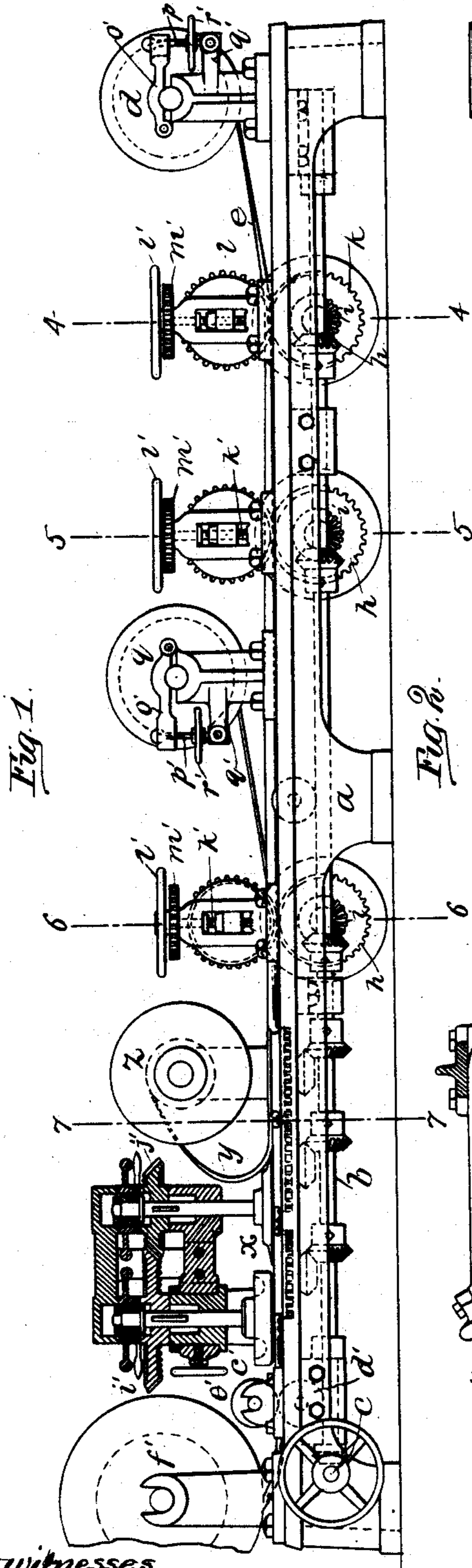


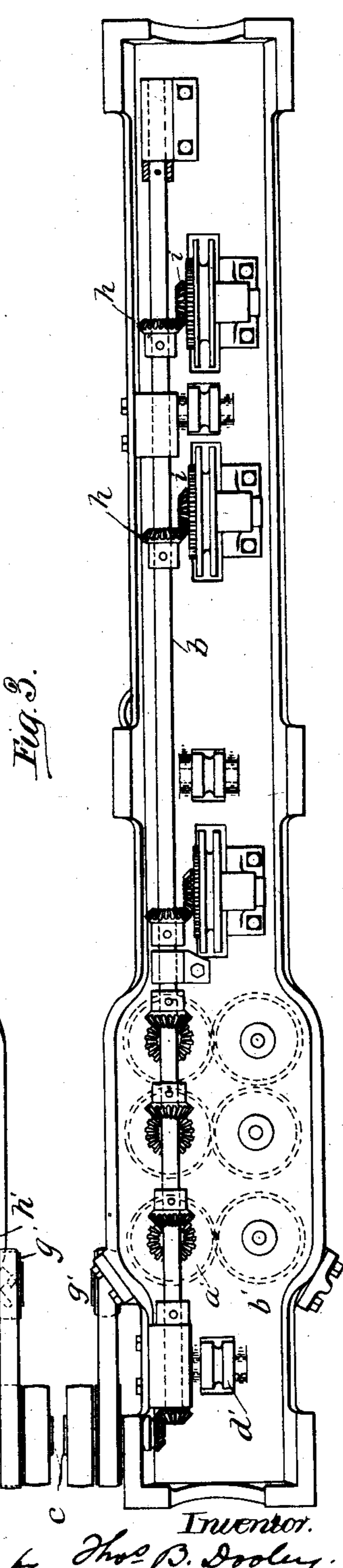
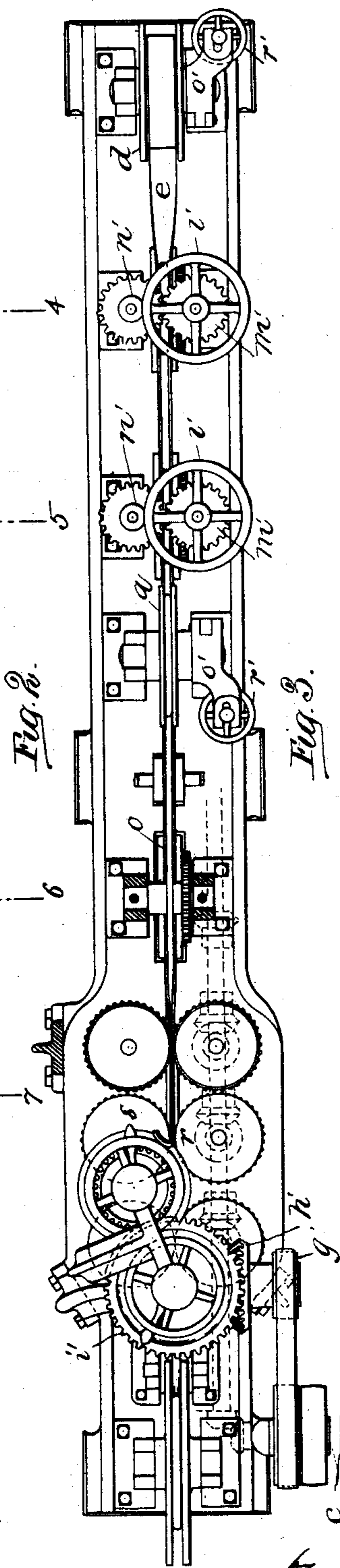
T. B. DOOLEY.
ART OF COVERING WIRE WITH METAL.

