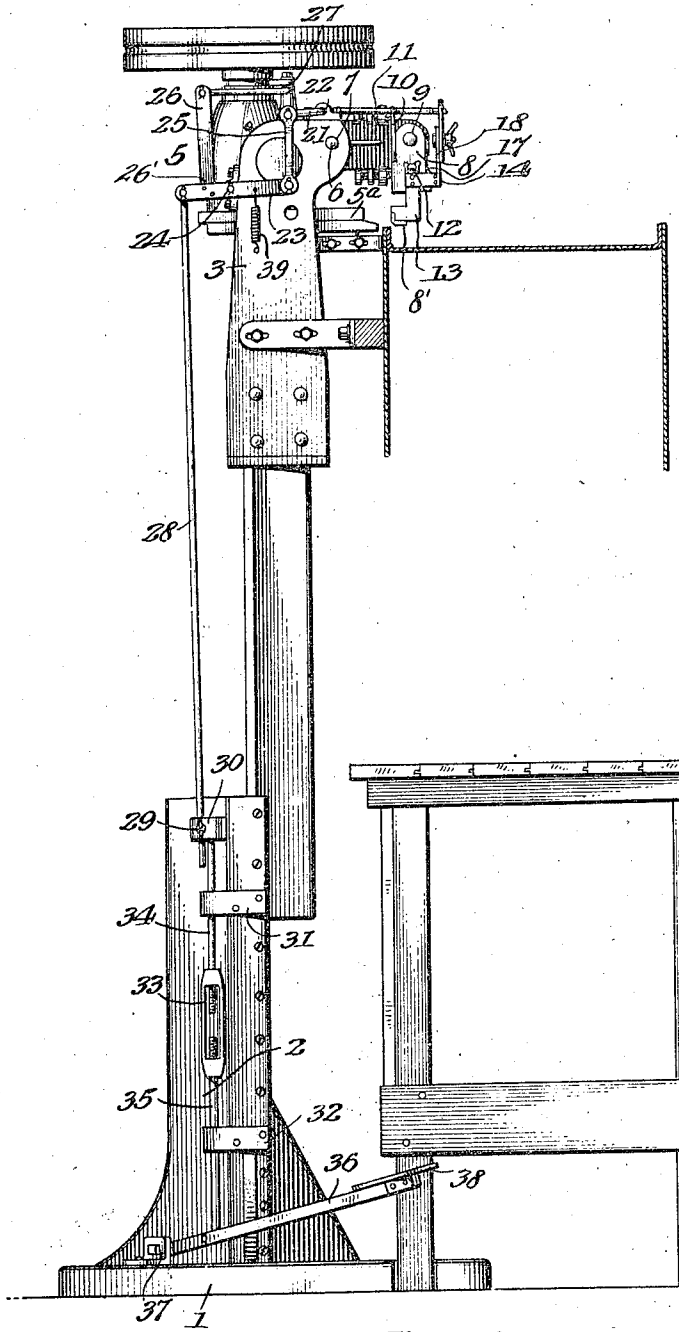
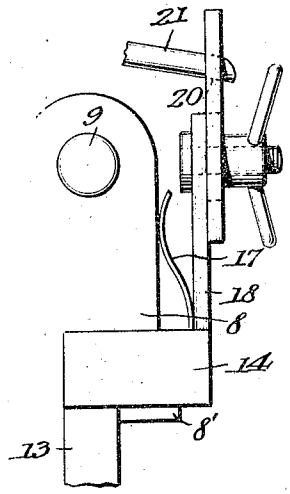


Fig. 1.

Fig. 5.



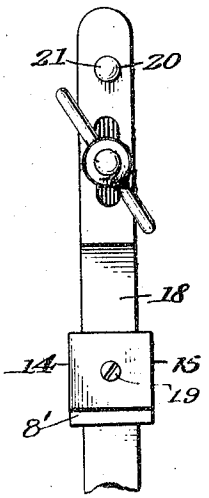


Fig. 6.

