

S. VANSTONE.

Feed-Device for Rolling-Mills.

Patented Sept. 21, 1875.

No. 167,861.

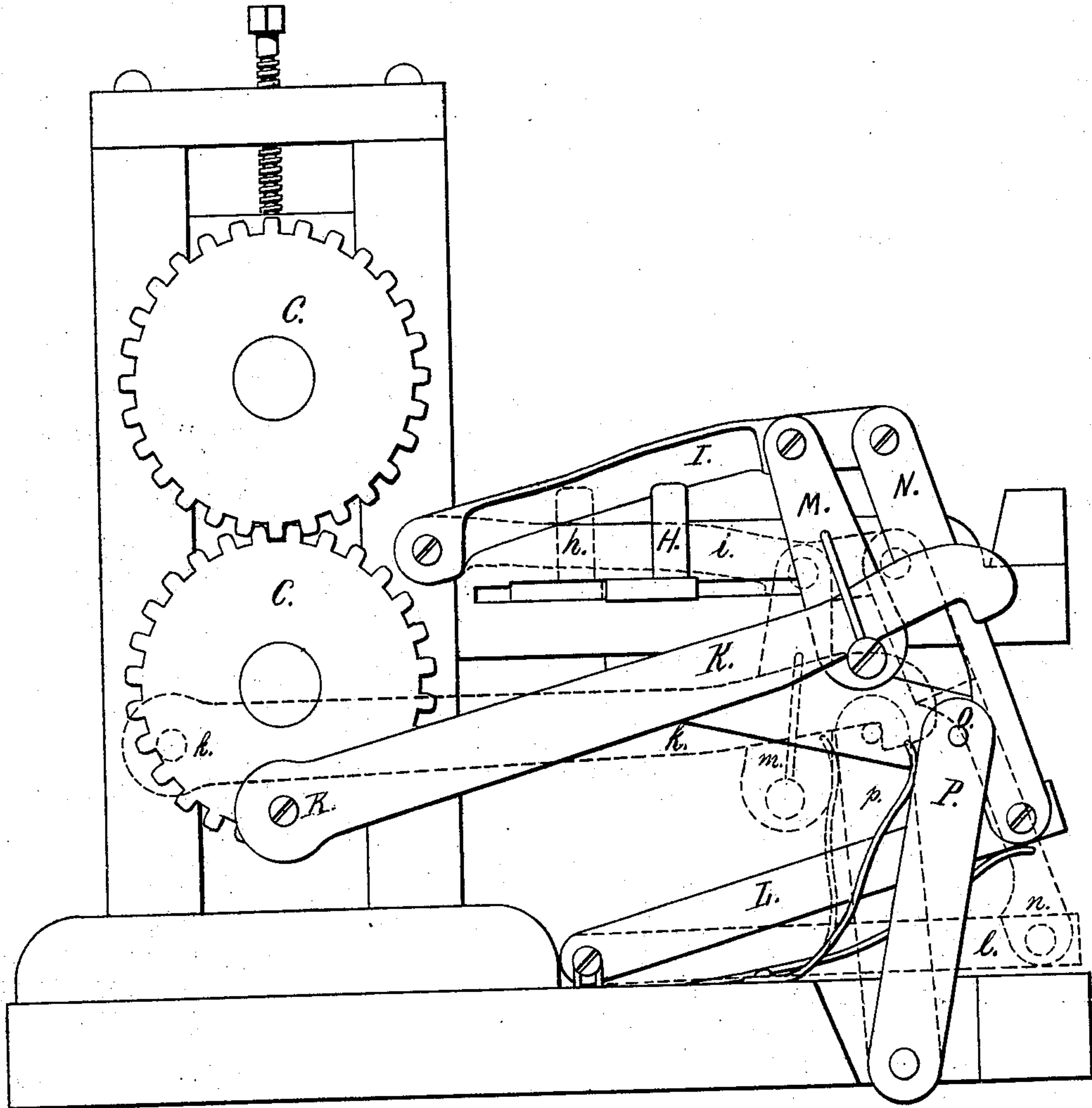


FIG. 1.

WITNESSES.

Ernest C. Barth.

J. A. Miller Jr.

INVENTOR.

