

C. KENISTON & E. WOODWARD.

Machines for Forming Staple Blank Ribbons.

No. 150,420.

Patented May 5, 1874.

Fig. 1.

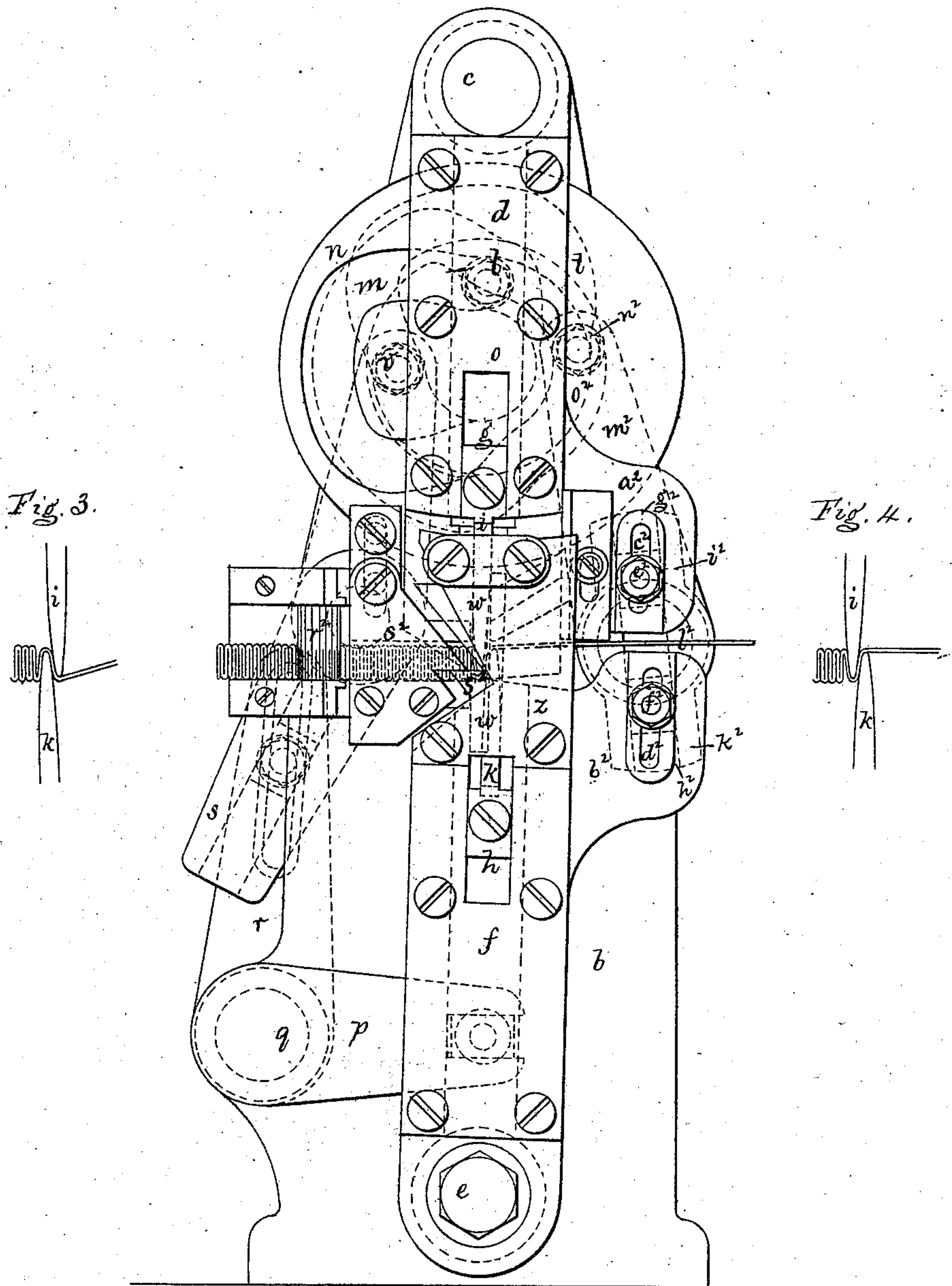


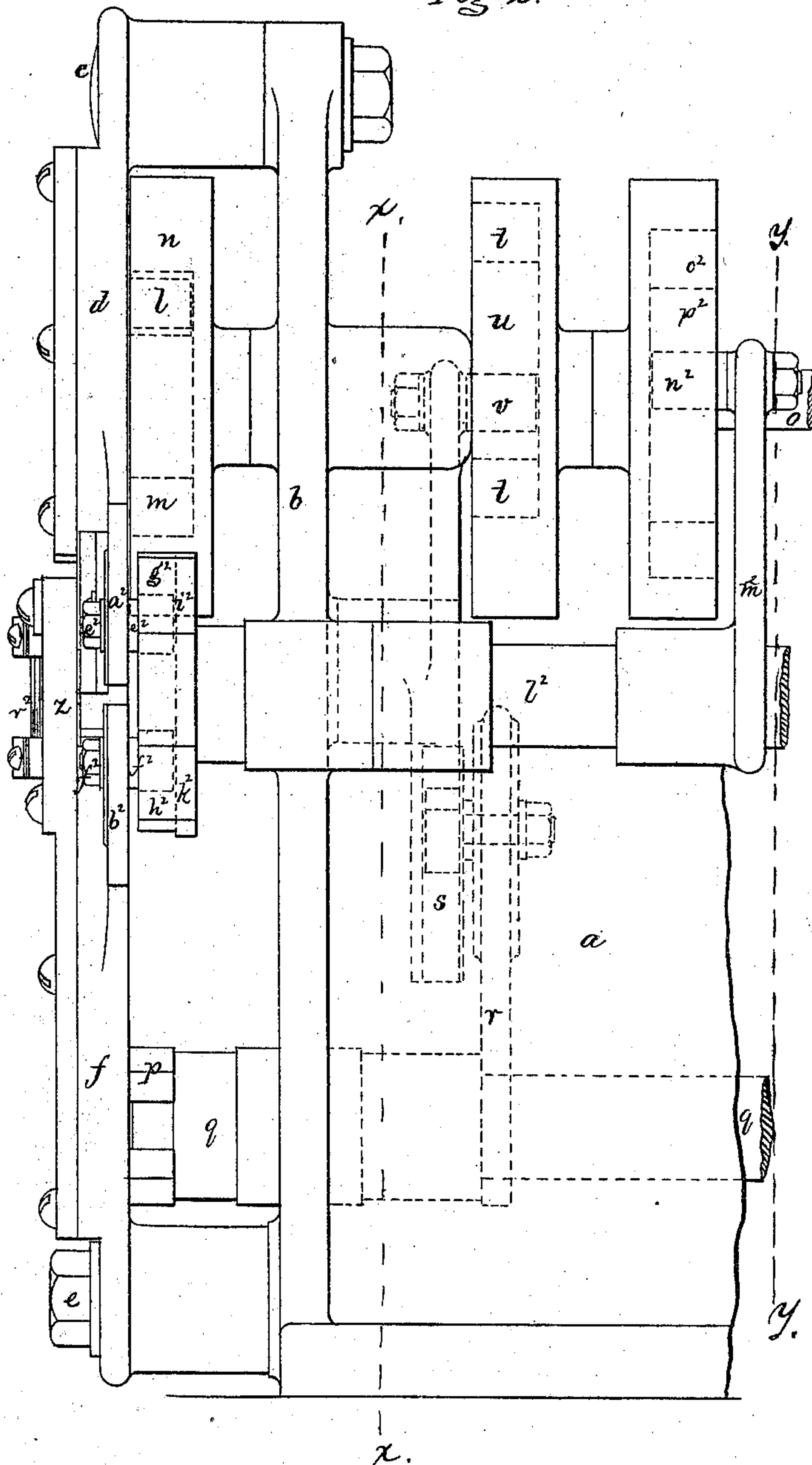
Fig. 4.

Witnesses:
M. W. Frothingham.
L. H. Loatimer

Inventors.
Charles Keniston.
Erastus Woodward.
per Crosby & Gould
attys.

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Fig. 2.