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By Louis Bagger & Co.
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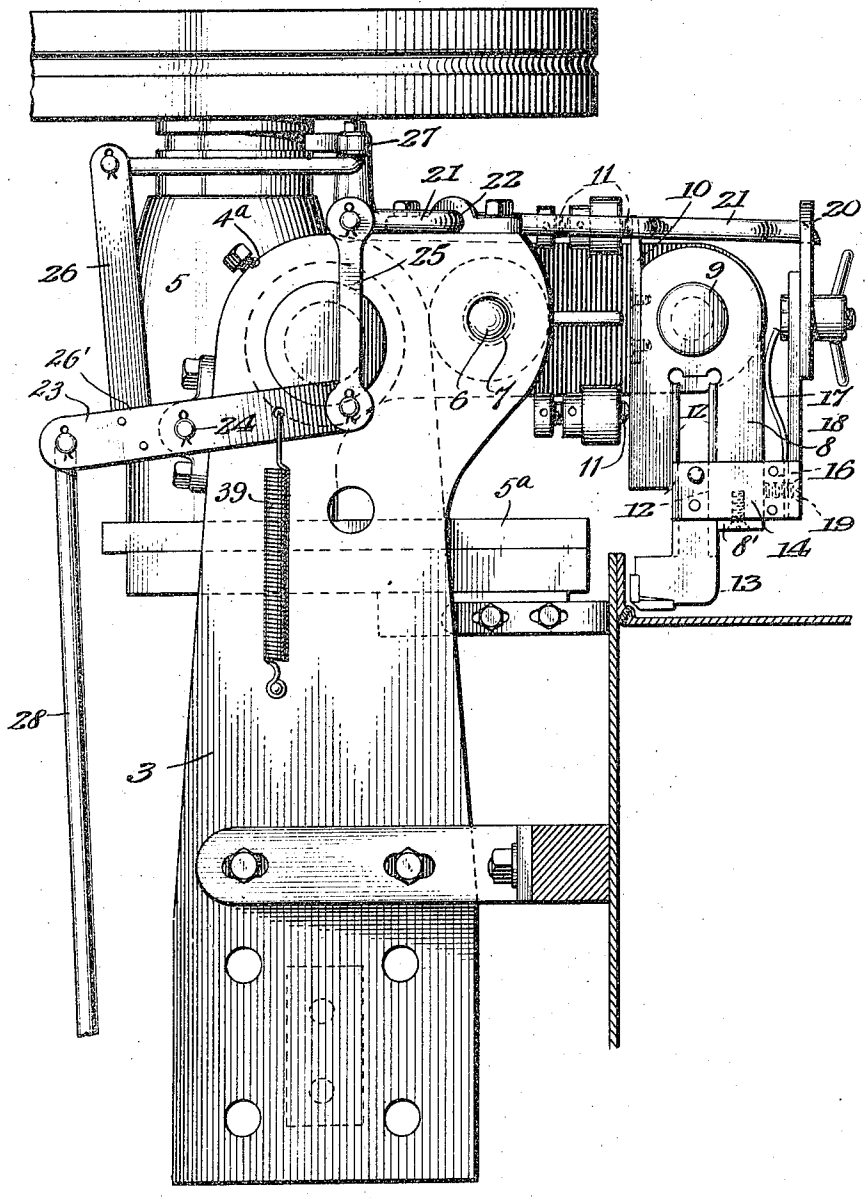


Fig. 2.

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3 SHEETS—SHEET 3.

