

(No Model.)

2 Sheets—Sheet 1.

D. RAWSON.  
WIRE WORKING APPARATUS.

No. 407,612.

Patented July 23, 1889.

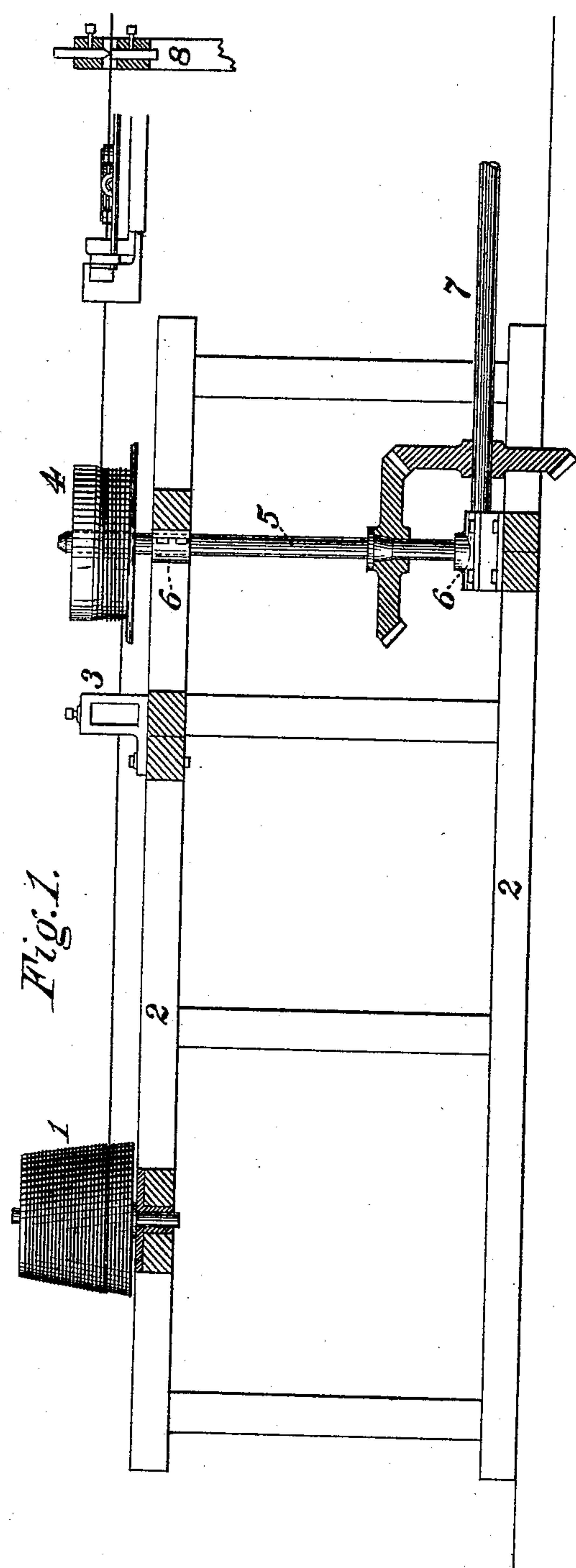


Fig. 1.