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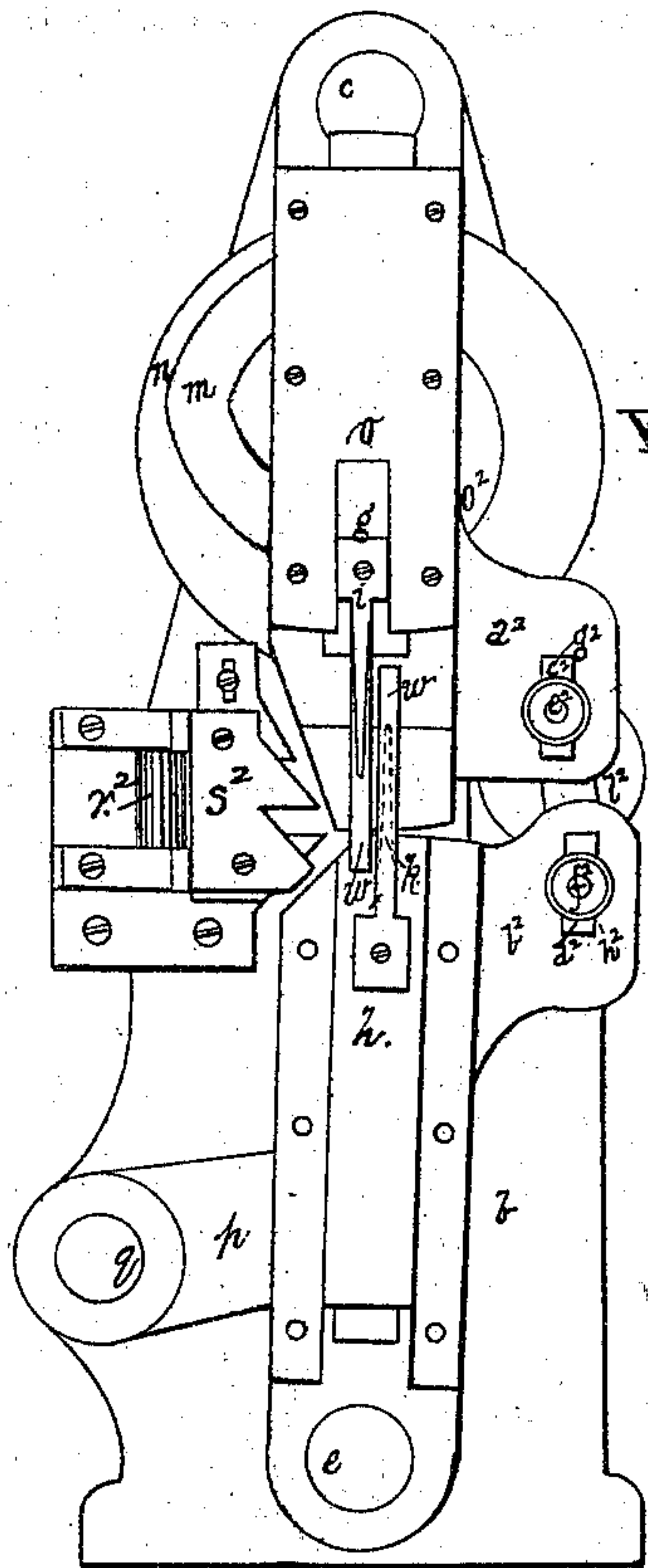


Fig. 5.

