

(No Model.)

2 Sheets—Sheet 1.

P. CLIFFORD & J. COUPAL.

MACHINE FOR GROOVING WIRE.

No. 371,424.

Patented Oct. 11, 1887.

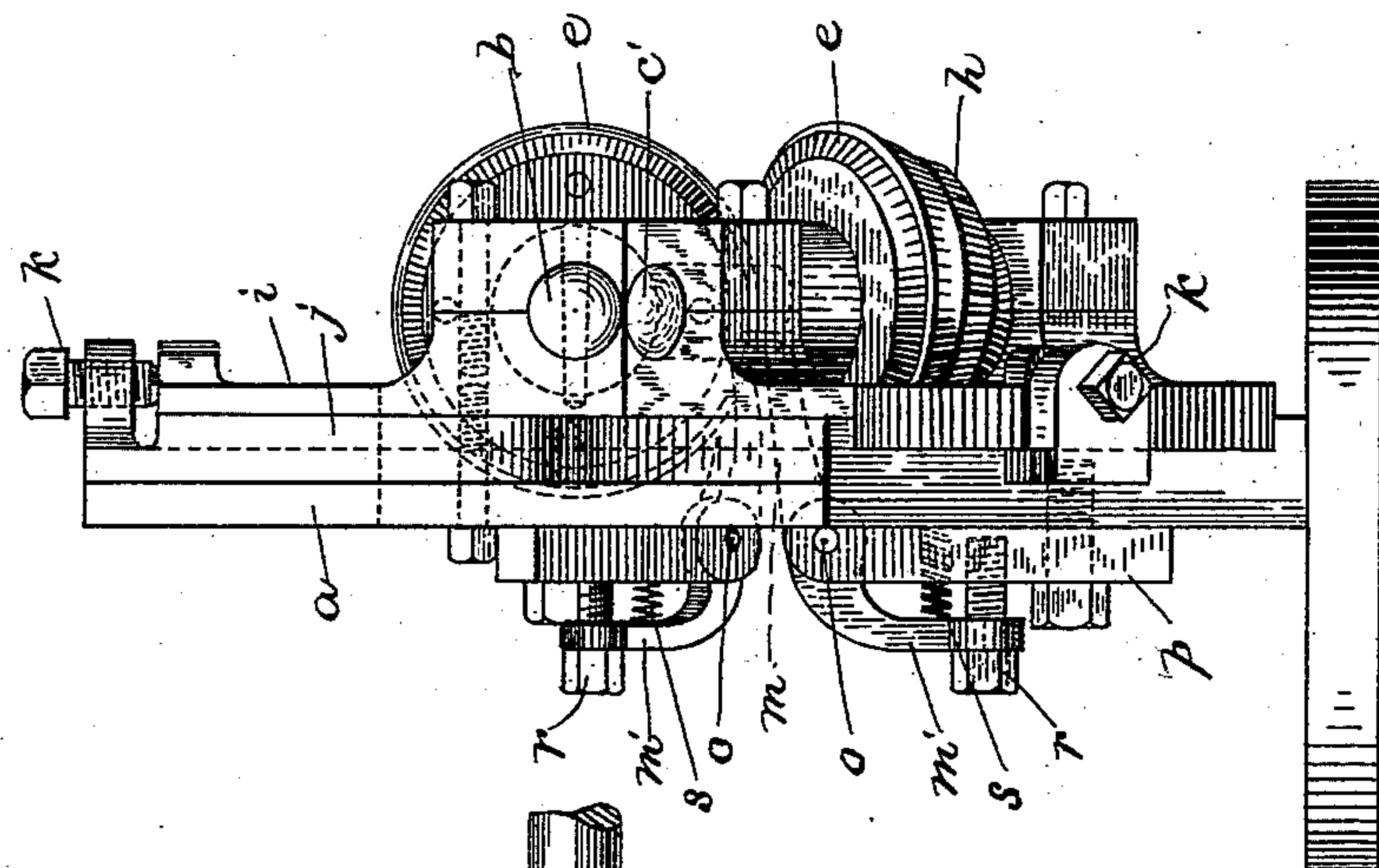


Fig. 2.

