(No Model.) 2 Sheets—Sheet 1.

H. SPLITDORF.

MACHINE FOR COVERING WIRE.

No. 395,363. Patented Jan. 1, 1889.

Fig. 1.

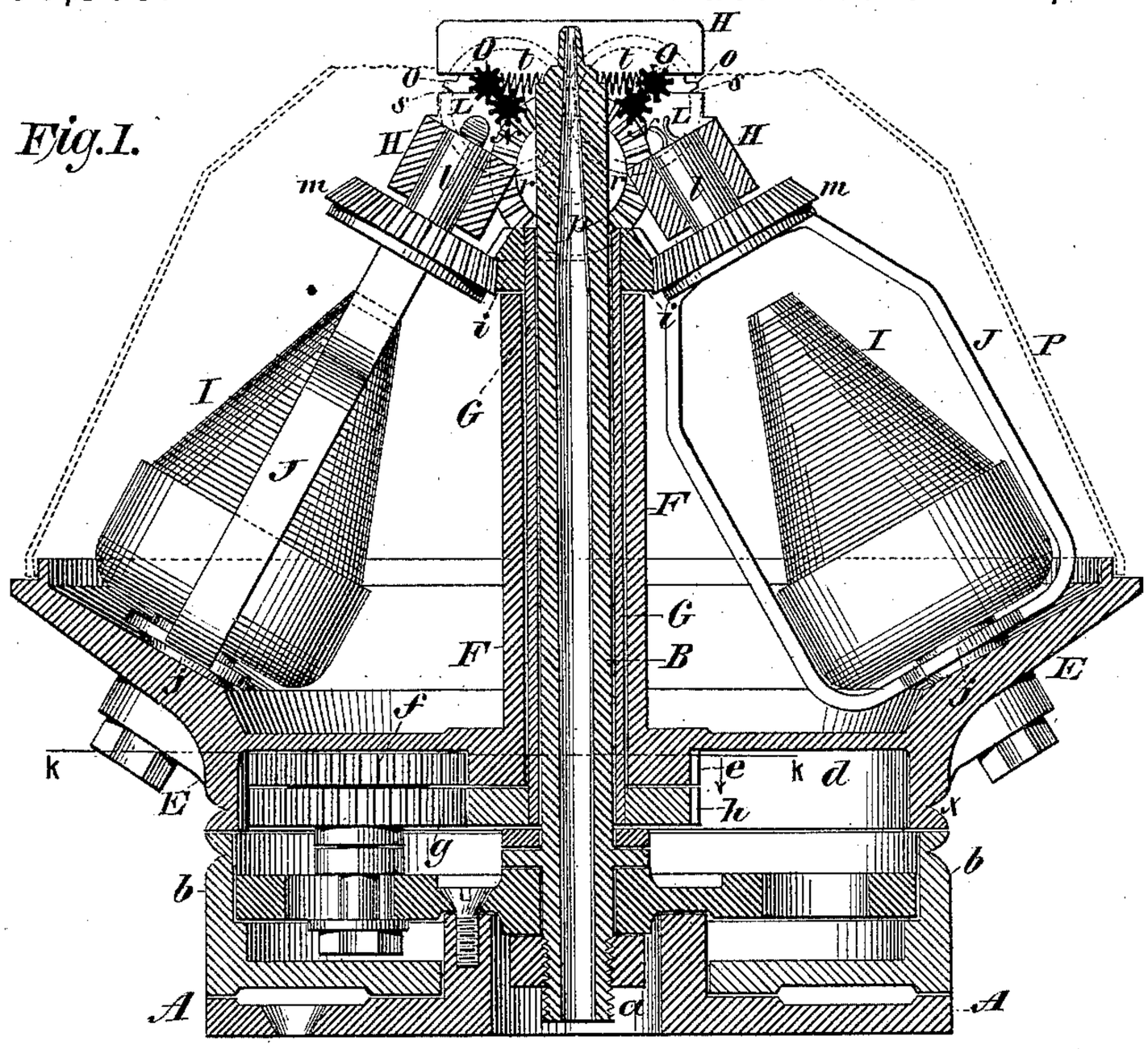
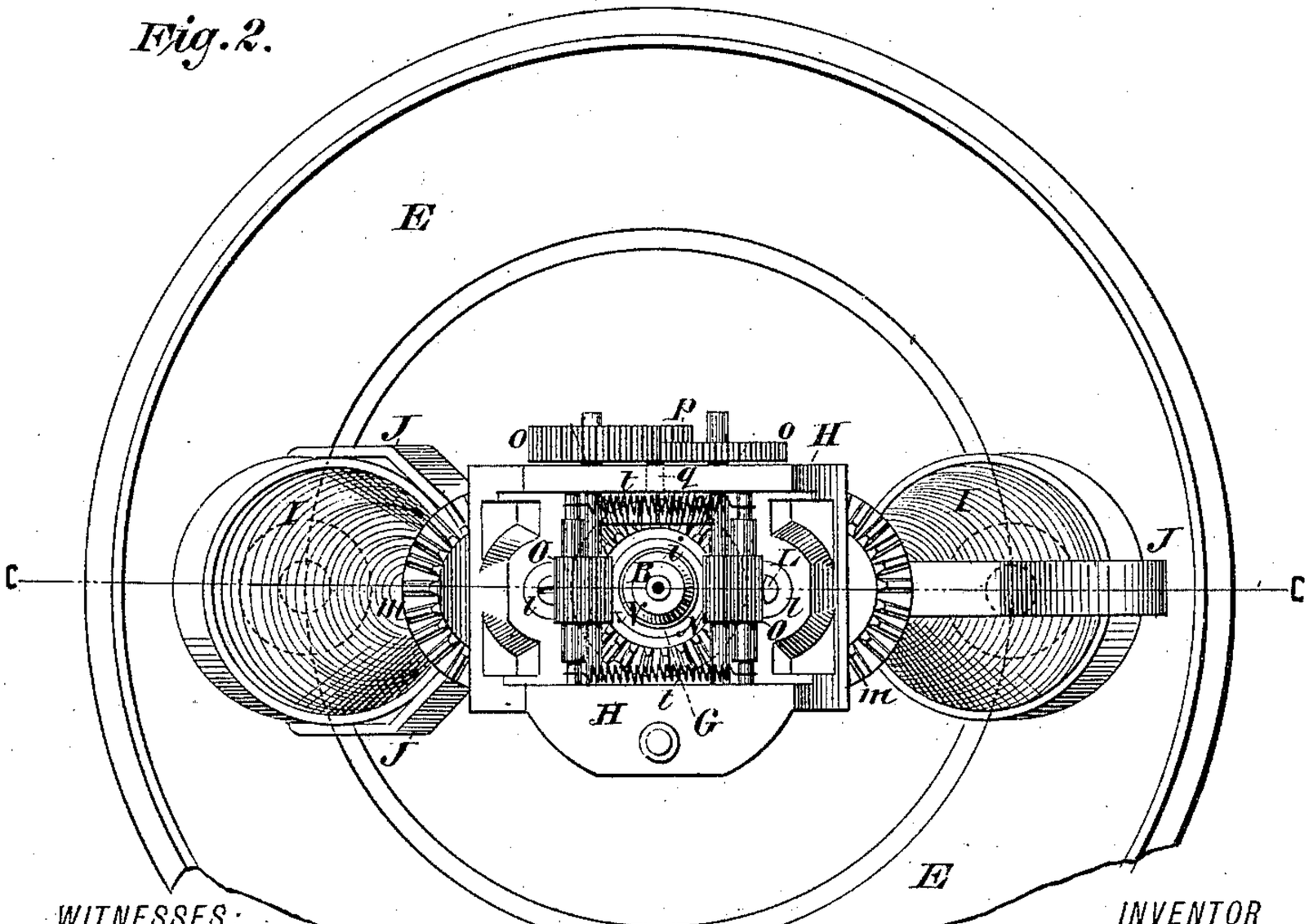


