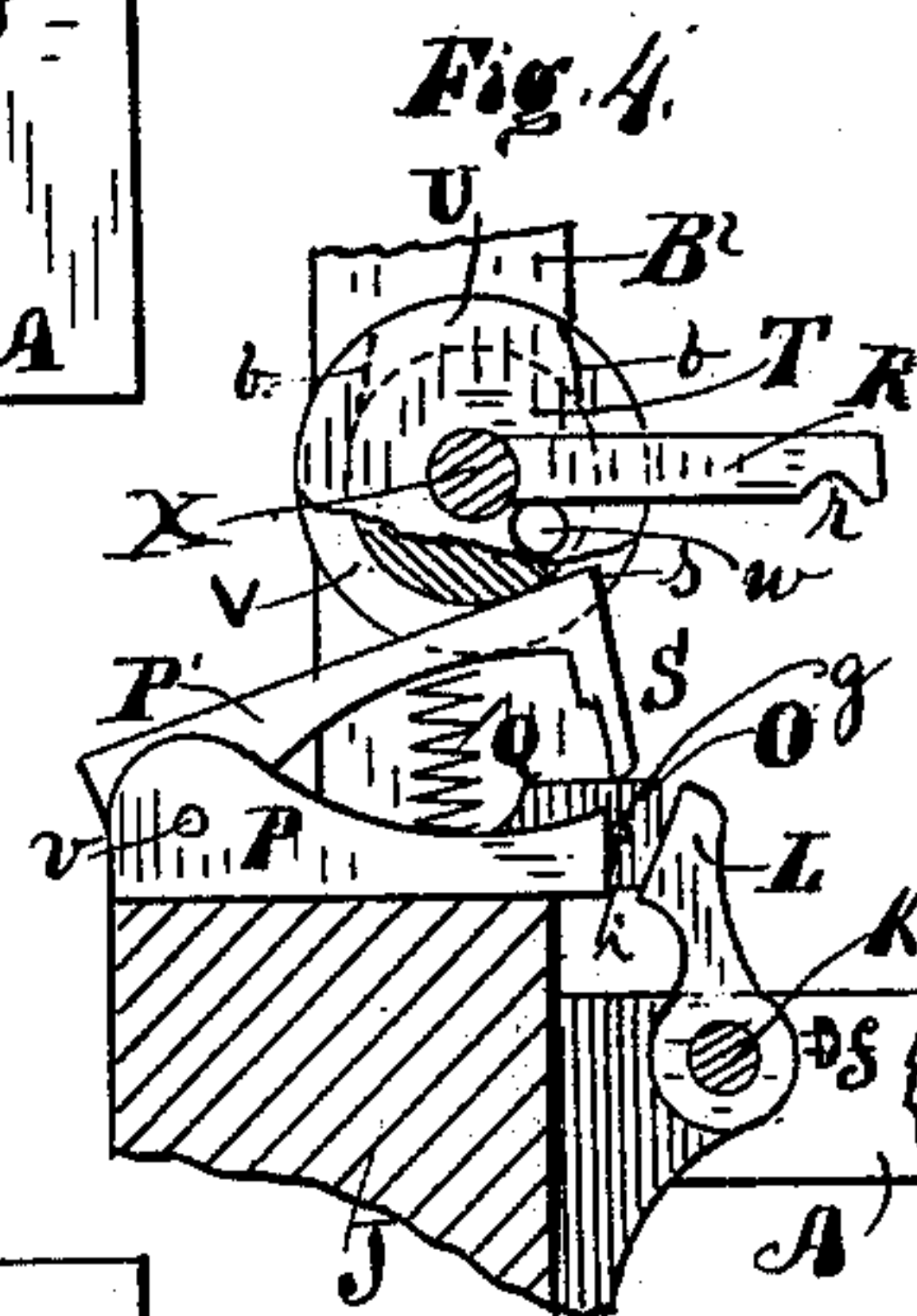