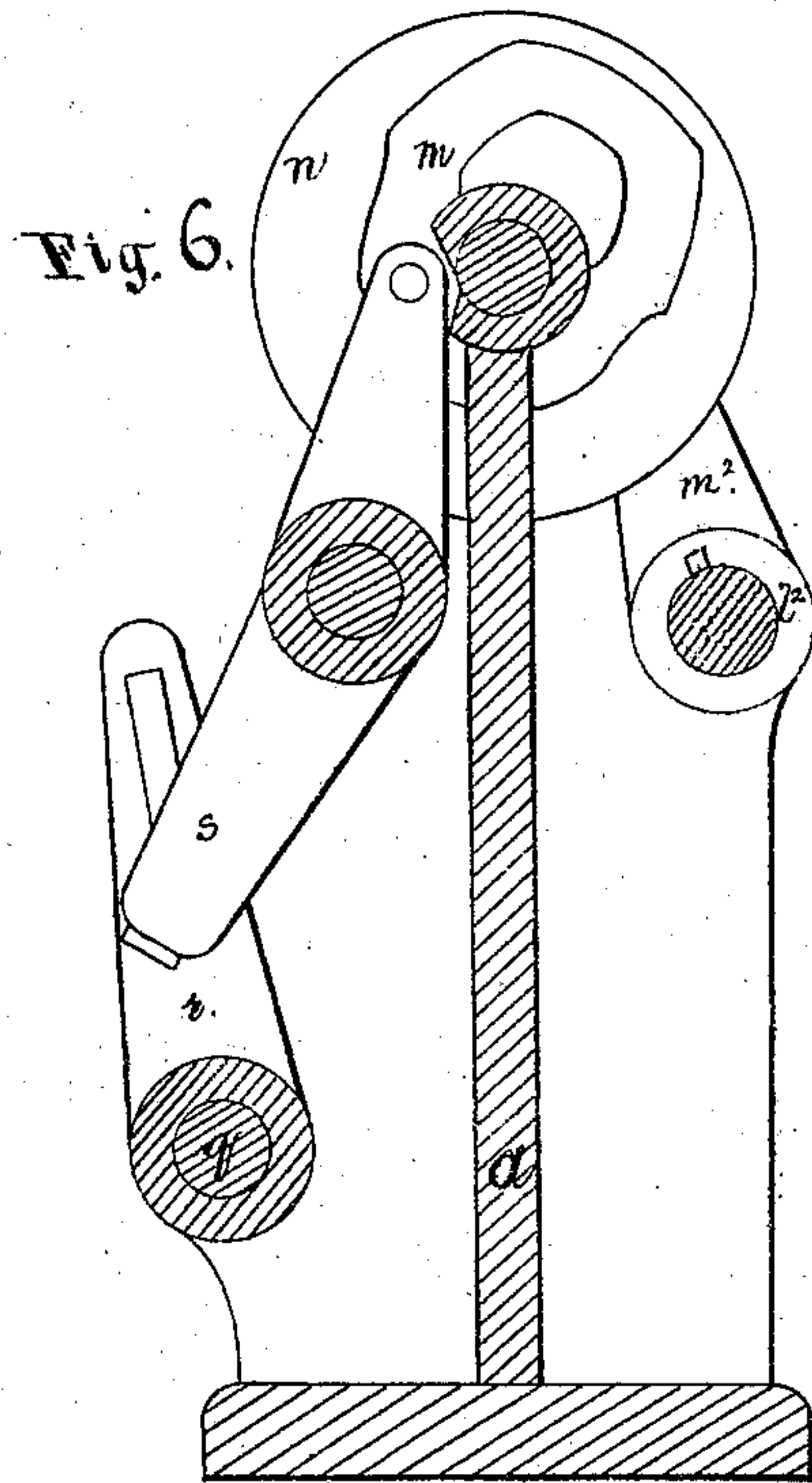


Fig. 6.

