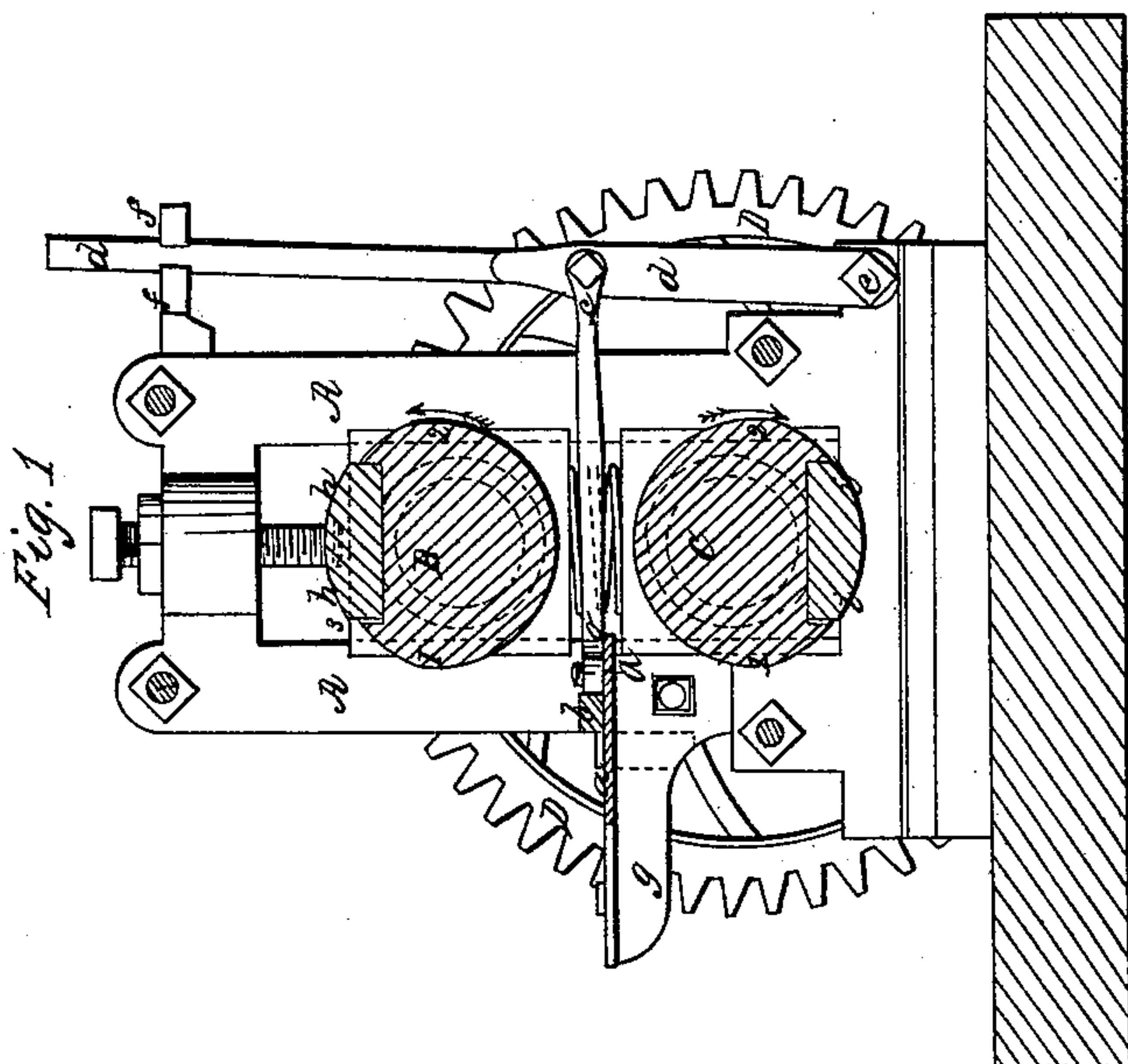
