

G. BROOMHEAD.

Machine for Scouring and Polishing Wire.

No. 133,965.

Patented Dec. 17, 1872.

Fig. 1.

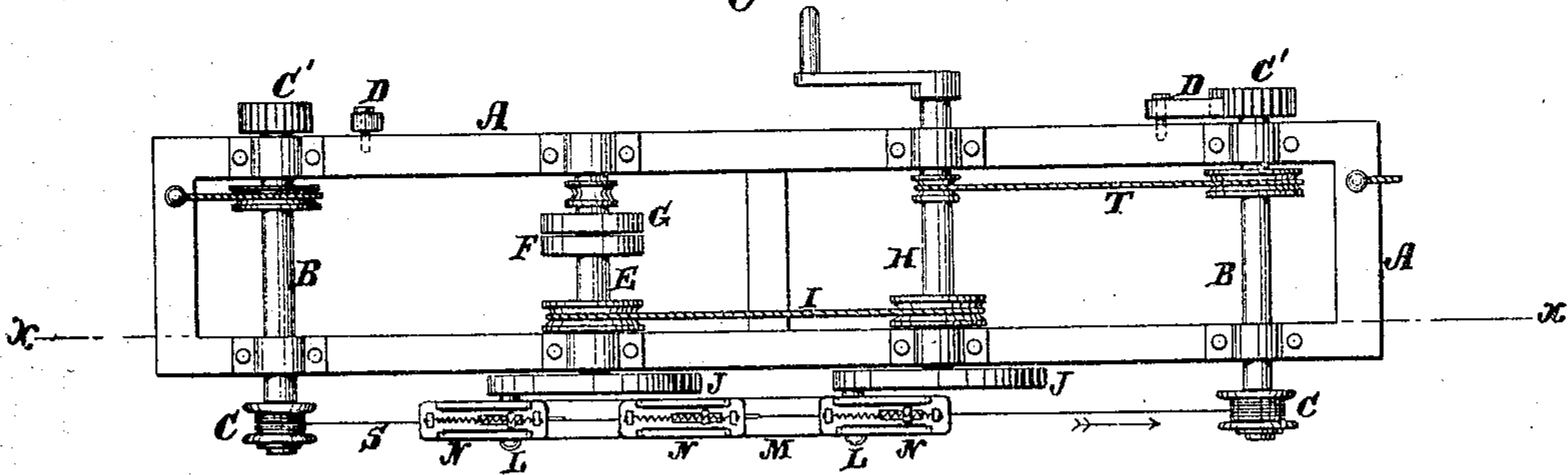


Fig. 2.

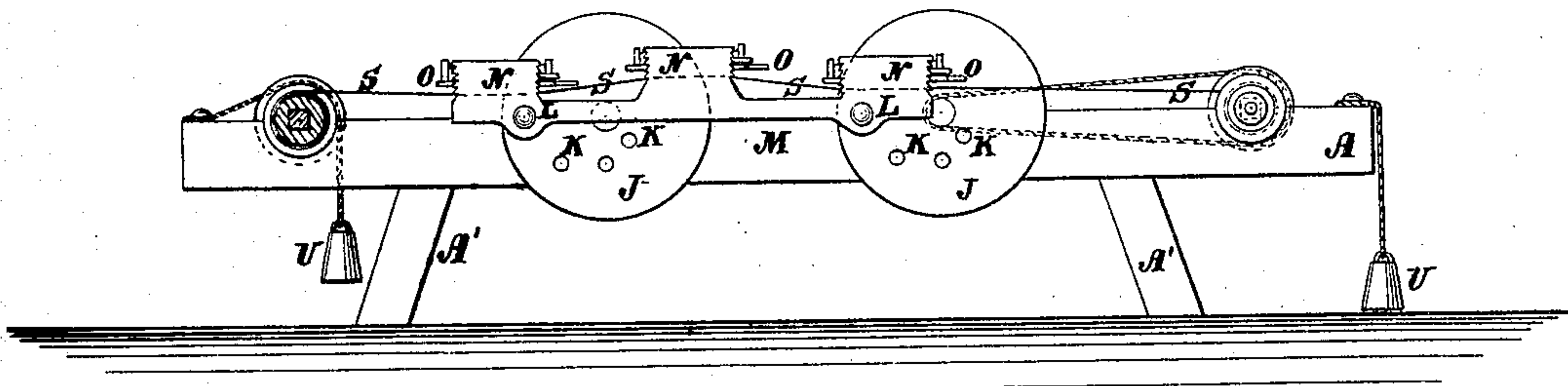


Fig. 3.