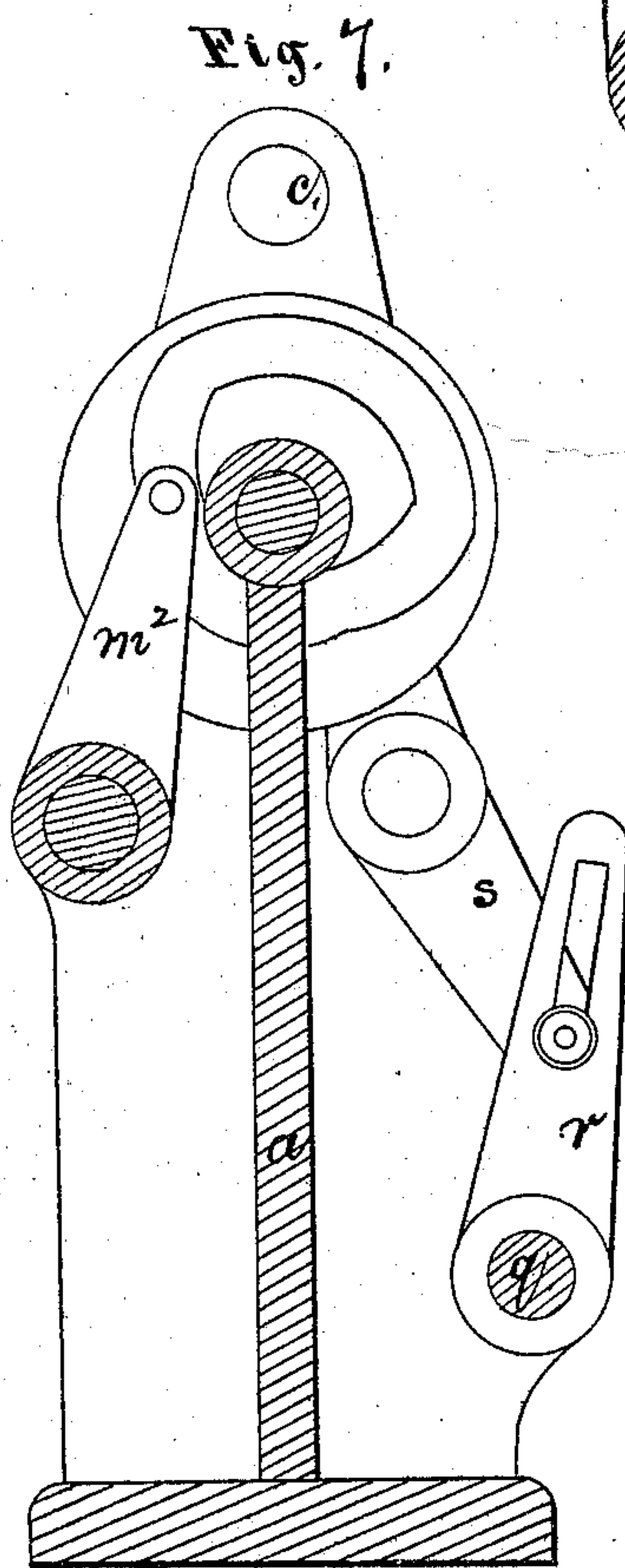


Fig. 7.

Witnesses

Geo. T. Smallwood Jr.

Charles Pickens

Inventors

Keniston

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by Crosby & Gould
and John J. Halsted
their attys.

UNITED STATES PATENT OFFICE.

CHARLES KENISTON, OF SOMERVILLE, AND ERASTUS WOODWARD, OF CHARLESTOWN, MASS., ASSIGNORS TO CHARLES KENISTON.

IMPROVEMENT IN MACHINES FOR FORMING STAPLE-BLANK RIBBONS.

Specification forming part of Letters Patent No. 150,420, dated May 5, 1874; application filed March 14, 1874.

To all whom it may concern:

Be it known that we, CHARLES KENISTON, of Somerville, and ERASTUS WOODWARD, of Charlestown, all in the county of Middlesex and State of Massachusetts, have invented an Improved Machine for Forming a Staple-Blank Ribbon; and we do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of our invention sufficient to enable those skilled in the art to practice it.

United States Letters Patent No. 145,658 have been granted to Charles Keniston for an improved staple and staple-blank to be used in uniting leather-work; and the present invention relates to an organization of mechanism for forming a staple-blank ribbon that can be used in a staple-driving machine organized in many respects like an ordinary pegging-machine. By the blank-forming mechanism the wire is bent and laid in regular lengths, one against another, with alternate semicircular bends at opposite ends of such lengths, each bow at one edge of the ribbon thus formed constituting the head of a staple, and each bow at the opposite edge two adjacent points of two adjacent staples. The invention consists in the organization of mechanism for forming such staple and in the details of such mechanism.

Figure 1 shows the machine in front elevation. Fig. 2 is a side elevation of it. Figs. 3 and 4 show the formers. Fig. 5 is a front view, with the plate *z* removed to show the devices covered by it. Fig. 6 is vertical section through the line *x x* of Fig. 2, looking from front toward the back. Fig. 7 is a vertical section through the line *y y* of Fig. 2, looking from the back toward the front.

