No. 874,361. PATENTED DEC. 17, 1907.

E. HORTON.

NAILING MECHANISM FOR BASKET MAKING MACHINES.

APPLICATION FILED FEB. 27, 1906.

Fig. 1.

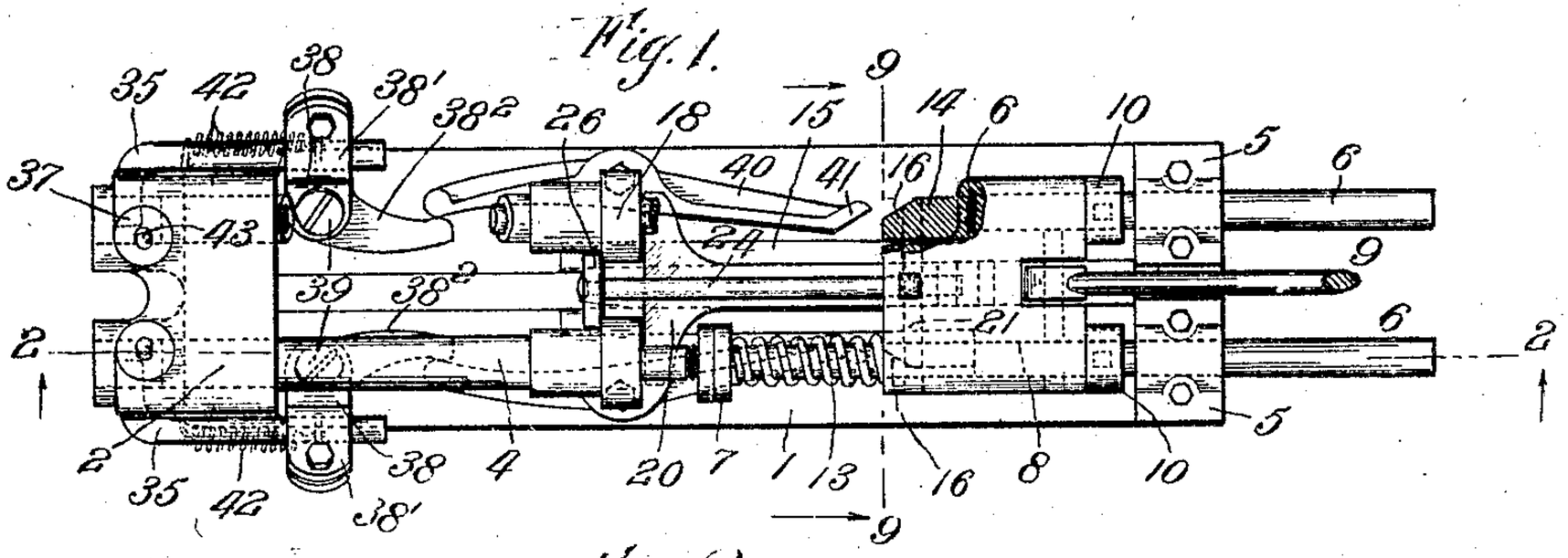


Fig. 2.

