(Model.)

2 Sheets—Sheet 1.

# T. T. PROSSER.

## Wire-Coiling Machine.

No. 231,090. Patented Aug. 10, 1880.

Fig. 1.

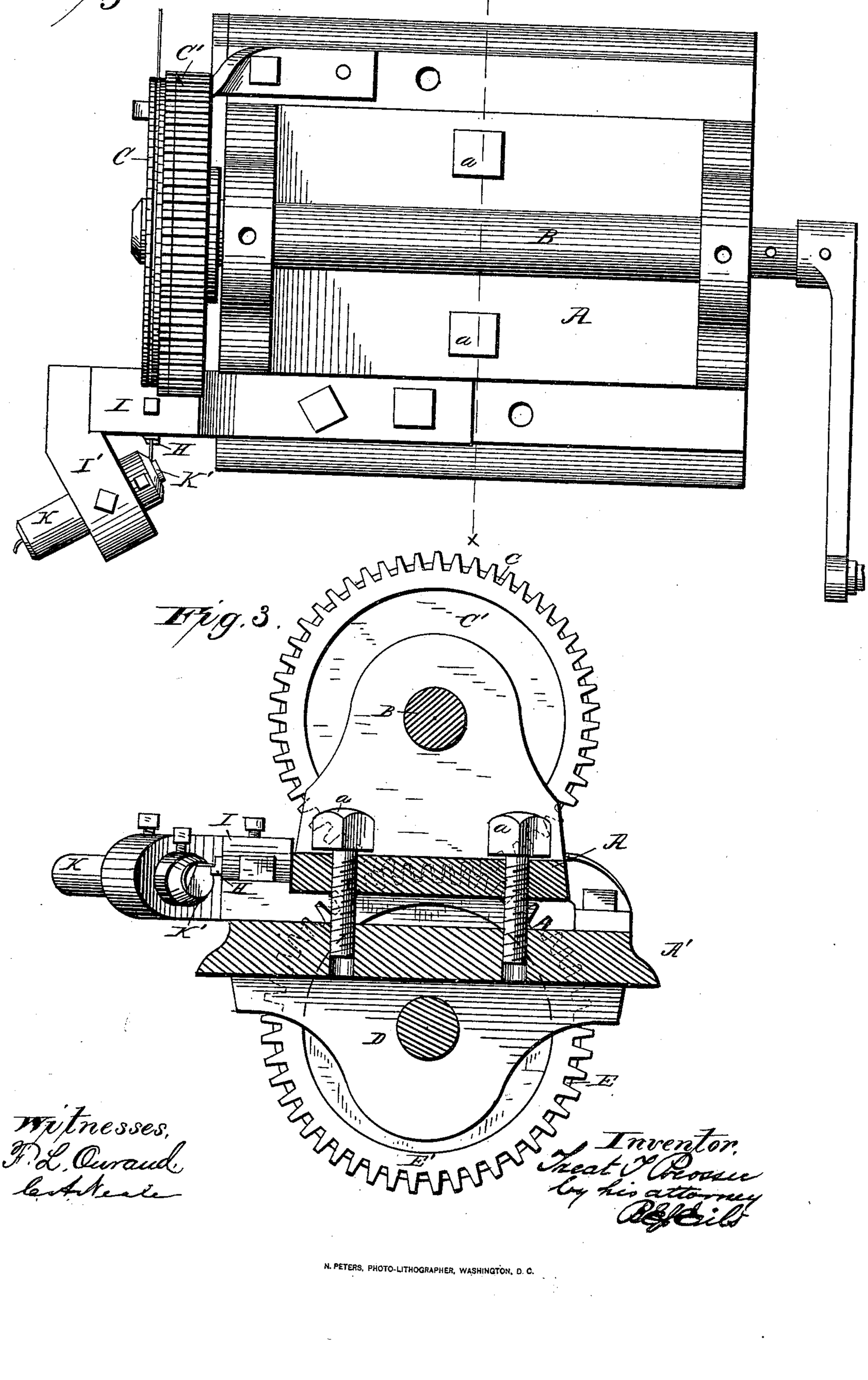


Fig. 3.