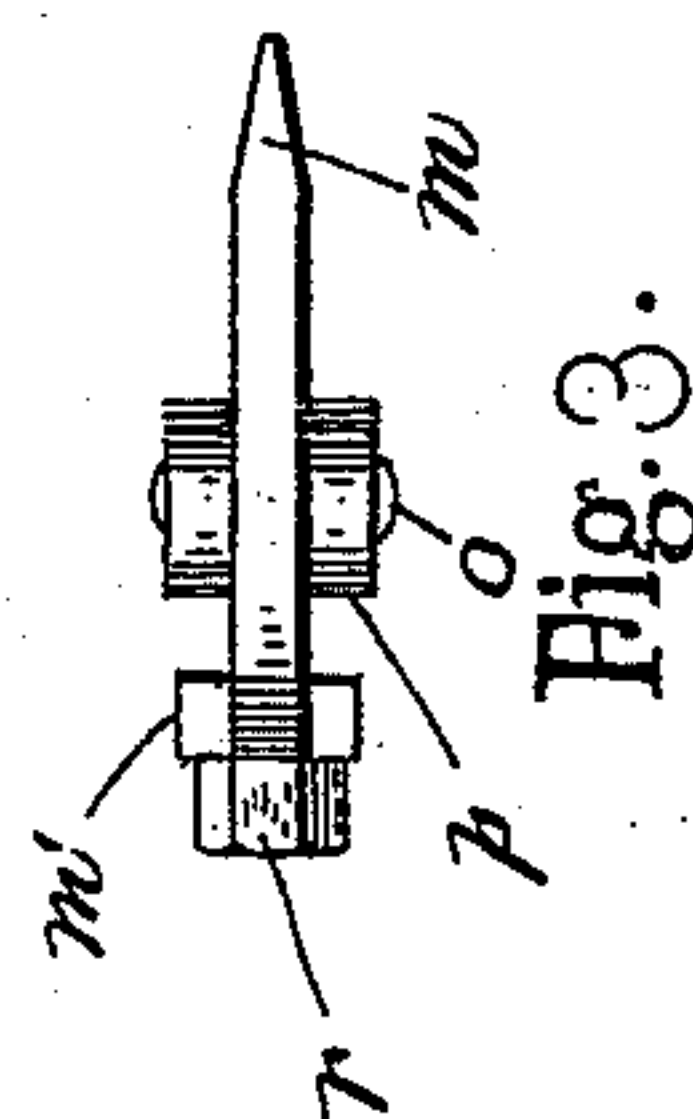


Fig. 3.

