

R. P. JACKSON.
WIRE COVERING MACHINE.
APPLICATION FILED MAY 4, 1915.

1,258,008.

Patented Mar. 5, 1918.
2 SHEETS—SHEET 1.

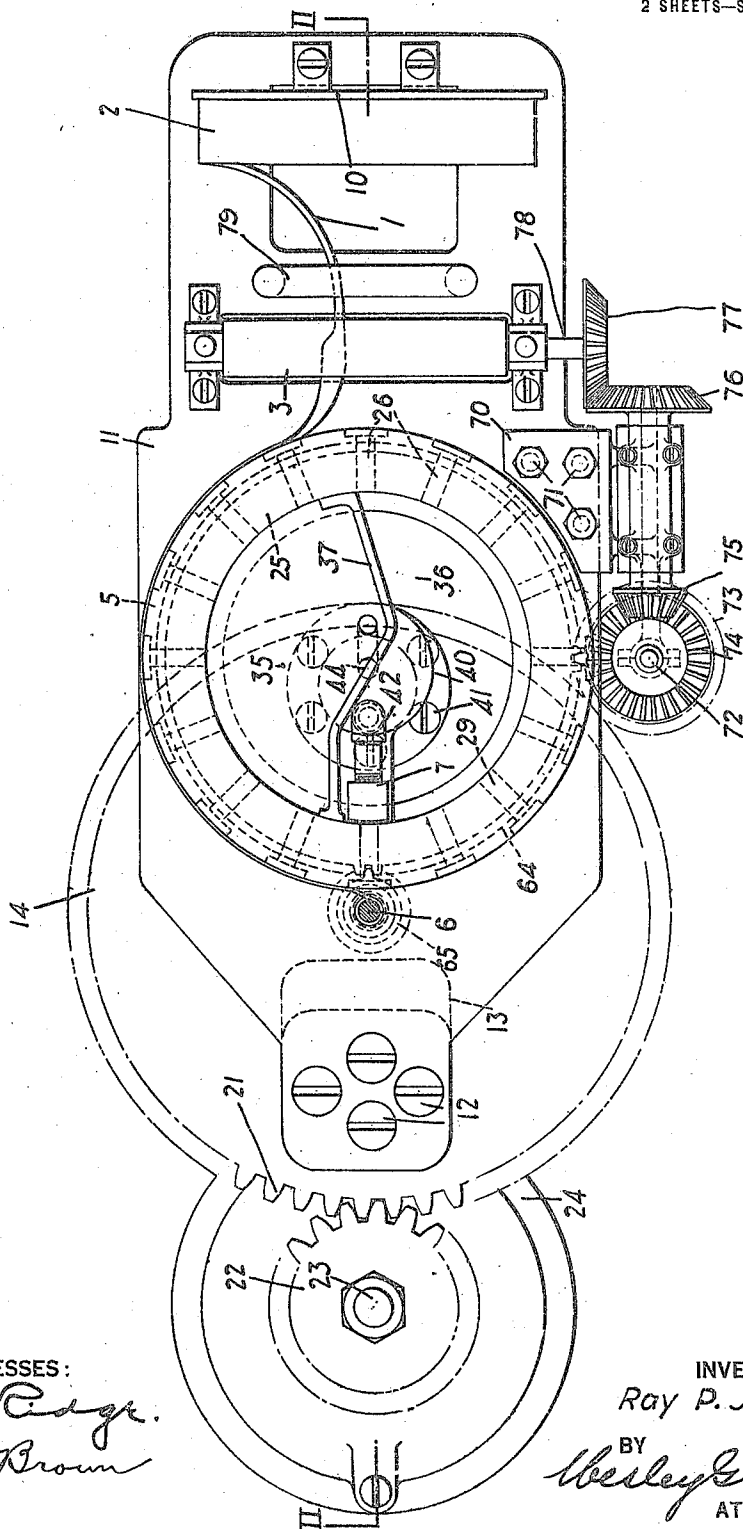


Fig. 1.