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(Model.)

2 Sheets—Sheet 2.

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## Wire-Coiling Machine.

No. 231,090. Patented Aug. 10, 1880.

Fig. 2.

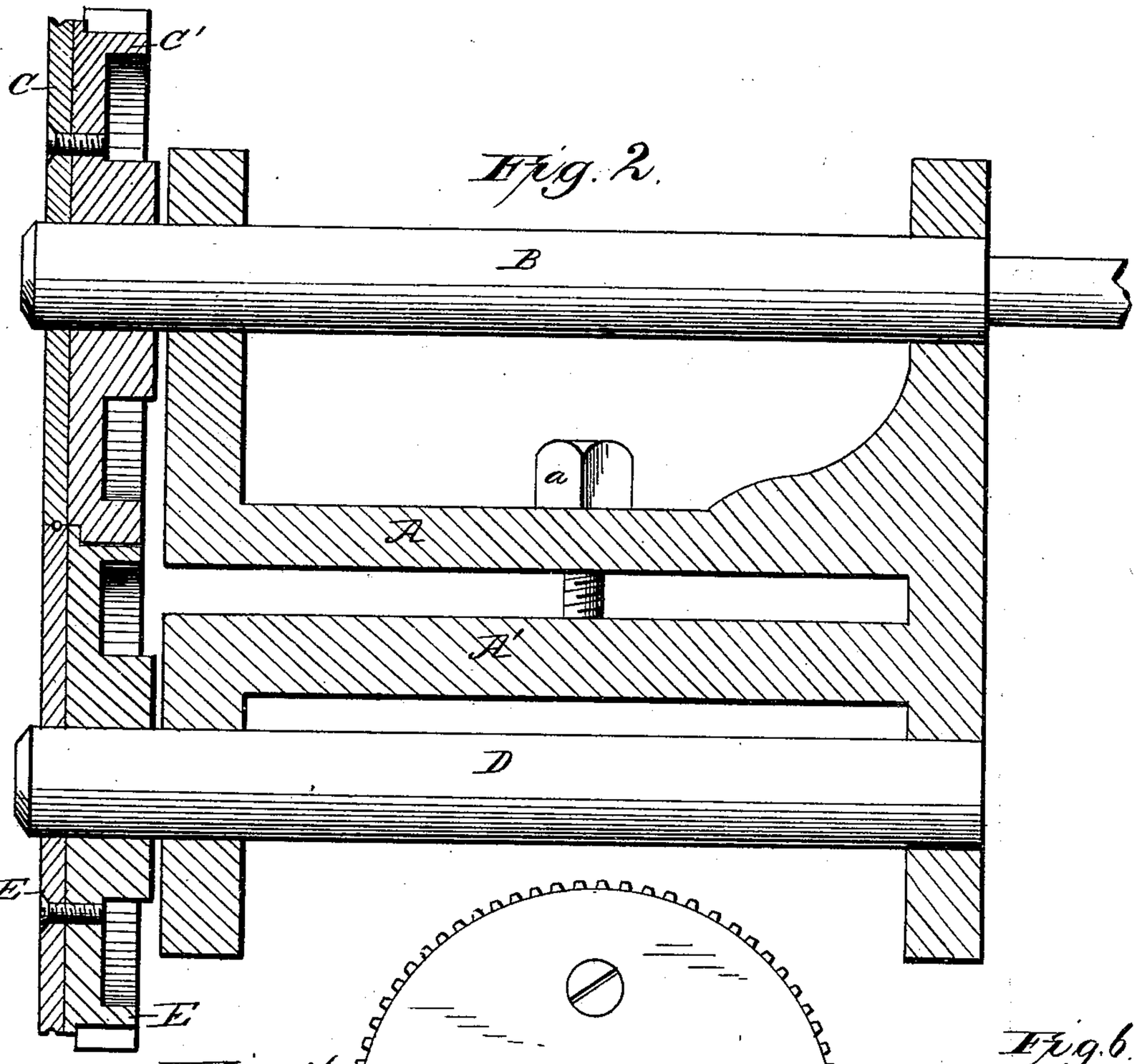



Fig 4.