Fig. 2.



WITNESSES:

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T. F. Bourne.

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Henry Splitdorf

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

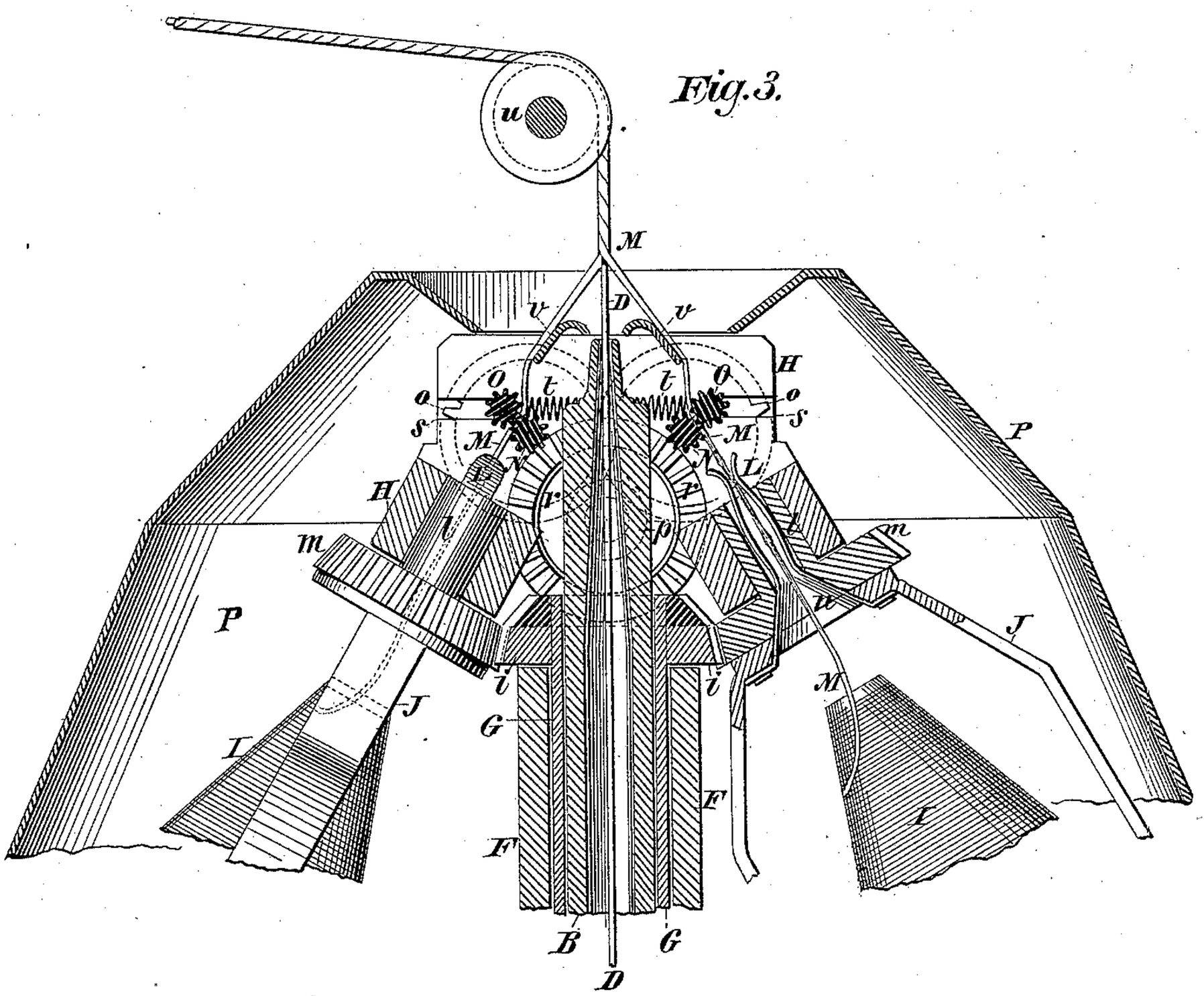


Fig. 4.

