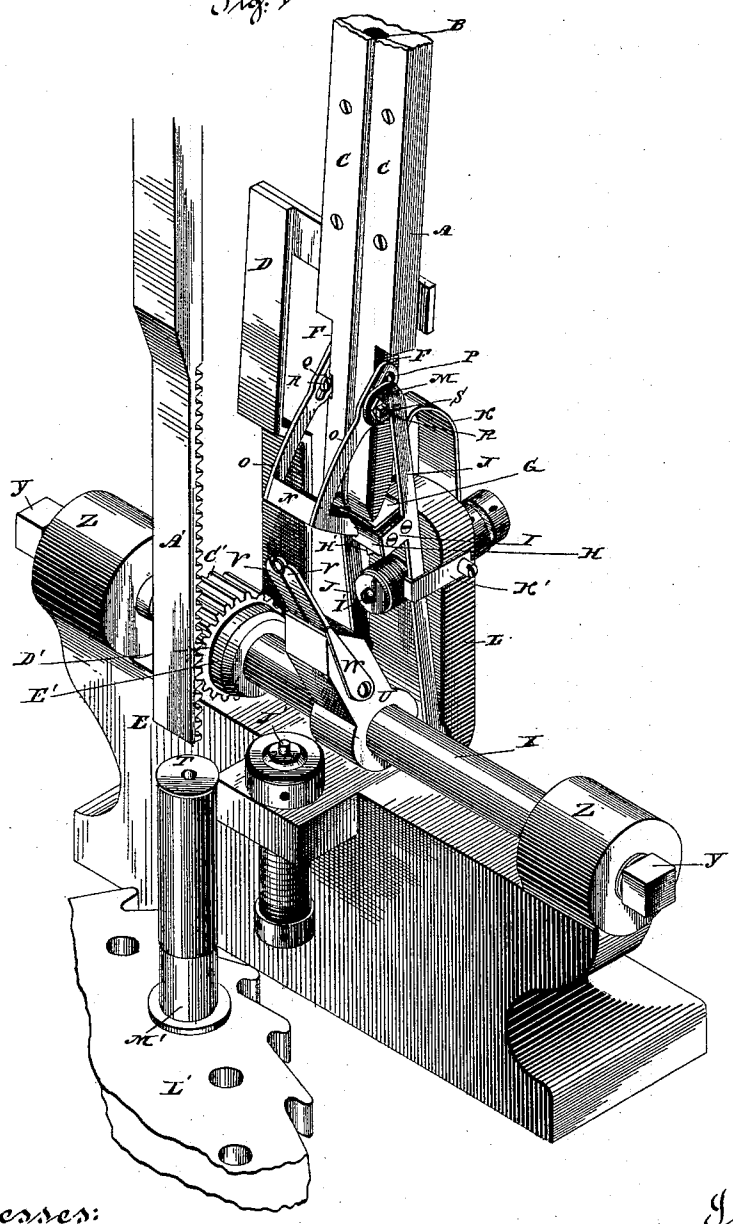
(No Model.) 3 Sheets—Sheet 1.

W. B. PLACE.

MACHINE FOR CAPPING CARTRIDGES.

No. 406,466. Patented July 9, 1889.

Fig. 1



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 2

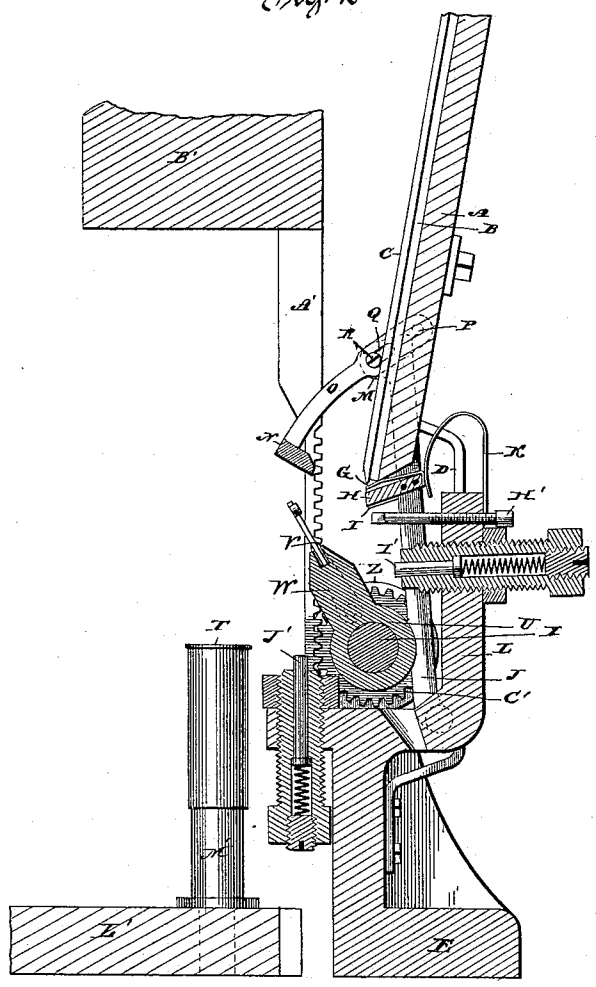
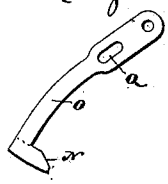