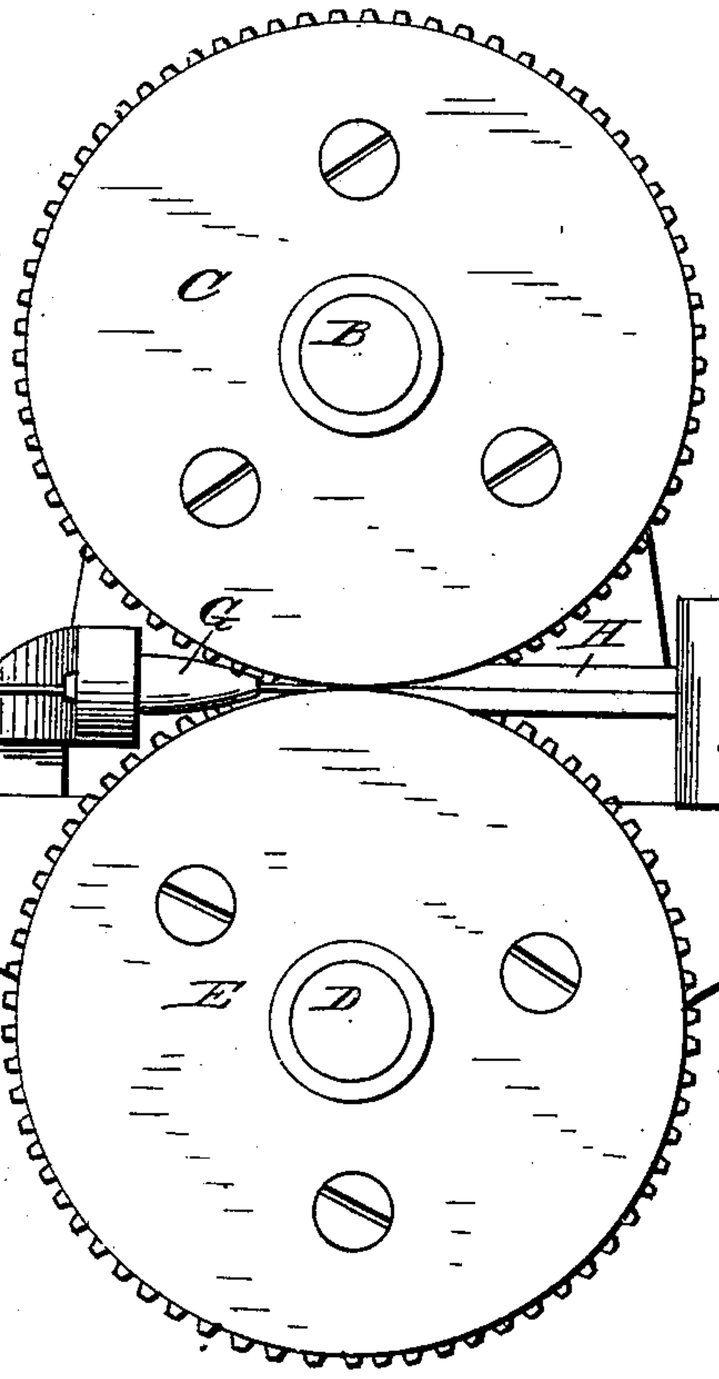
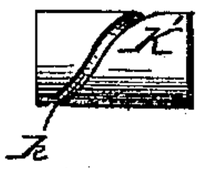



Fig. 6.



