

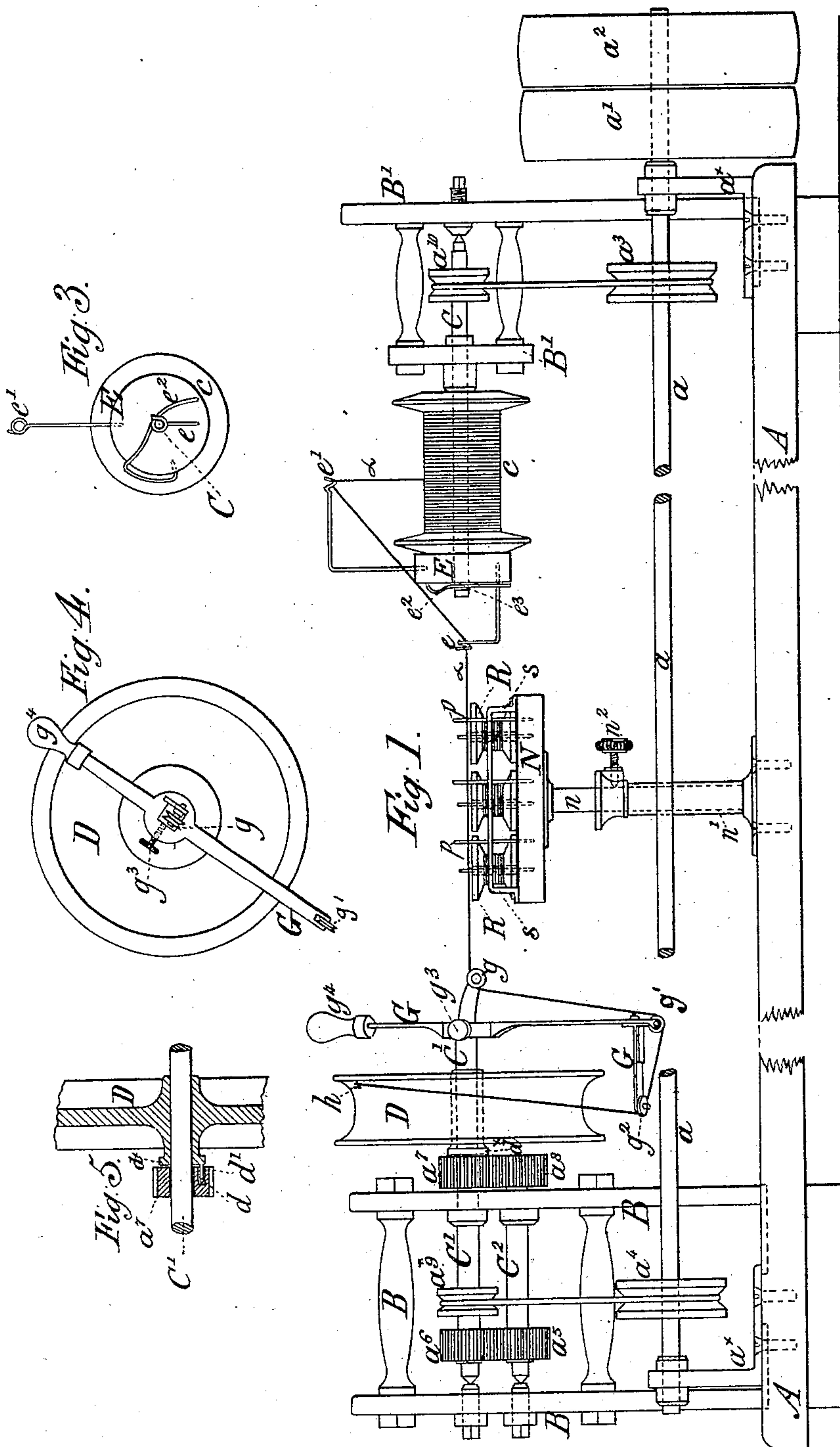
(No Model.)

2 Sheets—Sheet 1

J. A. SPARLING.

MACHINERY FOR COVERING TELEPHONE AND TELEGRAPH WIRES, &c.
No. 282,680.

