No. 822,348. PATENTED JUNE 5, 1906.

E. M. COBB.

STAPLING MACHINE.

APPLICATION FILED MAY 12, 1904.

Fig. 2.

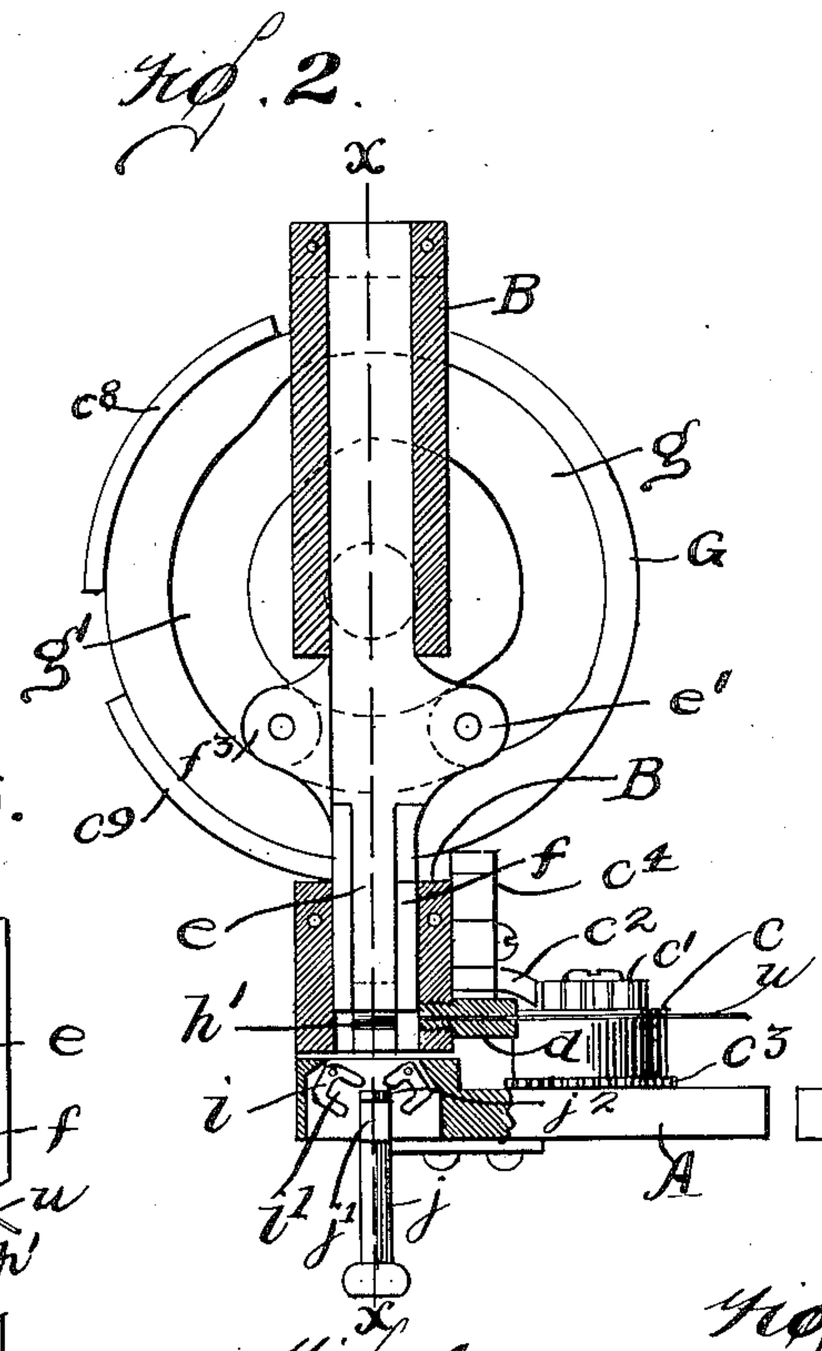

Fig. 1.