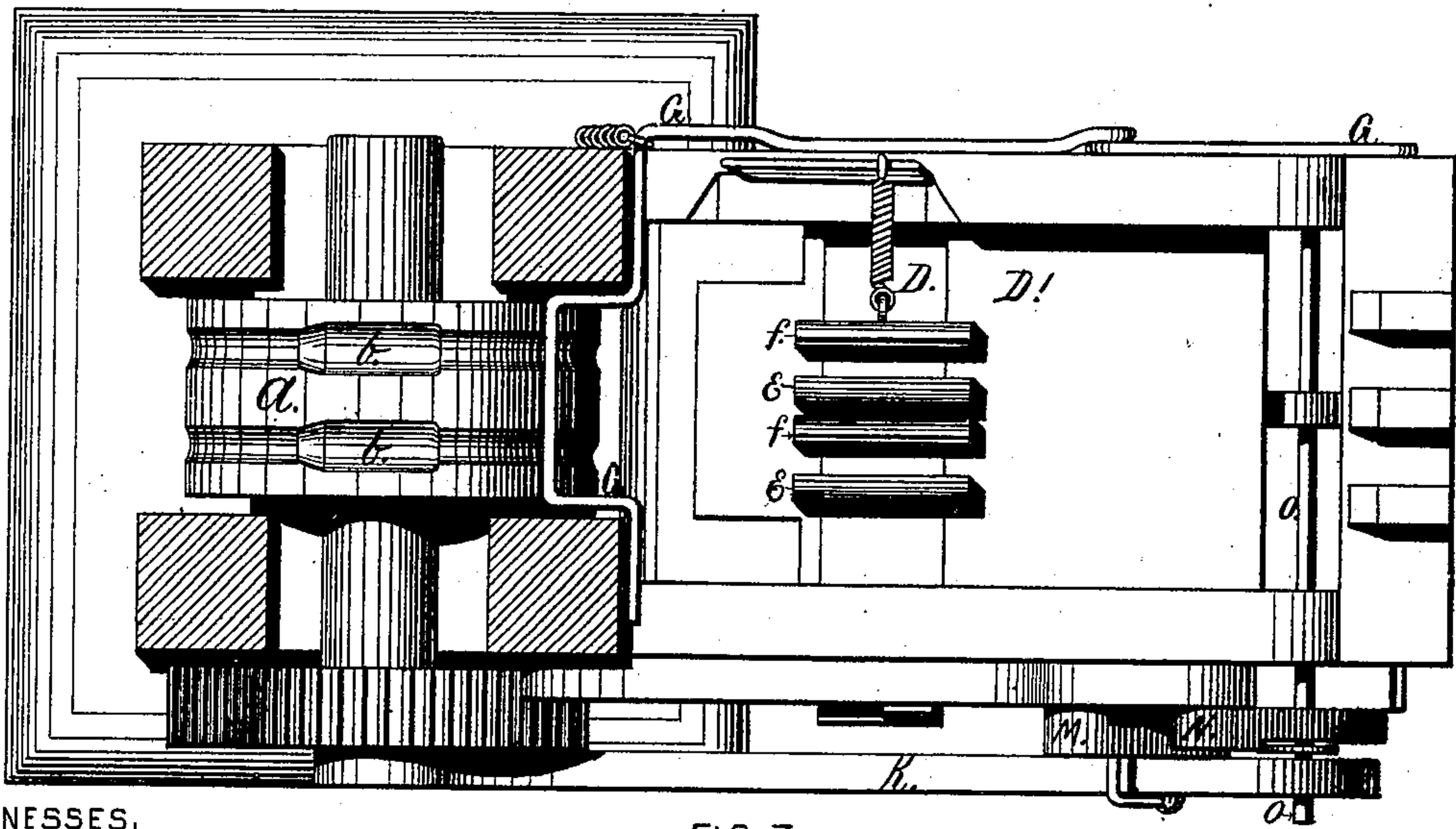
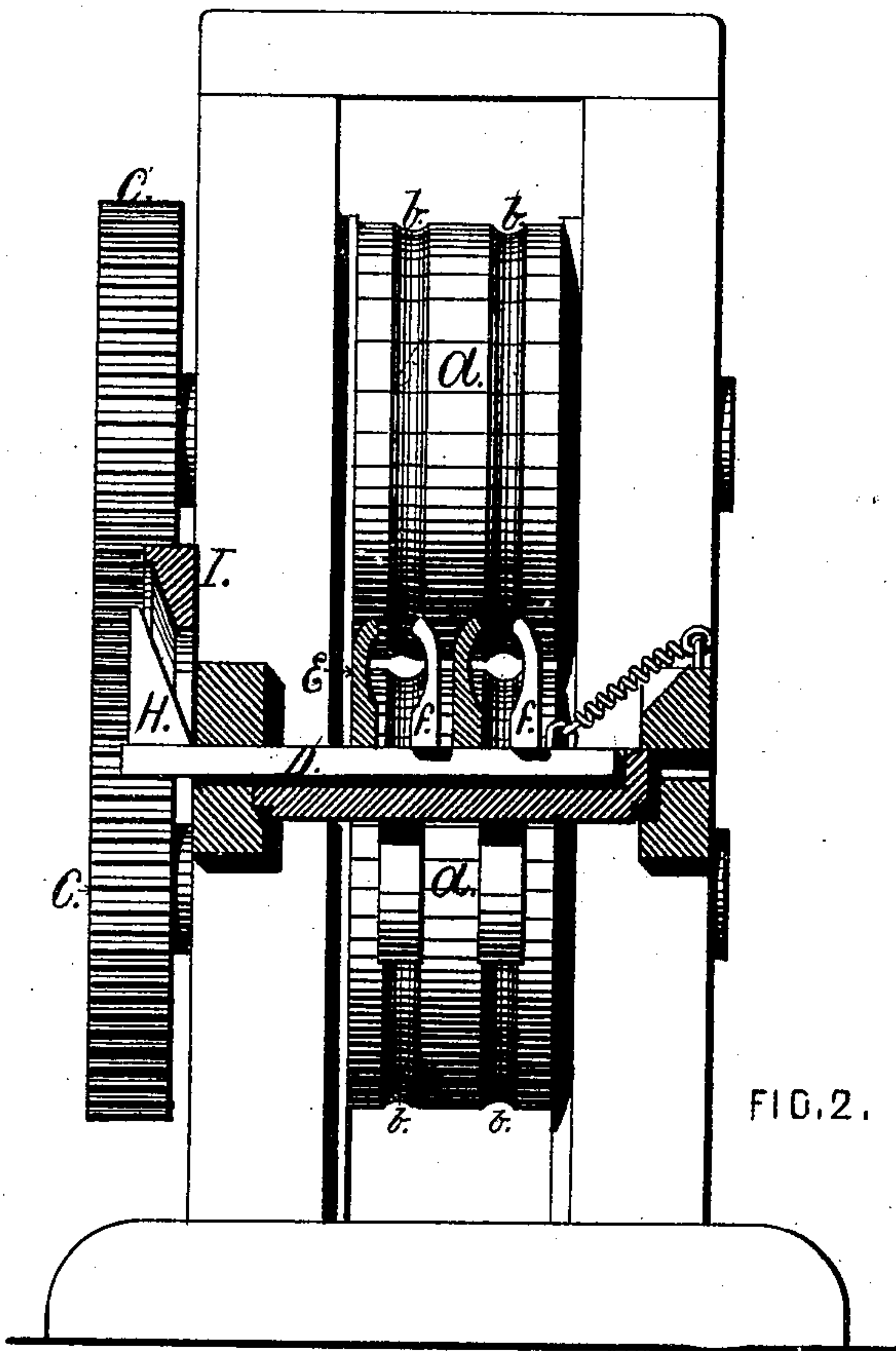
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WITNESSES.