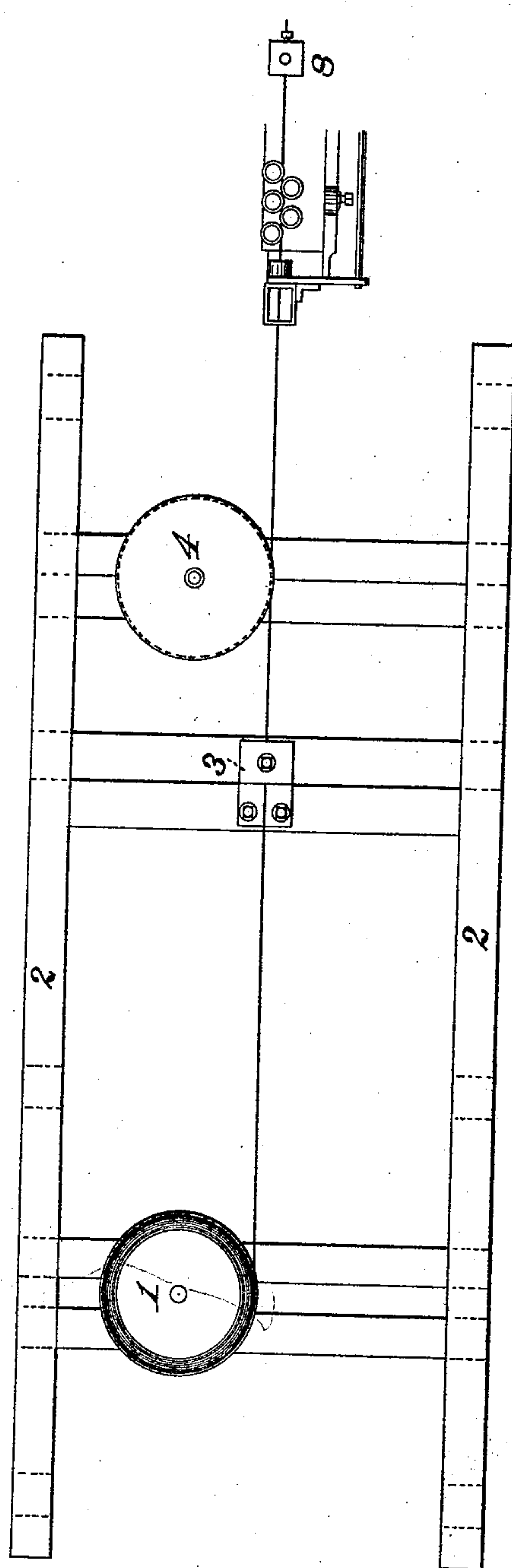


Fig. 2.

WITNESSES

Daniel S. Wolcott  
F. E. Gaither

INVENTOR.

David Rawson  
by George H. Christy  
att'y

(No Model.)

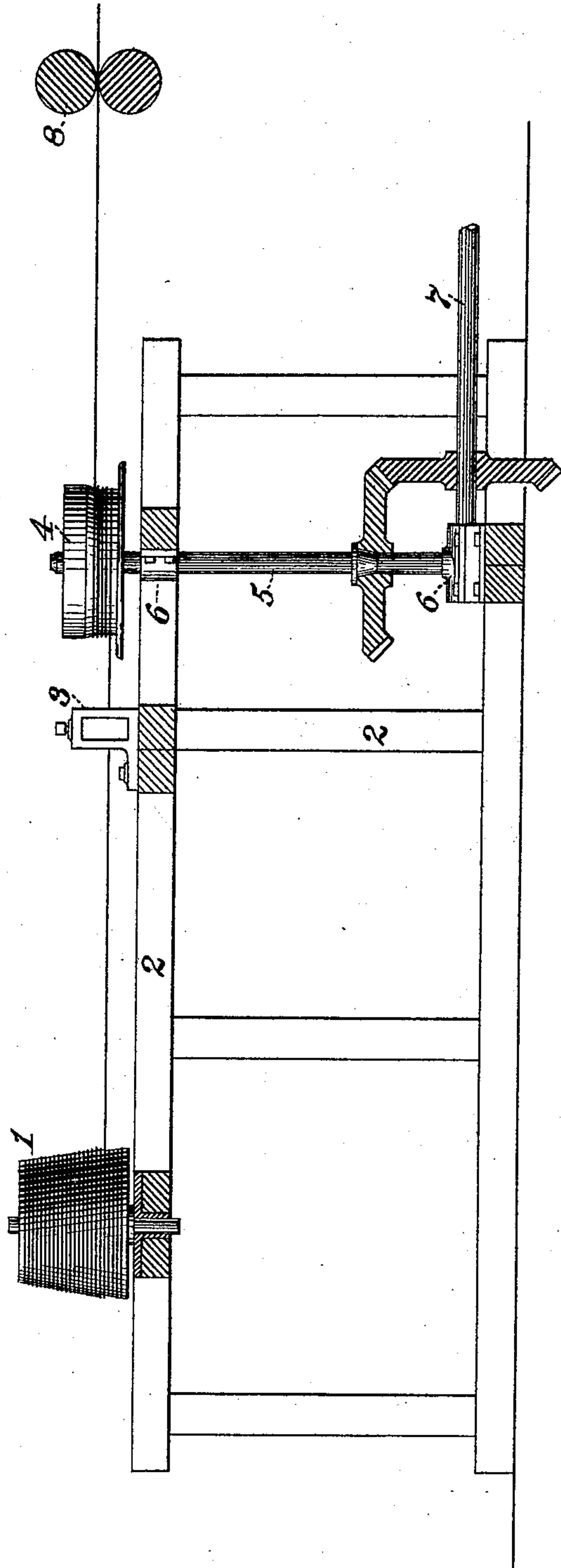
2 Sheets—Sheet 2.

D. RAWSON.  
WIRE WORKING APPARATUS.

No. 407,612.

Patented July 23, 1889.

Fig. 3.



WITNESSES

Samuel S. Wolcott  
F. E. Gaither

INVENTOR.

David Rawson  
By George H. Christy  
Att'y.



# UNITED STATES PATENT OFFICE.

DAVID RAWSON, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF  
TO ARTHUR J. WILKINSON, OF SAME PLACE.

## WIRE-WORKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 407,612, dated July 23, 1889.

Application filed February 1, 1889. Serial No. 298,340. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID RAWSON, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Wire-Working Apparatus, of which improvements the following is a specification.

The invention described herein relates to certain improvements in apparatus for drawing and working wire into articles of commerce, such as wire nails, barb-wire, &c.

