57. TEXTILES, SPINNING, TWISTING AND TWINING.
11
Patented.

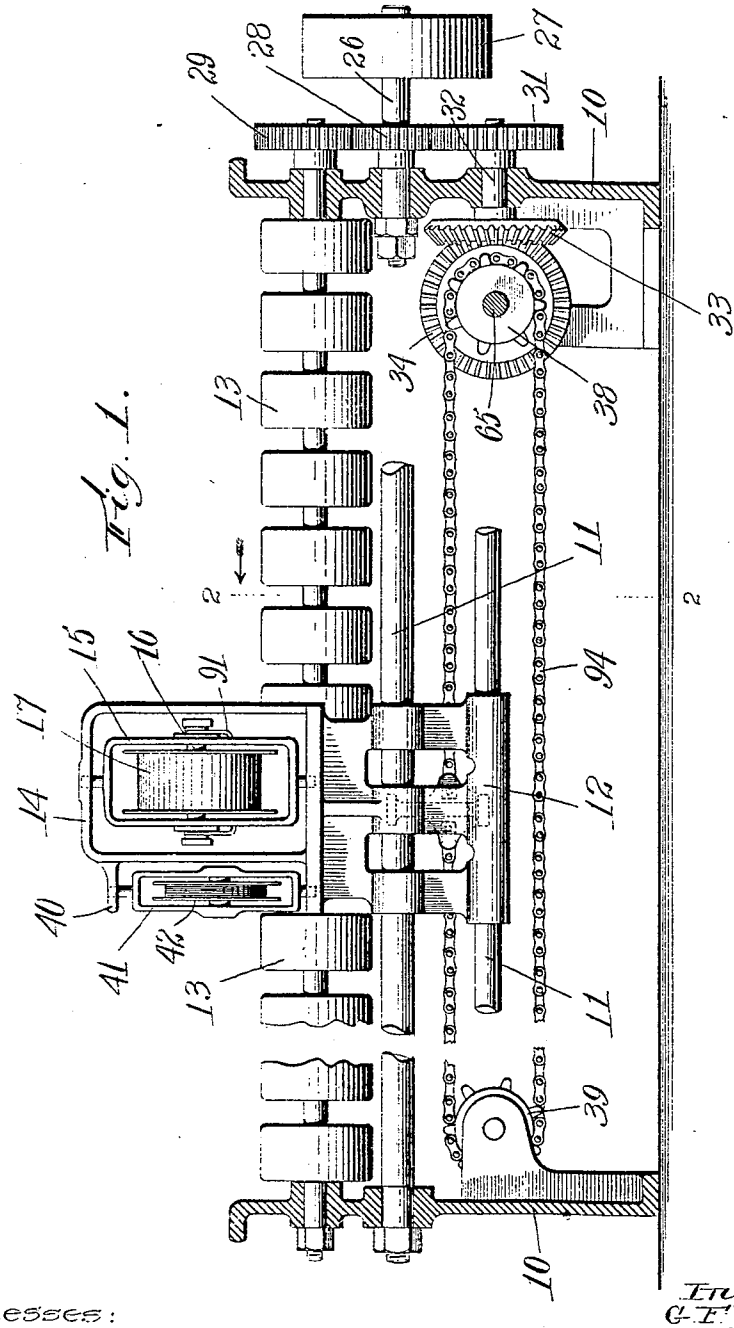
No. 857,141. PATENTED JUNE 18, 1907.

G. F. & G. M. WRIGHT.
H. E. WRIGHT, ADMINISTRATRIX OF G. F. WRIGHT, DEC'D.

MACHINE FOR COVERING BUNDLES OF WIRE.

APPLICATION FILED MAR. 7, 1903.
3 SHEETS—SHEET 1.

Fig. 1.



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Fig. 4.

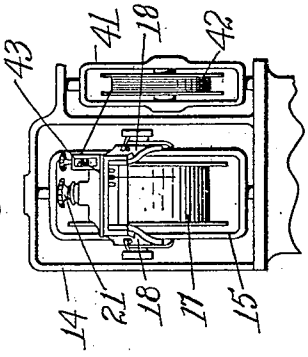


Fig. 5.