Fig. 5



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(No Model.) 3 Sheets—Sheet 3.

W. B. PLACE.

MACHINE FOR CAPPING CARTRIDGES.

No. 406,466. Patented July 9, 1889.

Fig. 3

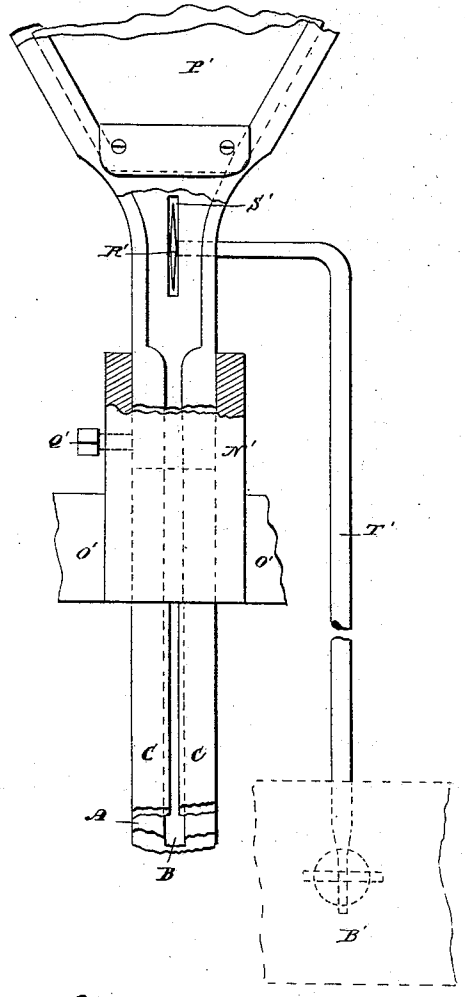
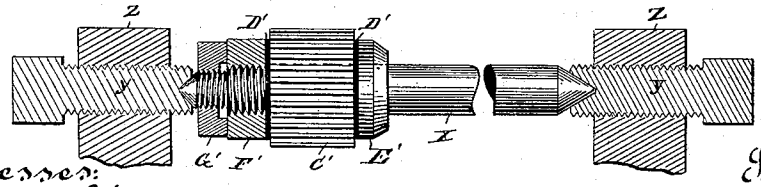


Fig. 4



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UNITED STATES PATENT OFFICE.

WILLIAM B. PLACE, OF WEST HAVEN, CONNECTICUT, ASSIGNOR TO THE AMERICAN BUCKLE AND CARTRIDGE COMPANY, OF SAME PLACE.

MACHINE FOR CAPPING CARTRIDGES.

SPECIFICATION forming part of Letters Patent No. 406,466, dated July 9, 1889.

Application filed February 25, 1889. Serial No. 301,136. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. PLACE, residing at West Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Machines for Capping Cartridges; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improvement in machines for capping cartridges, the object being to simplify them, to reduce the cost of building them, and to make them easier of attention and repair.

With these ends in view my invention consists in an improved guard for retaining the caps between the fingers of the cap-carrier until they have firmly grasped them; in improved connections between the shaft of the cap-carrier and the gate of the press; in an improved agitator for the hopper, and in certain other details of construction and combinations of parts, as will be more fully described hereinafter, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a broken view in perspective showing those particular parts of a capping-machine to which my invention relates. Fig. 2 is a view of such parts in vertical section through the cap-chute and the cap-carrier. Fig. 3 is a view, partly in front elevation and partly in section, showing the upper end of the chute, the lower end of the hopper, and the agitator. Fig. 4 is a detached view, partly in section and partly in elevation, of the rock-shaft which carries the cap-carrier and showing the mode of frictionally coupling to it the gear-wheel by which it is operated, and Fig. 5 is a detached view of one of the arms of the guard.