FIG. 3.

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UNITED STATES PATENT OFFICE.

SAMUEL VANSTONE, OF PROVIDENCE, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO HENRI E. BACON, OF PAWTUCKET, AND LYSANDER FLAGG, OF LINCOLN, RHODE ISLAND.

IMPROVEMENT IN FEED DEVICES FOR ROLLING-MILLS.

Specification forming part of Letters Patent No. **167,861**, dated September 21, 1875; application filed March 3, 1875.

To all whom it may concern:

Be it known that I, SAMUEL VANSTONE, of the city of Providence, State of Rhode Island, have invented a new and useful Improvement in Machinery for Rolling Gun-Barrels; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Figure I is an elevation, showing the position of the parts when the barrels to be rolled are laid upon the same, and in broken lines the position of the parts when the barrels are fed to the rolls. Fig. II is a cross-section of the machine, showing the clamping device for feeding the barrels to the rolls, as also the rolls in view. Fig. III is a top view of the machine, showing the rolls and the gage by which the skelps or the prepared steel, out of which the barrels are formed, are laid in the proper position with reference to the rolls, as also the feeding device.

Similar letters of reference indicate corresponding parts.

The object of this invention is to so arrange a machine for rolling gun-barrels that the barrels or skelps to be rolled may be fed automatically and accurately to the rolls, so that the same may be always rolled exactly alike, and without the skilled labor now required to produce this result.

The nature of this invention consists in the application to a set of rolls for rolling gun-barrels of a feeding device for feeding the barrel's skelp to the rolls, as is more fully described hereinafter.