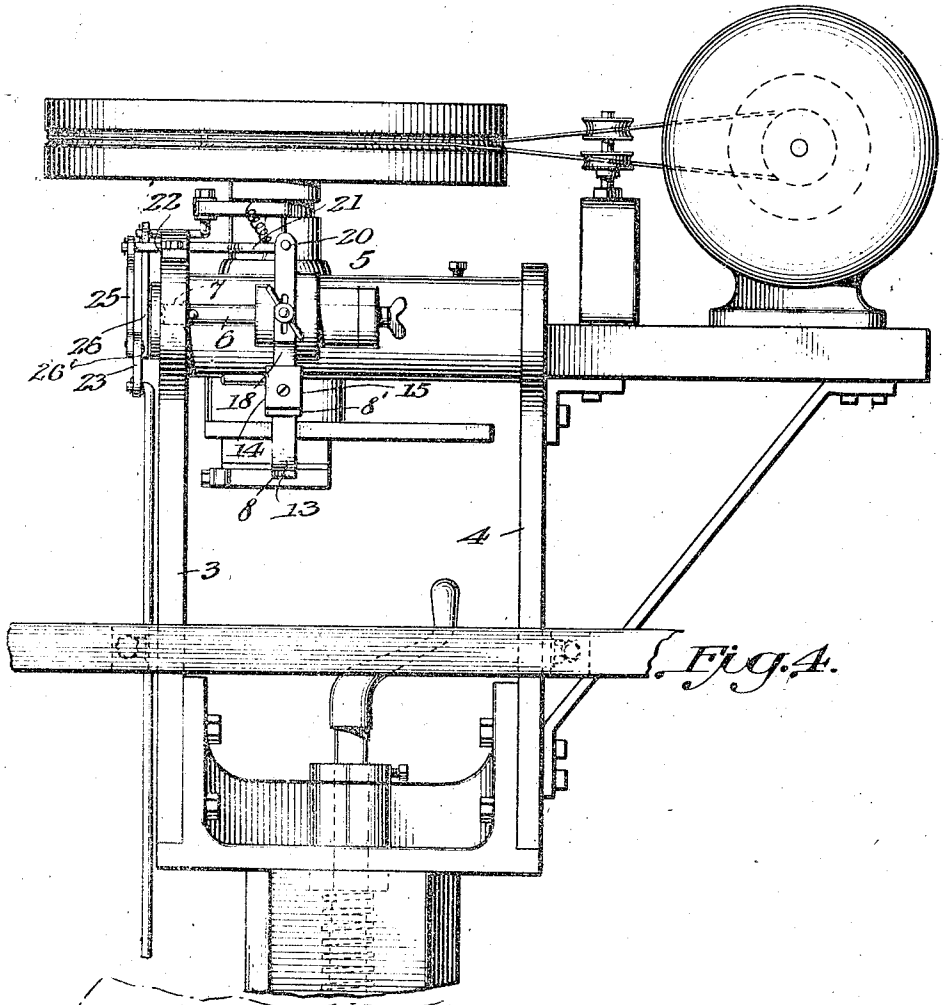


Fig. 4.

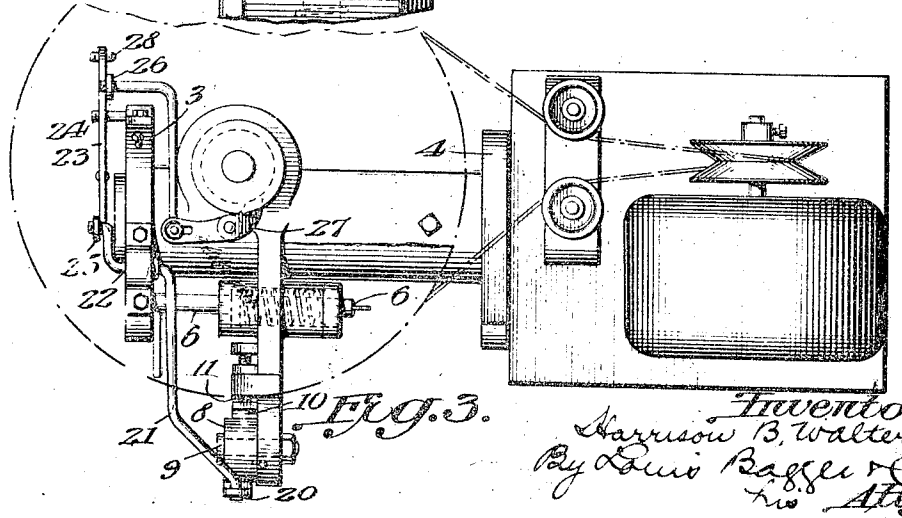


Fig. 3.

Inventor:
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UNITED STATES PATENT OFFICE.

HARRISON B. WALTER, OF DANVILLE, ILLINOIS.

CLENCHING-BLOCK FOR STAPLING-MACHINES.

1,250,735. Specification of Letters Patent. Patented Dec. 18, 1917.

Application filed February 10, 1916. Serial No. 77,523.

To all whom it may concern:

Be it known that I, HARRISON B. WALTER, citizen of the United States, residing at Danville, in the county of Vermilion and State of Illinois, have invented certain new and useful Improvements in Clenching-Blocks for Stapling-Machines, of which the following is a specification.

My invention relates to an improvement in clenching blocks and accessories for stapling machines for heading solid end fiber boxes.

The invention consists in a novel form of clenching block slidably mounted upon its support so that it may be raised or lowered vertically for the purpose of entering the recessed head of the box during the operation of stitching in the heads and again for removing the box after the head is stitched in.

It further consists in means for regulating the height of the clenching block under the constant control of the operator.

It still further consists of means for operating the clenching mechanism in connection with the raising or lowering of the clenching block.

The invention still further consists in a compression spring, the tension of which may be regulated for the purpose of making the clenching block yielding in movement, to such an extent that, when the adjusting bolt bearing on the spring is set to proper position, the clenching block will have a slight springing movement away from the staple, thus allowing the block to yield to any increased or excessive thickness, due to additional layers in the stock being operated upon.

In the accompanying drawings:—

Figure 1 is a side elevation of the entire machine showing the relation of the parts.

Fig. 2 is a view in side elevation of the upper end of a stapling machine showing my improvements attached.

Fig. 3 is a top plan view showing the operating mechanism.

