

(No Model.)

R. T. BARTON.

MACHINE FOR STRAIGHTENING BAR IRON.

No. 346,884.

Patented Aug. 10, 1886.

Fig. 1

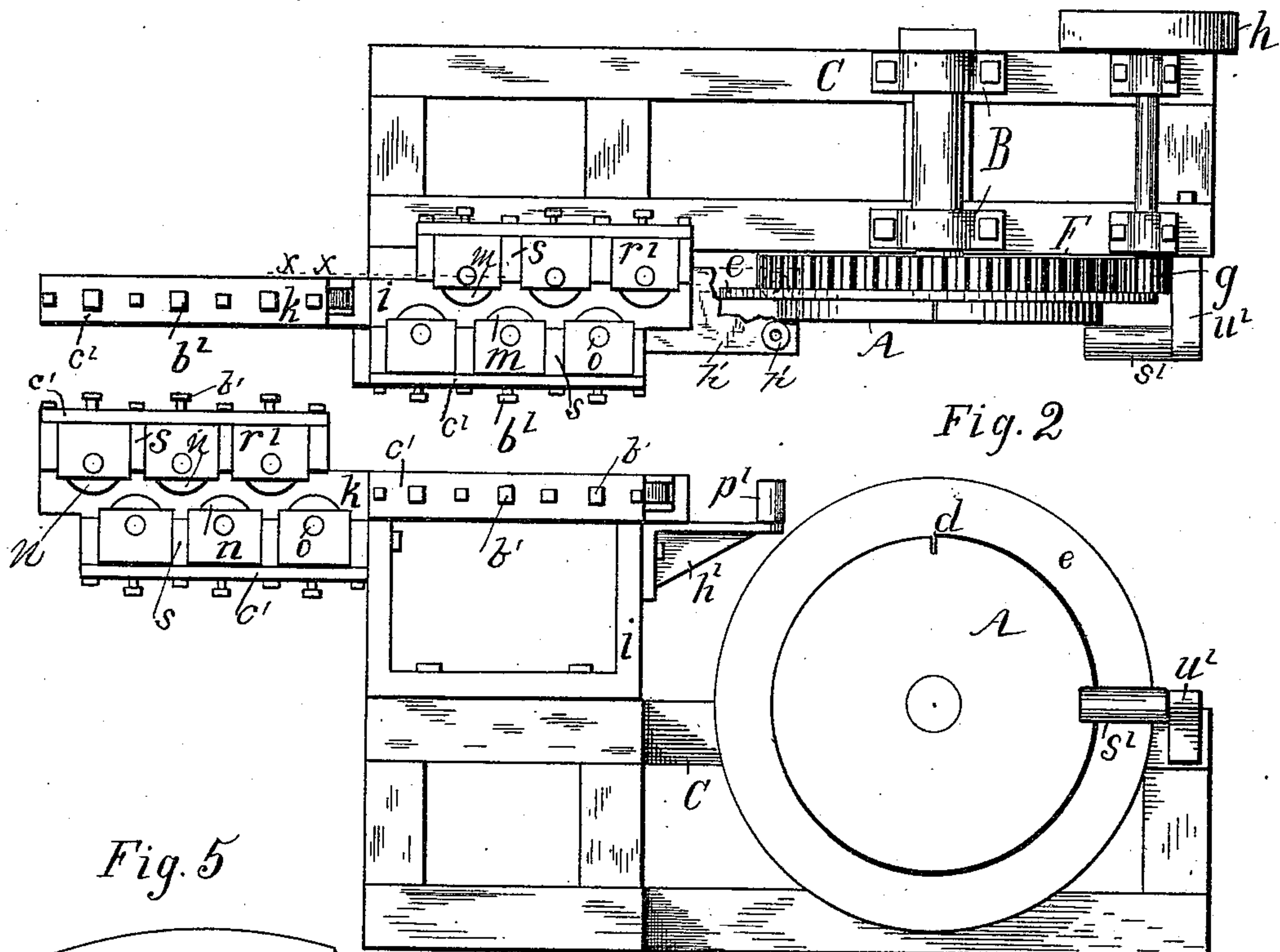


Fig. 2

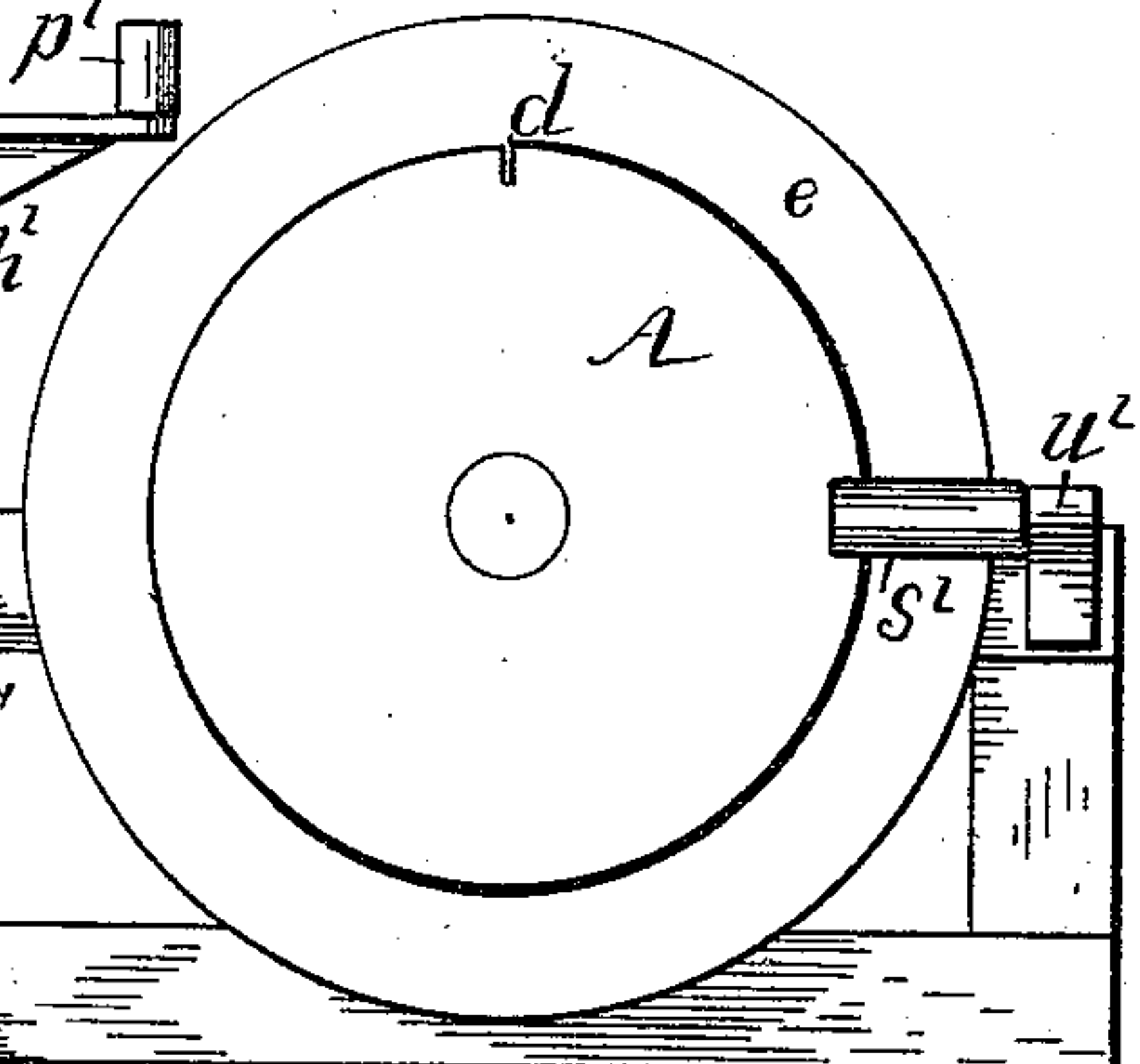


Fig. 5

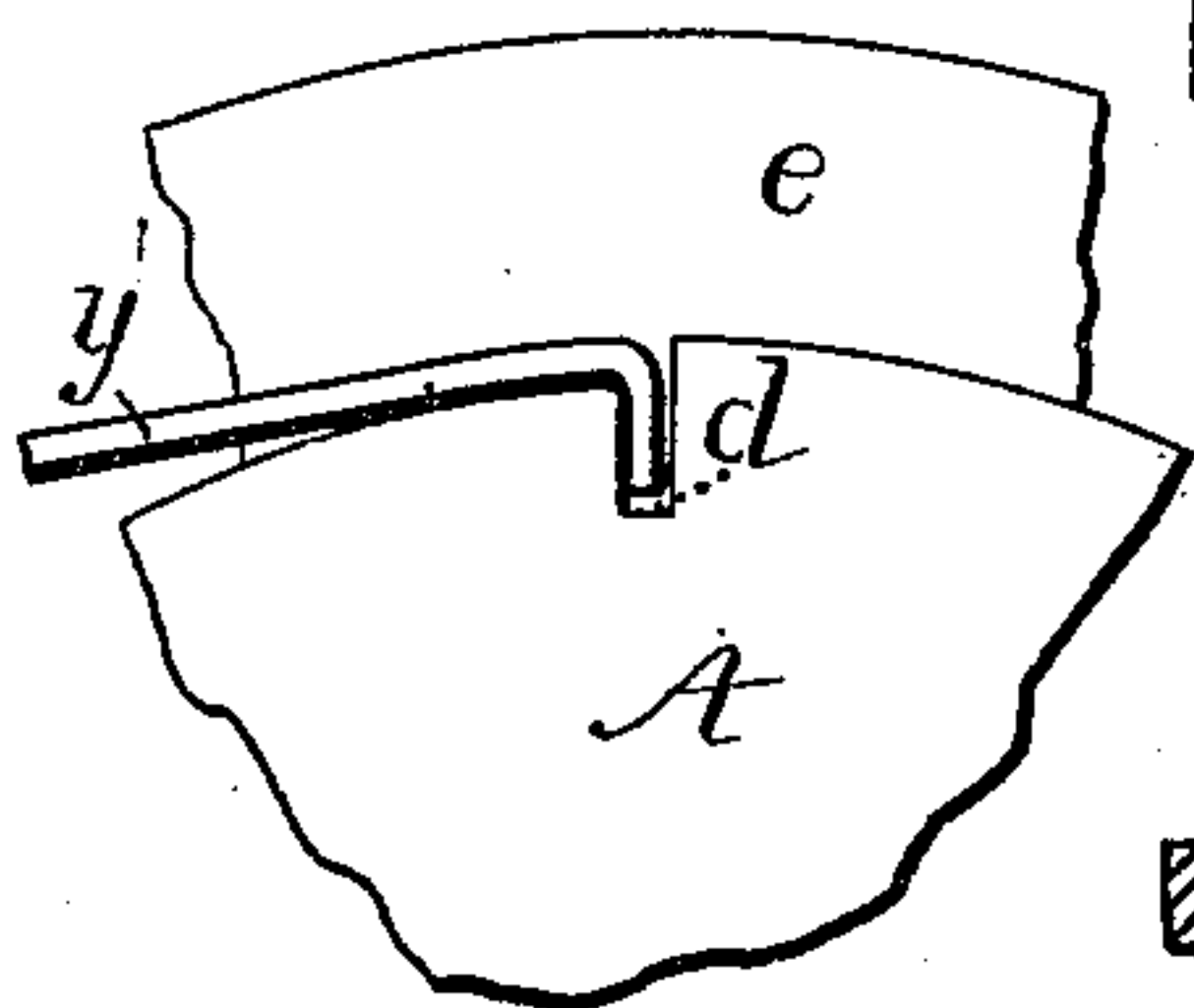


Fig. 3

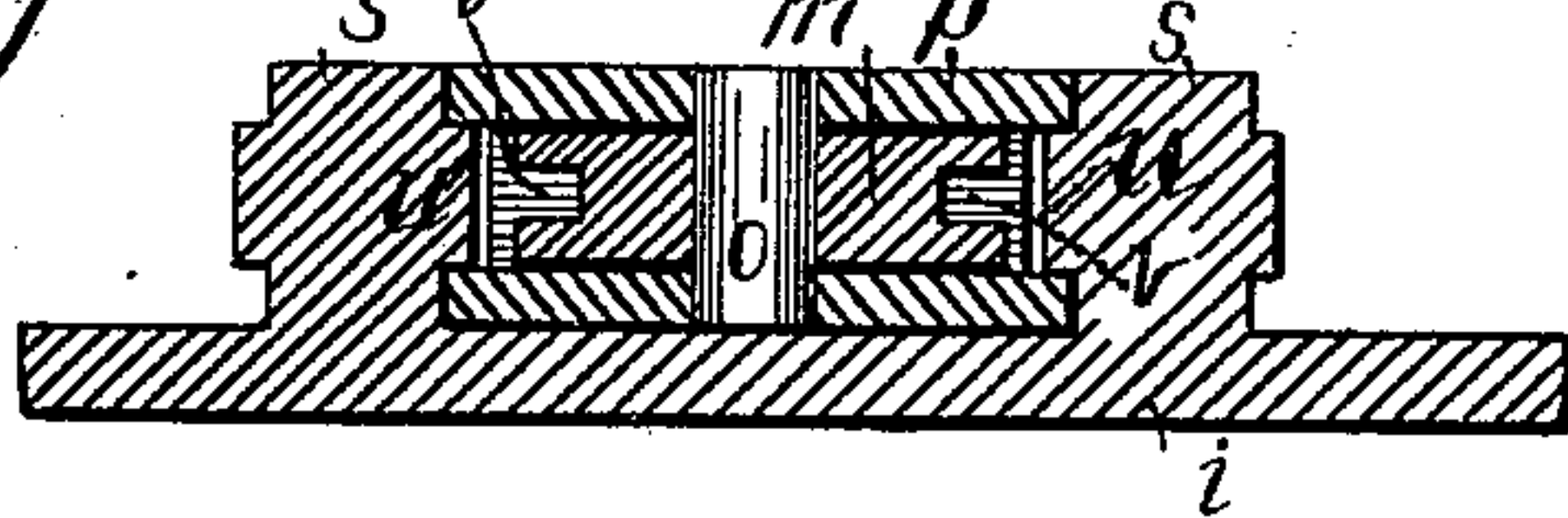
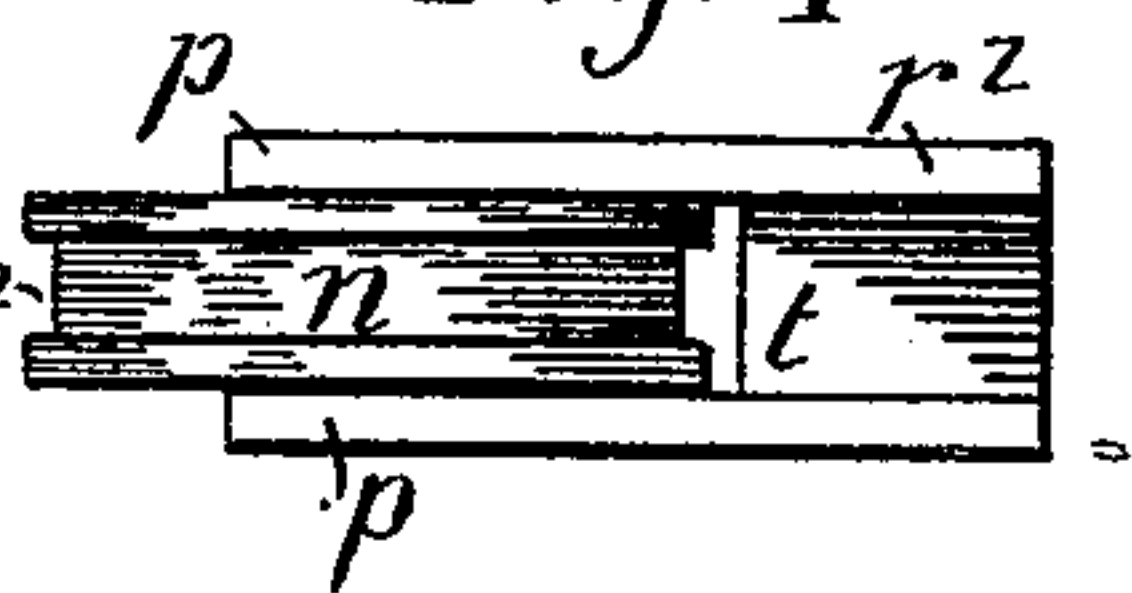


Fig. 4



WITNESSES:

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## MACHINE FOR STRAIGHTENING BAR-IRON.

SPECIFICATION forming part of Letters Patent No. 346,884, dated August 10, 1886.

Application filed March 27, 1886. Serial No. 196,839. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD T. BARTON, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented new and useful Improvements in Machines for Straightening Bar-Iron, of which the following is a specification.

My invention relates to a metal bar-straightening machine, and has for its object to provide a machine for straightening coiled bar-iron for the manufacture of cold-punched nuts. The bar-iron used for this purpose, when coiled at the rolling-mills, is wound on a tapering drum. It is consequently not straight when unrolled, but is shaped like a belt on the surface of a cone, which, when flattened out, becomes an arc of a circle. In addition to being bent in an arc the coiled iron as it comes from the mill is full of small deflections and twists, and before the bar is adapted for feeding into the nut-machine these must all be removed, so that the iron shall become smooth and straight.

My invention consists in the means for accomplishing this result, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of my straightening-machine, and Fig. 2 is a side view of the same. Fig. 3 is a section through one of the rolls and its frame on the line *x x*. Fig. 4 is a side view of a roll and its holder; and Fig. 5 shows the method of hooking the end of the bar on the drum.