In rolling gun-barrels the skelp, or the piece of steel, having a hole of the proper diameter through its center, is placed on a mandrel, and is passed between two rolls, on the face of which corresponding grooves are made, in which the barrel is rolled. These grooves correspond to the form of the finished barrel, giving the required taper, and also the enlargement at the breech end.

Great experience and skill are required to enter the skelp at the exact point on the roll

required to produce a perfect barrel, for if the same is entered too late the enlargement will be near the center of the barrel instead of at the end, and the barrel will be useless, or, if too soon, the enlargement will be at the muzzle instead of being at the breech, and again the barrel will be lost and useless.

The work of holding the hot mass of steel and entering at the precise moment is very laborious, and as only experienced, quick, and reliable men can perform the same, high wages are paid for such work, and as only few men acquire the necessary skill the works are dependent on these for the number of barrels required.

The two rolls *a a* are connected by the two gear-wheels *C C*, so that the relative position of the rolls and the relative position of the grooves will always be maintained. In front of the rolls I place the distance-gage *G*, against which the barrel-skelps are placed, resting on the sliding table *D'*. On this table the clamping-jaws *E E* are secured, and to a laterally moving slide-plate, *D*, the clamping-jaws *f f* are secured. At one end of the sliding plate *D* the wedge-shaped block *H* is secured. This is operated upon by the arm *I*, having also a wedge-shape section part of its length. One end of this arm is secured by a strong pin to the roller-frame, and the other end is connected by the arm *N* with the foot-plate *L*. When now the skelps for the gun-barrels are placed between the clamping-jaws *E E* and *f f*, and the operative depresses the foot-plate with his foot, the arm *I* descends with the foot-plate *L*, and, pressing against the block *H*, forces the sliding plate *D* laterally, and thus brings the clamping-jaws *E E* and *f f* against the skelps and holds the same firmly. Connected also with the arm *I* is the carrier-arm *M*, by which the reciprocating arm *K* is supported at or near the hooked end, the other end being connected by a pin to the gear-wheel *C*. This arm *K* reciprocates vertically by the revolution of the rolls and the gear *C*, and when the foot-plate *L* and with the same the arm *I* is depressed, the hooked end engages with the rocking-shaft *O*, and as this shaft is connected by a strut with

the under side of the table D' the table and the clamped barrel-skelps are brought in contact with the rolls always at the same point on the rolls, and always in the grooves *b b*, without any particular skill exerted by the operative. The positions of all the parts at this time are indicated by broken lines. As soon as the rollers take hold of the skelps the foot-plate is released and a new batch of skelps is placed upon the table, and the previous operation repeated.

To enable the operative to lay the barrel-skelps into the exact position required, so that the end nearest the rolls shall be at the exact distance from the rolls to be delivered at the precise moment when the smallest part of the grooves is ready to receive the same, I place close to the rolls the gage G, against which the operative places the forward end of the skelps. This gage G passes along one side of the frame, and is secured by a pin forming a fulcrum. The other end passes down under the foot-plate L, and when the same is depressed the gage near the rolls is raised, and the barrel-skelps are now free to be fed to the rolls as soon as the hooked end of the arm K engages with the shaft O, and thus slides the table D' toward the rolls.

By my improved machine the rolls can be run at a higher speed, and one attendant can easily supply a number of barrels to the rolls, without the skill, experience, and exhaustive labor required in the old process. A much larger number of barrels can, therefore, be

rolled, thus reducing the cost of this operation.

As all the barrel-skelps enter the rolls at exactly the right point, and as they cannot be entered except at this point, no imperfect barrels can be produced and no loss caused by imperfect rolling, thus saving a large amount now lost in time, labor, and material.

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

1. The combination, in a machine for rolling gun-barrels, of the sliding table D', having the clamping-jaws E E secured to the table, and the jaws *f f* secured to the lateral slide D, with the arm I acting upon the wedge-shaped block H and operated by the foot-plate L, and the grooved rollers *a a*, the whole operating together substantially as and for the purpose set forth.

2. The combination of the arm K, secured to the gear-wheel O and supported by the arm M, with the shaft O and the table D', when operating together and in connection with the grooved rollers *a a*, as and for the purpose described.

3. The combination of the gage G, operated by the foot-plate L, with the sliding table D' and the grooved rollers *a a*, substantially as and for the purpose set forth.

SAMUEL VANSTONE.

Witnesses:

JOSEPH A. MILLER,
WM. C. CHASE.