

*Wesley Malick
Staple Machine.*

No, 119,711.

Patented Oct. 10, 1871.

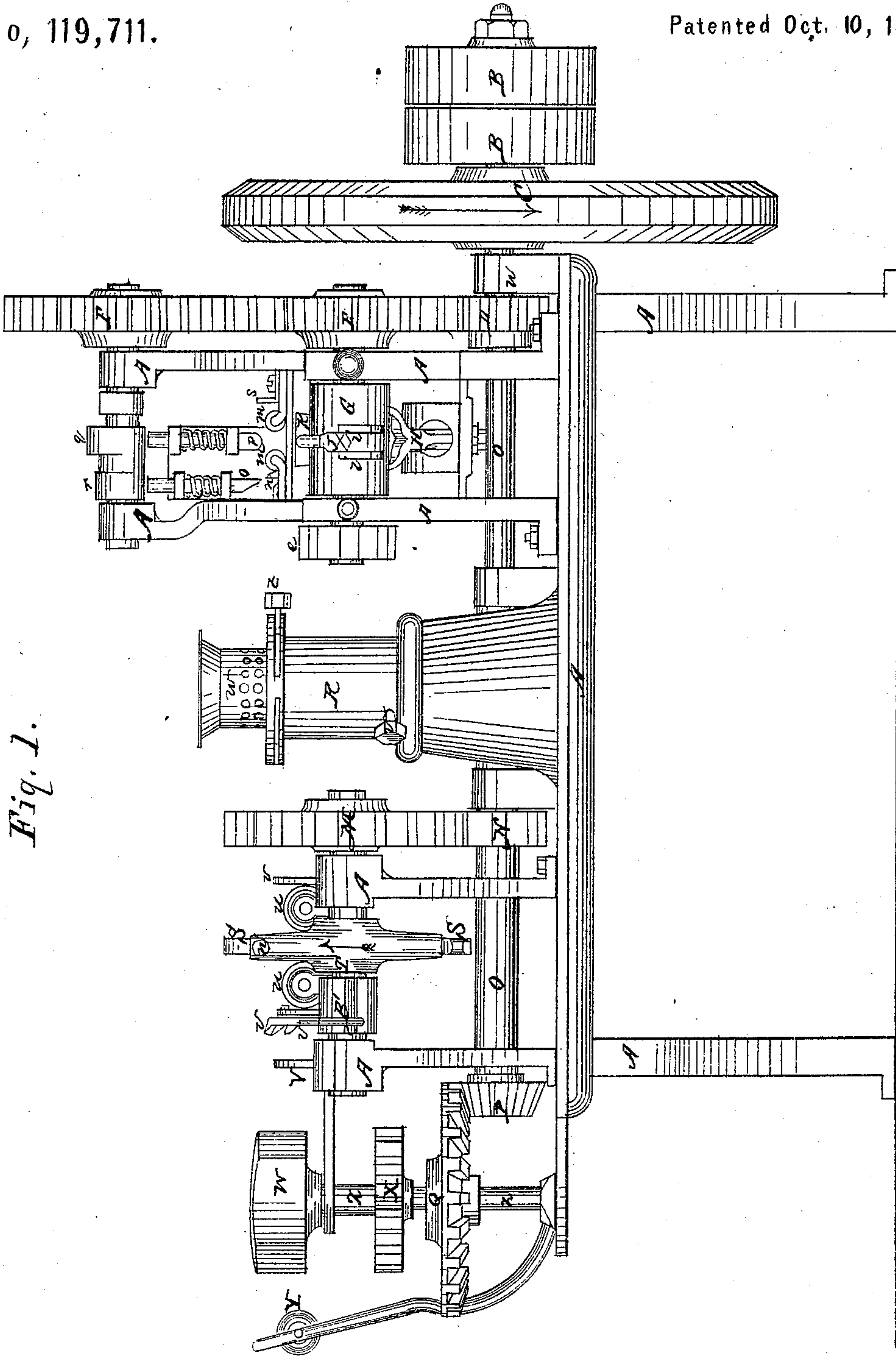
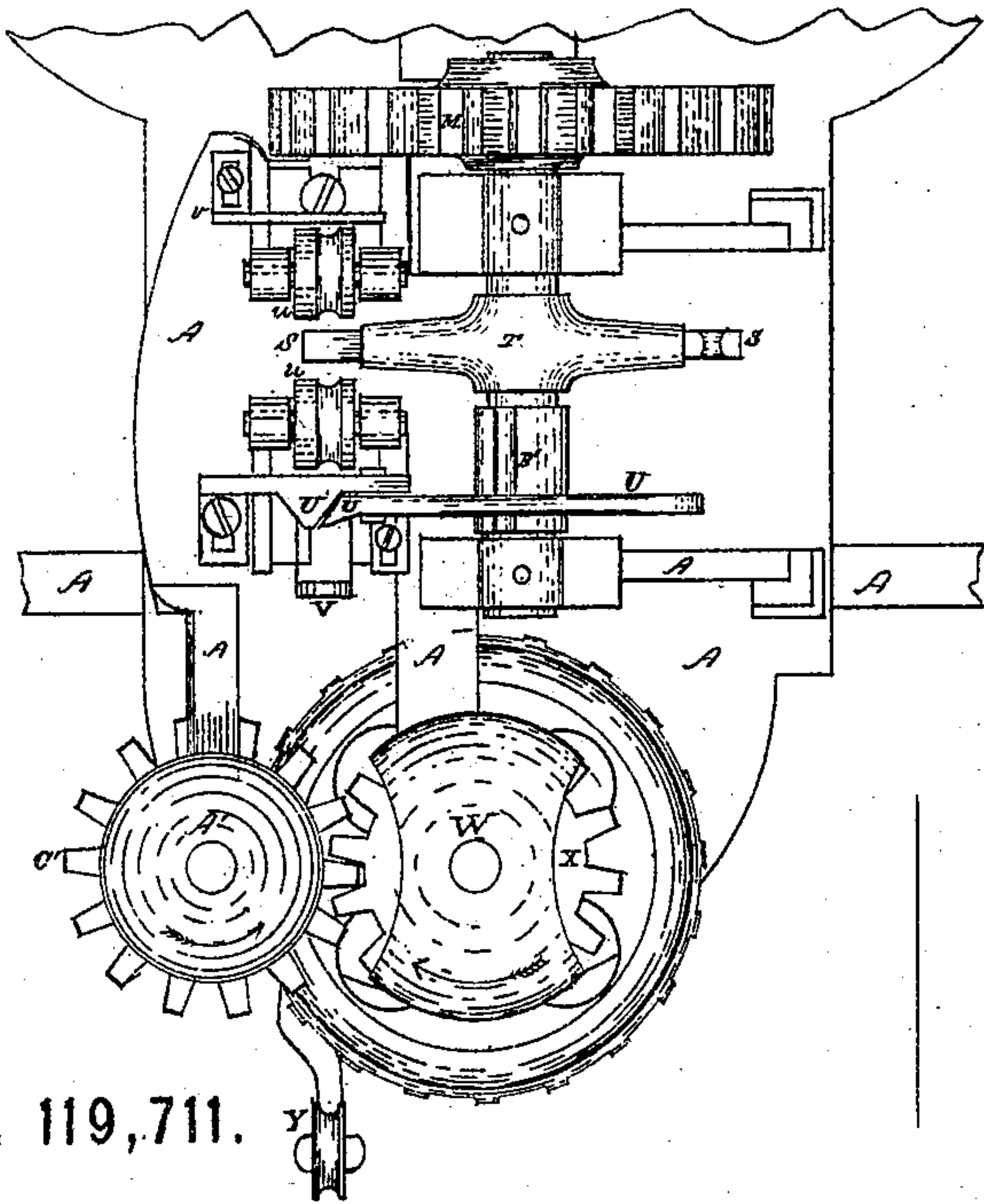