It has been customary to first draw the wire down to the required gage by means of an apparatus consisting of a delivery drum or spool, a winding-drum, and a die, the coil of wire to be drawn being placed upon the delivery-spool, passed through the die, and then wound upon the winding-drum, which is driven at a certain speed dependent upon the amount of reduction to be effected in the die. After a coil of wire has been drawn it is removed from the winding-drum and then placed upon the delivery-spool of the wire-nail or other machine or apparatus in which the wire is to be worked into a merchantable article.

The invention described herein has for its object a construction of apparatus whereby the wire may be simultaneously drawn and worked into the desired article, the rapidity of the drawing being regulated by the feed of the machine employed for reducing or shaping the wire into a merchantable article; and it consists in general terms in the construction and combination of mechanical devices, all as more fully hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view in sectional elevation of my invention, shown in connection with a reciprocating or intermittently-moving mechanism for applying tension to the wire. Fig. 2 is a top plan view of the same. Fig. 3 is a view similar to Fig. 1 of my invention, shown in connection with the mechanism having a continuous motion.

In the practice of my invention the drum or spool 1, which I term the "delivery" drum or spool, is so mounted in suitable bearings on the frame 2 as to rotate freely to permit of the easy unwinding of the wire, which

is placed in the form of a coil on said spool. From the spool 1 the wire passes through one or more draw-dies 3, of any suitable construction, the number of dies employed being dependent upon the amount of reduction to be effected, and then around the drawing-drum 4, secured to the shaft 5, which is mounted in suitable bearings 6 in the frame 2 and positively driven by the power-shaft 7, or in any other suitable manner. The peripheral speed imparted to the drum 4 should be equal and may be greater than the speed of the mechanism 8 of the machine or other apparatus in which the wire is to be worked after being drawn.

The mechanism 8 (shown in Figs. 1 and 2) for applying a tension to the wires that come from the apparatus consists of a pair of automatically-operating jaws mounted on a reciprocating lever, the mechanism being substantially such as is employed in wire-nail machines and other wire-working apparatus, while in Fig. 3 is shown a pair of continuously-driven rolls which are adapted to be used in connection with wire-working apparatus wherein a practically continuous and uninterrupted movement of the wire is desired.

The drum 4 is made cylindrical in contour or slightly inclined inwardly at its lower end, so as to prevent the wire from slipping up and off the drum, and the wire is wound around the drum a sufficient number of turns to produce, upon a slight pull of the wire by the feed mechanism 8, such a frictional contact between the wire and the drum as to overcome the resistance of the die or dies to the passage of the wire therethrough.

In practice I have found that by passing the wire six or seven times, more or less, around the drum a very slight pull of the wire on the delivery side of the drum will effect such a tightening of the coils upon the drum as to cause the wire to move therewith, thus pulling the wire through the die. As the wire after passing through the die has considerable elasticity, the coils or turns on the drum will, as soon as the wire on the delivery side of the drum is freed from tension, spring away from the drum, which will continue to revolve freely within the loosened coils. While the number of turns or coils



around the drum may be varied within wide limits, care should be taken not to take such a number of turns that the wire will not spring away from the drum as soon as relieved from the tension of the mechanism 8.

The essential characteristics of my invention consist in a spool or other suitable support for the wire operated on a drawing-die or other mechanism for operating on the wire, a continuously-rotating drum, and a mechanism 8. It is immaterial as regards my invention what construction of feed mechanism, whether intermittent or continuous, is employed, nor is the machine or apparatus for operating on the wire subsequent to the drawing material, as my invention is readily applicable to any form or construction of apparatus or machine wherein a feed mechanism is employed. Any other apparatus for operating on the wire may be substituted for the drawing-die, the latter being employed herein only by way of illustration of one embodiment or application of my invention.

It is essential that the wire should be passed around the continuously-revolving drum such a number of times that a slight pull by the mechanism 8 will so tighten the coils on the drum as to cause the wire to move therewith. It will be readily understood from the foregoing that so long as the feed mechanism maintains a tension upon the wire the drum will operate to pull the wire through the die and feed it to the mechanism 8, and that as

soon as the feed mechanism stops or relaxes its tension upon the wire the coils will loosen and the drum revolve freely within the coils.

By the use of my invention the drawing of the wire as an independent operation requiring an attendant especially for that purpose is avoided, as the man operating the wire-working machine can also attend to the wire-drawing operation.

I claim herein as my invention—

1. In a wire-working apparatus, the combination of a delivery-drum, mechanism for operating on the wire, a mechanism for exerting a pull on the wire, and a continuously-rotating drum having a surface speed equal to or greater than the speed of the pulling mechanism and having one or more coils or turns of the wire thereon, substantially as set forth.

2. In a wire-drawing apparatus, the combination of a delivery-drum, a drawing-die, a mechanism for exerting a pull on the wire, and a continuously-rotating drum having a surface speed equal to or greater than the pulling mechanism, having one or more coils or turns of the wire thereon, substantially as set forth.

In testimony whereof I have hereunto set my hand.

DAVID RAWSON.

Witnesses:

DARWIN S. WOLCOTT,  
R. H. WHITTLESEY.