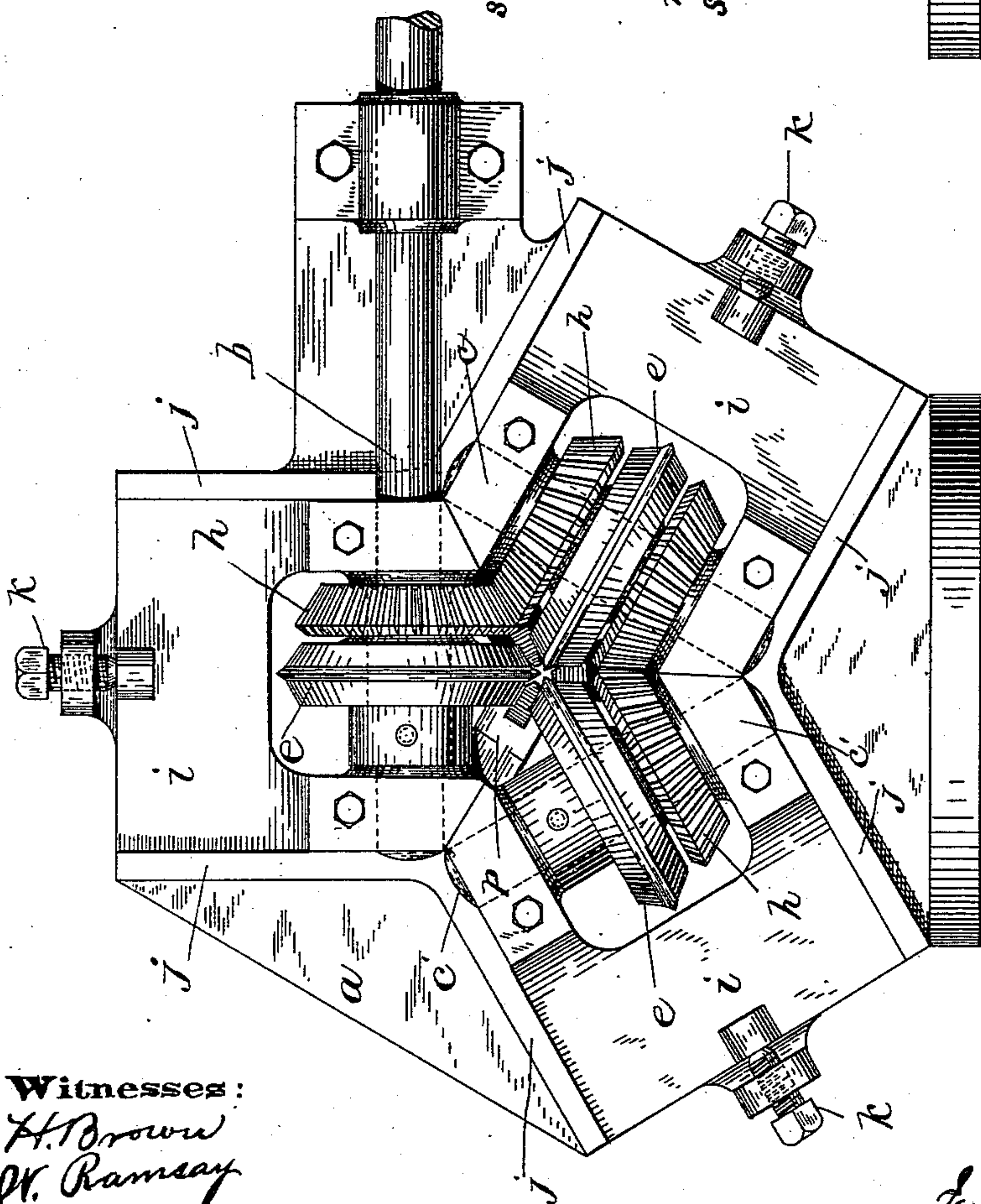


Fig. 1.

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Fig. 4.