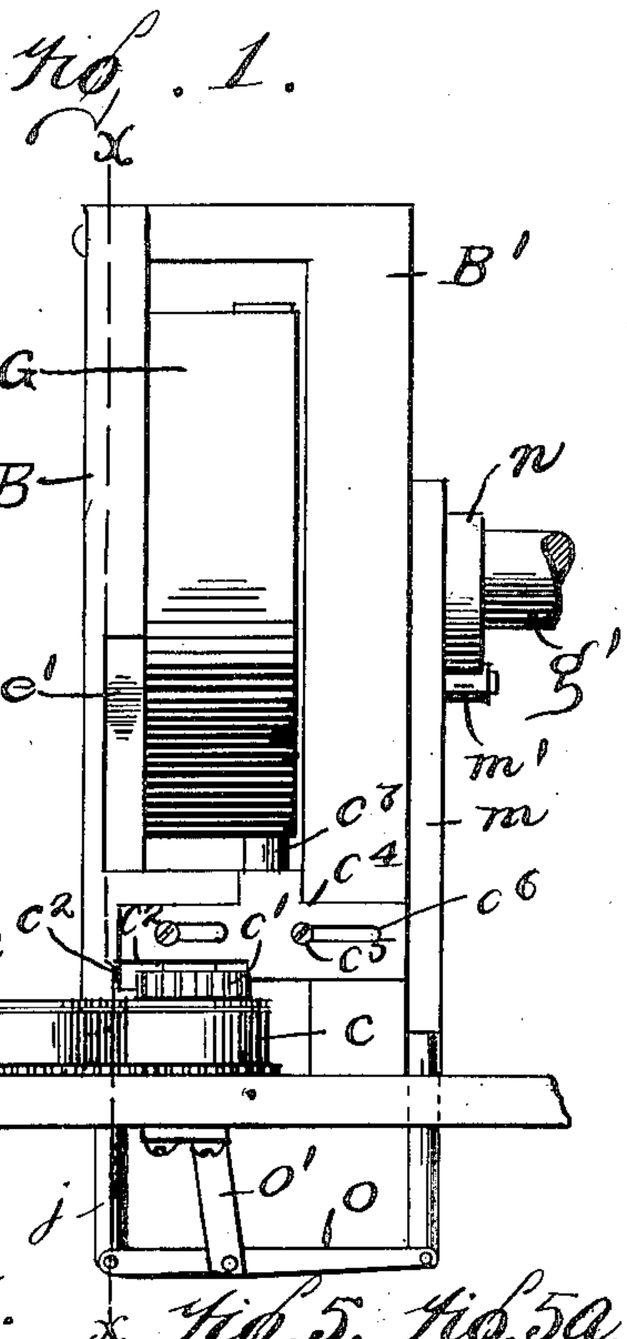

Fig. 6.

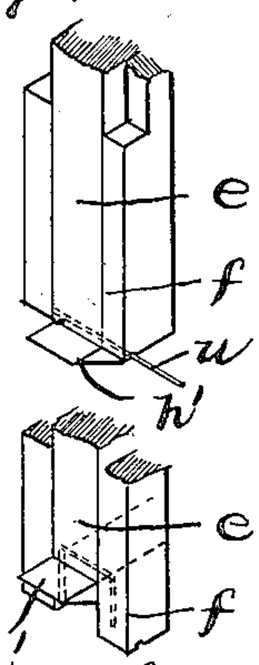

Fig. 7.

Fig. 8.

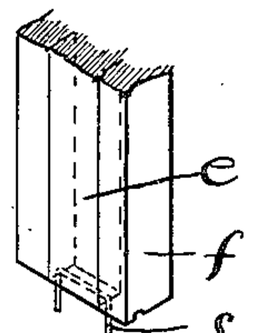

Fig. 4.

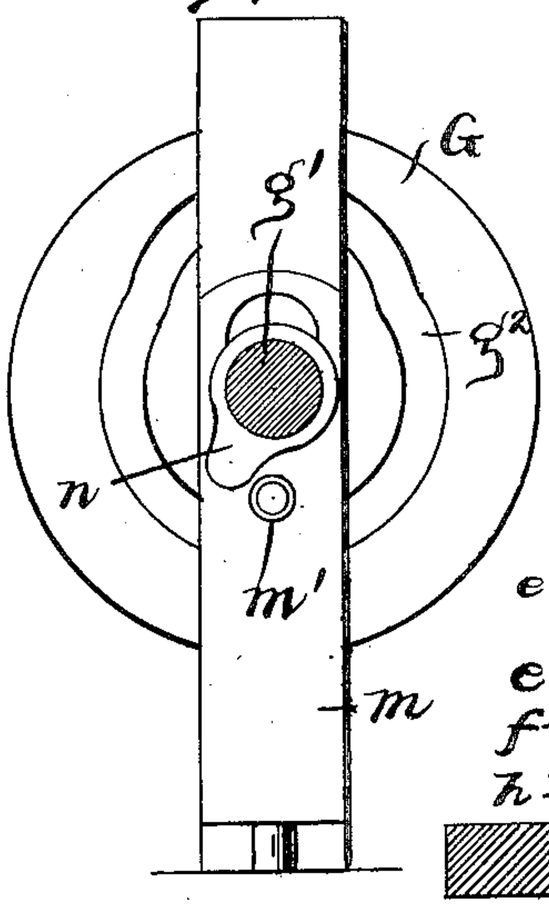

Fig. 3.