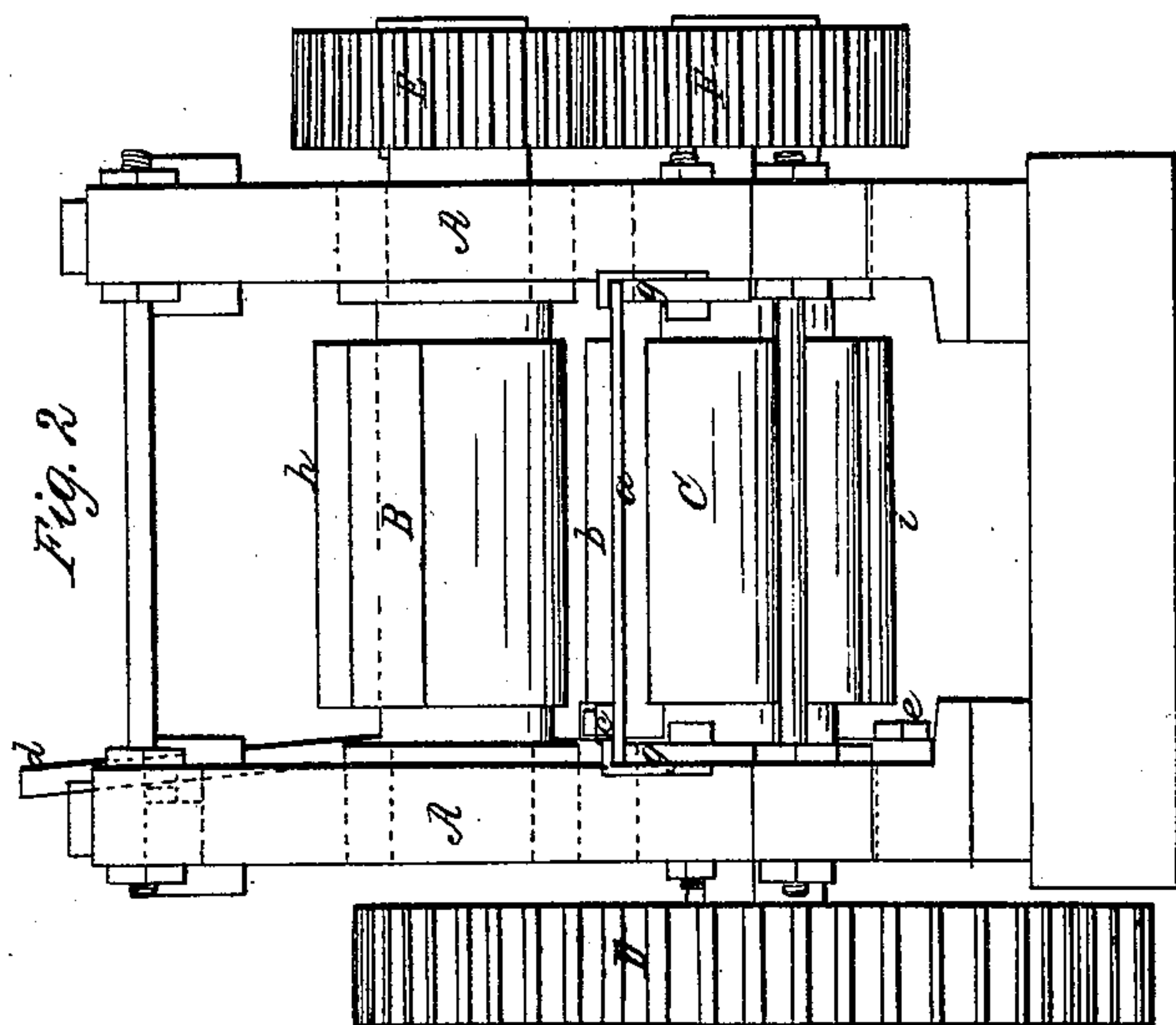