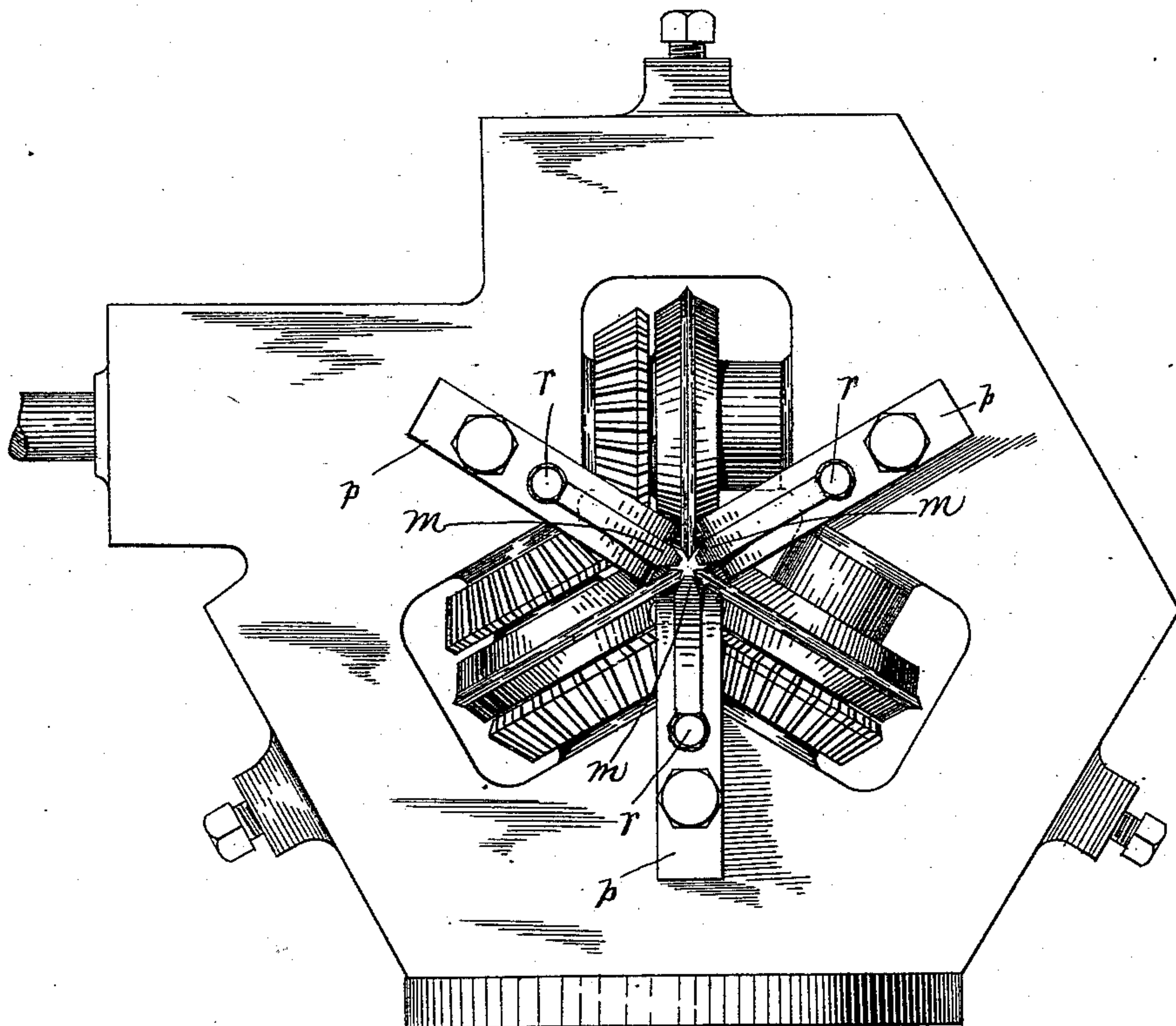
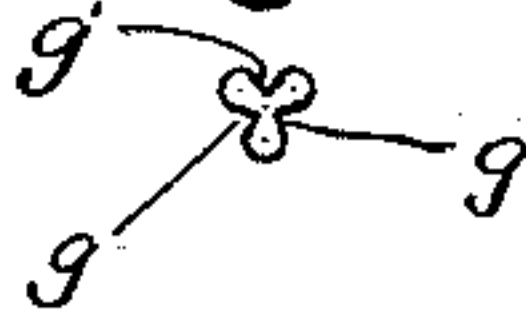


Fig. 5.



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UNITED STATES PATENT OFFICE.

PATRICK CLIFFORD AND JOSEPH COUPAL, OF WOLLASTON, MASSACHUSETTS.

MACHINE FOR GROOVING WIRE.

SPECIFICATION forming part of Letters Patent No. 371,424, dated October 11, 1887.

Application filed December 18, 1886. Serial No. 221,915. (No model.)

To all whom it may concern:

Be it known that we, PATRICK CLIFFORD and JOSEPH COUPAL, of Wollaston, Quincy, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Grooving Wire, of which the following is a specification.

This invention has for its object to provide improved means for longitudinally grooving wire to form ribs thereon by a rolling process; and it consists, first, in a series or set of grooving-rolls formed and arranged to act simultaneously on a wire passing between them, combined with means for positively rotating said rolls and thereby causing them to both groove and feed the wire.

The invention also consists in the combination, with said grooving-rolls, of a series of adjustable guides for the wire, said guides being arranged to support the wire laterally at the point where it is acted on by the rolls.