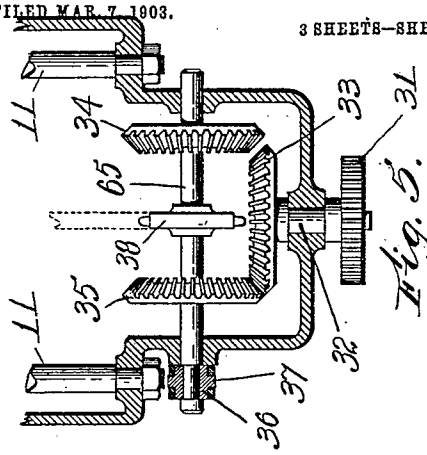


Fig. 3.

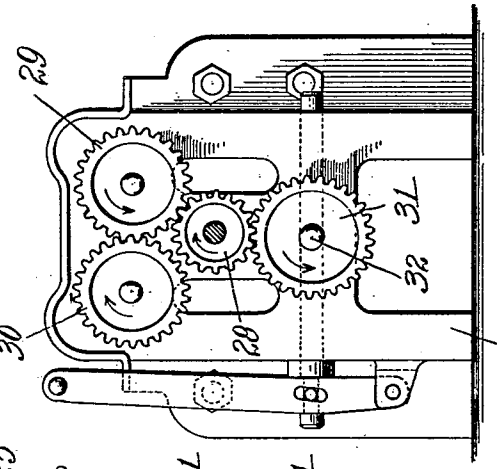
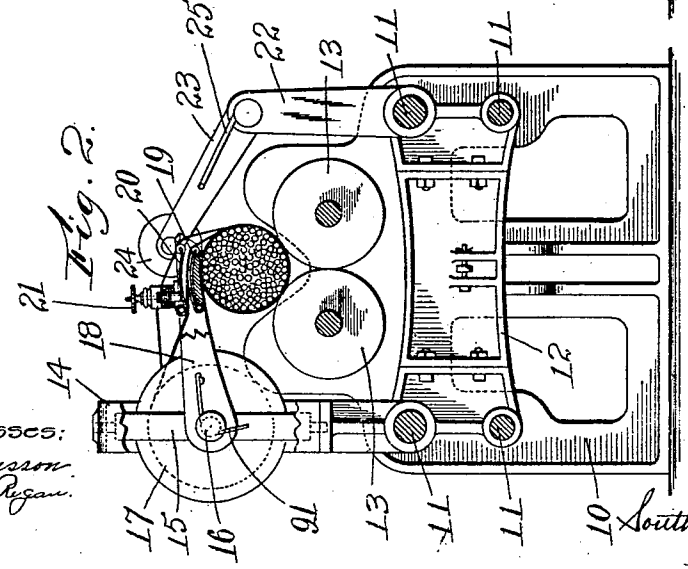


Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 8.

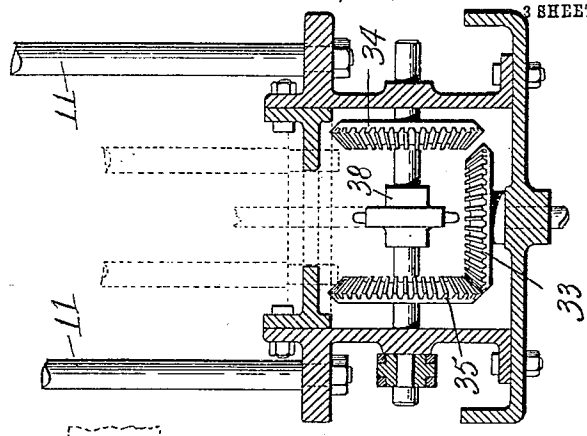


Fig. 7.