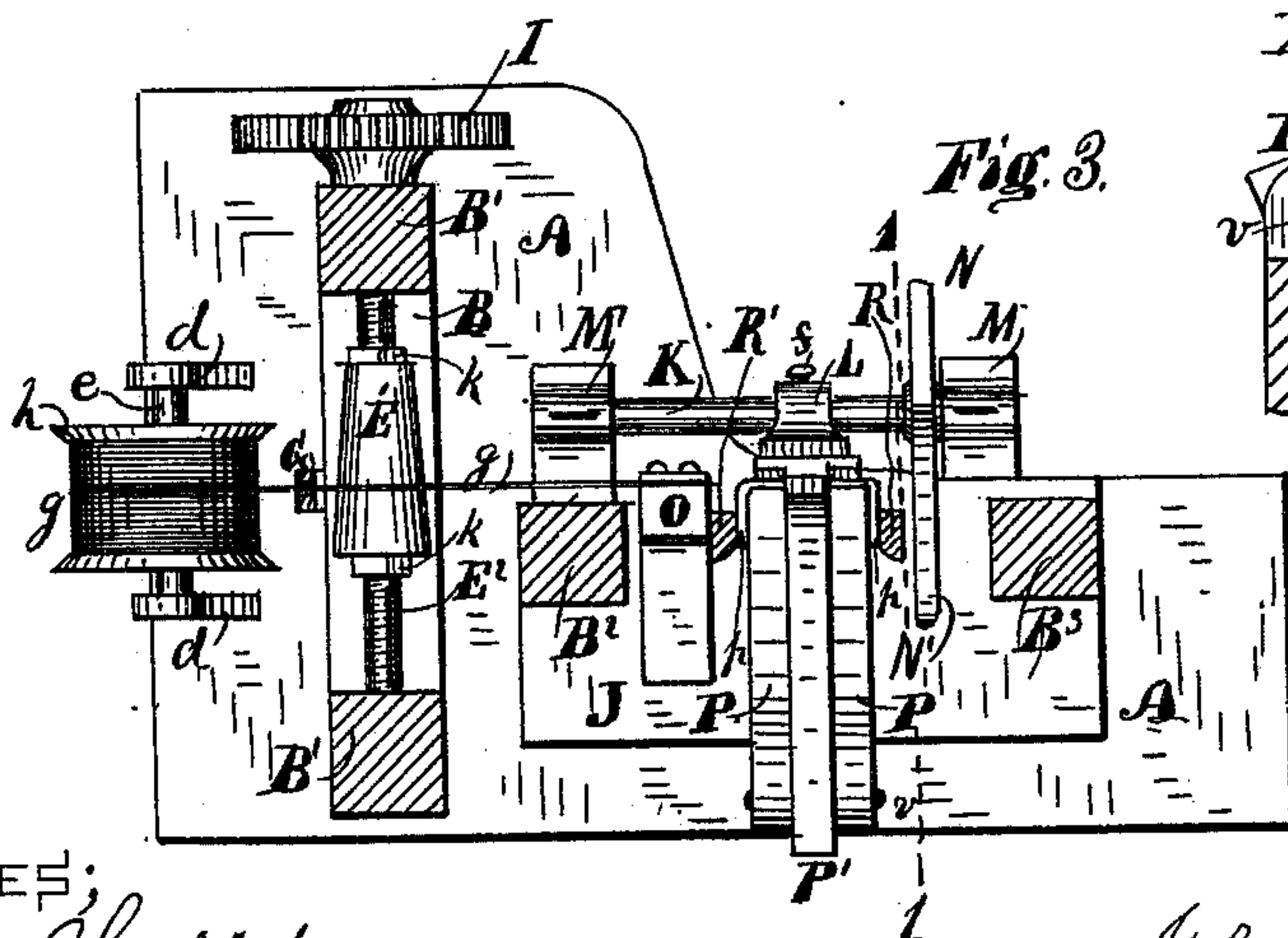