No. 432,196.

Patented July 15, 1890.



Witnesses
A. D. Hamlin.
H. C. Brown



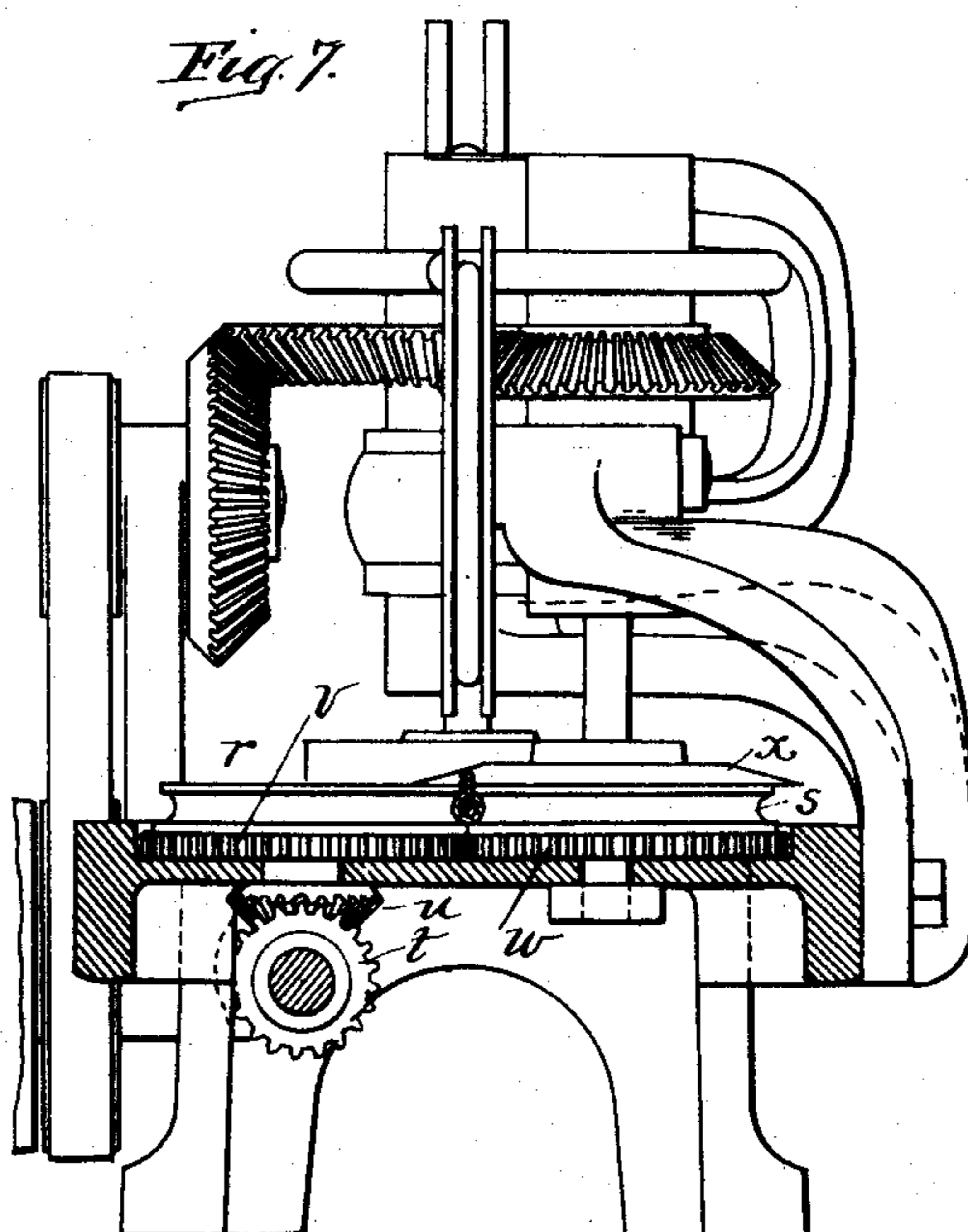
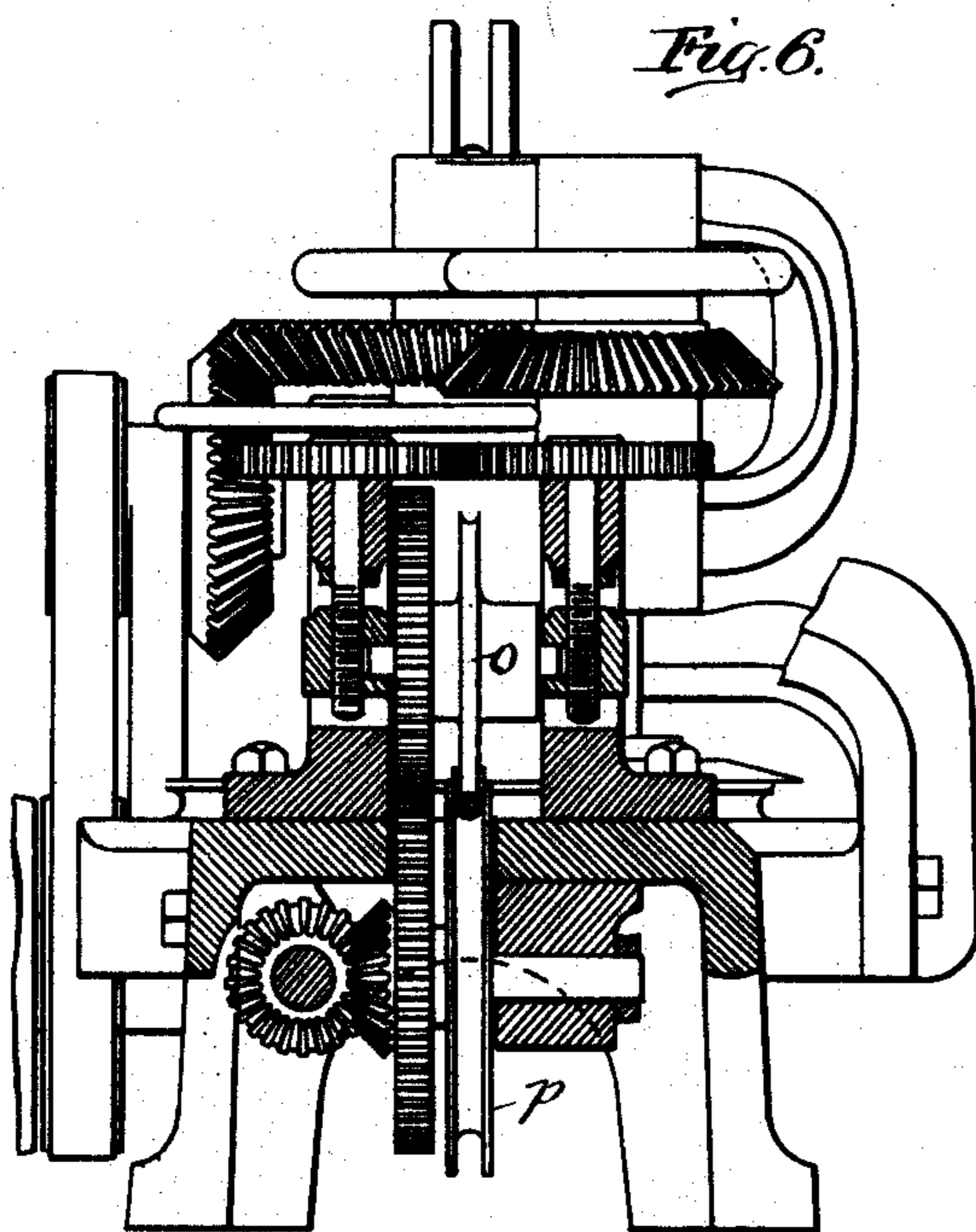