As herein shown, the cap-chute consists of a flat bar A, having a longitudinal groove B formed in its outer face, and of two long plates C C, secured to the outer face of the bar on the opposite sides of the said groove so as to overlap the end walls of the same, the groove being adapted in its dimensions to permit a cap to slide through it flatwise. The lower end of the chute is secured to an upright frame D, attached at its lower end to the standard E of the machine. At a point below its attachment to the said frame the opposite edges of the chute are cut away, as at F F, down through its extreme lower end, the forward and rear faces whereof are beveled. The column of caps in the chute is normally retained therein against their tendency to drop out by means of a thin spring G, secured to and extending over an inclined block H, which, together with the spring, forms the gate of the device. The said block H is secured at its opposite ends to fingers I I, projecting forward, respectively, from two upright arms J J, the lower ends whereof are pivoted to the standard E aforesaid, as shown by Fig. 2 of the drawings. A spring K, secured to the upright arm L of the standard, engages with the rear edge of the gate and holds the same in its normal position, in which it closes the lower end of the groove in the chute.

The upper end of each of the pivotal uprights J J is provided with a forwardly-projecting perforated ear M. A block or plate N, having its inner edge beveled, is supported in front of the beveled lower end of the chute in an inclined position by means of two inclined arms O, the extreme upper ends of which are perforated and pivotally secured, respectively, to the recessed edge of the chute by pivots P P. Each of these arms is provided near its upper end with an elongated slot Q, and each is coupled to the ear M of the pivotal upright arm adjacent to it by means of an independent screw R, passed through its elongated slot from its inner face and through the perforation in the ear of the adjacent upright, the projecting outer end of the screw receiving a check-nut S, as shown.

The cap-carrier, which transfers the caps one by one from the chute to the successively-presented shells T, consists of a head U, two laterally-movable cap-carrying fingers V, mounted therein, and two springs W W, secured to the head and engaged with the fingers, so as to press them together. The head U is rigidly secured to a rock-shaft X, hung on centers Y Y, adjustably mounted in bearings Z Z of the standard E. The said

shaft is rocked for the operation of the cap-carrier by means of a rack A′, extending downward from the gate B′ of the press and engaging with a gear-wheel C′, located between two friction-washers D′ D′, held in place against the opposite faces of the gear-wheel by a collar E′, rigidly mounted on the shaft, and by two adjustable nuts F and G′, for which the shaft is oppositely threaded, so that they may be locked in their adjustments, as shown by Fig. 4 of the drawings. The said nuts are set so as to produce just sufficient friction between the gear-wheel and the washers to rock the shaft to the limit of its two positions and then slip. A screw H′, mounted in the upright arm L of the standard, is beveled at its forward end to form a wedge and arranged so that it will enter between and separate the fingers of the cap-carrier when the same is brought by the rock-shaft under the chute to receive a cap. Adjustable buffers I′ and J′, mounted in the standard, are provided for cushioning the cap-carrier at the end of its upward and downward movements, respectively. A finger K′, secured to the upright arm of the standard and bent around in front of one of the upright pivotal arms J, is provided for limiting the forward movement of the gate. The shells T are successively brought under the cap-carrier by means of a dial L′, provided with pins M′ for the shells, and intermittently rotated by means not herein shown.

In Fig. 3 of the drawings, which is drawn on a smaller scale than the other figures, the upper end of the chute is shown as entering a block or head N′, having arms O′ O′, by which it is supported. The upper end of this head is adapted to receive the lower end of the hopper P′, which is secured in place by a set-screw Q′. The caps are placed flatwise in this hopper, each in the same facial position, and fed therefrom down into the chute, being thereto agitated by each movement of the gate-head by means of a thin blade R′, tapering at both ends and playing up and down in the tapering neck of the hopper, which is provided with an upright slot S′, through which the blade is connected with an arm T′, attached at its lower end to the gate-head, which in this view is indicated by broken lines.

Having described my invention in detail, I will now proceed to set forth the mode of its operation.