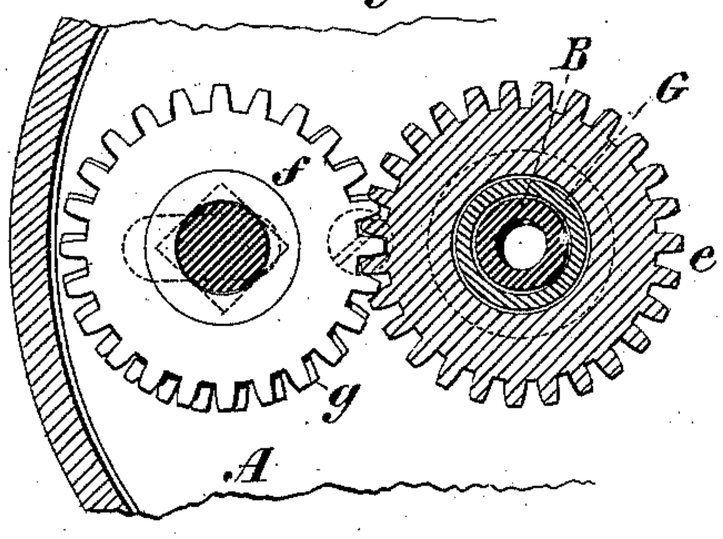
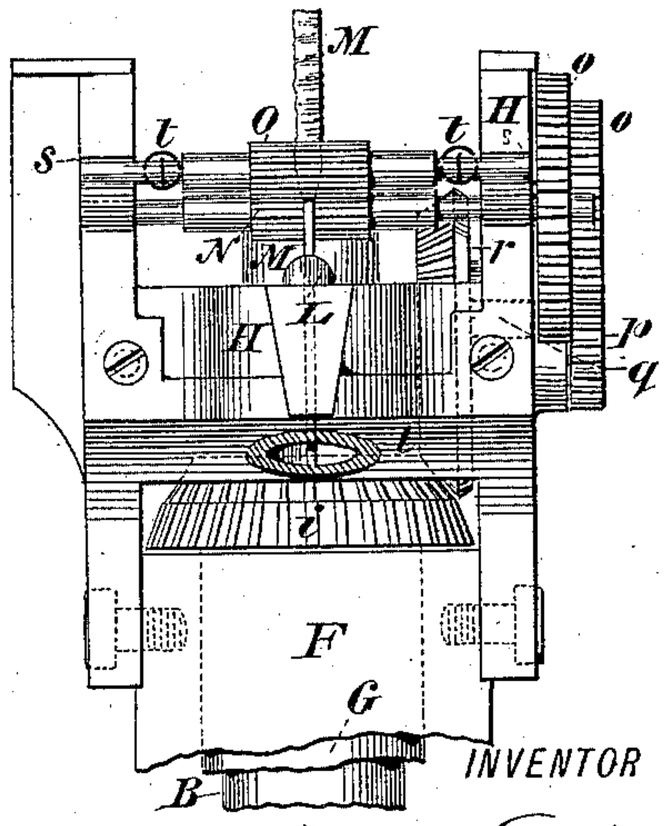


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY SPLITDORF, OF NEW YORK, N. Y., ASSIGNOR TO THE SPLITDORF WIRE COMPANY, OF SAME PLACE.

MACHINE FOR COVERING WIRE.

SPECIFICATION forming part of Letters Patent No. 395,363, dated January 1, 1889.

Application filed December 5, 1887. Serial No. 256,972. (No model.)

To all whom it may concern:

Be it known that I, HENRY SPLITDORF, of the city, county, and State of New York, have invented an Improved Machine for Covering Wire, of which the following is a specification.

The object of my invention is to provide improvements in that class of wire-covering machines whereby the fibers are first untwisted and then placed upon the wire in a straightened and flattened condition. The improvements are more especially upon the machine patented by me June 17, 1884, No. 300,403.

The invention consists in the novel arrangements and combinations of parts that are more fully hereinafter set forth.

Reference is to be had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical cross-section on the plane of the line *c c*, Fig. 2, of a wire-covering machine embodying my improvements. Fig. 2 is a plan view of the machine partly broken away. Fig. 3 is a central vertical cross-section of the upper part of the machine drawn on an enlarged scale. Fig. 4 is a horizontal section on the line *k k*, Fig. 1; and Fig. 5 is a side view, partly in section, of the upper part of the machine.