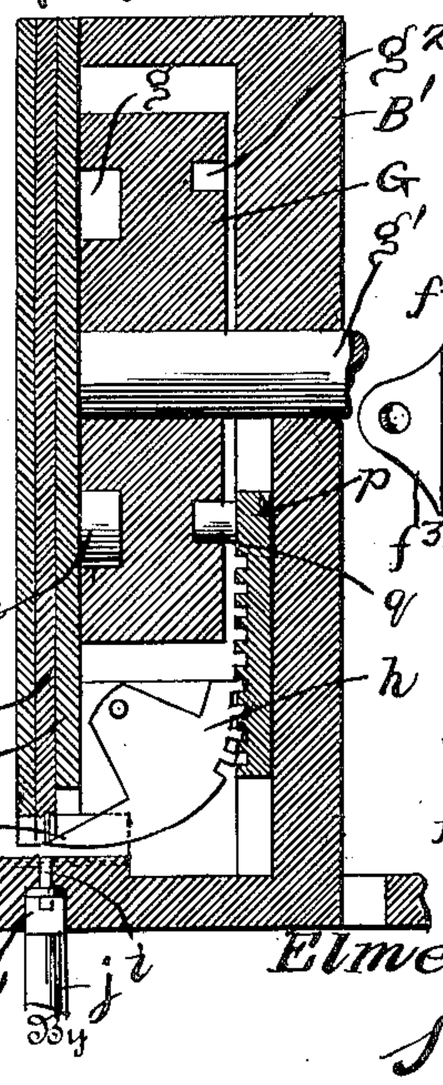

Fig. 5.

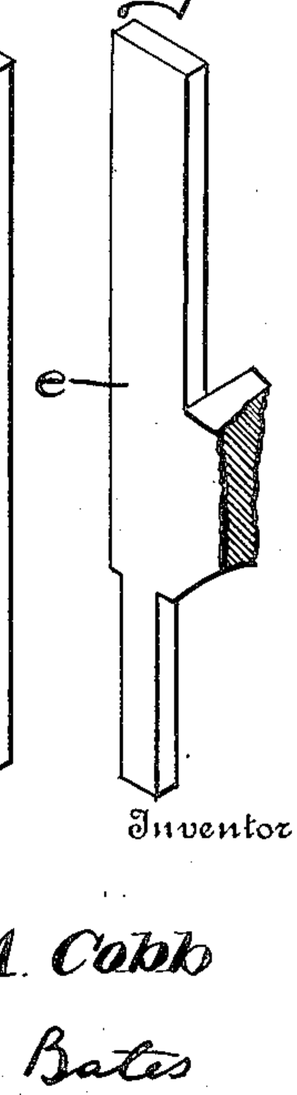

Fig. 5a.

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Witnesses

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UNITED STATES PATENT OFFICE.

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STAPLING-MACHINE.

No. 822,348. Specification of Letters Patent. Patented June 5, 1906.

Application filed May 12, 1904. Serial No. 207,643.

To all whom it may concern:

Be it known that I, ELMER M. COBB, a citizen of the United States of America, and a resident of Portland, Maine, have invented certain new and useful Improvements in Stapling-Machines, of which the following is a specification.

My invention relates to a stapling-machine for inserting staples in books, pamphlets, and for other like purposes; and the object of the invention is to improve the stapling-machines now on the market in the direction of simplicity and durability of construction.

My improvement includes an improved construction of the swinging anvil over which the staple is formed, by which it is positively drawn back as the staple-driver descends, an improved construction of the cam which drives the driver and the former, whereby a single cam path or groove is used for both parts, and an improved construction of the vertical rod which operates the clutching-dogs, which admits of cheaper method of manufacture.