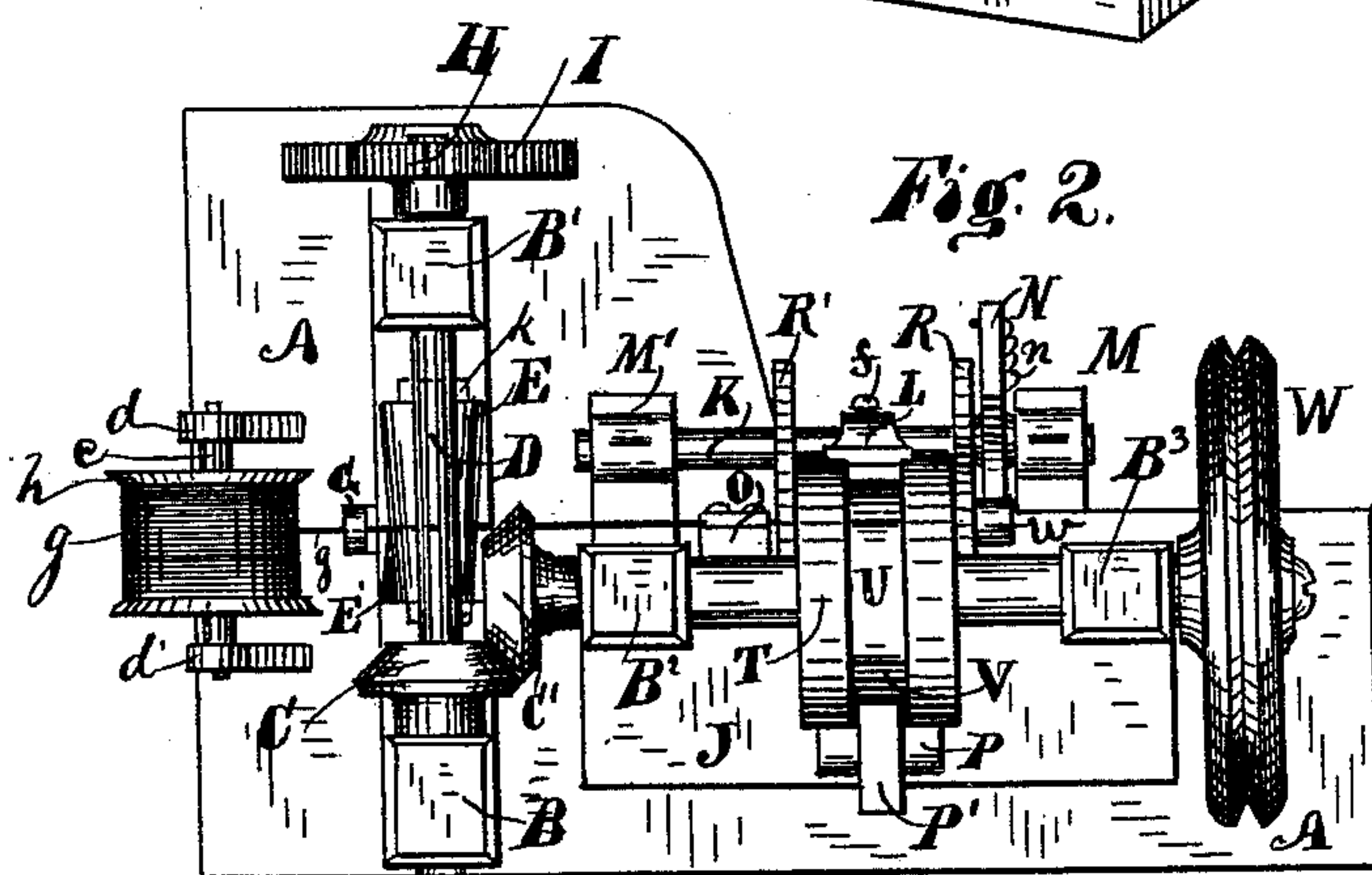