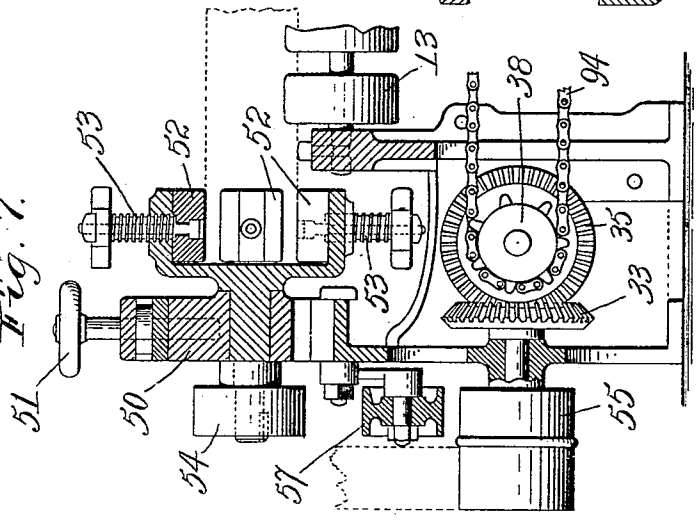
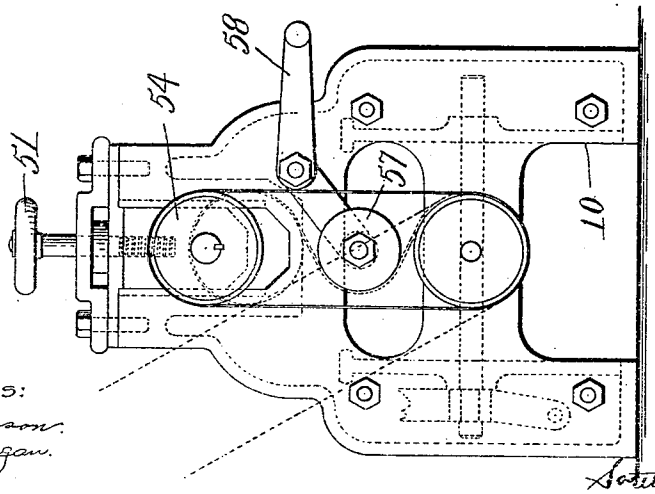


Fig. 6.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR COVERING BUNDLES OF WIRE.

No. 857,141. Specification of Letters Patent. Patented June 18, 1907.

Application filed March 7, 1903. Serial No. 146,649.

To all whom it may concern:

Be it known that we, GEORGE F. WRIGHT and GEORGE M. WRIGHT, citizens of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Machine for Covering Bundles of Wire, of which the following is a specification.

This invention relates to a machine which has been especially designed for wrapping paper around bundles of straight wire rods or similar articles.

The especial object of this invention is to provide a strong, simple, and efficient machine for covering bundles of straight wires with a spiral winding of paper; to provide means for regulating the tension of the paper, so that the same may be wrapped with different degrees of tightness; and to provide for fastening the paper in place with a spiral binding or wire if desired.

To these ends, this invention consists of the machine for covering bundles of straight wire, and of the combinations of parts hereinafter described and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawing, Figure 1 is a side view partially in section of a machine constructed according to this invention. Fig. 2 is a transverse sectional view of the same. Fig. 3 is an end view thereof. Fig. 4 is a detail view of part of the carriage. Fig. 5 is a fragmentary sectional plan view of the driving connections. Fig. 6 is an end view illustrating a modified form of construction. Fig. 7 is a sectional view of the same. and Fig. 8 is a fragmentary sectional plan view of the driving connections employed in connection with the modified construction illustrated in Figs. 6 and 7.

In shipping the better grades of wire rods, metal-strips, or similar articles, it is now sometimes the practice to inclose the bundles in a covering of narrow paper wound spirally thereon by hand. This practice is comparatively slow and expensive. The especial object of our present invention is to provide a machine for applying wrappings to bundles of this character, so as to produce more tightly wrapped and uniform bundles at less expense than has heretofore been possible where hand labor is employed. To this end our machine for covering bundles of straight wire consists essentially of a web-roll of narrow paper; means for supporting and rotating a bundle of straight rods or wires; and means for producing a relatively longitudinal movement between the web-roll and bundle, whereby the paper will be wrapped spirally around the bundle. The bundle of wires which is to be covered preferably rests on a pair of supporting rolls, and the bundle may be rotated either by applying power directly to one end thereof, or by driving the supporting rolls. The relative longitudinal motion is preferably produced by feeding the carriage containing the paper-roll back and forth, so that the bundle may be inclosed in a number of layers, if desired. Simultaneously with the application of the paper to the bundle, a binding wire is also preferably employed to tighten and fasten the successive convolutions. To secure a proper tension of the paper as it is drawn from the web-roll, and to regulate the same so that the paper will be wound with different degrees of tightness, we preferably provide a special tensioning and paper-pressing construction.

