

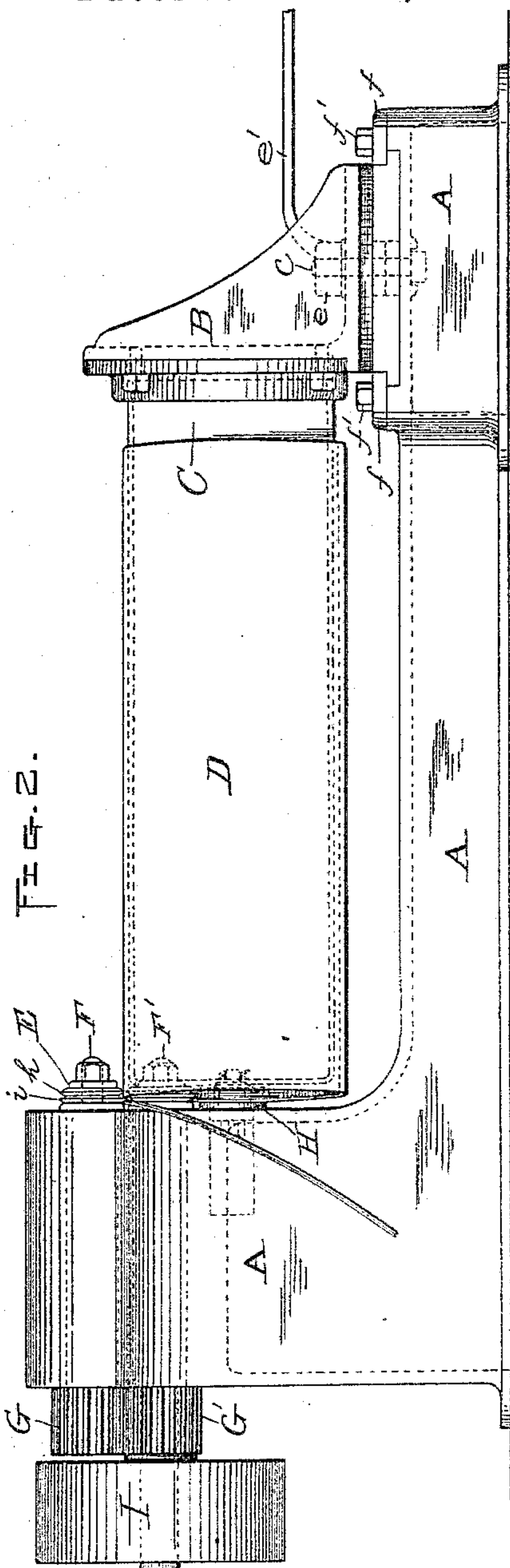
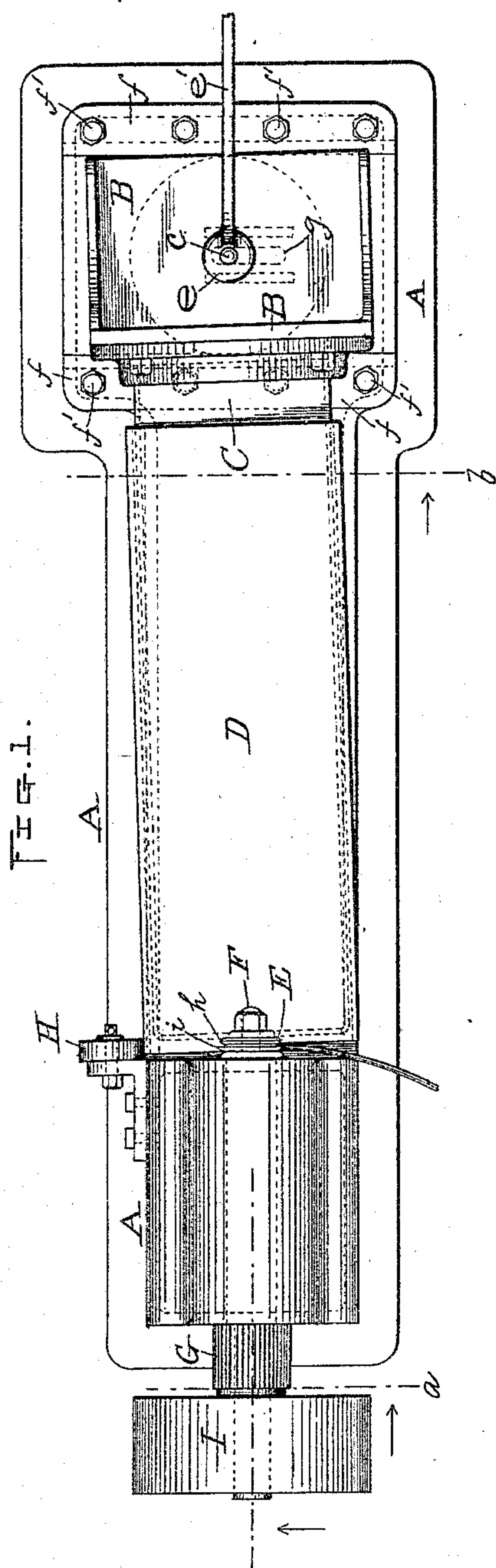
(No Model.)