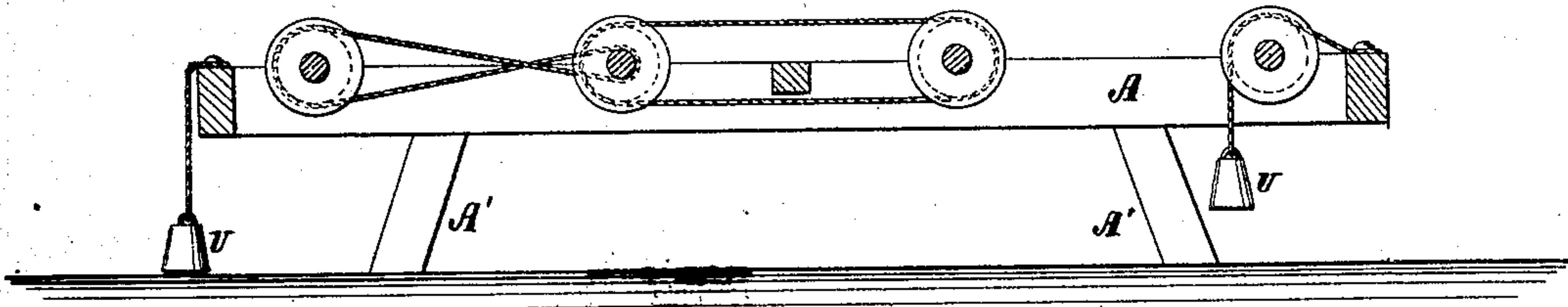


Fig. 4.