Referring to the accompanying drawings for a detail description of a machine constructed according to our invention, as shown in Fig. 1, the frame of our machine may consist of end frames or castings 10, which are connected by four guide rods 11. Longitudinally movable on the guide rods 11 is a carriage 12. Journaled in the end frames 10 are a pair of supporting rolls 13, which may be continuous from end to end, or may have separate sections for engaging and supporting a bundle of wires, as shown.

The web-roll for supplying the paper, and the reel for supplying the binding wire, may be mounted in the carriage 12 in any desired manner. As herein illustrated, the carriage 12 is provided with a frame 14, and pivoted on vertical trunnions in the frame 14 is a swinging frame 15. Journaled on a shaft 16 in the swinging frame 15 is a narrow web-roll or spool of paper 17.

The construction which we preferably em-

ploy for tensioning the paper as it is drawn from the web-roll is most clearly illustrated in Figs. 2 and 4. As shown in these figures, a guide frame 18 is pivoted on the shaft 16, and is normally held down into engagement with the top of the bundle being covered by springs 91. The paper as it is drawn from the web-roll passes between two clamp jaws. The lower clamp jaw 19 is secured in fixed position in the frame 18, and the upper clamp jaw 20 is pivoted at one end, and is normally forced down by a spring-pin having a nut 21 threaded thereon. By means of this construction the normal distance between the jaws 19 and 20 may be regulated by the nut 21, and the upper jaw will be permitted to lift to permit the passage of folds or bunches in the paper, if required. By means of this construction we have provided efficient means for securing the proper tension of the paper as it is drawn from the web-roll, which will maintain the same pressure upon the paper drawn from a full web-roll as when the paper is nearly exhausted.

The guide frame 18 acts as a presser-arm in smoothing the paper around the bundles of wire. To assist in this operation, we preferably also provide a presser-roll, as shown in Fig. 2. The carriage is provided with upright arms 22 pivoted in which are arms 23 normally forced down by springs 25, and carrying the presser-roll 24.

Any desired form of gearing may be employed for operating the parts, and for feeding the carriage. As shown in Fig. 1, 26 designates a main driving shaft to which power is applied from a pulley 27. Fastened on the driving shaft 26 is a gear 28 which meshes with and drives a gear 29 secured on the shaft of one of the supporting rolls 13. The gear 29 also meshes with and drives a gear 30 secured on the shaft of the other supporting roll 13. Meshing with the under side of the gear 28 is a gear 31 secured on a shaft 32. At its inner end the shaft 32 is provided with a bevel gear 33, which meshes with either one of the bevel gears 34 or 35 secured on a longitudinally movable transverse shaft 65. At its end the shaft 65 is provided with a loose collar 36 having pins 37 engaging slots in a controlling frame or handle 36^a which may be operated manually or by power. Secured on the shaft 65 is a sprocket-wheel 38. Passing over the sprocket-wheel 38 and around a sprocket-wheel 39 at the other end of the machine is a chain 94 having its ends connected to the carriage 12. By means of this construction by setting the handle 36^a to different positions, the carriage may be started in either direction, or by moving both the bevel gears 34 and 35 out of mesh with the bevel gear 33, the carriage may be stopped.

In practice a layer of paper is preferably wound spirally along the entire length of the bundle of wires being covered, and the carriage is then stopped during one or two revolutions of the bundle of wires so as to more securely fasten and wrap the bundle at one end before the carriage is started on its return travel to wind on a successive covering of paper in the opposite direction.