I illustrate my invention by means of the accompanying drawings, in which—

Figure 1 is a side elevation. Fig. 2 is a section on line $x\ x$ of Fig. 1. Fig. 3 is a section of $x\ x$ of Fig. 2. Fig. 4 is a rear elevation with the shaft in section. Figs. 5 and 5^a are details of the former and driver, and Figs. 6, 7, and 8 are perspective views showing the operation of the anvil.

A represents the bed of the machine, and B′ is the standard carrying the most of the working parts. G is the cam on the end of the shaft g', which is journaled in the standard B′. Immediately in front of the cam and secured to the standard B′ is a plate B, in which are slidably mounted the former f and the driver e. These parts are of common construction, the lower end of the driver fitting in a recess in the lower end of the former, so that their lower operative ends are in the same plane. A groove f^2 is provided in the side of this recess to receive the wire of the staple.

The former and the driver reciprocate vertically in a recess in the plate B, and the wire w is fed laterally into the lower portion of this recess through a tubular cutter d, which is screwed into the side of the plate. The inner end of the cutter comes flush with the recess containing the former and as the former descends it shears off the wire to form the staple.

Vertical movement is imparted to the former and driver by means of the cam G, which has on its front face a single path g, in which moves the cam-roll e^2 of the driver, journaled in a lateral projection e', a similar roll journaled in the lateral projection f^3 of the former.

The path g has two concentric sections at different distances from the center, and the two rolls follow each other in this single path and each has the same movement.

The staple is bent over a pointed anvil h', which projects out horizontally from the lower end of a swing-segment h, pivoted at the center.

The anvil h' projects from back of the plate B underneath the end of the driver, and its motion conforms to the movement of the driver, so that it is always in close contact with it.

Motion is given to the anvil by a vertical rack p moving in a vertical guide in the standard B′, the rack engaging teeth formed on the edge of the segment h.

The wire is fed to the machine by feed-rolls $c\ c$, connected by gears c^3 and intermittently operated by means of a ratchet-wheel c', which is actuated by a pawl c^2. This pawl is pivoted to a reciprocating slide c^4, mounted on the side of the standard by means of screws c^5, passing through horizontal slots c^6.

The slide is thrown first one way and then the other by suitable cam projections c^8 and c^9 on the rim of the cam G acting on a cam-roll c^7 on the top of the slide c^4. The reciprocation of the slide c^4 operates to cause the pawl to turn the feed-rolls and feed the wire into the machine just far enough to form a staple, and the feed is timed so that it comes when the driver and former are in their top position.

This feed mechanism forms no part of my invention and any suitable mechanism will answer the purpose.

The rack is moved vertically by means of a roll q, which travels in a path g^2 on the back side of the cam. The path is so formed that the anvil is always kept in close contact with the lower end of the driver. The staples are clenched by a pair of clenching-dogs i, pivoted below the bed of the machine. They

are formed with two adjacent recesses i' in a well-known manner, and playing vertically in this recess is the upper end of the rod j, having a portion j' milled out below the upper end, leaving a projection j^2 to operate the dogs. The rod j is reciprocated vertically by means of a lever o, journaled in a standard o', the lever being pivoted on the lower end of a slide m, having a cam-roll m', acted upon by the cam n on the shaft g' in rear of the standard B'. The cam is set so as to throw the slide m down after the staple has been driven and is in position to be clenched.

The operation of the machine is as follows: The wire feeds in over the anvil and below the lower ends of the former and driver, both of which are raised. The former first descends by the action of the cam, cutting off the wire and pressing the ends down over the sides of the anvil to form the staple, the ends lying within the grooves f^2. (See Figs. 6 and 7.) After the former has reached its lower position it stops and the driver takes up the same motion, forcing the staple down, the anvil drawing back at the same time, so that the wire is always closely held between the upper surface of the anvil and the lower end of the driver. The staple having been driven in, the clenching-dogs are lifted to a horizontal position, clenching the staple. The former then lifts and the driver follows, ready to receive the next staple.

I claim—

1. In a stapling-machine, the combination of a vertically-reciprocating former and driver each provided with a cam-roll and a cam having a single path in which said rolls travel, thereby imparting to said former and driver like motions, one following the other.

2. In a stapling-machine the combination of a vertically-reciprocating former and driver, a swinging geared segment, an anvil formed on said swinging geared segment, a rack engaging said segment and a cam for reciprocating said rack.

Signed at Portland this 14th day of April, 1904.

ELMER M. COBB.

Witnesses:
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W. B. Hay.