Patented Aug. 7, 1883.



Witnesses

Chas. H. Smith
Harold Ferrell

Inventor

J. A. Sparling
per Lemuel W. Ferrell atty

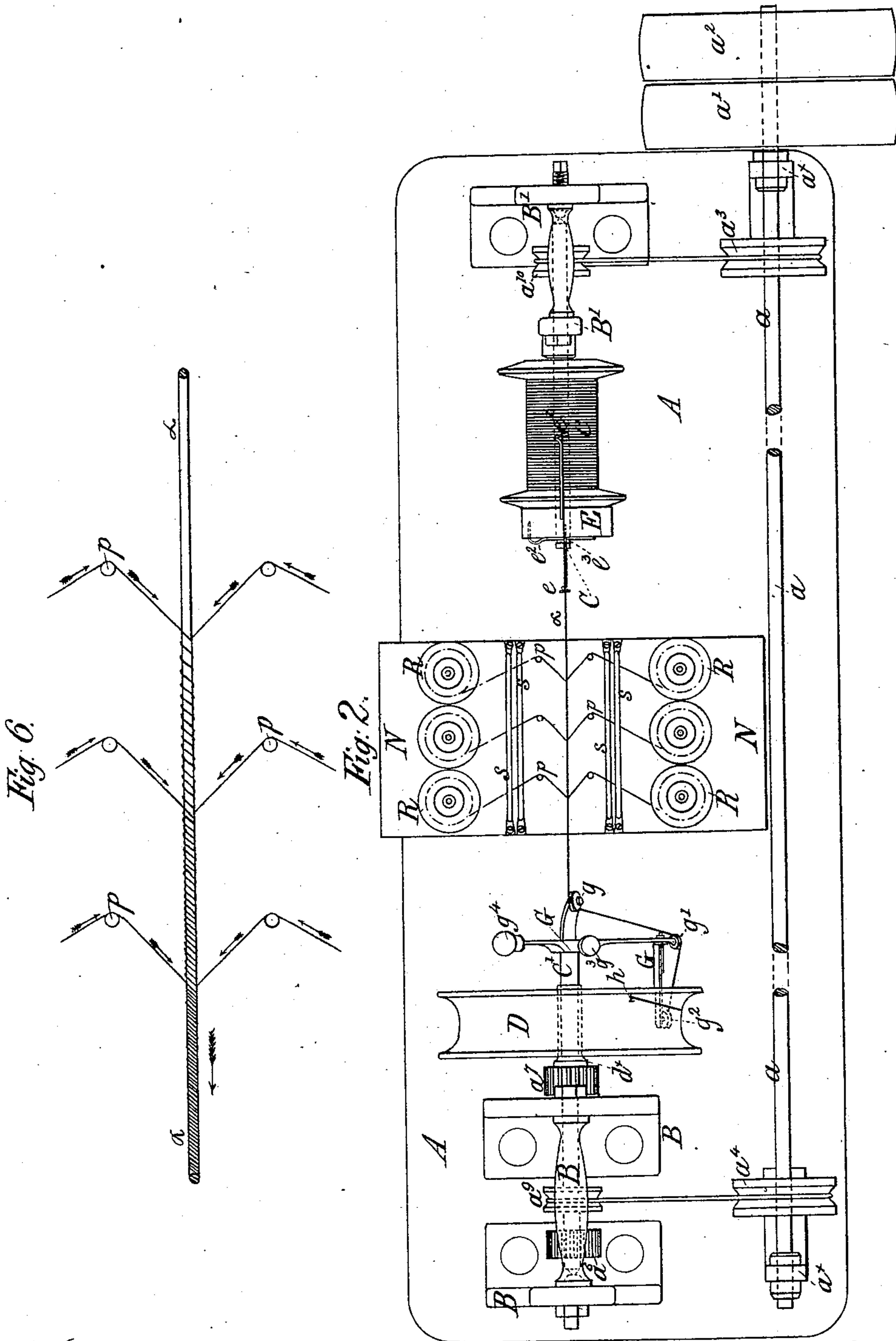
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UNITED STATES PATENT OFFICE.