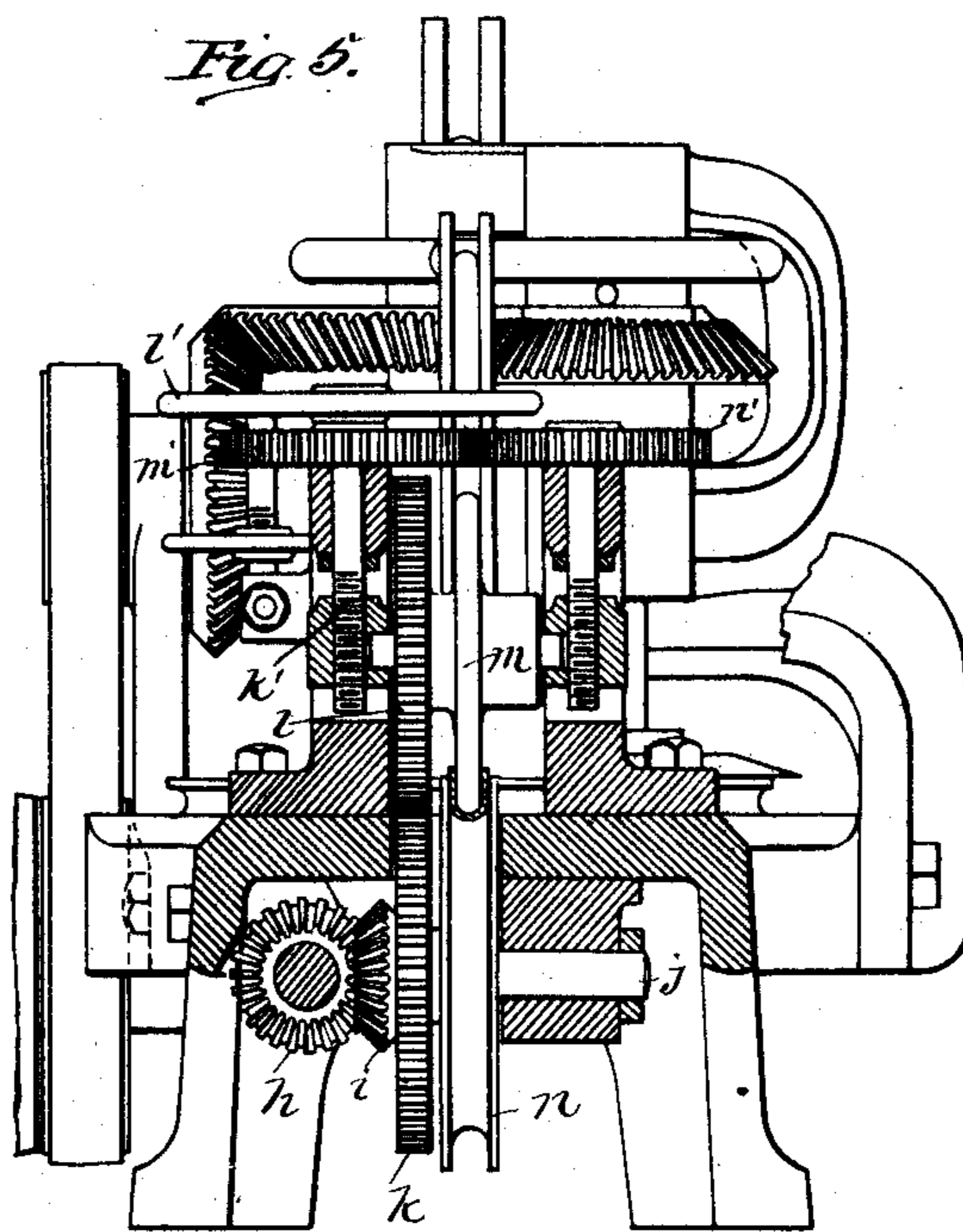
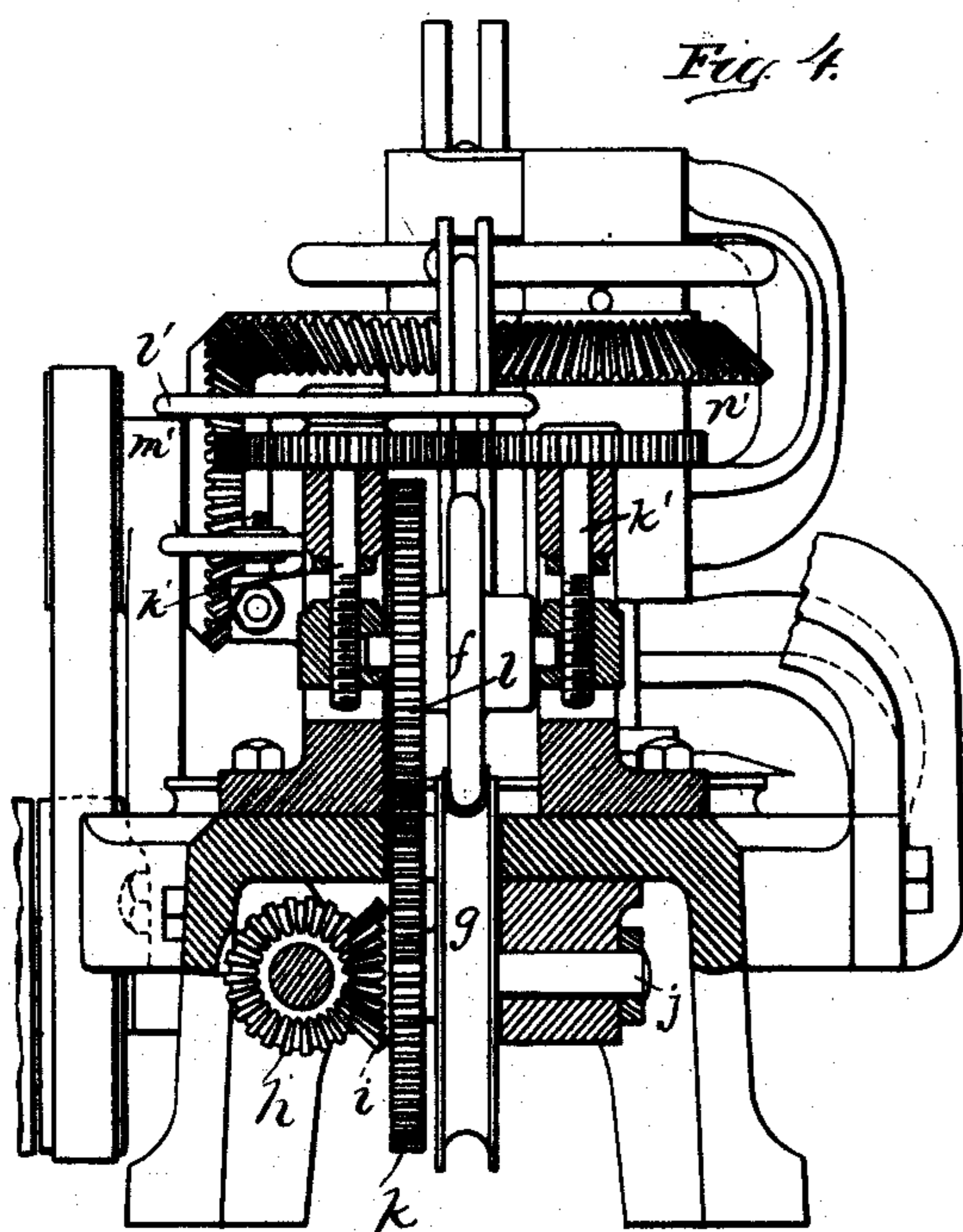
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UNITED STATES PATENT OFFICE.