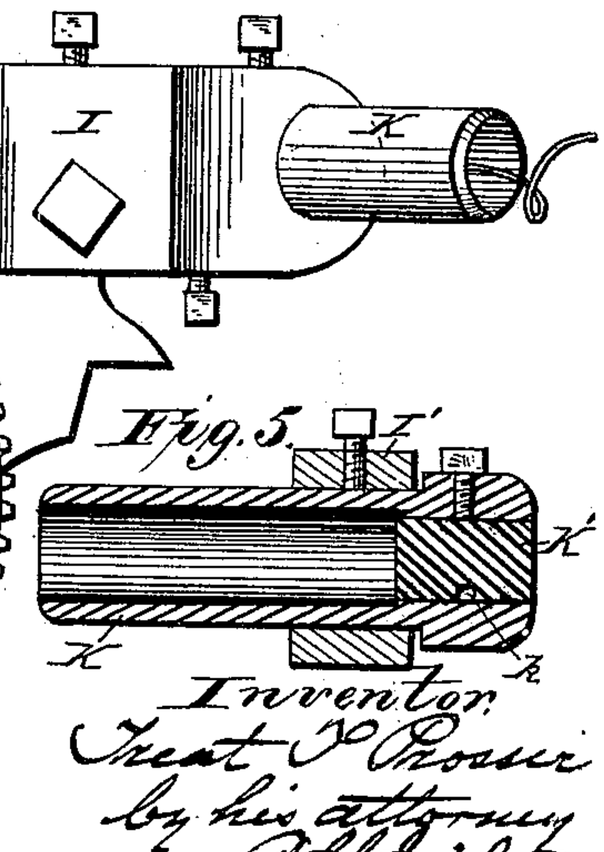




Fig. 5.

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# UNITED STATES PATENT OFFICE.

TREAT T. PROSSER, OF CHICAGO, ILLINOIS.

## WIRE-COILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 231,090, dated August 10, 1880.

Application filed May 6, 1880. (Model.)

*To all whom it may concern:*

Be it known that I, TREAT T. PROSSER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Coiling Wire; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to machines for making spiral strands of wire for woven-wire mattresses and other purposes, and which transform straight wire into spiral wire by pushing straight wire by means of feed-rollers through a spiral groove on the surface of a core fixed in a stationary tube.

My invention consists in constructing the frame of the machine so as to constitute in effect a pair of jaws rigidly connected together at the end farthest from the feed-rolls, one of which feed-rolls is mounted in the upper jaw, while the other is mounted in the lower jaw, so that the feed-rolls may accommodate themselves to slight inequalities in the wire by reason of the yielding character of the bifurcated frame.

It further consists in the employment of screws for changing the spring or elastic action of the frame, said screws also acting as stops to prevent the spread of the jaws beyond a given point.

It further consists in slightly enlarging the bore of the tube of the spiral-former from the spiral-discharging end of the core outward, in order to allow the spiral wire to expand on issuance from the core, so as to reduce the friction between the tube and spiral wire in this portion of the tube.

In the annexed drawings, Figure 1 is a plan view of the improved machine. Fig. 2 is a vertical longitudinal section of the same in a plane passing through the axis of the feed-rolls. Fig. 3 is a vertical transverse section in the plane indicated by the broken line *x x*, Fig. 1. Fig. 4 is a front elevation of the machine. Figs. 5 and 6 are detail views of the spiral-former and parts supporting it and more immediately connected with it.

The same letters of reference are used in all the figures to designate identical parts.

The frame, which may be of cast-iron, is composed of two substantially parallel horizontal plates or jaws, A and A′, connected at the rear end only by a permanent web. Front and rear standards are formed on the upper jaw, A, to support the shaft B of the upper feed-roll, C, and hangers are formed on the lower jaw, A′, to support the shaft D of the lower feed-roll, E.