JOHN ALEXANDER SPARLING, OF LONDON, COUNTY OF MIDDLESEX,
ENGLAND.

MACHINERY FOR COVERING TELEPHONE AND TELEGRAPH WIRES, &c.

SPECIFICATION forming part of Letters Patent No. 282,680, dated August 7, 1883.

Application filed August 2, 1882. (No model.) Patented in England June 1, 1881, No. 2,414, and in France November 30, 1881, No. 146,135.

To all whom it may concern:

Be it known that I, JOHN ALEXANDER SPARLING, a subject of Her Majesty, the Queen of Great Britain, residing at London, in the county of Middlesex, in England, have invented an Improvement in Machinery for Covering Telephone and Telegraph Wires and other Cores or Strands, of which the following is a specification.

My invention relates to means for covering wire for use in telephone and telegraphic lines and other electrical purposes; and it consists in a machine containing a spool for holding the wire, a drum for receiving the wire, fliers for revolving the wire during its passage from the spool to the drum, an adjustable table supporting the bobbins which hold the covering for the wire. The wire, as it is rotated by the fliers, passes over the adjustable table and receives the covering-threads from the bobbins. The drums and the spool-shaft and flier are driven at the same speed and in the same direction by pulleys from a driving-shaft.

My invention will be readily understood on reference to the accompanying drawings, in which Figure 1 is a side elevation of a machine or apparatus for covering telephone or telegraph wires, and Fig. 2 a plan of the same. Fig. 3 is a face view of the flier for the reel or spool containing the wire. Fig. 4 is a face view of the flier for rotating the wire as it is being wound around the receiving-drum. Fig. 5 is a section of part of the winding-up drum and of the pinion that rotates it; and Fig. 6 illustrates the manner in which the covering-threads pass to the wire, so as to be wound thereon by the rotation of such wire.

For the purpose of my invention the machine or apparatus consists of a bed plate or stand, A, on which are mounted two strong frames or supports, B B', which carry three horizontal spindles, C C' C'', those marked C' C'' being carried by the frame or support B. On the spindle C is keyed the delivery bobbin or spool e, containing the wire x to be covered, and which revolves with it. The spindle C' carries the receiving-drum D, on which is wound the covered wire as produced. The spindle C carries a flier, E, (seen in front view,

Fig. 3,) provided with guide-eyes e e', the lower eye, e, of which is so arranged as to be exactly opposite the central or axial line of the spindle C. This flier is kept in position by a spring, e'', fitting into a groove, e'', cut at the end of the spindle C, and this spindle must be exactly opposite to the spindle C', in order that the wire x, which extends from the eye e to the wheel g, shall be maintained in a perfectly straight line, the bobbin e, containing the wire to be covered, being attached to the spindle, so as to rotate with it. The spindle C' carries a flier, G, (seen in front view, Fig. 4,) which is fixed to it by means of a set-screw, g'. This flier is furnished with three small guide-wheels, g g' g'', over and under which the covered wire passes, as hereinafter described. At one end this flier is provided with a counter-weight, g'.

The machine or apparatus may be driven by hand, foot, steam, gas, or electricity; but I prefer to use steam, and for this purpose I proceed to describe an arrangement therefor.

a is the main driving-shaft in supports or bearings a^x a^x, secured to the bed-plate A. There are two driving-pulleys, a³ a⁴, of the same size, fastened on this shaft, which communicate motion to the shafts C C' by means of belts and pulleys a⁹ a¹⁰. These pulleys a⁹ a¹⁰ are of equal size, so as to revolve the shafts C C' at the same speed, and both shafts revolve in the same direction.

C² is a shaft supported in the frame B and driven by the gear a⁶ on C', meshing with a wheel, a⁵, on C². This shaft C² also carries a gear-wheel, a⁸, that drives a pinion, a⁷, that is loose on the shaft C'.