Fig. 1.

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Fig. 2.



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Fig. 3.

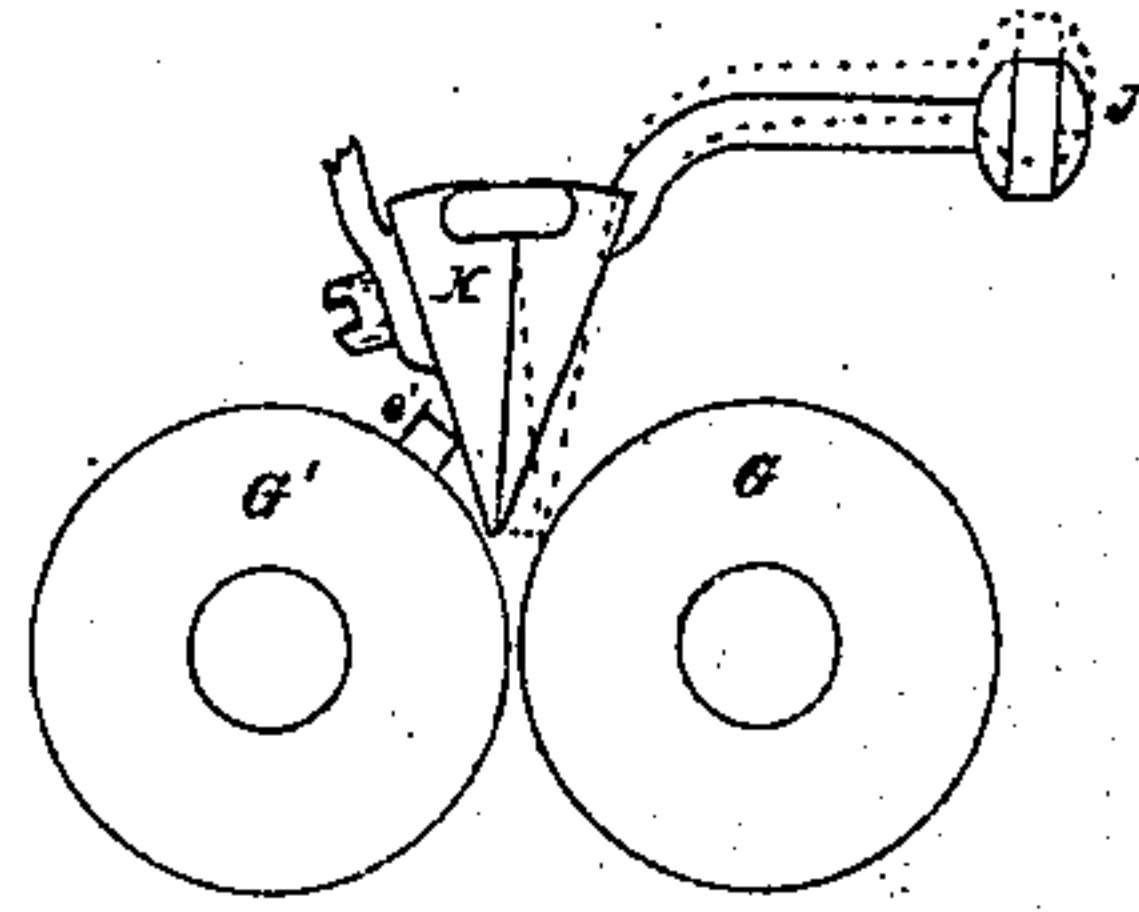
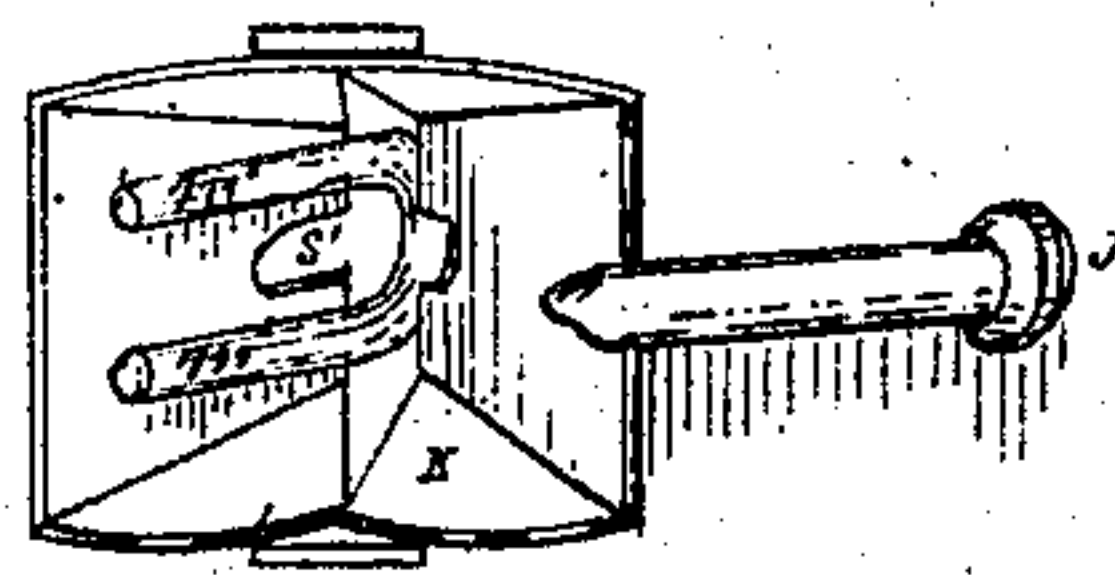


Fig. 4.



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Fig. 5.