The feed-rolls are circular plates bolted or screwed, respectively, to the faces of a pair of intermeshing cog-wheels secured to the overhanging front ends of the shafts B and D. The feed-rolls are of equal diameter, as are also the cog-wheels C′ and E′ to which they are secured, so that the feed-rolls will move with equal surface speed. They may be driven by a winch applied to the overhanging rear end of shaft B. The jaws of the frame will hold the feed-rolls in proper relation and allow them to yield sufficiently to compensate for or accommodate themselves to slight inequalities of the wire, and thereby obviate the flattening of the wire and increased friction. Two screws, *a a*, are passed through holes in the upper jaw, A, of the frame and screwed into screw-threaded holes in the lower jaw, A′, of the frame about midway of the length of said jaws. Usually the heads of these screws are not quite screwed down upon the upper jaw, so as to give full play to the spring action of the jaws, and merely serve as stops to prevent the spreading of the jaws beyond a point where such spreading might break the web by which said jaws are connected at the rear end. But these screws may also be used to draw the jaws together slightly to compensate for the wear of the feed-rolls, and to increase the pressure of the feed-rolls on the wire and lessen the elastic action of the jaws.

Each feed-roll has a semicircular groove in its peripheral edge gaged to the number of wire upon which the feed-rolls are to operate. The wire drawn from a suitable spool is conducted into the bite of the feed-rolls by a tube-guide, G, fixed to a bracket on the frame and reaching as near to the bite of the rolls as is practicable. The rolls feed the wire from their

bite immediately into another tube-guide, H, secured in a bracket, I, on the other side of the frame. From the outer end of this straight tube-guide the wire passes into the spiral groove *k* in the surface of the cylindrical core K′ of the spiral-former, in one end of the tube K of which said core snugly fits. The spiral-former is fixed in an arm, I′, on the bracket I, in a position of obliquity to the straight tube-guide H, so that the wire may pass from the tube-guide to the end of the spiral groove in the core K′ without an abrupt change in its direction. The axis of the fixed spiral-former is in a horizontal plane below the eye of the tube-guide H, a distance about equal to half the diameter of the core K′, so that the end of the spiral groove of the core may be arranged in about the same plane with the eye of the said tube-guide. The core K′ is quite short, only just long enough to set the wire in spiral form. The tube K, on the other hand, is made comparatively long, so as to form a support and guide for the newly-formed spiral to the extent of several turns thereof. The elongated portion of the tube—that is to say, the portion beyond the core—is bored somewhat larger than the diameter of the core, to afford room for the lateral expansion of the spiral as it escapes from the core and avoid undue friction. The tube K can be adjusted both endwise and circularly in its supporting-arm, and the core K′ can be likewise adjusted in its tube. Hence, when the tube becomes worn along the line of the spiral groove an adjustment of the parts may be made to shift the wear to another line of the tube.

In practice the machine will be secured to a suitable bench or support by means of its lower jaw, A′, so that the upper feed-roll only has an elastic or yielding action; and as it is desirable to have the tube-guides and spiral-former maintain a fixed relation with respect to each other and the lower feed-roll, their supporting-brackets are secured to the lower or stationary jaw of the frame.

I have heretofore stated herein that the jaws A A′ are prevented from spreading too far apart by two screws, *a a*. It is obvious that practically the same result can be attained by the use of one of such screws, though I deem the use of two preferable.

This machine has been described as one operated by hand by means of a winch; but it is evident that a pulley may be substituted for the winch and the machine be driven by power.

Having thus described my invention, what I claim as new is—

1. The combination, substantially as before set forth, of the bifurcated frame in one piece of material, constituting elastic jaws, and the feed-rolls, respectively supported one on the upper and the other on the lower jaw of said frame.

2. The combination, substantially as before set forth, of the bifurcated frame, the feed-rolls, respectively supported one on the upper and the other on the lower jaw of the frame, and a screw or screws for limiting the spring or elastic action of the said jaws.

3. The spiral-former composed of a short spirally-grooved core and a tube elongated considerably beyond the core, to support and guide the newly-formed spiral to the extent of several turns, the bore of the elongated portion of said tube being somewhat larger than the diameter of the core, substantially as before set forth.

In testimony whereof I affix my signature in presence of two witnesses.

TREAT T. PROSSER.

Witnesses:

H. B. PROSSER,

H. W. ANDERSON.