The receiving-drum D, upon which the covered wire is wound, is also loose upon the shaft C'; but the drum D and pinion a⁷ are connected by a pin, d, on the hub d^x of the drum entering a slot in said pinion a⁷, so that said drum and pinion revolve together; but the speed of the drum, in consequence of the gearing aforesaid, is different from that of the shaft C'. Hence said difference in speed causes the covered wire to be drawn along over the pulleys g g' g'' and wound upon the drum.

N is a creel or table. It is mounted on the

bed-plate A about midway between the two spindles C C', and is supported by a rod, *n*, sliding telescopically in the tubular column *n'*. This creel can therefore be adjusted to any required height, and fixed thereat by means of the set-screw *n*². The said creel or table carries combs or guide-wires *p*, bridge-pieces *s*, and the bobbins or spools R of silk or other covering material. There are two of these rows of combs or guide-wires, and two sets of bridge-pieces, *s*, one such row and set being placed on the right and the other on the left of the wire to be covered. When the wire has been passed over the pulley *g*, under the pulley *g'*, and under the pulley *g*², it is fastened to a pin, *h*, on the drum D, and the silk threads from the bobbins or spools R are then drawn through the guide-wires *p* and under and over the bridge-pieces *s*, and their ends slightly twisted (by hand) around the wire *x* between the creel or table N and guide-wheel *g*. Motion is then imparted to the driving-pulley *a'*, and the spindles C C' being caused to revolve rapidly in the same direction, the flier G gradually winds the covered wire around the receiving-drum D, and this wire, being caused to revolve on its axis, as aforesaid, draws the silk threads from the bobbin R and winds or wraps them around itself in a spiral form, as shown in the diagram, Fig. 6. A sufficient number of these bobbins being arranged on the creel or table N to cover that portion of the wire core which is drawn from the delivery-bobbin to the receiving-drum, the result is an even and thin covering of silk or other covering material. By means of the machine or apparatus herein described I am enabled to cover wire of the smallest possible gage as evenly and as close as possible, thereby producing a perfectly insulated wire, a great advantage for telephonic, telegraphic, and other electric purposes.

Although I have described and shown my invention as applied to the covering of wire for electrical purposes, it can be applied in like manner to the manufacture of a certain material known as "Milanaise," which is a material having a cotton core or foundation covered with silk, and used for weaving into textile materials, but which core or foundation, according to my invention, revolves with its bobbin or spool, and when my machine or apparatus is to be employed in this manufacture all that is re-

quired is to substitute change-wheels having a suitable number of teeth, so as to cause the silk threads to be wrapped or wound with a longer spiral, in order to produce a more glossy effect.

This machine or apparatus may also be employed for manufacturing gold twine—*i. e.*, a textile core covered with a metallic thread—and for covering strings for musical instruments, and other like purposes.

I am aware that machines for covering wire with silk or other threads have heretofore been made in which the wire is revolved while being drawn forward, in order to wind the covering material upon the wire.

I claim as my invention—

1. The combination, with the stationary bobbin-holder, of two shafts, means for rotating said shafts at the same speed, a reel and flier on one shaft, the drum D, and pinion *a'*, loose upon the other shaft but connected together, the shaft C², gearing *a*⁶ *a*⁵ *a*⁸, and flier for rotating the wire and winding up the same, substantially as set forth.

2. The combination, with the stationary bobbin-holder, of the two shafts C C', means for rotating such shafts at the same speed, the reel *c* for holding the wire, the fliers E G, guide-rollers *g g' g*², the drum D, and gearing for rotating the same, substantially as specified.

3. The flier E, provided with eyes *e e'*, spring *e*², and shaft C, in combination with the shaft C' and means for operating said shafts C and C', flier G, drum D, and means for rotating said drum from shaft C', whereby in the operation of the machine the wire is rotated and drawn forward for the covering-thread, substantially as and for the purpose specified.

4. The adjustable table N, adapted to support the bobbins, the bridge-pieces *s*, and guide-pins *p*, in combination with means for rotating the wire and drawing it along to wind the covering-threads from the bobbins around the wire, substantially as and for the purposes specified.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JOHN ALEXANDER SPARLING. [L. S.]

Witnesses:

JOHN DEAN,

T. J. OSMAN,

Both of 17 Gracechurch Street, London, E. C.