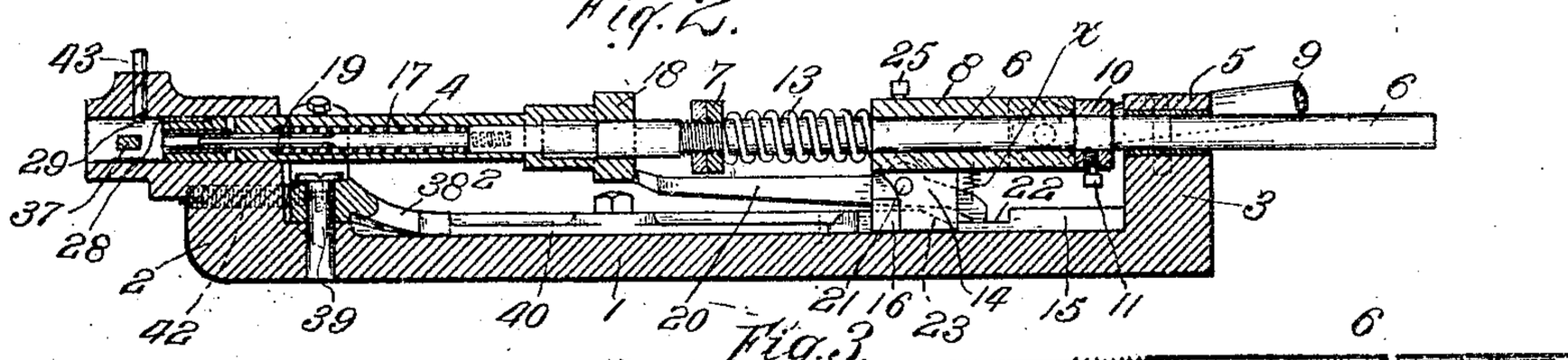


Fig. 3.

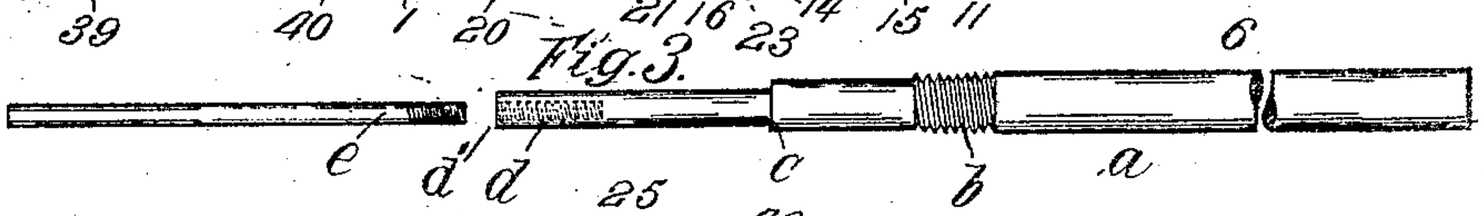


Fig. 4.

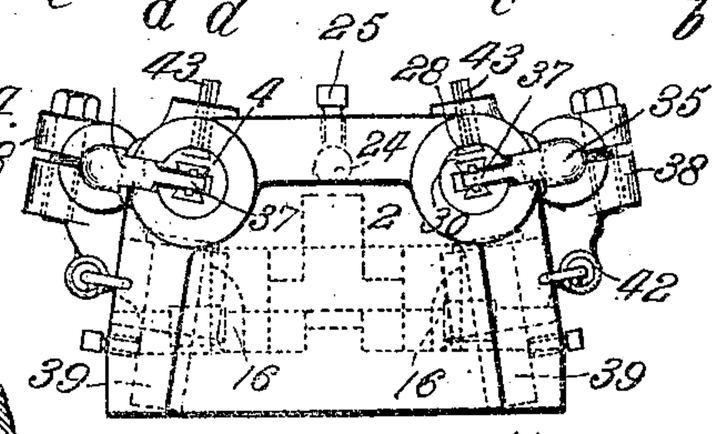


Fig. 5.

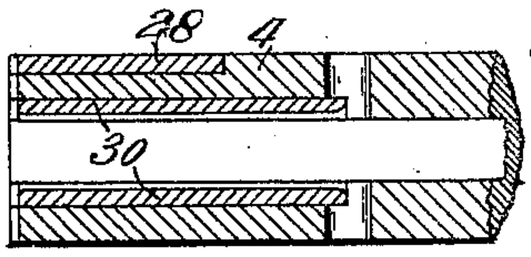


Fig. 6.

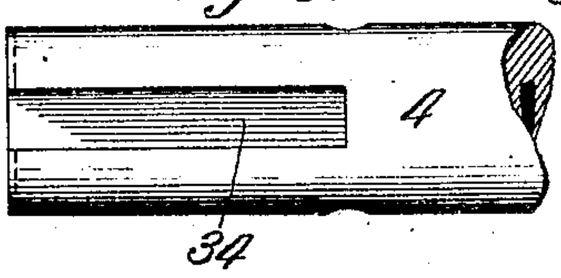


Fig. 7.

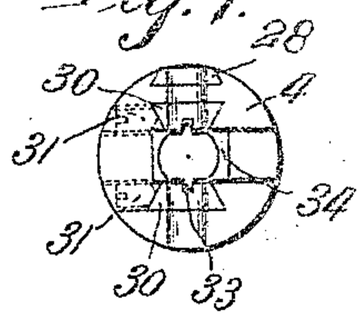


Fig. 8.