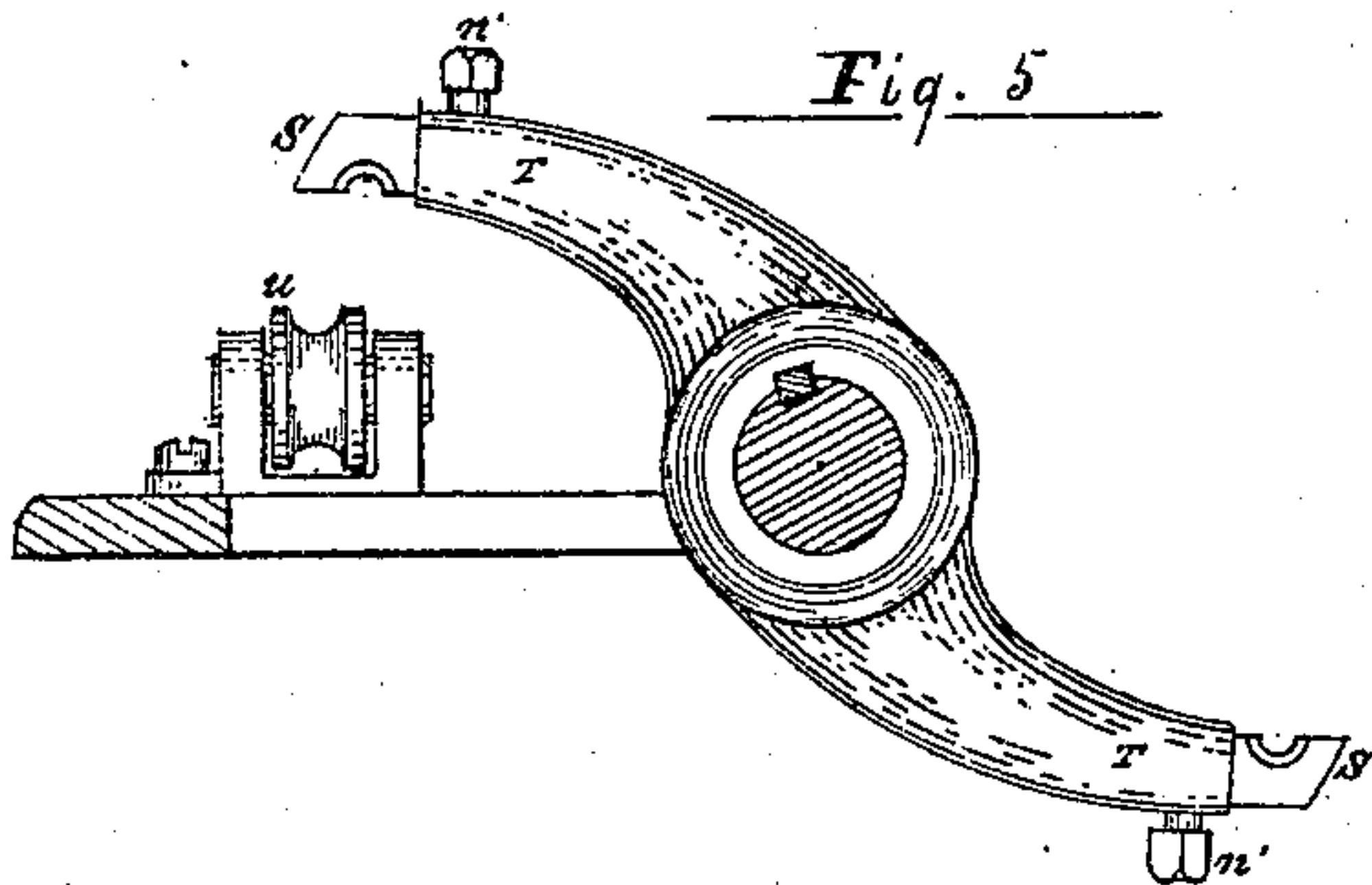


Fig. 6.