The invention also consists in the combination, with the rolls, of means for adjusting them toward and from the point where they act on the wire, all of which we will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a front elevation of a wire-rolling machine embodying our improvements. Fig. 2 represents an end view of the same. Fig. 3 represents a top view of one of the guides and its holder. Fig. 4 represents a rear view of the machine. Fig. 5 represents a transverse section of the wire grooved by said machine.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents a stand or frame having bearings in which are journaled the shafts *b c c'*. To said shafts are affixed the grooving-rolls *e e e*. Said shafts and rolls are arranged as shown in Fig. 1, so that the rolls will act simultaneously on a wire, the grooving portions of the rolls standing in planes that radiate from a common center, so that they will form grooves *g g g* in the wire, of substantially the form shown in Fig. 5, the surface of the wire between said grooves being thus formed into longitudinal ribs.

The shafts *b c c'* have bevel-gears *h h h* affixed to them, the gear of the shaft *b* meshing with

that of the shaft *c*, while the gear of the shaft *c* meshes with the gear of the shaft *c'*. The shaft *b* is driven by any suitable motor, and motion is communicated from it to the shafts *c c'*, the series of rolls being thus positively rotated and caused to simultaneously feed and groove the wire.

We prefer to make the rolls adjustable in directions at right angles with their respective axes, so that they may be adapted to different sizes of wire. To this end the bearings of the shafts are formed on or secured to slides *i i i*, which are fitted to move between dovetail guides *j j, j j, j j* on the stand or frame, the guides of each slide being substantially at right angles with the shaft supported thereby, as shown in Fig. 1. Adjusting-screws *k k k*, working in tapped lugs or ears on the stand or frame *a*, bear on ears on the outer ends of said slides, and serve to move the slides inwardly and to limit their outward movement.

m m m represent guides which are arranged to alternate in position with the rolls *e* and support the wire between the points on which the rolls act, thus making it impossible for the wire to be displaced sidewise in any direction. Said guides are preferably formed as elongated fingers secured to the stand or frame *a*, and tapered or reduced at their outer ends, which ends project between the rolls, so as to bear upon the wire between the points where the rolls are in contact therewith. We also prefer to make the guides adjustable to adapt them to different sizes of wire, and to this end we pivot the guides at *o* to ears formed on the ends of holders *p*, which are secured to the rear side of the stand or frame. The rear ends of the guides are bent outwardly to form arms *m'*, which are provided with orifices through which pass screws *r*, which work in tapped sockets in the fixed holders *p*. When the screws *r* are turned inwardly, their heads, pressing the arms *m'* toward the stand or frame *a*, swing the acting ends of the guides inwardly and adapt them to a smaller wire. When said screws are turned outwardly, springs *s*, bearing against the arms *m'*, force said arms away from the stand or frame and swing the acting ends of the guides apart, thus adapting the guides to larger wire.

Our improved machine is intended chiefly

for grooving small wire, such as used for boot or shosole nails or fastenings, the ribs formed, as described, on the wire enabling it to hold firmly when inserted in leather.

5 We claim—

1. In a wire-grooving machine, the combination of a supporting stand or frame, a series of grooving-rolls affixed to shafts journaled in bearings on said stand and provided with peripheral ribs formed to make longitudinal grooves or indentations in a wire, said shafts and rolls being relatively arranged so that the rolls stand in radiating planes, and bevel-gears connecting said shafts, one of the shafts being rotated by a suitable motor and communicating motion through said gears to the other shafts, as set forth.

2. In a wire-grooving machine, the combination of a supporting stand or frame, a series of grooving-rolls affixed to shafts journaled in bearings on said frame and arranged to stand in radiating planes, and a series of guides alternating in position with the rolls and arranged to bear on the wire between the points on the wire with which the rolls are in contact, as set forth.

3. The combination of the stand or frame, the slides *i*, fitted to slide in radiating guides on said frame, the radially-arranged grooving-rolls journaled in bearings on said slides and provided with peripheral ribs formed to make longitudinal grooves in a wire, and means for holding the slides at any point to which they may be adjusted.

4. The combination of a supporting stand or frame, the radially-arranged grooving rolls journaled in bearings thereon, the adjustable guides supported by said frame and alternating in position with the rolls, and means, substantially as described, for holding said guides in any position to which they may be adjusted, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 9th day of December, 1886.

PATRICK CLIFFORD.
JOSEPH COUPAL.

Witnesses:

C. F. BROWN,
ARTHUR W. CROSSLEY.