The caps being arranged, as described, in the hopper, are agitated in the neck thereof, whereby they are prevented from clogging and fed down into the chute in a long column, which is normally supported by the gate standing at its lower end. When, now, the gate of the press makes its upward stroke, the rock-shaft will be rotated and the fingers of the cap-carrier will be pressed against the outer edge of the gate and push the same back and take its place under the lower end of the chute. When the arms are pressed against the gate, as described, they are also being crowded against the wedge, which enters between them and separates them sufficiently to adapt them to receive a cap between their upper ends. The guard is held up out of the way while the fingers of the cap-carrier pass under it to thus engage with the gate; but as soon as they begin to press the gate back the pivotal uprights carrying the gate also move back and through their connections with the guard begin to pull the same down in front of the fingers until when the said fingers are in their receiving positions under the chute it engages with the outer faces of their upper ends and also with the cap which they carry. Now when the gate of the press begins to descend the shaft is rocked the other way and the fingers move out from under the chute, the gate following after them, so as to take their place under the influence of the spring engaging with its rear edge. During the very first of the movement of the fingers away from the chute they are so separated by the wedge that they do not pinch and hold the cap between their upper ends. It is the office of the guard, which is at this time engaged with their upper ends, to hold the cap in place, which it does until the fingers have passed beyond the range of the wedge and are free to clamp the cap. The guard, it will be understood, is slowly moved out in front of the fingers, and then lifted above them by means of the spring acting through the gate and the pivotal uprights. When the gate is pushed back and the guard drawn down in front of the fingers, the screws coupling the guard-arms and the pivotal arms are moved to the upper ends of the elongated slots in the guard-arms. When, on the other hand, the gate is moved forward and the guard advanced in front of the fingers and lifted above them, the screws are moved to the lower ends of the said slots. The guard having been lifted above the fingers, they move on entirely free, nor stop until they reach a horizontal position, in which they hold the cap directly over the perforated center of the metallic head of a shell. When the fingers are in this position, a punch attached to the gate-head comes down between them and transfers the cap to the head, securing it in place. Both the upstroke and downstroke of the gate are a little longer than is required for the movement of the cap-carrier, the excess of motion in either direction being taken up by the slipping of the gear-wheel on the rock-shaft. The adjustable buffers take the blow or impact of the cap-carrier at both ends of its stroke, the gear-wheel slipping on the shaft after the carrier has struck one of the buffers, which are made adjustable to permit the length of the arc traversed by the carrier to be changed to suit the length of the shells being capped.

I would have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at lib-

erty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. In a machine for capping cartridges, the combination, with a chute, of a gate for closing the lower end thereof, a cap-carrier for removing the caps one by one from the chute, and a guard located in front of the chute and operatively connected with the gate and adapted to retain the caps in the cap-carrier until they are firmly grasped thereby, substantially as set forth.

2. In a machine for capping cartridges, the combination, with a chute, of a gate for closing the lower end thereof, a cap-carrier for removing the caps one by one from the chute, a guard located in front of the lower end of the chute and movably supported above the mouth thereof, and means for operating the guard to engage it with the upper end of the cap-carrier and hold it in engagement with the same until the fingers thereof have firmly grasped the cap, and then lift it above the said fingers to permit them to deliver the cap to the cartridge, substantially as set forth.

3. In a machine for capping cartridges, the combination, with a chute, of a gate for closing the lower end thereof, a cap-carrier for removing the caps one by one from the chute, a guard pivoted to the lower end of the chute, and means operatively connected with the gate for retiring it and for bringing it into action, substantially as set forth.

4. In a machine for capping cartridges, the combination, with a chute, of a gate for closing the lower end thereof, two pivotal upright arms for carrying the gate extending above the same, a cap-carrier for removing the caps one by one from the chute, and a guard located in front of the lower end of the chute and having two arms pivoted at their upper ends to the chute and provided with elongated slots, through which they are coupled by screws with the upper ends of the arms carrying the gate, substantially as set forth.

5. In a machine for capping cartridges, the combination, with a cap-carrier, of a rock-shaft on which it is mounted, a gear-wheel frictionally mounted on the shaft, and stops which limit the movement of the carrier in either direction, whereby the wheel is caused to slip, substantially as set forth.

6. In a machine for capping cartridges, the combination, with a hopper, of a thin narrow blade located in the neck thereof, a chute rigidly connected with the hopper, and means for moving such blade to agitate the caps and cause them to feed into the chute which is combined with the hopper, substantially as set forth.

7. In a machine for capping cartridges, the combination, with a cap-carrier and means for rocking it back and forth, of two adjustable buffers, respectively located so as to be engaged by the carrier at the opposite ends of its stroke, substantially as set forth.

8. In a machine for capping cartridges, the combination, with a cap-carrier, of a rock-shaft to which it is secured, a gear-wheel frictionally mounted on the shaft and having a power-connection, whereby the shaft is operated to rock the carrier back and forth, and two adjustable buffers, respectively located so as to be engaged by the carrier at the opposite ends of its stroke, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM B. PLACE.

Witnesses:
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M. S. SEELEY.