In said drawings, *a* denotes a stand or frame, at the front end of which is a head-plate, *b*, in which are journaled the front ends of the operating-shafts. At the top of this head is a stud-pin, *c*, upon which is hung a pendent swinging arm, *d*, and on the bottom of the head is a similar pin, *e*, upon which is mounted a swinging arm, *f*. In the face of the upper arm is a vertical slot, in which slides a bar, *g*, and in the face of the other arm is a vertical slot, in which slides a bar, *h*. In the foot of the up-

per slide is a former, *i*, and in the top of the under slide is a similar former, *k*, the two formers, in the lowest position of each, standing as seen in Fig. 1. The upper plate has extending from its rear side a pin or roll, *l*, which enters a cam-groove, *m*, cut in the front face of a cam-wheel, *n*, on the driving-shaft *o*, and the lower plate is jointed to an arm, *p*, extending from a rocker-shaft, *q*, from which extends another arm, *r*, that is jointed to one arm of a lever, *s*, the other arm of which has extending from it, and into a cam-groove, *t*, of a cam-wheel, *u*, on the driving-shaft, a pin carrying a roll or truck, *v*, the rotation of the two cams upon the driving-shaft imparting the respective vertical movements to the two slides and their formers *i k*. These formers are upon the adjacent or inner faces of two shank-pieces, *w*, fixed to the respective slides, the formers being projections from the shanks, and being in the same plane. The wire *x* passes between the adjacent curved ends of the two formers from a throat formed between the front face of the two arms *d f* and a cap-plate, *z*.

In addition to the vertical movements imparted to the two slides, each has a swing movement with its arm, the respective swing movements being imparted as follows: From the two arms, respectively, extend two ears, *a² b²*, having slots *c² d²*, and from these ears pins *e² f²* extend into two slots, *g² h²*, of opposite arms *i² k²*, extending from a rocker-shaft, *l²*, the opposite end of this shaft having an arm, *m²*, from which a pin, *n²*, projects into a cam-slot, *o²*, of a cam-wheel, *p²*, on the driving-shaft *o*.

At each rotation of the driving-shaft both formers act, one to produce a bend of the wire in one direction, and the other to produce the next bend in the opposite direction. Each former in moving to bend the wire bends it over the adjacent or outer side of the other former, which, during the operation, is stationary, and as soon as either former has acted to produce the bend the other former withdraws, so that one is higher than the other. Then the rocker-shaft *l²* is turned, and its slots *g² h²*, acting upon the pins *e² f²*, swing the two arms *i² k²*, one in one direction and the other in the opposite direction, and so as to move the last-acting former up against the wire-length

formed by it, to force such length up against the previously-formed length, and the other former back to carry its point beyond the point of the first former. Then, while the first former remains stationary, the second is moved vertically, and bends the wire over the point and side of the first. Then the first withdraws, and the rocker-shaft r^2 then turns in the opposite direction, causing the last-acting former to force the length bent by it up against the previously-bent length, and bringing the other into position to form another length by its next vertical movement. As the ribbon emerges from the machine it passes between a pair of holdback-rolls, r^2 , the stress of which upon the ribbon is made such as to permit the ribbon to pass only with the bends tightly compressed together. The flatness of the ribbon is insured by the walls of the plates between which it is formed and passes, it being, in fact, walled in between top and bottom and side surfaces.

The construction and arrangement of all the parts shown may be modified, the essential features of the mechanism being the forming mechanism and mechanism for imparting the requisite movement to bend the wire and form the ribbon.

As the bends are formed they pass between a cap-plate, s^2 , and a plate behind the same,

the adjacent surfaces of the plates being distant to an extent equal to the thickness of the wire, these plates insuring the formation of a straight and uniformly thick ribbon. These plates s^2 are shown with teeth or inclined projections. The plates are simply cap-plates, their inner surfaces forming walls, and they are toothed simply the better to permit the relative movements, and the better in such movements to serve uninterruptedly as a wall.

We claim—

1. The combination of the two formers i k , constructed as described, with suitable mechanism for imparting to them the relative vertical and lateral movements to bend the wire into the ribbon form, substantially as shown and described.

2. In combination with the formers, the rolls r^2 , that hold back the formed wire, and the walls or plates between which the wire is forced after being bent, substantially as described.

Executed this 12th day of December, A. D. 1873.

CHARLES KENISTON.
ERASTUS WOODWARD.

Witnesses:

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M. W. FROTHINGHAM.