WITNESSES:
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R. O. Brown

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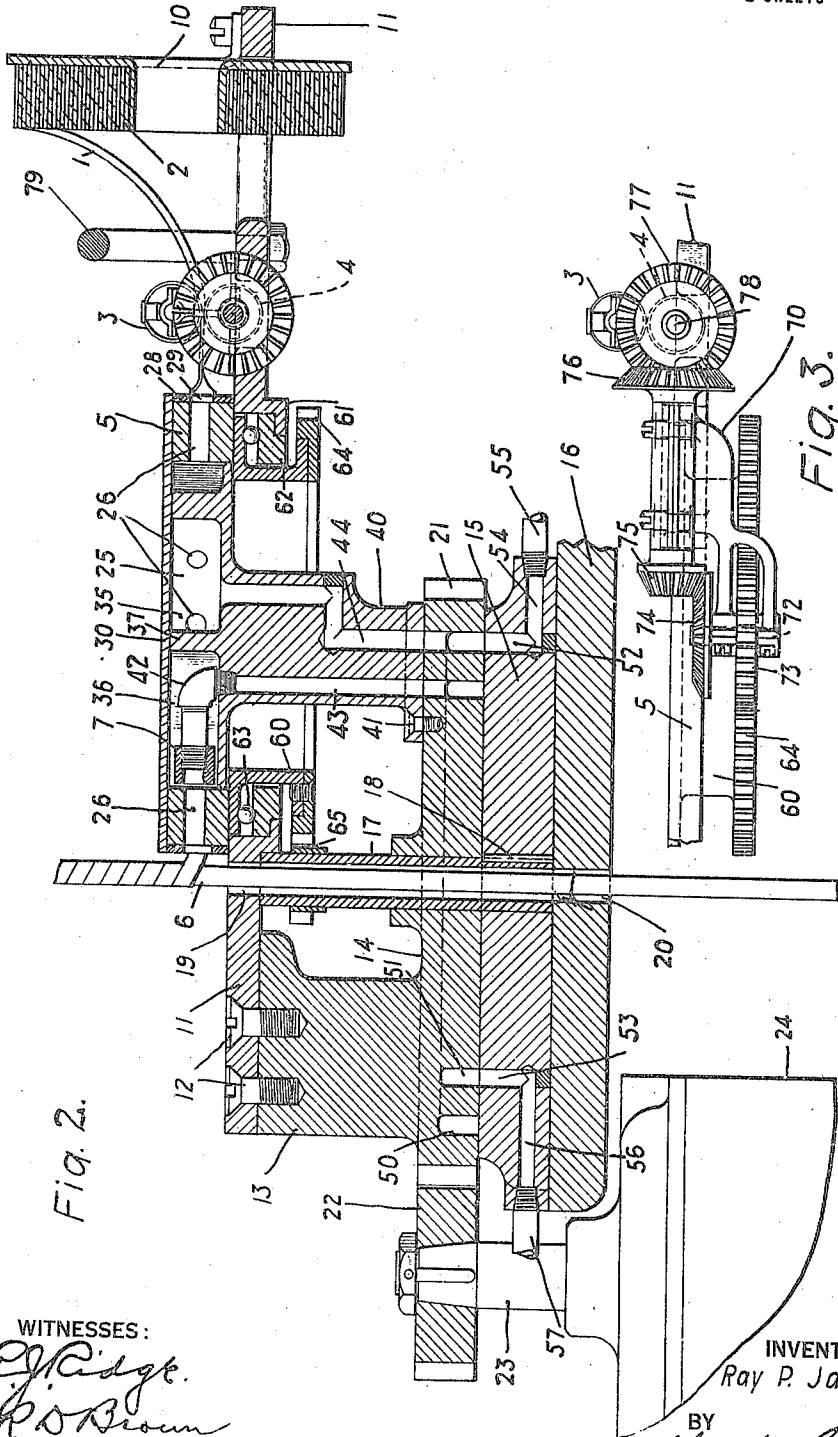


Fig. 2.

Fig. 3.

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WIRE-COVERING MACHINE.

1,258,008.

Specification of Letters Patent.

Patented Mar. 5, 1918.

Application filed May 4, 1915. Serial No. 25,822.

To all whom it may concern:

Be it known that I, RAY P. JACKSON, a citizen of the United States, and a resident of Edgewood Park, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Wire-Covering Machines, of which the following is a specification.

My invention relates to machines for covering wires, cords and the like with fibrous material, and it has for its object to provide a machine of the character indicated which shall be simple in construction, efficient in operation and capable of rapidly handling slivers of cotton, asbestos and the like which have but little tensile strength.

More particularly, the object of my invention is to provide a wire-covering machine in which a sliver, cord or other similar body of fibrous material is drawn from a bobbin or other source of supply, conveyed to the wire to be covered by means of a suction conveyer and detached from the conveyer and directed toward the wire by means of an air blower, the arrangement of parts being such that the sliver is rapidly drawn from the bobbin and applied to the wire without being subjected to sufficient longitudinal pull to break it.

In the accompanying drawings, Figure 1 is a plan view of a machine constructed in accordance with my invention. Fig. 2 is a central longitudinal sectional view, with parts shown in elevation, of the machine shown in Fig. 1, the section being taken substantially along the line II—II of Fig. 1, and Fig. 3 is a side elevational view of a portion of the apparatus shown in Fig. 1.