THOMAS B. DOOLEY, OF MALDEN, MASSACHUSETTS.

ART OF COVERING WIRE WITH METAL.

SPECIFICATION forming part of Letters Patent No. 432,196, dated July 15, 1890.

Application filed May 31, 1890. Serial No. 353,706. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. DOOLEY, of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in the Art of and Means for Covering Wire with Metal, of which the following is a specification.

My invention relates to the art of and means for covering insulated or other wire with lead or other metal, it being my object to provide such improvements as will enable the work to be performed expeditiously and perfectly, obviating the difficulties heretofore existing in the practice of this art, which have consisted in the slowness of the operation and the uncertain and defective character of the result.

My invention consists in the improvement in the art of covering wire with lead or other metal, which consists in bending a strip or ribbon of metal into trough-like form, introducing a wire therein, pressing the edges of the strip together over the wire, trimming off the projecting portions of the strip, and soldering together the meeting edges at the trimming-off point.

My invention also consists in means for carrying into effect the above-mentioned mode of procedure, all as hereinafter particularly described and claimed.

Reference is to be had to the accompanying drawings and to the letters of reference marked thereon, forming a part of the specification, the same letters of reference indicating the same parts wherever they occur.

Of the said drawings, Figure 1 is a side elevation, portions being shown in section, of a form or means employed by me for carrying my invention into effect. Fig. 2 is a top plan view of the machine shown in Fig. 1, portions of the same being removed. Fig. 3 is a bottom plan view of the same machine shown in Fig. 1. Figs. 4, 5, 6, and 7 are sectional views taken, respectively, on the lines 4 4, 5 5, 6 6, and 7 7, showing the most important steps pursued by me in carrying out my improved method of covering wire.

In the practice of my invention I provide means consisting of a bed *a*, of suitable form and material, having a shaft *b*, extending longitudinally thereof, and supported in suitable bearings connected therewith. Said shaft is driven by gearing connecting the same with a driving-shaft *c*.

d represents a drum, upon which is wound a strip or ribbon of metal *e*, which strip is drawn from the drum *d* and carried between the wheels *f* *g*, the former wheel having a rounded periphery and the latter a grooved periphery, as is clearly shown in Fig. 4.

The wheels *f* and *g* are driven by means of a bevel-gear *h* on the shaft *b*, which meshes with a light gear *i* on the journal-shaft *j* of wheel *g*. On said shaft *j* is secured a gear-wheel *k*, which meshes with and drives a light gear *l* on the journal-shaft of wheel *f*. The ribbon or strip of lead *e* in passing between the wheels *f* and *g* is given a U shape or trough-like form in cross-section, as shown in Fig. 3. From wheels *f* and *g* the said strip is led between wheels *m* and *n*, similar in construction to the first-mentioned wheels, but of such form as to bring the sides of the strip or ribbon closer together and form the groove between such sides considerably deeper. The wheels *m* and *n* are driven from the shaft *b* by gearing similar to that which operates the wheels *f* and *g*. From the wheels *m* and *n* the strip *e* is led to wheels *o* and *p*, the latter being of a form similar to the wheel *n*, while the former has a groove formed in its periphery, so that it may receive a wire from a drum *q* and press the same into the groove formed between the sides of the metal strip *e*, as aforesaid, all as is most clearly shown in Fig. 6. The wheels *o* and *p* are driven by gearing connected with shaft *b* similar to the manner in which the gears *f* and *g* and *m* and *n* are operated. From the wheels *o* and *p* the strip or ribbon *e* and wire laid therein are led forward between the horizontally-operating wheels *r* and *s*, both of which wheels are provided with grooved peripheries, as seen in Fig. 7, and which operate to close the projecting edges of the ribbon of metal over the wire and pinching the same together at a point thereabove. The wheels *r* and *s* are driven from the shaft *b* by means of bevel-gears *t* and *u*, the former being secured to the shaft *b* and the latter to the journal-shaft of wheel *u*. Upon the journal-shaft of the latter is a gear-wheel *v*, which meshes with a light gear *w*, secured upon the journal-shaft of wheel *s*. From the wheels *r* and *s* the wire and ribbon of metal in the condition that it is when it emerges from between the last-mentioned wheels is led forward to a rotary cutting-wheel *x*, provided with a sharp periphery, and which operates to trim off the

projecting portions of the ribbon of metal above the wire, so that the latter will be completely covered by the metal. The trimmed-off portion y of the metal may be wound upon a drum z . From the trimming-wheel x the metal-covered wire will be passed forward between finishing-wheels $a' b'$, (best shown in dotted lines in Fig. 3,) said wheels having grooved peripheries somewhat similar to wheels r and s (shown in Fig. 6) and operated in the same manner. From wheels a' and b' the metal-covered wire will be passed over a proper support and be acted upon by a heated rotating soldering-disk c' . (Best shown in Fig. 1.) The said disk operates to unite the meeting edges of the metal upon the wire, making the covering therearound to all intents and purposes an integral sheath. From the soldering-disk the covered wire may be led between suitable guide-rolls $d' e'$ to and be wound upon a receiving-drum f' .