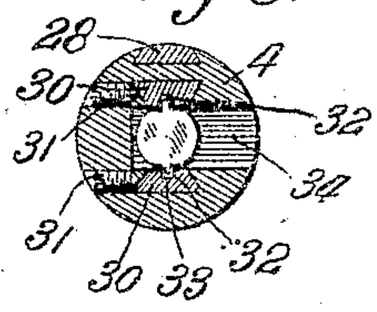


Fig. 9.

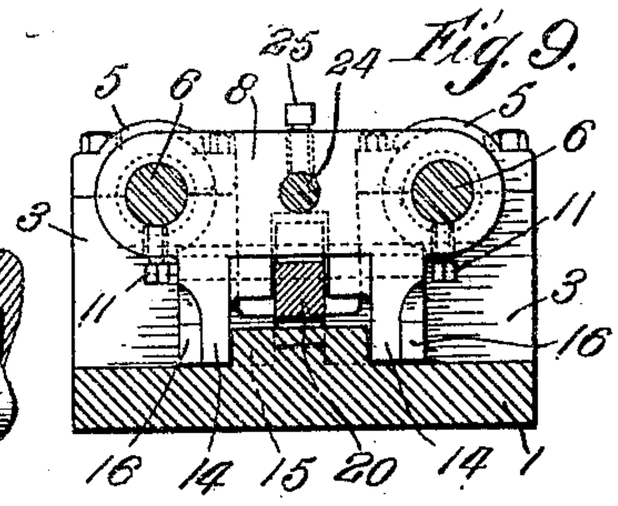
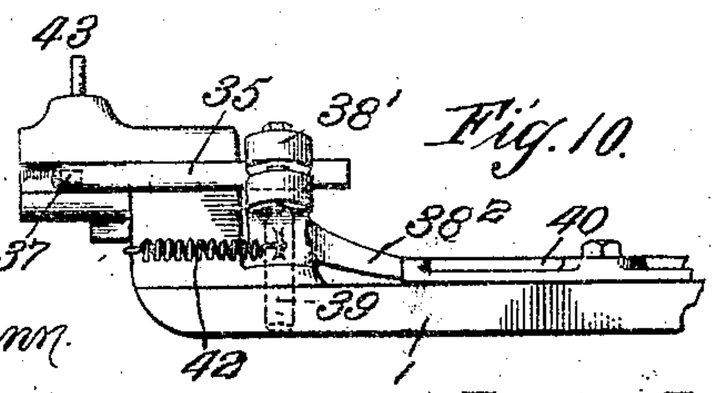


Fig. 10.



WITNESSES.

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EMMET HORTON, OF ELMIRA, NEW YORK.

NAILING MECHANISM FOR BASKET-MAKING MACHINES.

No. 874,361. Specification of Letters Patent. Patented Dec. 17, 1907.

Original application filed August 15, 1905, Serial No. 274,301. Divided and this application filed February 27, 1906. Serial No. 303,285.

To all whom it may concern:

Be it known that I, EMMET HORTON, a citizen of the United States, residing in Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Nailing Mechanism for Basket-Making Machines, of which the following is a specification.

The mechanism of my present invention is more particularly designed for use in machines of the type shown in my Patent, No. 760,791, of May 24, 1904, and in my Patent No. 835,135 of November 6, 1906 (application No. 274,301, filed August 15, 1905) which patent shows nailing mechanism of substantially the same construction as that herein shown in connection with a fully organized machine for the manufacture of baskets of wood veneer.

This application is a division of my application No. 274,301, filed August 15, 1905 above mentioned.

The primary object of my invention is to so construct the nailing mechanism that it shall operate more efficiently to form and drive staples.

A further object of my invention is to provide improved means for renewing the wearing surfaces of the staple-forming sleeves.

The accompanying drawings illustrate nailing mechanism embodying my improvements and adapted for use in machines of the class shown in my patents above referred to, but it will be understood that some features of my improvement may be embodied in nailing mechanism for use in other machines.