In the drawings, A denotes a drum mounted on a shaft, which is supported in bearings B, bolted on suitable frame-work, C. The face of the drum is of the width of the iron to be rolled, and has a radial notch or slot, *d*, cut therein, corresponding to the thickness of the bar. The face of the drum on the leading side of the notch or slot *d* is higher than the other side by the thickness of the bar-iron, and is thus in line with the outer surface of the end of the first coil, thereby providing a uniformly curved surface for the succeeding coil, as shown in Fig. 5.

On the back of the drum is a radial flange, *e*, and a toothed gear-wheel, F, each being formed either integral with the drum or separate therefrom and bolted to it, as may be preferred. The gear-wheel is revolved by a pin-

ion, *g*, secured on the same shaft with a driving-pulley, *h*, which is driven by a belt, and provided with a suitable clutch or other device for stopping and starting the machine.

Secured to the frame C in the plane of the drum A, and nearly at a tangent with the top part thereof, are two roll-frames, *i* and *k*, each mounting a series of rolls, *m* and *n*. The rolls *m* in the frame nearest to the drum are placed vertically, and the rolls *n*, which are the farthest removed therefrom, are arranged horizontally. Each roll turns on a stud or pivot, *o*, fitted through brackets *p*, which are formed on a block, *r'*. The blocks are received between transverse ribs *s*, formed on the frames *i* *k*; and in order to secure the blocks in place a groove, *t*, is made in each of the sides contiguous to the ribs *s*, which receives a corresponding guide, *u*, on the ribs.

Each of the vertical rolls *m* has a groove, *v*, around its face half as deep as the bar-iron is broad, and as wide as the thickness of the iron. The horizontal rolls *n* have corresponding grooves, *v'*, in their faces; but these grooves are as wide as the iron, and may be of indefinite depth.

Each of the series of rolls *m* and *n* is adjusted in two rows, between which the iron passes on its way to the coiling-drum A. The rolls are placed zigzag, and are adjustable in their respective ways by means of set-screws *b'*, which are arranged in a metal strip, *c'*, bolted on the outer ends of the ribs *s*. The screws bear upon the blocks *r'*, and may be adjusted, as required.

A guide-roll, *s'*, is arranged parallel with the flange *e* and bears against the side of the drum. The iron is wound on the drum, coil upon coil, all in a single radial plane, and the guide-roll *s'* maintains the coils in place. The roll *s'* is mounted on a bracket, *u'*, which may be removed when the coil of iron is taken from the drum.

When the bar-iron is so small as to spring readily, suitable rolls, *p'*, may be provided for guiding the iron onto the coiling-drum. The rolls may be mounted on the bracket *h'*, which may be secured to the frame *i*, or otherwise suitably supported upon the frame-work of the machine.

Constructed as above described and shown,



the operation of my improved straightener is as follows: The end of a coil of bar-iron,  $y$ , is inserted between the rolls  $m$   $n$  in the grooves  $v$   $v'$ , and bent over at the extremity, forming a hook, which fits the slot  $d$  in the drum, as shown in Fig. 5. Then, as the machine is set in motion, the drum  $A$  revolves and draws the iron through the rolls, thereby straightening it both edgewise and flatwise. The horizontal rolls  $n$  bend the bar flatwise, while the vertical rolls  $m$  bend it edgewise. As the bar emerges from the straightening-rolls  $m$  it is guided between the rolls  $p'$  and wound on the drum  $A$  into a neat compact coil, in which the coils lie one upon another, all in a single radial plane. A coil thus wound will reel off straight and uniformly smooth when drawn through the feed-rolls of a nut-machine.

I desire to secure by Letters Patent—

1. In a machine for straightening bar-iron, the combination of the flanged drum  $A$ , hav-

ing a notch or slot,  $d$ , in its face and formed with a radial offset on one side of the notch, the series of adjustable grooved rolls  $m$ , arranged alternate in two parallel rolls, and adapted to straighten the bar-iron edgewise, the series of adjustable grooved rolls  $n$ , arranged at right angles to the rolls  $m$  to straighten the bar-iron flatwise, and the guide-roll  $s'$  for holding the coil in place upon the drum, all combined substantially in the manner and for the purpose described.

2. The combination, with the drum  $A$ , of the rolls  $s'$ , arranged radially to, and parallel with the flange of the drum, and adapted to maintain the coils in place, in the manner substantially as described.

RICHARD T. BARTON.

Witnesses:

JULIUS TWISS,  
GEORGE L. BARNES.