The cutting-wheel x and rotary soldering-disk c' may be operated by means of a pulley g' , connected by a belt with a pulley on the driving-shaft c . On the journal-shaft of pulley g' is secured a bevel-gear h' , which meshes with and drives a bevel-gear on the journal-shaft of a rotary disk c' . Upon the upper end of the last-mentioned shaft is a bevel-gear i' , which engages and drives a similar gear j' on the journal-shaft of cutting-wheel x .

I have shown wheels f, m , and o as journaled in sliding boxes or bearings suitably supported in brackets connected with the frame a and rods k' , having a screw-threaded connection with said journal boxes or bearings, whereby the latter may be adjusted vertically to a slight extent, so as to adjust the degree of pressure with which the wheels last mentioned will bear upon their fellows. To one of the rods k is secured a hand-wheel l' for turning the rod with which said hand-wheel is connected, and connected with said hand-wheel or its rod is a gear m' , which meshes with a light gear n' , connected with the other adjusting-rod k' , so that both adjusting-rods may be adjusted in unison.

The ribbon or strip of metal e and also the wire are drawn off of their respective drums under slight tension, and to adjust such tension to meet the exigencies of different cases I have provided a lever o' , pivoted at one end and adapted to bear upon the journals of the said drums, and in order to vary the degree of this bearing I have provided a rod p' , having a screw-threaded connection at one end with a bracket q' and at the other end with the free end of lever o' , a hand-wheel r' being provided upon the rod p' for operating the said rod to draw the lever o' down with greater or less force upon the journals of the said drums. Suitable means may also be provided for adjusting the cutting-wheel x and rotating disk c' vertically.

It is obvious that various changes may be made in the form and relationship of parts

comprising the machine for carrying out my improvement without departing from the nature or spirit of my invention.

Having thus explained the nature of my invention, and set forth a way of making and practicing the same, I declare that what I claim is—

1. The improvement in the art of covering wire with lead or other metal, which consists in bending a strip or ribbon of metal into trough-like form, introducing a wire therein, pressing the edges of the strip together over the wire, trimming off the projecting portions of the strip above the covered wire, and soldering together the meeting edges of the trimmed-off portion, as set forth.

2. A machine for covering wire with lead or other metal, embracing in its construction a drum for a ribbon or strip of metal, wheels for forming the strip or ribbon of metal into trough-like form, a wheel for introducing the wire into the shaped strip of metal, wheels for pressing the edges of the strip together over the wire, a trimming-off wheel, and a rotary soldering-disk, as set forth.

3. In a machine for covering wire with lead or other metal, the combination, with wheels for incasing the wire in a strip or ribbon of metal, of wheels for pressing the edges of the metal together over the wire and a trimming-off wheel, as set forth.

4. The combination, with the wheels for pressing a ribbon of lead or other metal over a wire, of a rotary wheel having a knife-edge for trimming off the projecting portions of the strip above the covered wire, as set forth.

5. The combination, with the rotary trimming-wheel for trimming off the projecting edges of the metal above the incased wire, of the rotary drum z for reeling or winding up the trimmed-off portions of the metal, and the rotary soldering-disk, as set forth.

6. The combination, with wheels for incasing a wire in a strip or ribbon of metal, of a rotary soldering-wheel, as set forth.

7. A machine for incasing an insulated or other wire in a strip or ribbon of metal, consisting of a drum from which the ribbon of metal may be drawn, wheels for forming the said strip in trough-like form, a wheel for introducing the wire into the shaped ribbon of metal, wheels for pressing together the edges of the ribbon over the wire, a trimming-off wheel, a drum for receiving and winding up the trimmed-off portions of metal, a rotary soldering-wheel, and finishing-wheels for the covered wire, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 29th day of May, A. D. 1890.

THOMAS B. DOOLEY.

Witnesses:

C. F. BROWN,
A. D. HARRISON.