In the machine shown in the drawings, a round sliver 1 is drawn from a coiled supply 2 by means of cooperating feed rollers 3 and 4 and delivered to a rotary suction conveyer 5 which carries the sliver to a point adjacent to a longitudinally advancing wire 6, where the suction is interrupted, the sliver being detached from the conveyer 5 and directed toward the wire by means of a pressure device of air blower, the nozzle of which is indicated at 7. The supply of sliver is mounted upon a suitable spool or other convenient support 10 which, together with the feed rollers 3 and 4, the conveyer and the blower nozzle 7, is mounted upon a rotatable support 11. The end of the support 11 opposite to the sliver spool 10 is secured,

by means of screws 12, to a counterweight member 13 which is formed on, or secured to, a circular disk 14 that rests movably upon a stationary plate 15 disposed upon a supporting base 16. The disk 14 is provided with a central opening to receive a vertical sleeve 17 which also extends through a corresponding circular opening in the plate 15 and is confined between the supporting member 11 and the base 16. By means of a suitable key 18, cooperating with the sleeve 17 and the plate 15, the sleeve is maintained stationary. Suitable openings 19 and 20 are provided in the support 11 and the base 16, respectively, in alinement with the internal portion of the sleeve 17, and the wire 6 passes through the opening 20, sleeve 17 and opening 19 and is caused to move longitudinally by any suitable mechanism (not shown).

For the purpose of rotating the support 11, gear teeth 21 are formed in the periphery of the disk 14 and are adapted to mesh with the teeth of a spur gear wheel 22 that is secured to the vertical armature shaft 23 of a driving motor 24.

The suction conveyer 5 consists of a ring 25 provided with a considerable number of spaced radial perforations 26. A ring 28 provided with openings 29 corresponding to the radial openings 26, surrounds the ring 25, and a circular cover 30 incloses the rings 25 and 28 and forms a substantially vacuum-tight chamber which is divided into two parts 35 and 36 by means of a stationary partition 37. The compartment 35 is maintained at sub-atmospheric pressure while the compartment 36 is at normal pressure and contains the blower nozzle 7. As shown in Fig. 2, the blower nozzle rests upon the inner surface of the ring 25 and blows air through the openings 26 as they are successively presented to it.

The partition 37 is formed integral with or attached to a standard 40 which is rigidly secured, by means of screws 41 or otherwise, to the disk 14 and also serves to support pipes 42 and 43 that are coupled together for the purpose of conveying air under pressure to the blower nozzle 7. A channel 44 is provided in the standard 40 and is connected, at one end, to the chamber 35 of the suction conveyer for the purpose of maintaining reduced pressure within this compartment.

Since the disk 14 revolves during the operation of the machine, it is necessary to provide means for permitting such revolution to take place without disturbing the vacuum connection to the channel 44 or the air-pressure connection to the pipe 43. To this end, the disk 14 is provided with two concentric circular passages or grooves 50 and 51 which are cut from the bottom of the disk 14 but terminate short of the top of this disk at all points except adjacent to the standard 40, where the circular passage 50 is permanently connected to the channel 44 and the passage 51 is permanently connected to the air pipe 43. Two suitable vertical openings 52 and 53 are provided in the plate 15, the opening 52 being adapted to cooperate with the circular channel 50 and the opening 53 being adapted to cooperate with the circular channel 51. The opening 52 is connected, through a channel 54 and a pipe 55, to a suction pump or other suitable suction-producing device, while the opening 53 is connected, by means of a channel 56 and a pipe 57, to a suitable source of compressed air. It will be readily understood that the arrangement of ports and channels just described permits the disk 14, with its associated apparatus, to revolve around its central axis without disturbing the reduced pressure within the chamber 35 of the suction conveyer or the supply of air under pressure to the blower nozzle 7.

The ring 25 rests partly upon the support 11 and partly upon a circular frame 60 which is disposed in an opening in the support 11 and is rigidly secured to the ring 25. Resting upon an annular ledge 61 formed in the support 11 is a ring 62 which cooperates with the frame 60 to form a ball race in which bearing balls 63 are disposed in suitable grooves.

For the purpose of effecting the rotation of the suction conveyer 5 while it is revolving bodily around the wire 6, a gear ring 64 is secured to the frame 60 and is provided with teeth meshing with the teeth of a stationary pinion 65 that is secured to the vertical sleeve 17.