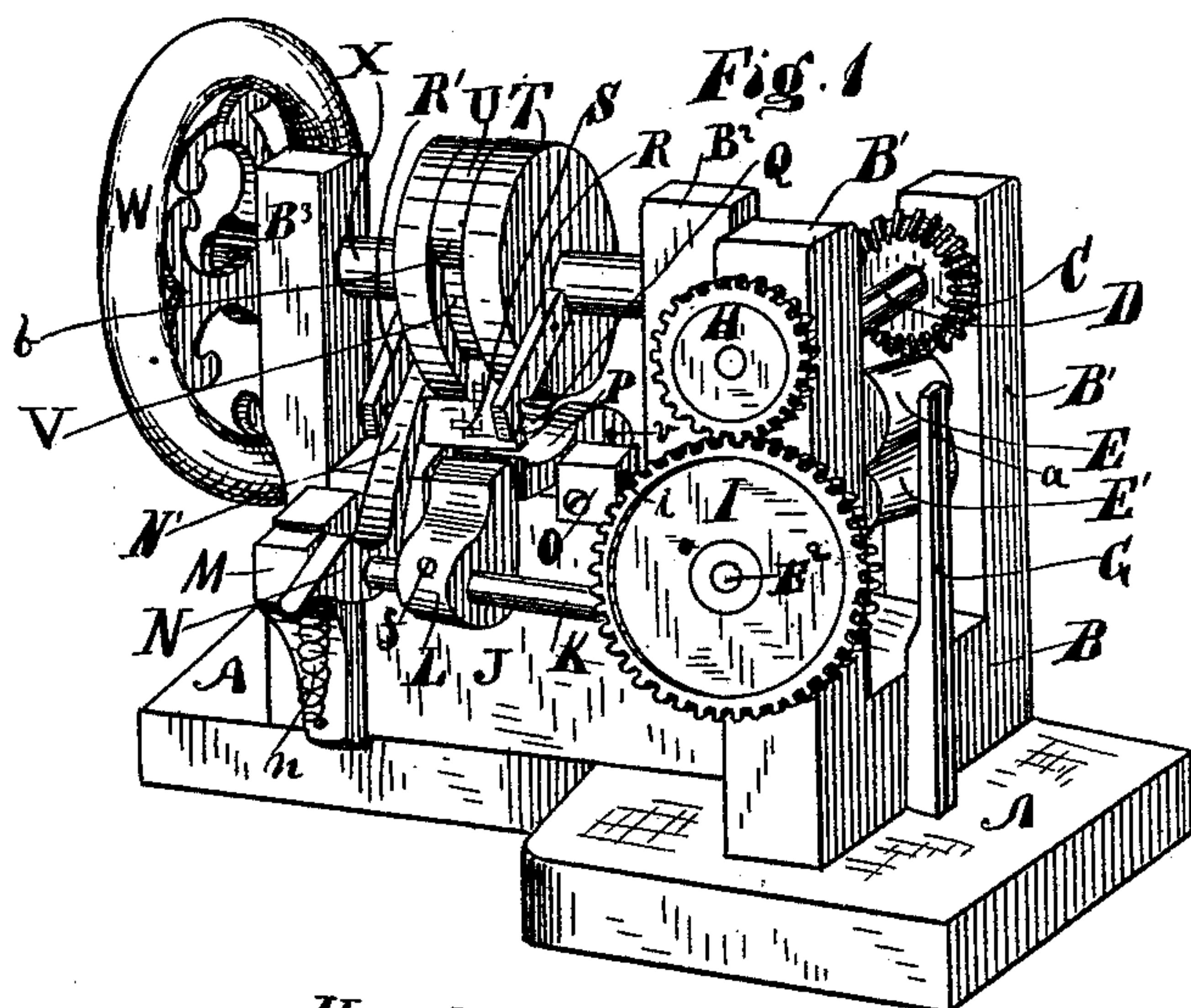