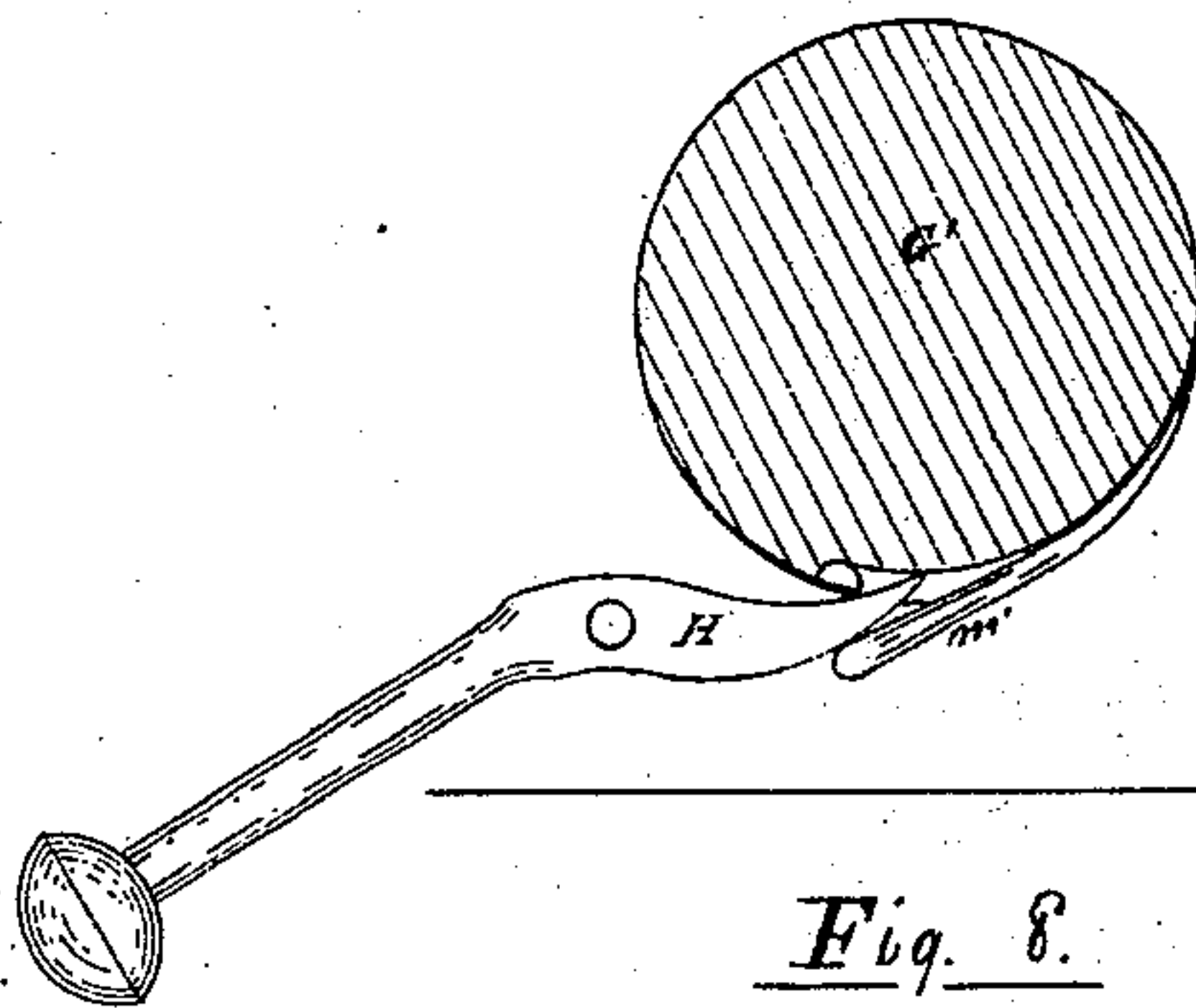


Fig. 7.