The feed rollers 3 and 4 are driven at a peripheral speed corresponding to the peripheral speed of the suction conveyer 5 by means of a train of gearing best shown in Figs. 1 and 3. A bracket 70 is secured to the support 11 by means of bolts 71 or otherwise, and supports bearings for a vertical stub shaft 72 that carries a spur gear wheel 73 to mesh with the teeth of the gear ring 64. The stub shaft 72 carries a bevel gear wheel 74 to mesh with a bevel pinion 75 on a horizontal shaft which also carries a miter gear wheel 76 to mesh with a miter gear wheel 77. The miter gear wheel 77 is secured to one end of a shaft 78 which carries the feed roller 4.

In order to limit the transverse movement of the sliver 1, as it is drawn from the bobbin, a semi-circular guide 79 is provided adjacent to the feed roller 4.

In the operation of the machine, a supply of fibrous material in the form of a sliver or cord is placed upon the spool 10 and the end of the sliver or cord is carried through the guide 79, between the feed rollers 3 and 4 and around the periphery of the suction conveyer 5, as shown in Fig. 1, and is wrapped around the wire 6. The feed rollers 3 and 4 draw the sliver from the bobbin, and also flatten the sliver into a ribbon-like strip, as shown in the drawings. The pipes 55 and 57 are connected to the sources of suction and pressure, respectively, and the motor 24 is started. The disk 14 then rotates around the wire 6 carrying with it the suction conveyer and the supply of sliver. The gear ring 64, rolling upon the stationary pinion 65, causes the suction conveyer to rotate with relation to the support 11 and, at the same time, supplies power for rotating the feed rollers 3 and 4. These movements of the conveyer and the feed rollers serve to draw the sliver from the spool 10 with a minimum of longitudinal pull.

It is obvious that numerous variations may be made in the structure which I have shown and described without exceeding the bounds of my invention, and that the machine is capable of applying coverings to straps, rods and other forms of strip material as well as to wires. It is therefore to be understood that the term "wire," in the appended claims, includes all such equivalent strip material, and that my invention comprehends all such changes and rearrangements as fall within the scope of the appended claims.

I claim as my invention:

1. A wire-covering machine comprising a suction conveyer for transferring covering material to the wire to be covered, and an air blower for detaching the said material from the said conveyer adjacent to the wire.

2. A wire-covering machine comprising a suction conveyer for transferring covering material to the wire to be covered, means for interrupting the suction adjacent to the wire, and an air blower for detaching the said material from the conveyer and directing it toward the wire.

3. A wire-covering machine comprising means for bodily carrying a supply of sliver, cord, or similar covering material around a longitudinally advancing wire, and means comprising a suction conveyer for transferring a continuous strip of the said covering material to the said wire.

4. A wire-covering machine comprising means for supporting a coiled supply of covering material, means for rotating the said supporting means around a longitudi-

nally advancing wire, and a suction conveyer for transferring the said covering material to the said wire.

5 5. A wire-covering machine comprising means for supporting a coiled supply of covering material, means for rotating the said supporting means around a longitudinally advancing wire, a suction conveyer for transferring the said covering material to the said wire, and means for detaching the said material from the said conveyer adjacent to the wire.

15 6. A wire-covering machine comprising means for supporting a coiled supply of covering material, means for rotating the said supporting means around a longitudinally advancing wire, a rotary suction conveyer mounted on the said supporting means for transferring the said covering material to the said wire, and an air-blower for detaching the said material from the said conveyer adjacent to the wire.

20 7. A wire-covering machine comprising means for supporting a supply of sliver, cord or similar body of fibrous material adjacent to a wire to be covered, a suction conveyer for transferring the said material to the said wire, rollers for drawing the sliver from the said supply and feeding it to the said conveyer, and means for effecting

relative rotation of the said supporting means, rollers and conveyer with respect to the said wire.

8. A wire-covering machine comprising a rotatable support provided with an axial opening for receiving the wire to be covered, means for rotating the support, a circular suction conveyer rotatably mounted on the said support, rollers disposed to rotate with the said support for feeding covering material to the said conveyer, and means dependent upon the rotation of the said support for rotating the said conveyer and the said feed rolls.

9. A wire-covering machine comprising a rotatable conveyer of ring-shape having radial ports, a stationary partition dividing the space inclosed by the conveyer into two compartments, means for maintaining one of the said compartments at sub-atmospheric pressure to draw a continuous strip of wire-covering material to a position on the conveyer and means in the other compartment for forcing air through the ports to discharge the wire-covering material at a position adjacent the wire.

In testimony whereof, I have hereunto subscribed my name this 28th day of April, 1915.

RAY P. JACKSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."