In the accompanying drawings, A represents the base of my improved machine, which may be of suitable construction and mounted on a suitable support. Near the center of the base A is suitably secured a vertical hollow rod or spindle, B. The spindle B projects into an opening, *a*, in the base A. The wire D to be covered passes freely through said hollow spindle and through the base A. The base A may also carry a loose pulley, *b*.

E is a dish-shaped plate provided with a hollow vertical standard or tube, F. The plate E is adapted to fit upon the base A, the spindle B passing through said plate and through the hollow standard F, as shown. The plate E has a groove, *x*, near its lower edge adapted to receive a belt from a suitable motor, whereby said plate is revolved around the spindle B above the base A.

Within the hollow standard F is placed a tube, G, which projects below the bottom *d* of the dish-shaped plate E. The tube G also projects above the hollow standard F and is adapted to surround the spindle B. On the bottom *d* of the revolving plate E is secured a gear-wheel, *e*. The tube G and spindle B pass through this wheel, as shown in Fig. 1. The gear-wheel *e* meshes with a similar wheel, *f*, hung on the base A. The wheel *f* has, say, three less teeth than the wheel *e*. Thus if the wheel *e* has twenty-seven teeth the wheel *f* will have twenty-four teeth, whereby the wheel *f* will rotate faster than the wheel *e*. Secured to the wheel *f* on the under side of the same is another gear-wheel, *g*, which has, say, one tooth more than the wheel *f*. The wheel *g* meshes with gear-wheel *h*, which is secured to the end of the tube G and below the gear-wheel *e*. The wheel *h* has by preference the same number of teeth as the wheel *e*. By means of the gearing described, when the dish E is revolved the tube G, within the standard F, will be driven independently of the dish E, for the purpose hereinafter shown.

I do not wish to confine myself to the exact manner herein shown of arranging the gearing for turning the tube G, as it may be varied indefinitely to cause the tube G to revolve with more or less speed independently of the dish E.

On the upper end of the tube G, above the standard F, is secured a bevel gear-wheel, *i*. This wheel *i* preferably has a double set of teeth, as shown, one above the other.

Upon the upper end of the standard F is secured a boxing or head-block, H, in which are journaled various gear-wheels, hereinafter referred to.

The threads to be wound on the wire D are carried on bobbins I, which are, by preference, of conical form, as shown. These bobbins I are supported in open frames J. Each frame J is pivoted by spindle *j* to the revolving dish E, as shown. At their opposite or upper ends the frames J carry short tubes or hollow spindles *l*, which are journaled in the head-block H, as shown. The frames J also carry at their upper ends bevel gear-wheels *m*, which mesh with the lower set of teeth on the gear-wheel *i* on the tube G. L are spring jaws or clamps secured in the frames J, as shown. Each

clamp L passes through the hollow spindle *l* of its frame J, as shown. The clamps L are adapted to clamp and guide the fiber-ribbons M, that are unwound from the bobbins I. (See Fig. 3.) As the tube G is revolved independently of the dish E, the frames J will be revolved thereby by the gearing shown.

The fibers M pass from the clamps L between two grooved or fluted rollers, N O. The rollers N are journaled in the head-block H and carry gear-wheels *o*, which mesh with a pinion, *p*, carried by a short shaft, *q*, journaled in the head-block H. On the inner end of the shaft *q*, and within the head-block H, is secured a gear-wheel, *r*, which meshes with the upper set of teeth of the gear-wheel *i* on the tube G. As the wheel *i* rotates independently of the table E, the rollers N will be revolved by means of the gearing just described.

The grooved rollers O are removable, their ends passing through slots *s* in the sides of the head-block H. These rollers O are held against the rollers N by means of springs *t*, which connect both rollers O, as shown, or by analogous means. The wire D to be covered is led from any suitable holder through the hollow spindle B and passes over a suitable guide-roller, *u*, above the spindle B, and is thence wound upon any suitable roller or other device.

P is a hood or cover adapted to be placed over the dish E to cover the working parts of the machine. In its top said hood P is provided with openings through which the wire and fibers are to pass. Said hood P is preferably provided with inclined guides *v*, over which the fibers pass from the rollers N O to the wire D.