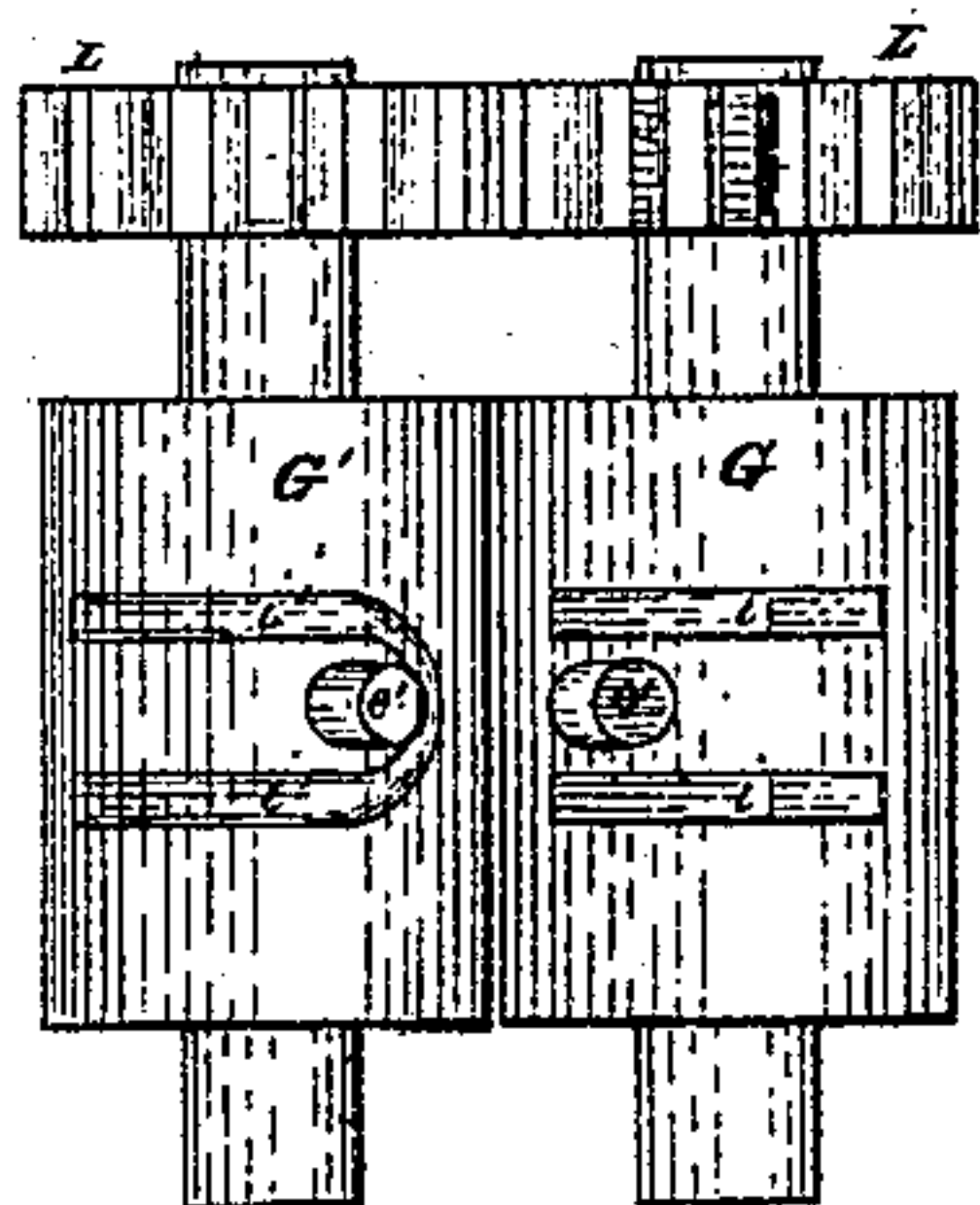


Fig. 8.