2 Sheets—Sheet 1.

C. H. MORGAN.
METHOD OF MAKING WIRE.

No. 412,283.

Patented Oct. 8, 1889.



Witnesses;

Walter B. Nourse,
Lucius W. Briggs.

Inventor;

Charles H. Morgan
By A. A. Parker Atty.

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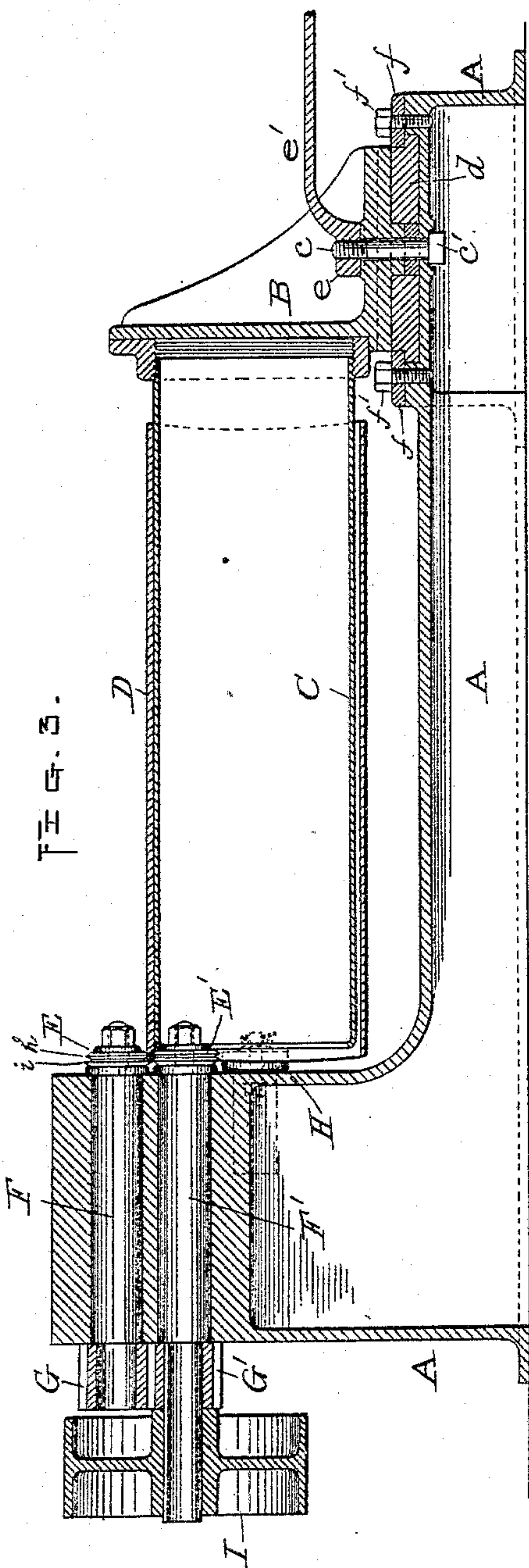


FIG. 3.