Fig. 4 is a side elevation looking from the operating side of the machine;

Fig. 5 is an enlarged side elevation of the clenching-block; and

Fig. 6 is an end elevation of the same.

To base 1 is fastened a vertically adjustable support 2, carrying side members 3 and 4. In the upper ends of the side members 3 and 4 is pivotally mounted at 4^a, a stapling machine 5 which is held against rotation by means of spring bolt 6 and recess 7. The housing for the staple-forming and feeding mechanism is disclosed at 5^a. A clenching bar 8 is pivotally mounted upon the machine 5, at 9. Rigidly affixed to the clenching bar 8 is a strong steel spring 10, the tension of which is adjusted by means of the adjusting screws 11.

Toward the bottom of the clenching bar 8 a slot 12 is provided, which is adapted to slidably receive the L-shaped clenching block 13. The upper portion of the block 13 has rigidly attached to it side plates 14 and 15. These plates are screwed on to a small block 16.

A spring 17 is interposed between a bar 18 and the block 16, and the screw 19 rigidly holds them together. One end of the spring 17 is adapted to bear against the clenching bar 8 to keep the block 13 in alinement with the slots 12. A cross plate 8′ is fastened to clenching bar 8 and is adapted to be engaged by the side plates 14 and 15 to limit the downward movement of the clenching block 13.

The upper edge of the bar 18 is provided with an orifice 20, through which is passed one end of the bent lever 21, which is pivotally mounted at 22 upon the top of the side plate 3.

A lever 23 is pivoted at 24 on one edge of the side plate 3. One end of the lever 23 is connected with a link 25. The other end of link 25 is connected to the lever 21. On the other side of the pivot 24 there is rigidly affixed to lever 23 a bar 26 at 26′ which is connected to the clutch mechanism 27. The lever 23 has pivotal connection with a treadle rod 28. Adjustment of the frame vertically is possible and the lock bolt 29 in the connection 30 permits the treadle rod 28 to slide up or down through the connection 30 when the bolt 29 is loosened and will be held at whatever position is desired, when it is tightened.

I provide straps 31 and 32 as guides for the rods 34 and 35, and I also provide turn buckle 33 for the purpose of making slight adjustments, between the two rods 34 and 35, which form a continuation of treadle rod 28. Rod 35 is connected at its lower end to the treadle lever 36, which is pivoted at 37 and is provided with the treadle 38.

The operation is as follows:

After the stapling machine has been ad-

justed vertically according to the size of the box to be stapled, and set rigid ready to have the box with inserted head run into the machine for the purpose of inserting the staples, it will be obvious that the recessed head with the flanges engaging the body of the box would strike the clenching bar. As the clenching bar must be inside of the head below the flanges while the stitches are being put in; and since the operator has both hands engaged while pushing the box into the machine, and both hands are further engaged while sliding the box through the machine during the stitching operation, it is apparent that the clenching block must be raised so as to give clearance for the flanges of the box head. This is accomplished by means of the spring 39 connected to lever 23 near the point of connection of said lever to link 25.

The clenching block 13 is normally in a raised position permitting the operator to slide a box under the stapling machine and into position without engaging the flanges of said box with flanges of said clenching block 13. After placing it as desired, the operator places his foot on the treadle 38, pulling the treadle bar 28 downward, and, through the levers 23 and 21 and link 25, forcing the bar 18 downward carrying with it the block 13 and bringing it downward to its operable position.

As soon as the block 13 is in its operable position the rigid bar 26 will have operated the clutch mechanism 27 and the stapling machine will begin the operation of stapling the heads in the boxes. The operation will be continued until the operator removes his foot from the treadle 38 when the block 13 will be raised through the bar 18, lever 23, and spring 29. Then at the same time the bar 26 will operate to declutch the stapling head and cause it to cease its work, and the box may be slid out from under the machine.

The tube or body portion of solid end boxes is made of one sheet creased and folded into rectangular form by means of a lapped joint, and these bodies with the inserted head are pushed through the machine heads and stapled into position to make the finished box. It is therefore, apparent that there are two thicknesses of stock to be stapled together for the entire circumference except where the lap is encountered, at which point there are three thicknesses to be stitched.

If the clenching block was hung in a rigid condition, when the point where three thicknesses would come through is reached, the machine would be choked. To overcome this the heavy steel spring 10 is provided at the upper end of the clenching bar 8, and is engaged by the adjusting screws 11. This arrangement permits the clenching bar to give sufficiently to allow the extra thickness of stock to pass into the machine and receive a staple properly clenched. The spring is of sufficient strength to give the clenching block the resistance necessary to upset the staple.

