

G. Reynolds

Machine for Rolling Metal

N^o 87,512.

Patented Mar. 2, 1869.

Fig. 1

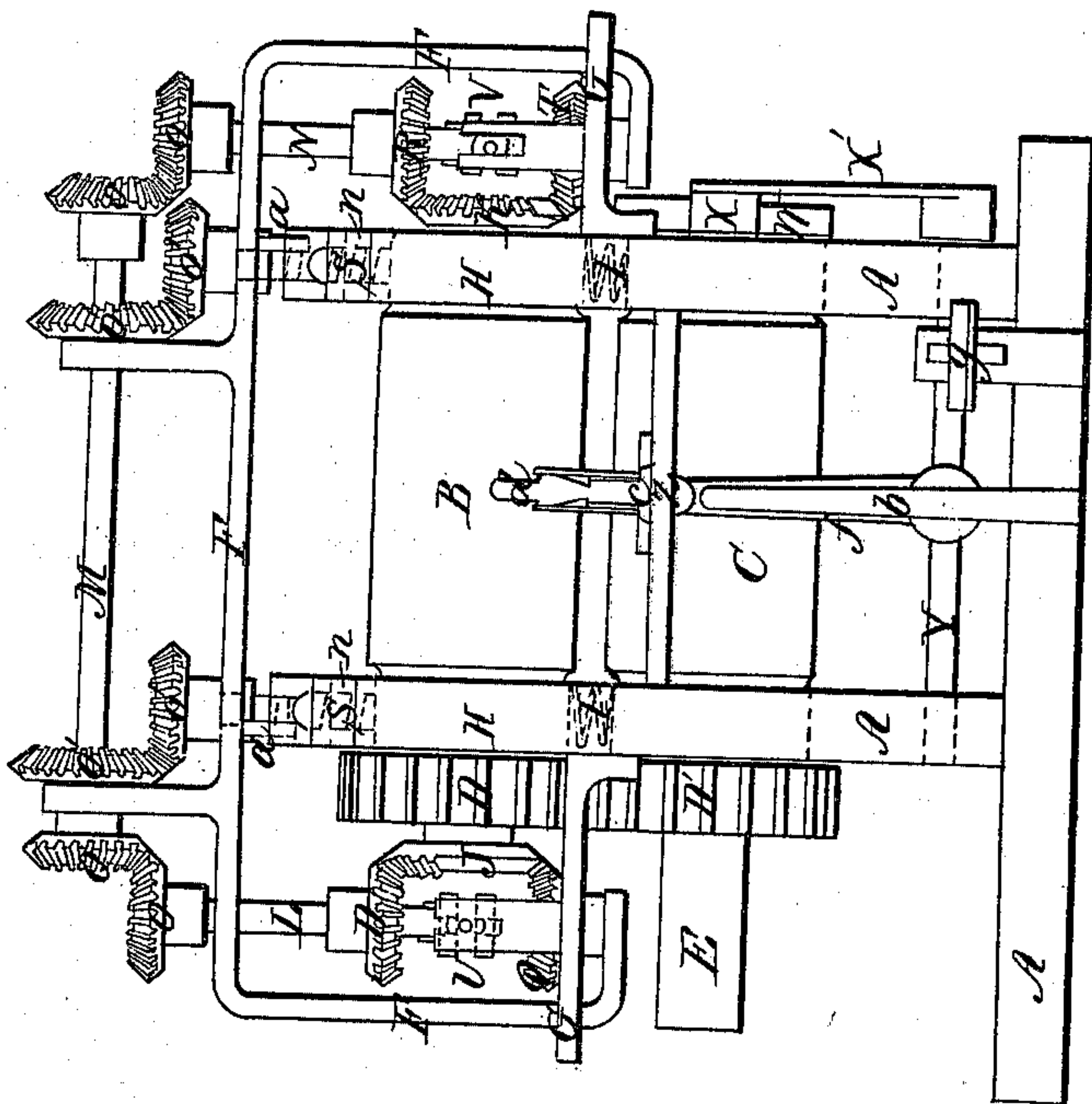
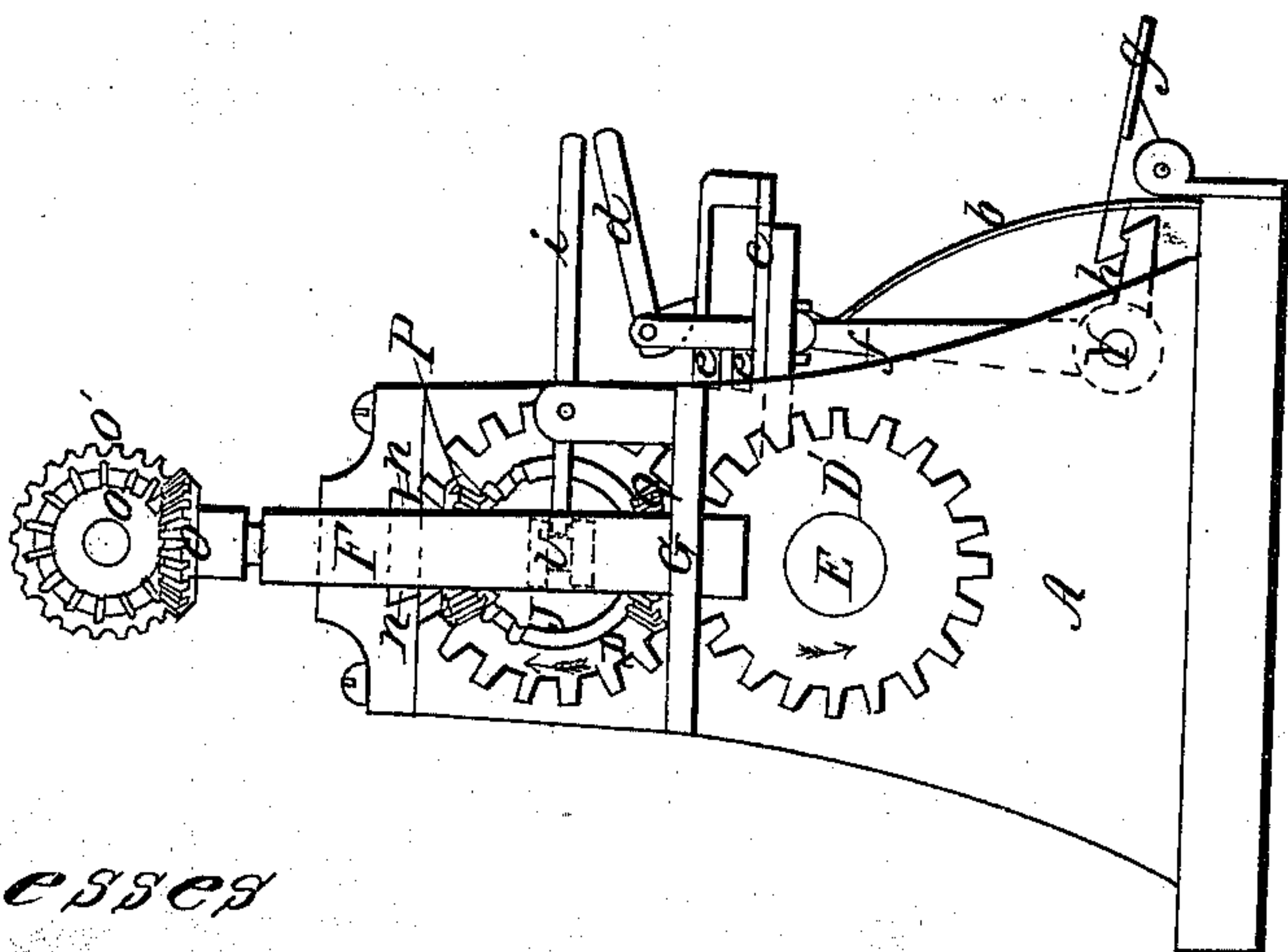