# A. R. Reynolds, Rolling Plane-Irons.

No 96,728.

Patented Nov. 9, 1869.



Witnesses;  
J. D. Patten  
Thos J. Chamberlain

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# United States Patent Office.

ASA R. REYNOLDS, OF AUBURN, NEW YORK.

Letters Patent No. 96,728, dated November 9, 1869.

## IMPROVED MACHINE FOR ROLLING PLANE-IRONS.

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, ASA R. REYNOLDS, of Auburn, in the county of Cayuga, and State of New York, have invented certain new and useful Improvements in Machines for Rolling Plane-Irons, or other similar articles; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a vertical transverse or cross-section through the rolls.

Figure 2 represents an elevation from the rear of the machine.

Similar letters of reference, where they occur in the separate figures, denote like parts in both of the drawings.

My invention consists in arranging, in connection with a pair of rolls for rolling out plane-irons and other similar articles, and a supporting-table, a shifting-gauge, which, after the strip or plate has had one pass under the rolls, to shape and weld the steel to it, is changed, and, under the same heat, the article is again introduced, and receives another pass, to condense the steel, and give the article a finished appearance.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A is a stand, on which is arranged a pair of rolls, B C.

On the journal of one of these rolls is placed the main driving-gear, D, by which that roll is driven, and, through the gears E F, on the journals of the pair of rollers, they are driven in the direction of the arrows, as seen in fig. 1.

Upon a table, *a*, behind the rolls, there is placed a gauge, *b*, which defines the distance that the article that is to be rolled is passed, or inserted in, through, or between the rolls.

A connecting-rod, *c*, connects this gauge with a lever, *d*, that is pivoted at *e*, and at its free end there are two or more stops or recesses, *f*, into which it may be placed, to hold it and the table and gauge firmly in its adjusted position.

The table *a* is supported and slides on the arms or ways *g*, connected to the stand.

The rolls are of uniform, or nearly so, diameter, and are cut away from 1 to 2, so that when these two portion of the rolls are opposite to each other, they will open up a space wide enough to readily admit of the placing in, of the strip or article to be rolled, against the gauge-bar *b*.

Diametrically opposite these cut-away portions of the two rolls, are the rolling-surfaces or dies, *h i*,

which I prefer to make of steel or chilled cast-iron, and capable of being removed and replaced on the rolls, or others substituted for them.

The plate or strip is so introduced as that the rolling-surface or die *h*, on the upper roll, will act upon the steel portion of the plane-iron, or other article, and the other rolling-surface or die *i*, on the under roll, acts upon the iron portion of the article.

The most prominent portion of the die *h* is at the point 3, and this part, acting in connection with the under die *i*, bites or pinches into the metal, while the remaining surfaces draw it out into the proper tapered form to make a plane-iron.

The die *h* is slightly eccentric, and that, *i*, may be similarly so, or concentric with the centres of the rolls.

The operation is as follows:

The rolls B C are rotated in the direction of the arrows, and the operator stands in front of the rolls—calling that the “front” where the lever *d* is placed, and that the “back” of the rolls where the shifting-gauge is placed; the lever *d* and the rolls B C being in the position shown in fig. 1, the article to be rolled being, together with the steel that forms the face of the plane-iron, heated to a welding-heat, and passed in between the rolls, until it comes against the gauge *b*, and rests upon the table *a*.

Then, as the two dies *h i* come around, they catch the plate or article to be rolled, biting into the metal, and stretching or drawing it out, and, at the same time, giving it a tapered form, and deliver it at the same side of the rolls that it was fed in at.

This single operation ordinarily brings the plane-iron or other article to its exact size, or nearly so, but by the same heat I propose to condense, smooth, and finish the article, and for this purpose, shift the lever *d* into the other notch, *f*, and correspondingly moving back the gauge from the rolls; and thus allow the article to be moved further through between the rolls, but not so much further as would equal the stretching of the metal under the first pass; so that though the gauge is moved further back, and the strip moved further through, yet the bite of the dies on the second pass will be short of that made by the first pass, and this allows the dies to take hold where the metal is a little thicker, and the next pass condenses the steel, and gives a smooth appearance to the article.

The rolls B C are long enough to admit the first pass to be made at one part of the rolls, and the condensing-pass at another part thereof.

This is important in practice, because, however much care may be taken in keeping the rolls clean, the slag, cinder, scale, or the welding-flux used, will

adhere somewhat to them, and mar the rolled surfaces of the article so drawn out; but the second or condensing-pass is made where the rolls are entirely clear and smooth, and thus put a finish upon them.

The gauge being the entire length of the rolling-surfaces of the rolls, the article is correctly and uniformly inserted between them at any point in their length.

Having thus fully described my invention,

What I claim therein as new, and desire to secure by Letters Patent, is—

The arrangement, relative to the rolls, of the supporting-table *a*, gauge *b*, connecting-rod *c*, lever *d*, and catch-bar *f*, as and for the purpose described.

ASA R. REYNOLDS.

Witnesses:

E. L. PARSONS,

C. D. MACDOUGALL.