Figure 1 is a plan view of my improved nailing mechanism, some of the parts being broken away in order to better illustrate other parts. Fig. 2 shows a vertical, longitudinal section on the line 2—2 of Fig. 1. Fig. 3 is a view on an enlarged scale of the hammer and hammer rod. Fig. 4 shows an end elevation of the nailing mechanism. Figs. 5 and 6 are views on an enlarged scale respectively in longitudinal section and in side elevation of the front portion of one of the staple-forming sleeves. Fig. 7 shows a front elevation of one of the staple-forming sleeves. Fig. 8 shows a transverse section of the sleeve shown in Fig. 7. Fig. 9 shows a transverse section on the line 9—9 of Fig. 1, looking in the direction of the arrow. Fig. 10 shows a side elevation of the front end of the nailing mechanism.

The base plate, 1, is similar in general construction to that shown in my Patent No. 760,791, of May 24, 1904. It has a front upwardly projecting portion or nailer-head, 2, and an upwardly projecting rear portion, 3. The nailer-head, 2, is bored to receive two parallel staple-forming sleeves, 4, while the back-piece, 3, has bearings closed by caps, 5, to receive the hammer rods, 6, which reciprocate therein. Each hammer rod is formed in the manner shown in Fig. 3. It has an enlarged rear portion, *a*, adapted to reciprocate in the bearings in the back-piece, 3; a screw-threaded portion, *b*, to receive the nuts, 7, shown in Fig. 2; a shoulder, *c*, and a socket, *d* to receive the hammer, *e*. A shoulder, *d'*, is formed on the rod at the front end of the socket, for a purpose hereinafter explained.

The hammer and hammer rod are of substantially the same construction as that shown in my prior machines above referred to. The hammers and hammer rods are disposed parallel to each other and reciprocate simultaneously in their bearings; they also extend through a cross-head, 8, and while not rigidly attached thereto have only a slight movement therein.

It will be noted that the hammer, *e*, has a screw-threaded adjustable connection with the hammer rod at *d*. As there is considerable wear on the outer end of the hammer, it is often desirable to grind it, but such grinding shortens the rod. By means of the adjustable connection described, the loss by grinding may be compensated and yet the relation between the shoulders *d'* and 19 hereinafter referred to, is not changed and the spring, 17, also hereinafter referred to, operates in the same manner at all times.

The cross-head is driven by a pitman or connecting rod, 9, the driving mechanism not being illustrated but it may be the same as that heretofore employed by me. Collars, 10, are attached by set screws, 11, to the hammer rods in rear of the cross-head and springs, 13, are interposed between the front end of the cross-head and the nuts, 7. These springs have considerable strength and press the cross-head firmly against the collars, 10, but permit the cross-head to move to a small

extent toward and from the collars. The cross-head is formed with a downwardly projecting bifurcated front portion, 14, which straddles a guide-rail, 15, on the upper surface of the bed-plate. The lower portion of the cross-head is beveled on opposite sides at 16 for a purpose hereinafter explained.