Fig. 2



Witnesses

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Wilbur F. Hale

Inventor

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GEORGE REYNOLDS, OF COLLINSVILLE, CONNECTICUT.

Letters Patent No. 87,512, dated March 2, 1869.

IMPROVEMENT IN MACHINES FOR ROLLING METALS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE REYNOLDS, of Collinsville, in the county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Machinery for Rolling Metals; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

Figure 1 is a front view of a pair of rolls with my improvements attached.

Figure 2 is an end view of the same from the left of fig. 1.

My invention has for its object the separating and bringing together of the rolls automatically in such a manner as to roll articles of varying thickness with cylindrical rolls, instead of having the face cut into dies of the desired form.

My invention consists in attaching geared wheels, of which a sector only is cut into teeth, to the ends of the axis of one of the rolls, in such a manner that they will act intermittently, through proper gearing, upon screws, which bear upon the boxes of the roll, to raise and lower it.

It also consists in the peculiar arrangement of parts by which this is effected, and in their combinations with other parts of the machinery that will be described.

A A is the frame of the machine, carrying the rolls B and C, which are connected by the cog-wheels D D', and revolve together, by power applied to the shaft E.

To the ends of the shaft or axis of the upper roll B are attached the geared wheels J and K, which have teeth upon only a portion of their circumference. For convenience, one of these wheels, K, has a greater number of teeth than the other, J.

The wheel J gears into the two wheels P and Q, which are loose upon the arbor L, but either of which can be attached to it, at will, by means of the clutch U, operated by the handle i.

On the opposite end of the roll, the wheels R and T gear into K, and are attached to or loosened from the arbor N, by the clutch V. The gearing, at each end of the axis of the roll, acts independently.

The arbors L and N are connected, by the bevel-wheels O O O O, with the horizontal shaft M, which communicates motion to the screws S S, by means of the bevel-wheels O' O' O' O'.

All the wheels, except P, Q, R, and T, are fixed upon their respective arbors.

The screws S S pass through removable nuts n n, and act downward upon the boxes H H of the axis of the roll B, which are pressed up firmly against the screws by the springs I I.

The whole system of bevel-gearing is carried by the sliding frame F, which moves up and down in guides G G and a a, at the same time as the upper roll B.

At the end of the axis of the lower roll C, is a cam, W, which operates the rocking shaft Y, by means of the roller X and lever X'.

This shaft moves the nippers e e back and forth on the slide c, by means of the arm f.

The spring b serves to press the arm f inward, and keeps the roller X against the cam W.

The nippers e e are made to grasp any article to be rolled, by means of the cam-shaped lever d being pressed downward.

Z is a platform, upon which the nippers are supported.

These nippers are connected with the rolls, and operated in such a manner, by the cam W, as to introduce and withdraw any article placed between the rolls at just the right instant, to correspond with the rising and falling of the upper roll B.

The operation of my invention is as follows:

We will suppose the wheel P to be fixed to the shaft L by the clutch U, and the rolls to be moving in the direction of the arrows in fig. 2. As the teeth of J engage with P, the shaft L is turned, and the roll B raised by means of the wheels O O O' O', on each end, acting on the screws S S. The boxes, H H, of the roll are pressed upward by the springs I I, as the screw rises through the nuts n n.

When the clutch U is moved, so as to disconnect P and connect Q with the shaft L, and the teeth of the wheel J engage with the wheel Q, the shaft L is turned the opposite way, and the roll B again descends to its former position.

When it is desired to raise the roll a greater distance, the clutch U is released, and the wheels R and T are successively connected with the shaft N. The wheel K, having a greater number of teeth than J, raises and lowers the roll a correspondingly greater distance.

The distance the roll is moved can also be regulated by inserting screws of a different thread in place of S S. For this purpose, the nuts n n are made removable.

One of the sets of wheels P Q or R T can be made to move the roll the same distance as the other, but more rapidly, by regulating the proportions of the wheels. In this case, one wheel of the opposite sides can be successively connected, by the clutches, with their arbors, and the roll moved more rapidly one way than the other.

When it is desired to introduce any article between the rolls, exactly at the right time to receive the intended taper or variation in thickness, it is placed in the nipping-jaws e e, and the handle d pressed down to hold it.

When it is desired to retain the nippers e e, and prevent the article held from being pushed forward into the rolls, the hook h is used. It is released, when desired, by the treadle g.

Claims.

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

1. Arranging the mechanism for raising and lowering the roll in a sliding frame F, substantially in the manner herein described, so that it will move up and down with the roll.

2. The combination of the segmental gearing J, the wheels P and Q, the arbor L, the wheels O and O', the arbor M, the sliding frame, F, the screw S, and the

frame H, for the purpose of raising and lowering a roll, substantially as herein specified.

3. The nippers *e e*, in combination with the rolls and with the raising and lowering-mechanism, for the purpose of introducing any article between the rolls at the right time.

GEORGE REYNOLDS. [L. S.]

Witnesses:

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