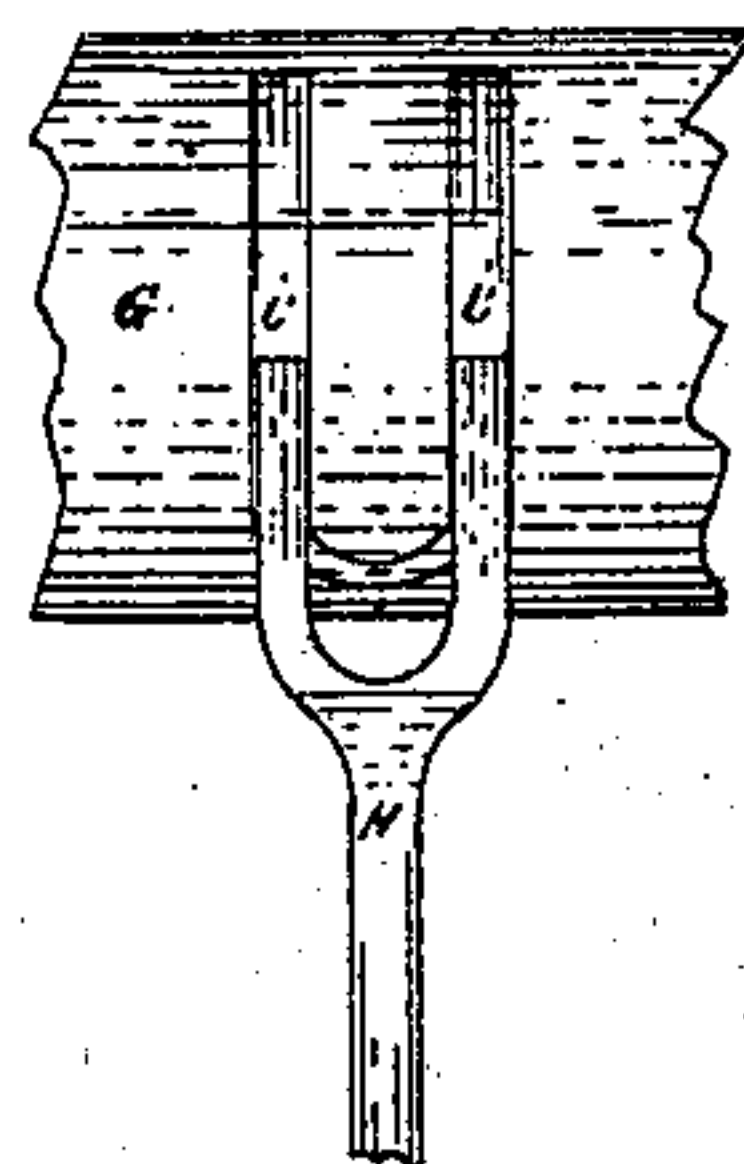
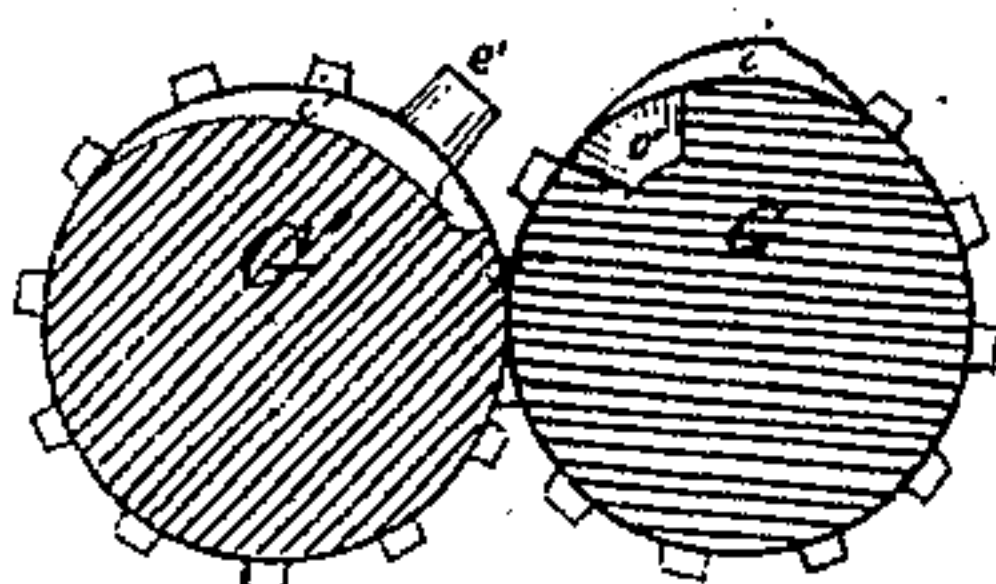