J. SHELLENBERGER.
Machine for Making Staples.

No. 222,205.

Patented Dec. 2, 1879.



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UNITED STATES PATENT OFFICE.

JOHN SHELLENBERGER, OF NORTH INDIANAPOLIS, INDIANA.

IMPROVEMENT IN MACHINES FOR MAKING STAPLES.

Specification forming part of Letters Patent No. 222,205, dated December 2, 1879; application filed September 19, 1879.

To all whom it may concern:

Be it known that I, JOHN SHELLENBERGER, of North Indianapolis, county of Marion, and State of Indiana, have invented a new and useful Improved Machine for Feeding Wire and Cutting and Bending Wire Staples, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to a machine in which the wire to be cut and bent is fed to the cutting and bending devices, and there cut and bent into staples.

The object of my invention is to provide a system of newly constructed and arranged devices, having new modes of operation, for feeding wire and cutting and bending the same into staples.

My invention consists, mainly, in the new construction and arrangement of devices, also in the new combination of old elements, all of which, singly or combined, are deemed essential in my newly-organized machine for feeding wire and cutting and bending the same into staples, all of which will be first fully described in the specification, and then set forth in the claims.

In the accompanying drawings, in which like letters of reference in the different figures indicate like parts, Figure 1 represents a perspective view of a machine embodying my invention. Fig. 2 is a top or plan view of the same. Fig. 3 is a horizontal sectional view of the same, showing a plan view of that part below the upper shaft; and Fig. 4 is a cross-section taken at the line 1 1 of Fig. 3, showing the wire-holder and the cutting and bending devices more fully.

A represents the bed-plate of the machine, on which is mounted the platform J and uprights B B' B' B³ B³, as shown. The uprights B' B' stand on the bed-plate A at right angles to the uprights B² B³, Figs. 2 and 3. At the upper part of the uprights B' B' the shaft D is supported in suitable bearings, and is provided with a miter-wheel, C, which works in gear with the miter-wheel C', which is on the shaft X, which is mounted in suitable bearings in the upper part of the uprights B² B³. Said shaft X is also provided with a belt-

wheel, W, by means of which power is applied to operate the machine.

On the outer end of the shaft D is a small spur-wheel, H, which works in gear with the large spur-wheel, I. The wheel I is mounted on the outer end of the feed-wheel shaft E², on which the cone-shaped feed-roller E' is mounted, as shown more fully in Fig. 3. The shaft E² is provided with a screw-thread, and the roller E' is made adjustable toward either end by the nuts k k, as shown. Immediately above the shaft E² is another similar shaft with a cone-shaped roller, E, reversed from the roller E'. This shaft and roller are revolved by the roller E' and wire g, and the two rollers are designed to feed the wire g to the cutting and bending devices, which will be hereinafter described.

It is obvious that if it is desired to feed the wire faster to the cutting and bending devices, the cone-roller E' must be adjusted by the nuts k k on the screw-shaft E² toward the wheel I, and if the wire is fed too fast the roller E' must be adjusted in the opposite direction.

The wire g is wound on a spool, h, and the spool h is mounted in the uprights d d, as shown. The wire g is supported and guided between the feed-rollers E E' by the standard G, provided with a hole, a, through which the wire is drawn.

The shaft X is provided with a wheel, T, having a cam, U, and groove V, for operating the discharging device S. (Shown more fully in Fig. 4.)

The staple-former block P is provided at its front end with a square steel face, against which wire g is clamped by the clamp-block L, and held in this position until the cutting and bending arms R R', which are attached to the wheel T, cut the wire and bend the staples, as will be hereinafter described.

The rear end of the staple-former block P is provided with a slot in which is fitted the arm P' of the discharging device S. The arm P' is pivoted at v, and is constructed similar to that shown in Fig. 4—that is, with the head S for forcing the staples off from the former-block P when bent.

The upper part of the discharging-head S

operates in the groove V of the wheel T, and at the proper time and place the head S is forced down by the cam U, after which the spring Q forces the discharging-head S up again ready for the next operation.