The staple-forming sleeves, 4, are in general construction similar to those shown in my patent and application above referred to. They are enlarged at their rear ends to form collars, 18, and they receive the hammers and hammer rods, in the manner indicated in Fig. 2. Springs, 17, are interposed between the shoulders, d', of the hammer rods and the shoulders, 19, in the sleeves and tend to move the sleeves forward away from the hammer rods when under compression, and they provide a yielding connection between the hammer rods and the sleeves. The hammer-carrying cross-head, 8, carries a lever, 20, pivoted at 21 to the portion, 14, of the cross-head and adapted to engage the collars, 18. The shorter arm of the lever is held down by a spring x, and moves in a recess, 22, in the guide-rail, 15. When the cross-head, 8, is moved from its rearmost position forwards, a rigid connection is provided between said cross-head and the sleeves so that the latter are moved positively forwards the required distance but as soon as the end of the short arm of the lever, 20, comes in contact with the inclined surface, 23, the lever is moved from engagement with the collars, 18, so that the sleeves are no longer moved positively forwards but are held in place or move forwards further by reason of the yielding connection, 17, between the hammer rods and the sleeves. A rod, 24, is rigidly connected by means of a set screw, 25, with the cross-head, 8, and carries on its opposite end a block, 26, which is adapted to engage the collars, 18. The arrangement is such that when the cross-head, 8, moves forward the rod, 24, moves away from the collars, 18, but on the return movement of the cross-head the block, 26, will engage the collars and cause the staple-forming sleeves to move rearwards positively. Each staple-forming sleeve is provided with a removable cutter, 28, of hard steel which coöperates with another cutter at the point, 29, as heretofore. Each sleeve is also provided with two removable wearing surfaces or blocks, 30, which are arranged in dove-tailed recesses in the end of the sleeve and are held in place by set screws, 31. These blocks are formed with grooves, 32, as illustrated most clearly in Fig. 8, and are so disposed as to receive the staples as they are formed and accommodate the ribs, 33, of the hammers. I find that by using separate blocks of this kind, harder material may be employed and the blocks may be withdrawn and replaced when worn, very conveniently. Each staple-forming sleeve is formed with a longitudinal slot or recess, 34, to accommodate an anvil, 35. The nailer head is also slotted or recessed to accommodate the anvils. The anvils, 35, have arms, 37, projecting through the slots in the nailer head and in the sleeves and these arms are adapted at times to project across the bore of the sleeves. These anvils are attached to bell-crank rocking levers, 38, pivoted at 39, to the bed-plate. The arms, 38′ of these bell-crank levers are adjustably connected with the anvils while the arms, 38^2, are arranged to engage levers, 40, pivoted to the bed-plate and having rear ends, 41, adapted to engage the inclined surfaces, 16, of the nailer carrying cross-head, 8. Springs, 42, attached to the nailer head and to the levers, 38, pull the levers in one direction, tending to move the anvils across the ends of the staple-forming sleeves while the anvils are moving in the opposite direction to withdraw them from the sleeves by means of the levers, 40.

The wire for forming the staples is fed in the usual way along guides, 43. The guides, 43, however, differ in detail from those heretofore employed. Each one of them consists of a short cylindrical rod having a longitudinal groove on one side as clearly shown in Figs. 1, 2 and 4. The guide groove is therefore eccentric to the axis of the rod and by turning this rod about its axis, the position of the wire relatively to the anvil may be changed or adjusted. This, in practice, has been found to be very desirable.

In operation, when the cross-head, 8, is moved forward and the anvils are inserted in the nailer heads, in the manner indicated in Fig. 1, the staple-forming sleeves are first moved positively forwards, the wire is cut and the staples are formed around the anvils and received in the sleeves. Then the beveled surfaces, 16, engage the levers, 40, and cause the anvils to be withdrawn before the hammers are advanced; then the hammers advance and drive the staples out of the sleeves into the basket. As soon as the staples are driven, the cross-head, 8, retreats, the hammers are withdrawn and then the staple-forming sleeves are withdrawn to their former position. The mechanism by means of which the anvils are withdrawn from the nailer head before the hammers are advanced is considered of great importance as serious inconvenience would be encountered if the hammers were operated before the anvils were completely withdrawn.

I have shown two staple-forming and driving mechanisms organized to operate conjointly. It will be understood, however, that my invention contemplates also mechanism for forming and driving a single staple or similar securing device.

I claim as my invention:

1. Nailing mechanism comprising a reciprocating hammer and a staple forming

sleeve, having a removable and replaceable block in its bore, in contact with which the hammer moves.

2. Nailing mechanism comprising a reciprocating hammer formed with a longitudinal rib and a staple forming sleeve having a removable and replaceable wearing block in its bore, formed with a groove corresponding with the rib on the hammer and in contact with which the hammer moves.

3. The staple-forming and cutting sleeve herein described, recessed to receive a replaceable cutter and having longitudinally grooved removable blocks in its end for forming staples, substantially as described.

4. A staple-forming sleeve having a longitudinal groove to receive an anvil, a removable cutter and detachable wearing blocks, substantially as described.

5. Nailing mechanism comprising a staple forming sleeve having a shoulder, 19, a hammer rod mounted to reciprocate in the sleeve and having a shoulder, d', a hammer, e, having a screw-threaded adjustable connection with the end of the hammer rod and a spring interposed between said shoulders.

In testimony whereof, I have hereunto subscribed my name.

EMMET HORTON.

Witnesses:

I. B. COLEMAN,

GUS. WOLFGRAM.