Fig. 9.



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WESLEY MALICK, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN STAPLE-MACHINES.

Specification forming part of Letters Patent No. 119,711, dated October 10, 1871.

To all whom it may concern:

Be it known that I, WESLEY MALICK, of Erie, in the county of Erie, State of Pennsylvania, have invented a new and Improved Machine for Making Staples; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and the letters of reference marked thereon, the same forming a part of this specification.

The object of my invention consists in providing a machine so constructed that from bars of iron, which are fed to the machine, lengths may be cut off, bent into staple forms, heated, and passed through rollers, when the ends are pointed and come forth perfectly-formed staples. My improved machine consists of a feeding apparatus, shears, bender, furnace, rollers, and dies for pointing the staples, arranged so as to operate conjointly or separately, as may be desired.

The accompanying drawing exhibits my invention as follows: Figure 1, Sheet 1, shows a plane face or front view of my improved machine. Fig. 2, Sheet 2, is a top or plan view of the cutting and bending portion of my invention. Figs. 3, 4, 5, 6, 7, 8, and 9 are views of several disjointed portions of my machine.

My machine is constructed in the following manner, and is composed of the following parts, reference being had to the letters of reference thereon.

A represents the frame-work of my machine. On this frame-work is erected the different parts of my machine, to wit: first, the cutting and bending apparatus; second, the heating apparatus; and third, the pointing apparatus. The cutting and bending portion of my machine is seen on the left of Fig. 1, and a plan view of the same is seen in Fig. 2, and consists of the following parts: The rod-rest Y; the feeding rollers A' and W; the guide and gauge V and v; the shears U U, operated by the eccentric B'; the bending-fingers S S on the revolving arm T; and the friction-rollers u u.

This portion of my machine is operated as follows: The rod is placed onto the rod-rest Y, passed through between the rollers A' and W, through the guide V, between the shears U U, over the face of the friction-rollers u u against the gauge v, the machine being then in the position indicated by the drawing, Fig. 1. The machine, then,

being in motion, the eccentric B' raises the lever of the shears U U, cutting off the rod. The finger S on the revolving arm T carries the blank, thus cut off, down between the friction-rollers u u, thus bending it into a staple or U-form. After the cutting of the rod by the shears, and as soon as the eccentric B' has passed from under the lever of the shears and they are permitted to again open, the idle place on the feeding-roller W has gone by, and the rod is again pushed over the friction-rollers against the gauge v, and again the feeder idles and the eccentric B' again lifts the lever of the shears, and again the bending-arm T presses its finger S down between the friction-rollers u u and carries with it the newly-cut blank, bending it again into a staple or U-shape. The fingers S on the arm T are made of steel, and can be removed from the arm by loosening the set-screw n. The gauge v and the friction-rollers u u are movable, and can be set for any length or sized staple, and the finger S being movable those of suitable size may be inserted. When the staples are formed they fall to the ground. They are then placed in the heating-furnace, which consists of a perforated revolving fire-pot, w, sitting on the standard R. The points of the staple-blank are put through the perforations in the side of the revolving fire-pot w, and then they are sufficiently heated to be put through the pointing-rollers. The furnace is not revolved by machinery, only by the hand of the operator, and that to enable him to bring to his side of the machine the staples placed in the furnace by a boy on the opposite side. When the blanks are sufficiently heated the operator feeds them to the pointing apparatus, which consists of a hopper, K, rollers G and G' in which are set the pointing-dies i i and i' i', and finger e', and socket o', and beneath which hangs the extracting-claw H.