In most cases we preferably feed in a binding wire along with the paper to more firmly bind down the successive convolutions. As shown most clearly in Figs. 1 and 4, the frame 14 is provided with an arm 40, and pivoted on vertical trunnions in the arm 40 and body portion of the carriage 12, is a swinging frame 41, journaled in which is a spool of wire 42. To secure a proper tension of the binding wire, the wire is preferably carried through rollers, or a friction device 43, which may be regulated by a set-screw, as shown in Fig. 4. We preferably also provide a number of different guiding eyes, as shown in Fig. 4, so that the position of the binding wire may be adjusted according to the extent that successive convolutions of paper are allowed to overlap.

In some cases instead of driving the supporting rolls for the purpose or rotating the bundle of wire, power may be directly applied to the bundle. A construction for this purpose is illustated in the third sheet of drawings. As shown in Figs. 6 and 7, one of the end frames of the machine may be provided with ways for receiving a vertically movable box 50, which may be moved up and down by a hand-wheel 51. Journaled in the vertically movable box 50 is a shaft which is provided at its inner end with a chuck having clamp jaws 52 which may be clamped on to the end of a bundle of wire by clamping screws 53. The chuck after having been fastened on to the end of a bundle of wires is moved up or down as required, so that the bundle will rest upon the supporting rolls, and the chuck may be driven from a pulley 54 which may be belted from a pulley 55, and in this construction the power may be applied directly to a driving pulley turning with the pulley 55. To take up any slackness in the belt connecting the pulleys 54 and 55 when the chuck is moved up or down, as required, we provide a tightening pulley 57 which may be set to different positions by an arm 58. By means of this construction the bundle of wires will be positively turned so as to secure a more positive wrapping of the paper, although for ordinary uses it is ordinarily sufficient to drive the supporting rolls.

In practice the supporting rolls co-operate in turning or rotating a bundle of wire, so that the wires of a bundle need not be fastened together, but can be simply laid loosely into place. When this is done it may be necessary to pass the first coil of paper around the bundle by hand. Instead of do-

ing this, the wire bundles may be tied or bound together before being put in place in the machine.

We are aware that numerous changes may be made in practicing our invention by those who are skilled in the art without departing from the scope thereof as expressed in the claims.

We are also aware that certain features of our machine may be used in different structures and in different combinations. For example, the paper tensioning devices which we have herein illustrated and claimed are equally applicable to machines for covering coils of wire or other devices of this character. We do not wish, therefore, to be limited to the constructions we have herein shown and described, but what we do claim and desire to secure by Letters Patent of the United States is:—

1. In a machine of the class described, the combination of a pair of horizontal cylindrical rolls for supporting a bundle of rods or wires, means for applying power to turn the bundle, a support for a web-roll of narrow paper, and means for producing relative longitudinal movement between the roll of paper and bundle, whereby the paper will be wrapped spirally around the bundle.

2. In a machine of the class described, the combination of a pair of horizontal cylindrical rolls for supporting a bundle of rods or wires, means for turning said rolls by power to rotate the bundle, a carriage, a frame supported on top and bottom vertical trunnions in the carriage, and adapted to receive a web-roll of narrow paper, a presser-arm extending from the frame and bearing upon the bundle of wires, and a paper clamp for adjustably tensioning the paper, said parts being combined so that the paper will be wound spirally around the bundle.

3. In a machine for covering bundles of straight rods or wires, the combination of means for supporting and rotating a bundle of rods or wires upon a horizontal axis, a support for a roll of narrow wrapping material, a support for a reel of binding wire, means for producing relative longitudinal movement between said supports and said supporting means, and guides for the binding wire for directing the binding wire into line with the wrapping material as the same winds around the bundle of rods or wires.

4. In a machine of the class described, the combination of a pair of horizontal cylindrical supporting rolls for supporting a bundle of rods or wires, means for rotating the bundle of rods or wires by applying power to turn the supporting rolls, a carriage having a supporting frame pivoted on top and bottom vertical trunnions for holding a roll or spool of narrow paper, a presser-arm carried by the carriage and having tension devices for the paper, and a spring-pressed top roll, said parts co-operating so that the bundle of rods or wires being covered will be held in place between the supporting rolls, the presser arm, and top roll.

In testimony whereof we have hereunto set our hands, in the presence of two subscribing witnesses.

GEO. F. WRIGHT.
GEO. M. WRIGHT.

Witnesses:
FRED J. BASSETT,
CHARLES H. SIBLEY.