I claim:

1. The combination with a frame, of a horizontally-disposed stapling head, a clenching-bar carried by the head, and a clenching-block mounted in said clenching bar and arranged for vertical movement with respect to the horizontally-disposed stapling-head.

2. The combination with a frame, of a horizontally-disposed stapling head, a clenching-bar carried by the head, a clenching-block mounted in said clenching bar and arranged for vertical movement with respect to the horizontally-disposed stapling-head, and means for operating said clenching-block.

3. The combination with a frame, of a stapling head pivotally mounted in said frame, a clenching bar pivotally mounted on said stapling head and provided with a slot, a clenching block slidably mounted in said slot, a clutch, and means for operating said clenching block and said clutch in properly timed relation.

4. The combination with a frame, of a stapling-head, a clenching-bar so mounted as to be capable of oscillation, a spring secured to the clenching-bar and adapted to normally hold the clenching-bar yieldingly in position during the clenching operation, and means on the stapling-head on both sides of the center of oscillation of said clenching bar adapted to bear on said spring and said bar to regulate the resisting action of the clenching-bar.

5. The combination with a frame, of a a horizontally-disposed stapling-head, a spring-controlled clenching bar pivoted to the head, a clenching-block slidably mounted in said bar, and arranged for vertical movement therein with respect to said horizontally-disposed stapling-head, and means for operating said block.

6. The combination with a frame, of a stapling head, a clenching bar pivotally mounted thereon, a clenching block slidably mounted in said clenching bar, a block, side plates connecting said block with said clenching block, a bar, a spring, means for fastening said bar and said spring to said block, said spring arranged to bear against said clenching bar for the purpose of keeping said clenching block in alinement with said clenching bar, and means connected to said bar for operating said clenching block.

7. The combination with a frame, of a horizontally-disposed stapling-head, a clenching-bar pivotally mounted thereon, a clenching-block mounted in said clenching bar, and arranged for vertical movement with respect to said horizontally-disposed stapling-head, and means on said clench-

ing-bar for limiting the movement of said clenching-block.

8. The combination with a frame, of a stapling-head, a clenching-bar pivotally mounted thereon, a clenching-block vertically movable in said clenching-bar, said clenching-block having affixed thereto a vertically adjustable member, and resilient means connected to said member and arranged to press upon the clenching-bar, thus rendering possible vertical reciprocation of said clenching-block, and tending to prevent binding of the clenching-block upon the clenching-bar.

9. The combination with a frame, of a stapling-head, a clenching-bar pivotally mounted upon said stapling-head and provided with a yielding element, adjusting means on each side of said clenching-bar, so arranged that the clenching-bar can be adjusted to any required position and held yieldingly in said position, and a clenching-block mounted on said clenching-bar.

10. The combination with a frame, of a stapling-head, a clenching-bar pivotally mounted on said stapling-head, a resilient member mounted upon said clenching-bar so as to extend beyond the axis of oscillation, adjustable means adapted to bear upon said resilient means for putting a tension thereon, other adjusting means adapted to bear against said clenching-bar on the other side of the pivotal point from said resilient means, the arrangement being such that the clenching-bar can be adjusted to any required position and held yieldingly in such position, and a clenching-block mounted on said clenching-bar.

11. The combination with a frame, of a horizontally disposed stapling-head, a clenching-bar mounted thereon, a clenching-block slidably mounted upon said clenching-bar and arranged to receive lateral pressure, means for limiting the reciprocation of said clenching-block in each direction, and means for actuating said block.

12. The combination with a frame, of a stapling-machine pivotally mounted therein, normally arranged to operate in one position, and manually-operable means for holding said machine in its normal position, the whole so arranged that the stapling-machine may be swung to another position for inspection and adjustment.

13. The combination with a frame, of a stapling-machine pivotally mounted therein, arranged to be positioned normally so as to drive staples in a horizontal plane, and means for holding it in its normal position, said means being manually operable to release said machine when desired, so that it may be swung about its pivot for inspection and adjustment.

14. The combination with a frame, of a stapling-machine pivotally mounted therein, and adapted normally to drive staples in a horizontal plane, and manually-controllable locking means for holding said stapling-machine in its normal position, and so arranged as to permit said machine to swing about its pivot, when desired, for inspection and adjustment.

15. The combination with a frame having two vertical side plates, of a stapling-head pivotally mounted thereon, a bolt mounted on said stapling-head, one of said side plates having recesses adapted to receive said bolt and means for yieldingly holding said bolt in one of said recesses, whereby the rotation of the stapling-head is prevented.

In testimony whereof I affix my signature.

HARRISON B. WALTER.