These several parts just mentioned are shown in detail in the drawing, as follows: Sheet 2, Fig. 3, shows the position of the hopper K to the rollers G and G'. Fig. 4 is a top view of the hopper K, and also shows a staple-blank, m', resting therein. Figs. 6 and 8 show the position and office of the extracting-claw H. Fig. 7 is a top view of the rollers G and G', and shows the position and arrangement of the pointing-dies i i and i' i', and the finger e' and its socket o'. Fig. 9 is a sectional view of the same. The two rollers G and G' are hung in the frame A, and re-

ceive their motion from the propelling-shaft O by the pinion D communicating with the pinion E, which is hung on the axle of one of the rollers. These rollers are journaled in sliding boxes, which are regulated by set-screws; thus the pressure of these rollers can be regulated. On the face of the roller G' is cut a female die, which is U-shaped or staple-shaped. This die is cut deep at the bow end, but grows gradually shallow to the points, making its action eccentric. Between the prongs or legs of the U-shaped female die *i' i'*, and near to the bow end of the die, is a projecting finger *e'*. On the roller G male dies *i i* are so placed that they will fit into the female die *i' i'*. These dies are also eccentric—that is, they increase in eccentricity—the lowest or least eccentric point connects with the deepest or most eccentric part of the female die *i' i'*, and that part of the male die *i i* which is furthest from the center of the roller G matches that part of the female die *i' i'* which is nearest the surface of the roller G'. Between the dies *i i* is a socket, O', into which fits the finger *e'*. (See Figs. 7 and 9, Sheet 2.) Suspended above, and immediately between the rollers G and G', is the feeding-hopper K. This hopper is formed of separate halves jointed together at the top. At the top of one of these halves or parts of the hopper is hung a weighted lever, J, whose office it is to keep the hopper closed at the bottom. At the mouth end of each of the parts of the hopper is cut a slant, *s'*. (See Figs. 3 and 4.) Beneath the roller G' is hung an extracting-claw, H, which, at each revolution of the roller, enters the female die and extracts from it any staple that may be inclined to stick fast. (See Figs. 6 and 8.)

The manner in which this part of my machine operates is as follows: The operator drops into the hopper K the staple-blank *m'* with its points or legs well heated. It falls to the bottom of the hopper and there rests until the finger *e'* enters the slant *s'* and hooks into the bow of the staple-blank. This draws the blank *m'* from the hopper, and its bow finds lodgment in the bow of the female die *i' i'*, and the die being there deep it is buried there; but the male dies *i i* at once begin their work on the heated legs of the blank; for, as they roll up against them, their fast-increasing eccentricity pinches the heated blank tighter and tighter in the dies and draws it to a point. When this work is done the bow of the female die has reached the extracting-claw H, and as the roller moves on it cleans the die and prepares it for the reception of a new blank.

There remains yet another part of my inven-

tion to be described. It is simply another manner of cutting and bending the blanks. It is intended to be used when the whole rod is heated before it is fed to the machine. This part of my invention is seen in Fig 1 in the place it is designed to occupy when attached to my machine, namely, over the pointing apparatus. The parts of this device are the shears *o n*, of which *o* is a plunger-cutter, driven by the eccentric *r* on the shaft above, and the stationary block *n*, the friction-rollers *m m*, the gauge *s*, and the bending-plunger P, which is driven by the eccentric *q* on the shaft above.

The operation of this device is as follows: The rod, after having been perfectly heated in an immediately-adjoining furnace, is passed under the cutter *o*, over the friction-rollers *m m*, and up against the gauge *s*. The machine being in operation the eccentric *r* drives down the cutter *o*, and immediately the eccentric *q* drives down the plunger P, which drives the blank down between the rollers *m m*, thus bending it into staple-form, the plunger P and cutter *o* returning by spring-work, and the bent blank falls down into the hopper K, from which it is carried through the pointing-dies in the manner above described.

For making what are known as western-fence or cut-pointed staples the heating and bending part of my invention is not used. To make that kind of staples the shears U U are so constructed as to cut the rod off diagonally; thus sufficiently pointing the staple, it is bent in the manner first described. The shears U U in Fig. 2, Sheet 2, are so constructed as to cut the rod diagonally, for the purposes mentioned.

What I claim as my invention is as follows:

1. The feeding-rollers A' and W, in combination with the rollers *u u*, the shears U U, the guide V, and gauge *v*, and the revolving arm T, when the same are arranged and operated as set forth.
2. The revolving arm T, constructed with sockets and set-screws, and removable pieces S, as described.
3. The hopper K, jointed, slotted, arranged and operated in the manner and for the purposes as set forth.
4. The combination of the jointed and slotted hopper K and rollers G G', the latter being provided, respectively, with the finger *e'* and grooves *i i*, and the socket *o'* and die *i' i'*, as set forth.

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Witnesses:

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