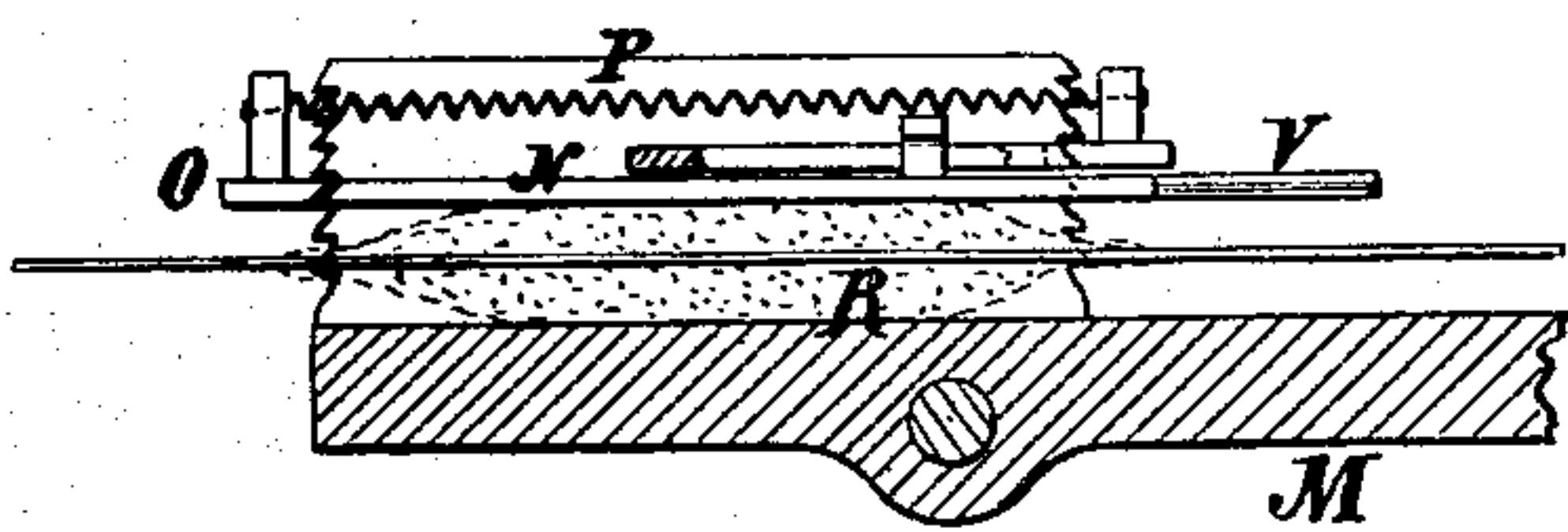
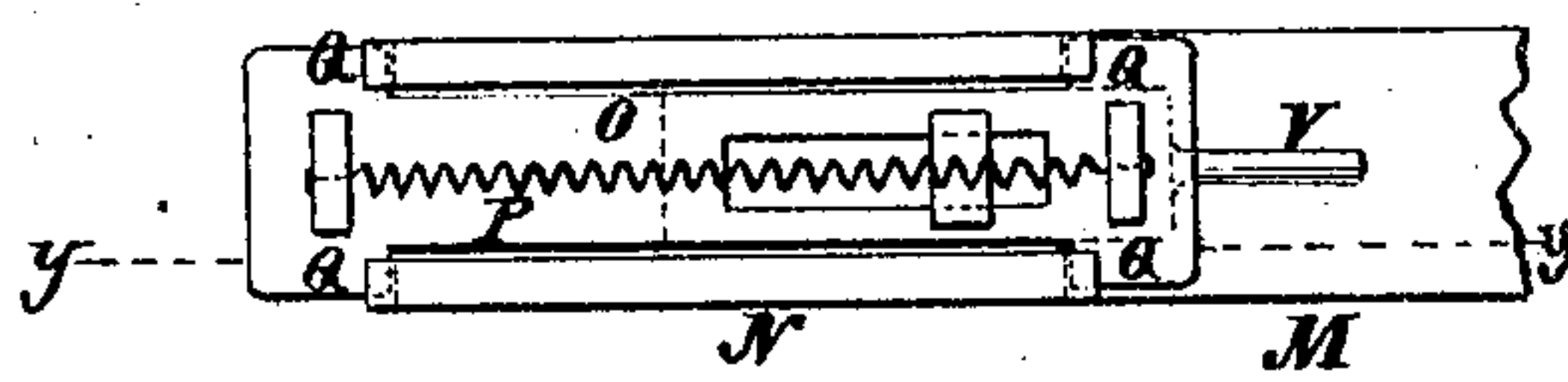


Fig. 5.



Witnesses:

A Bennekenhof.
Sedgwick

Inventor:

G. Broomhead

PER

Munnell
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE BROOMHEAD, OF PATERSON, NEW JERSEY.

IMPROVEMENT IN MACHINES FOR SCOURING AND POLISHING WIRE.

Specification forming part of Letters Patent No. **133,965**, dated December 17, 1872.

To all whom it may concern:

Be it known that I, GEORGE BROOMHEAD, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Machine for Scouring and Polishing Wire, of which the following is a specification:

Wire used in the manufacture of pianos and for needles, and for many other purposes, is required to be smooth and bright. Such wire is usually made of steel, and is consequently harder and more difficult to polish than wire made of soft iron. But whether hard or soft, the wire has hitherto been scoured and polished by hand, which is a most tedious and laborious operation.

My invention consists in a machine by means of which the wire is scoured and polished in the most perfect manner by motive power, and at a greatly-reduced expense, the construction of which is hereinafter set forth and described.

In the accompanying drawing, Figure 1 represents a top or plan view of the machine; Fig. 2 is a sectional side elevation; Fig. 3 is a vertical longitudinal section taken on the line *xx* of Fig. 1; Fig. 4 is a section of Fig. 5 taken on the line *yy*; and Fig. 5 is a detail, showing the mode of confining and compressing the cloth on the wire.