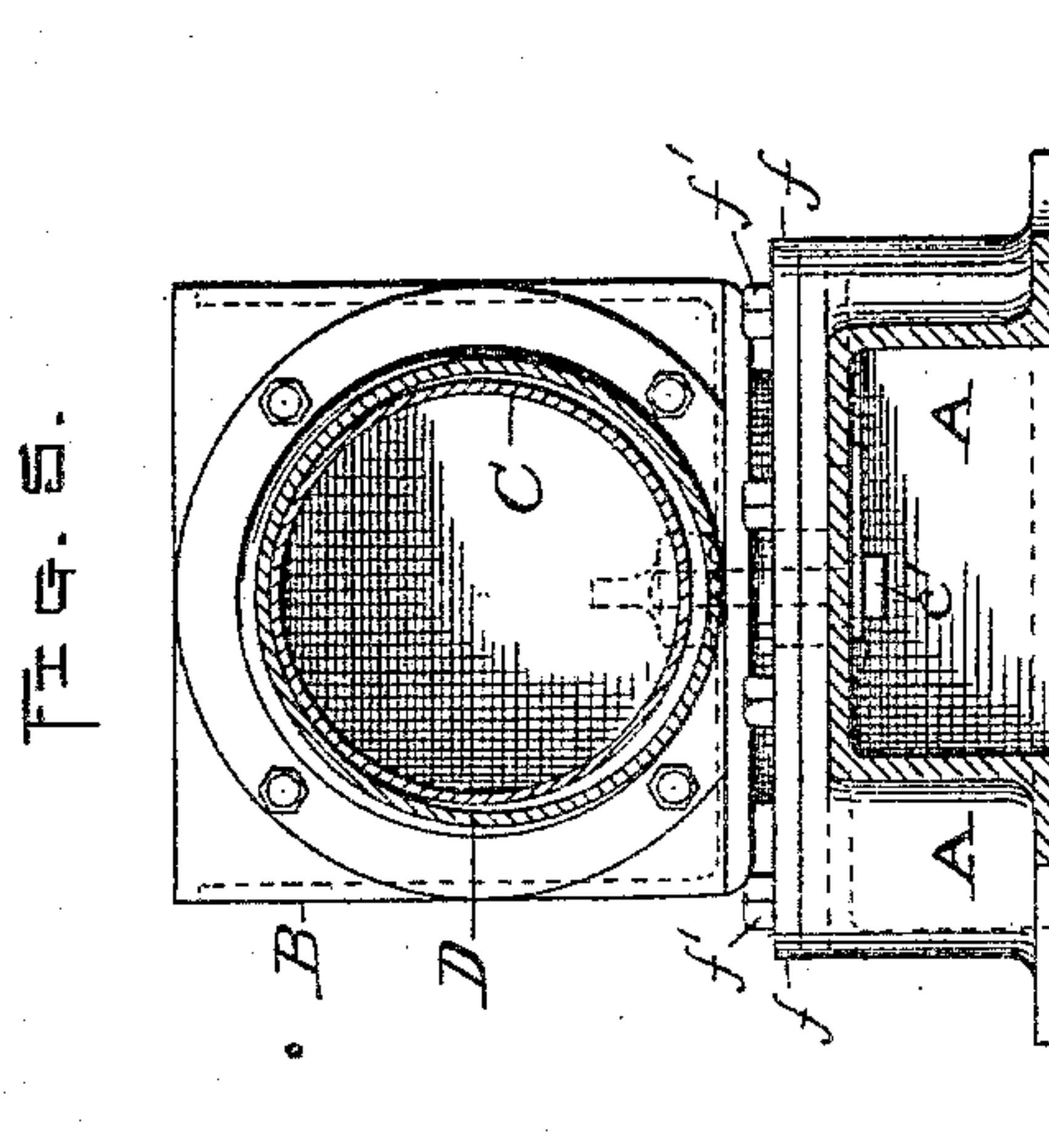


FIG. 5.