The cutting and bending arms R R' are firmly attached to the sides of the wheel T, and radiate therefrom far enough to allow the notch r to come in contact with the wire g as it is fed through the hole i in the cutting-block O. The outer edge of the arm R is made sharp, so as to cut against the edge of the block O, and thus cut off the wire g as the clamp L clamps it against the former-block P. The arms R³ R' then pass along the sides of the former-block P, bending the ends of the staple, as shown at p p in Fig. 3, after which the clamp L is released, and the cam U strikes the head S, causing the head to descend and push the staple off from the former-block.

The clamp L is secured by the set-screw f to the shaft K, which is mounted in suitable bearings in the brackets M M'. The bent lever N N' is also secured to the shaft K near the bracket-box M. The outer end of the lever N is provided with a coil-spring, n, which is fastened at its lower end to the bed-frame A, as shown in Fig. 1. The upper end, N', of the arm N projects back, so as to engage with the roller or lug w, which is secured to the side of the wheel T, as shown in Fig. 2 and more fully in Fig. 4, as the wheel revolves, thus causing the lever to be forced down and bring the clamp L up against the wire g, and hold it there until the cutters and benders R R' cut the wire and bend the staple; then the lug or roller w slips off from the end N' of the lever N, and the spring n pulls the clamp L away, thus releasing the bent staple in time for the cam U to operate the discharging-head S and force the staple off from the block P.

Having thus described the construction and arrangement of the various parts of my improved machine, I will now proceed to describe its mode of operation, which is as follows, to wit: The wire g is first placed on a spool mounted on the uprights d d and power applied to the wheel W. The wire g is guided between the rollers E E' by passing through the hole a of the uprights G. The rollers E E' are then operated by their connected gear mechanism, as before described, and the wire is fed through the hole i in the cutting-block O in front of the former-block P. When enough wire has been fed to form the staple the roller or lug w comes in contact with the lever N, causing the shaft K to rotate and force the clamp-block L up against the wire, thus clamping the wire between it and the former-block P as in a vise. The cutting and bending arms R' R then catch

the wire in the notches r r, and the arm R' cuts off the wire at the block O. The arms R R' then, as they move backward, bend the ends p p of the staple. As the arms R' R leave the staple the roller or lug w slips off the lever N, thus releasing the clamp L. At the same time the cam U operates the discharging-head S and forces the staple off of the block P. During this operation the rollers E E' are feeding more wire to be cut and bent into staples by a similar operation of the machine.

What I claim as new, and desire to secure by Letters Patent, is—

1. The base provided with the uprights B² B³ and platform J, combined with the shaft X, the cam-wheel T U, with cutting and bending arms R R', the former-block P, and discharging device S, as and for the purpose specified.

2. The uprights B' B', provided with the two adjustable conical feed-rollers E E', combined with guide G and cutter-block O, whereby the wire is guided and fed to the cutting and bending devices, as and for the purpose specified.

3. In combination with the miter-wheel C' on the shaft X and the miter-wheel C on the shaft D, the spur-wheel H, the spur-wheel I, the shaft E², provided with a screw-thread and adjustable conical roller E', the adjustable conical roller E, also mounted on a screw-threaded shaft, as and for the purpose specified.

4. The cam-wheel T, provided with the groove V and cam U, combined with the cutting and bending arms R R', provided with notches r r, and discharger P' S, as and for the purpose specified.

5. The former-block P, provided with the pivoted arm P' and discharging-head S, combined with the cam-wheel T U and cutting and bending arms R R', as and for the purpose specified.

6. In combination with the cam-wheel T U, with cutting and bending arms R' R, and the former-block P, with discharging device S P' pivoted thereto, the cutter-block O, as and for the purpose specified.

7. In combination with the former-block P, the clamping device L, shaft K, lever N N', spring n, and lug or roller w, as and for the purpose specified.

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

JOHN SHELLENBERGER.

Witnesses:

E. O. FRINK,
G. A. RENNETT.