The fibers I prefer to use on this machine are commonly known as "slivers"—that is to say, the fibers before they are twisted into threads, or just after they have been carded, only enough twist is given to them to form them into what I call "ribbons." By this machine this slight twist is removed from the fibers and they are laid upon the wire in a straightened condition.

This machine operates as follows: The wire to be covered is first passed through the spindle B, as before shown, and led over the roller *u* to a suitable winding apparatus. The wire is led through the machine under the desired speed. The bobbins I of fibers are placed in the frames J, the ribbons M being passed through the clamps L. They are then passed between the rollers N O, this being facilitated by first moving the rollers O out of contact with the rollers N. The ribbons are then led to the wire. (See Fig. 3.) The machine is now started by passing a belt into the groove *x* on the dish E to cause said dish to rotate. As the dish E rotates, the tube G and gear-wheel *i* will be rotated slowly and independently of the dish, as before described, which imparts rotary motion to the frames J, around their own axis, while they are also revolved around the axis of the tube B. As the sliver or ribbon M is held by the spring-clamp L and by the rollers N O, the revolution of the frames J around their own axis will untwist the sliver, leaving the fibers in a straightened condition. As the wheel *i* rotates to turn the frame J to untwist the fibers, it also rotates the wheel *r* to turn the rollers N O. The rollers N O, being thus turned, feed the fibers to the wire, at the same time pressing them somewhat flat, thereby also spreading them. Thus the fibers are untwisted, straightened, spread, and fed to the wire. By the revolution of the dish E around the wire D the fibers so untwisted and straightened are wrapped around the wire evenly and smoothly.

With this machine jute and asbestus fibers may be used. These fibers are often lumpy and knotty. The spring-clamps L permit these lumps to pass, at the same time exerting the required pressure on the fibers, whether the lumps are present or not, to hold them while untwisting.

I have shown in the drawings two bobbins, I, and driving and connecting parts, whereby two strands are wrapped upon the wire at a time; but it is evident that only one bobbin may be used when desired.

The gearing for feeding the fibers to the wire and for turning the frames J is to be so arranged as to feed just the amount required to cover the passing wire. It is evident that the tube G could be driven separately—that is, by other means than by the revolution of the table or dish E; but I prefer the construction shown as being more simple.

Having now described my invention, what I claim is—

1. The bobbin-carrying frame J, having hollow spindle *l* and rotary support E for said frame J, spring-clamp L on the spindle *l* for holding the fibers as they are untwisted, and gear *m* on said frame J, combined with the hollow stationary spindle B for the passage of a wire, rotating tube G, and gear *i* on said tube, the gear *i* engaging the gear *m*, the fibers being led from the clamp to the wire above the end of the spindle, substantially as described.

2. The support E, having hollow standard F, combined with the tube G within the standard F and projecting beyond said standard, and with gear-wheel *e* on the support E, gear *h* on tube G, and intermediate gear, *f g*, connecting the support E with the tube, whereby, when the support E rotates, said tube will be driven independently of said support, substantially as herein shown and described.

3. The rotating support E, having hollow standard F, tube G, gear *i* on said tube, and means for turning said tube independently of the support E, combined with the longitudinally-fluted rollers N O, for spreading and feeding the fibers, said rollers carrying gear *o*, and, with the gear *r*, meshing with the gear *i* on the tube G, and turning the gear *o* for driving the rollers N O, substantially as herein specified.

4. The combination, with the rotating support E, having hollow standard F, tube G, partially within said standard, and having gear *i*, and means for turning the tube G, of the frames J, having gear *m*, meshing with the gear *i*, spring-clamp L, and rollers N O, the roller N, having the gear-wheel *o*, pinion *p*, engaging gear *o* and gear-wheel *r* on the shaft with the pinion *p*, said gear *r* meshing with the gear *i*, whereby the rollers N O are driven by the tube G, substantially as described.

5. The combination of the base A, stationary hollow spindle B, support E above said base, said spindle passing through said support, tube G, embracing the stationary spindle B, and gearing *e f g h*, connecting the tube G with the support E, whereby as the support E rotates the tube G will be independently rotated by said support, substantially as herein shown and described.

HENRY SPLITDORF.

Witnesses:
HARRY M. TURK,
GUSTAV SCHNEPPÉ.