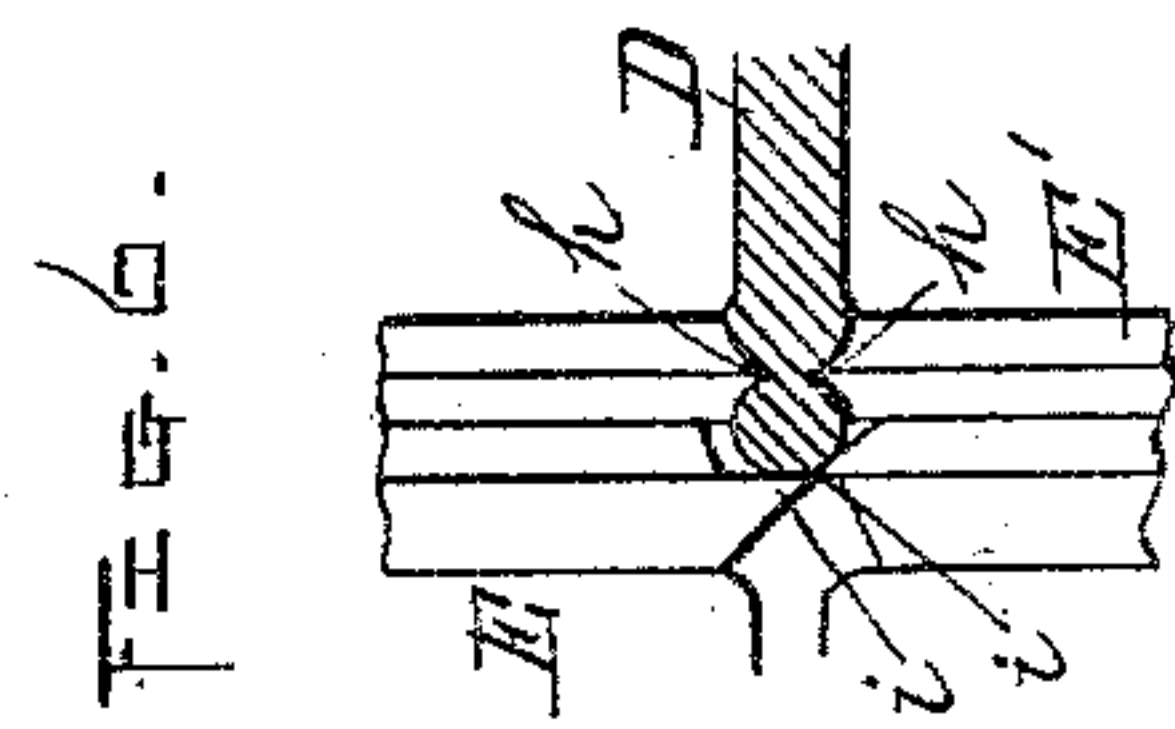


FIG. 6.