Similar letters of reference indicate corresponding parts.

A is an oblong frame of any suitable size, of wood or other suitable material, elevated on legs A', as seen in the drawing. This frame supports the shafts and operating parts of the machine, which shafts are confined in boxes across the frame. At each end of the machine is a shaft, B, with a spool-drum, C, at one end thereof, and a ratchet-wheel, C', at the other end. D is a pawl attached to the frame, which engages with the ratchet-wheel. E is the driving-shaft, and F G represent a fast and a loose pulley, by means of which the power is applied and intermitted as may be required. H is a shaft, which receives motion from the driving-shaft by means of the belt I. J J are disks or crank-wheels on the outer ends of these two middle shafts. These wheels are provided with a series of holes, K, by means of which the wrist-pins L may be adjusted nearer to or further from

the centers of those wheels. M is a connecting-bar which is attached to the faces of these wheels by the wrist-pins L, which bar is given a reciprocating motion thereby as the wheels revolve. N represents one or more projections or boxes on this bar, which is grooved out to receive the wire to be scoured and polished, and the cloth and material used in the polishing process. O is a spring compressing-plate made, in two parts, the parts being connected together by the spiral spring P. Each end of the projecting box N is serrated. The compressing-plate is formed with shoulders Q at each end, and the middle portion of the plate fits down into the groove or box while the shoulders Q are drawn toward each other by the spring and enter between the teeth of the box, so that the plate is secured in any desired position. R is a cloth or other flexible material containing sand, emery, or other scouring and polishing material, which is wound around or attached to the wire to be polished. S is the wire, which is wound on one of the spool-drums, C. Its outer end is carried through the box N (one or more) and fastened to the other spool-drum C at the other end of the machine. This latter spool-drum is revolved by the belt T, and the wire is drawn from one drum and wound onto the other as fast as it is sufficiently polished. Any back motion is prevented by the ratchet and pawl C'. As the wire passes through the box N the scouring-cloth R is wound around or attached to it in each box, if more than one is employed, and the machine is put in motion. The box or boxes are given a reciprocating motion on the wire, while the wire is steadily drawn along and wound upon one of the drums, C. When the wire has been once drawn through, a crossed belt, as seen in Fig. 3, may be put upon the empty drum-shaft, and the wire may be drawn back and be wound up again should it not be sufficiently scoured and polished by one operation. By putting on a crossed belt the machine is driven all the time in one direction. The belts are put on and detached as may be required. In drawing the wire from the drum the driving-belt of that shaft is removed, and a friction-belt, with a weight, U, is applied, by means of which any required amount of friction may be applied. After the scouring and polishing cloth R is

applied to the wire the compressing-plate O is forced down onto the cloth with any desired degree of power, and is held in place by the teeth in the ends of the boxes, as before stated. The plate is readily detached by drawing the parts of which it is composed from each other. One of these parts slides upon the other, and is confined by means of a slot and rivet-head, as seen in Fig. 5. V is a stem, by means of which the plate is handled. The spool-drums C are constructed with a removable outer flange, so that the coil of polished wire can be removed from the drum with facility.

By means of this machine wire of any size may be scoured and polished in the most perfect manner, and at least ten times as fast as it can be done by a single person, while the operation is much more perfectly performed than it can be by hand.

I do not confine myself to the precise form and arrangement of the parts described, as variations may be made in many ways without departing from my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A machine for scouring and polishing wire, by means of which a scouring and polishing cloth, or similar substance or material, is given a reciprocating motion on the wire while the wire is drawn through the said scouring and polishing substance or material and wound upon a spool-drum or cylinder, substantially as shown and described.

2. The frame A, shafts B B and F H, disks or crank wheels J J, spool-drums C C, connecting-bar M, boxes N, (one or more,) scouring and polishing material R, and compressing-plate O, substantially as and for the purposes described.

GEORGE BROOMHEAD.

Witnesses:

T. B. MOSHER,
C. SEDGWICK.