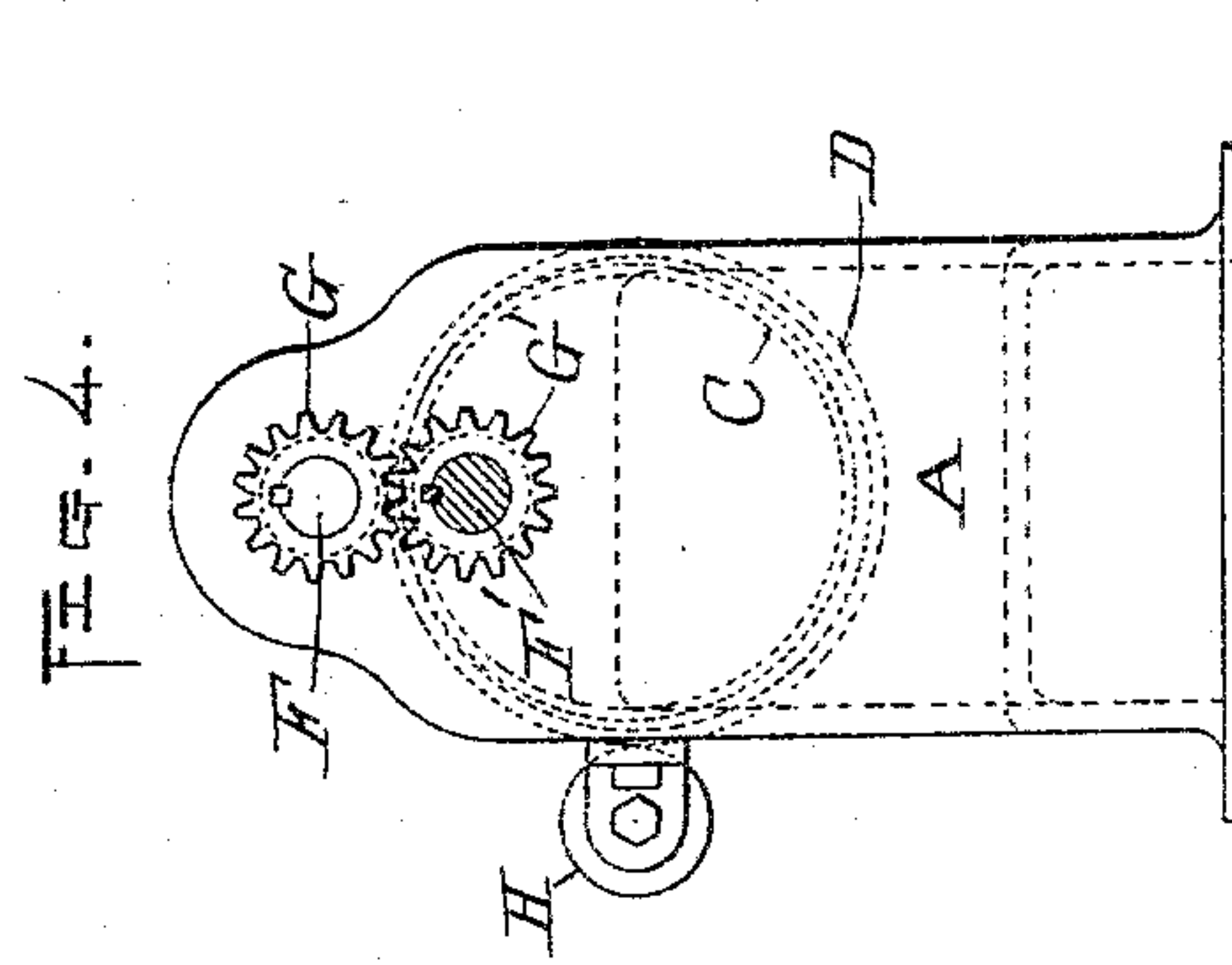


FIG. 4.

Witnesses;
Walter B. Kourse,
Lucius W. Briggs.

Inventor;
Charles H. Morgan
By A. A. Barker, Atty.

UNITED STATES PATENT OFFICE.

CHARLES H. MORGAN, OF WORCESTER, MASSACHUSETTS.

METHOD OF MAKING WIRE.

SPECIFICATION forming part of Letters Patent No. 412,283, dated October 8, 1889.

Application filed April 27, 1889. Serial No. 303,862. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. MORGAN, of the city and county of Worcester, and State of Massachusetts, have invented certain new and useful Improvements in the Method of Making Wire Strands; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a top or plan view of a machine for carrying out my invention. Fig. 2 is a side view thereof. Fig. 3 is a central vertical longitudinal section through the machine. Figs. 4 and 5 are transverse or cross sections thereof, taken on lines *a* and *b*, respectively, Fig. 1, looking in the directions indicated by the arrows; and Fig. 6 is an enlarged view of the cutters of the machine, showing the operation of severing a strand from the main stock or cylinder, as will be hereinafter more fully described.

My invention consists of the improved method of forming wire strands by means of a machine adapted to support a hollow cylinder, and having suitable cutters whereby a strand of wire may be cut spirally from the end of said cylinder to form one continuous strand, as hereinafter more fully set forth.

In order that others may better understand the nature and purpose of my said invention, I will now describe the machine employed in carrying out said invention in practice.

In the drawings the parts marked A represent the frame or bed of the machine, which supports the various operating parts. At one end of the machine is arranged a swivel-supporting frame B, having mounted thereon the horizontal cylindrical arm C, which supports the hollow cylinder D, from which the wire strand is cut, while at the other end are arranged the cutters E E', for severing said strand from the cylinder. The cylinder-support is constructed and arranged to swivel, so that each new cylinder D may be placed thereon and adjusted to the cutters in the following manner: The frame B of said support is fitted to turn on a pivot-bolt *c*, and also to be operated laterally on the main frame or bed A by fitting a transverse slide-plate *d* in a suitable transverse guideway in

said frame or bed A, and clamping said slide-plate to the frame B (see Fig. 3) by means of a lever-nut *e*, at the upper end of the pivot-bolt *c*, adapted to bear upon the top of frame B, the bolt *c* being held at its opposite end by the head *c'*, bearing upon the under side of frame or bed A, thus admitting of the slide-plate and frame B being clamped together or loosened, according to which way the lever *e'* of nut *e* is turned.

The slide-plate *d* is provided at each side with a shoulder, over which fits a detachable holding and guide plate *f*, secured to frame or bed A by the screws *f'*. When it is desired to adjust the slide-plate laterally, said holding-plates are loosened, and after said adjustment fastened down tight again over the slide-plate shoulders above referred to by means of their holding-screws. This adjustment is provided to admit of the cylinder-supporting frame being quickly and conveniently fitted to the machine. After having been thus adjusted into about the right position any further slight adjustment may be made by moving the frame B on the slide-plate independent of said slide-plate, the latter being provided with a transverse slot *g* where the pivot-bolt passes through, as is shown by dotted lines in Fig. 1, to admit of said independent transverse adjustment.

The cutters E E' are secured to the inner ends of shafts F F', fitted to turn in suitable bearings in frame or bed A. To the outer ends of said shafts are secured pinions G G', which intermesh, so that the power of one may be communicated to the other, and thus turn the cutters together. One of the shafts—in this instance F'—is provided with a pulley I, which in practice may be connected with any suitable driving mechanism.

The cutters (see Fig. 6) are each provided with a concave-shaped creaser or groover *h*, next to the cylinder, for compressing or grooving and partially severing the strand from said cylinder, and with cutting-edges or shears *i*, which overlap each other in close contact, and thus complete the severing operation immediately following that of grooving or partially severing the stock.

The cylinder is simply supported but not held upon its support, and is rotated or fed

around thereon by the action of cutting the strand therefrom. It is obvious that in order to cut a continuous strand either the creasers and shears or said cylinder must be arranged
 5 at an angle to the machine. In this instance I have adopted the latter method, the cutter-shafts being arranged horizontally in line longitudinally with said machine and the cylinder adapted to be swiveled and adjusted as
 10 previously specified.

In practice, after having placed the cylinder D over its supporting-arm C, said arm is swung in, so as to bring the edge of the upper side of the cylinder between the creasers
 15 and shears of the cutters, said cylinder being adjusted at the proper angle to said cutters to cause the strand to be cut continuously therefrom. As fast as severed it passes off to one side, as is indicated in the drawings,
 20 and is wound upon a suitable spool or reel. (Not shown.)

In order that the cylinder may turn upon its cylindrical supporting-arm with as little friction as possible, a friction-roll H may be
 25 arranged on the frame or bed A at the opposite side of said arm to that upon which the inside of the cylinder would bear, against which the outside of said cylinder bears, thus relieving the friction in a large measure from
 30 said arm, so that it may be readily turned by the action of cutting the strand therefrom, as previously specified.

The operation of cutting off the strand not only causes the cylinder to be rotated, as
 35 aforesaid, but also draws it forward toward the cutters as it is gradually reduced in length.

After the whole cylinder has been cut or slit up, and thereby converted into a long continuous strand of wire, said wire strand may
 40 then be removed and further treated by the usual drawing and other operations to reduce it to the desired sizes and grades of wire, each new strand being made in like manner to that hereinbefore described by the application of
 45 a new cylinder to the machine.

My improved method is designed more especially for producing strands in the manufacture of copper wire; but it is also applicable for reducing cylinders made from brass

or other metals, and I therefore do not limit
 50 myself to any particular metal or to the particular construction of the various parts employed in carrying out my invention.

I am aware that it is not broadly new to cut a strand spirally from the end of a hollow
 55 cylinder, and therefore limit my invention to creasing and cutting the stock to form the strand simultaneously or at the same operation of the cutters by providing said cutters with not only cutting edges or shears, but also
 60 with suitable formers or creasers which shall crease or compress the stock into as nearly a cylindrical form in cross-section as is possible, and partially sever the same spirally, just in advance of completing the severing opera-
 65 tion, as previously described.

It will be apparent to those skilled in the art to which my invention appertains that by the application thereof to practice a large saving is effected in the manufacture of wire,
 70 and especially in making the finer grades of copper wire, over the old methods now employed, the usual treatments required to reduce the metal to the size and shape necessary to prepare it for drawing to the finer
 75 grades and sizes being entirely dispensed with by my improved method.

Although it is preferable to use the friction-roll H for the purpose previously described, I do not limit myself thereto, as it is
 80 not a necessary feature of the machine.

Having now fully described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

In the manufacture of wire, the production
 85 of a continuous strand or series of long strands by cutting narrow strips spirally from a metallic cylinder, the stock being first compressed into substantially a cylindrical form in cross-section; and partially severed just in
 90 advance of severing the strand, simultaneously and by a continuous operation; substantially as set forth.

CHAS. H. MORGAN.

Witnesses:

A. A. BARKER,
 L. W. BRIGGS.