June 2, 1928. 1,673,444

J. DERRY

ROLL HOLDER FOR WRAPPING MACHINES

Original Filed Feb. 23, 1924

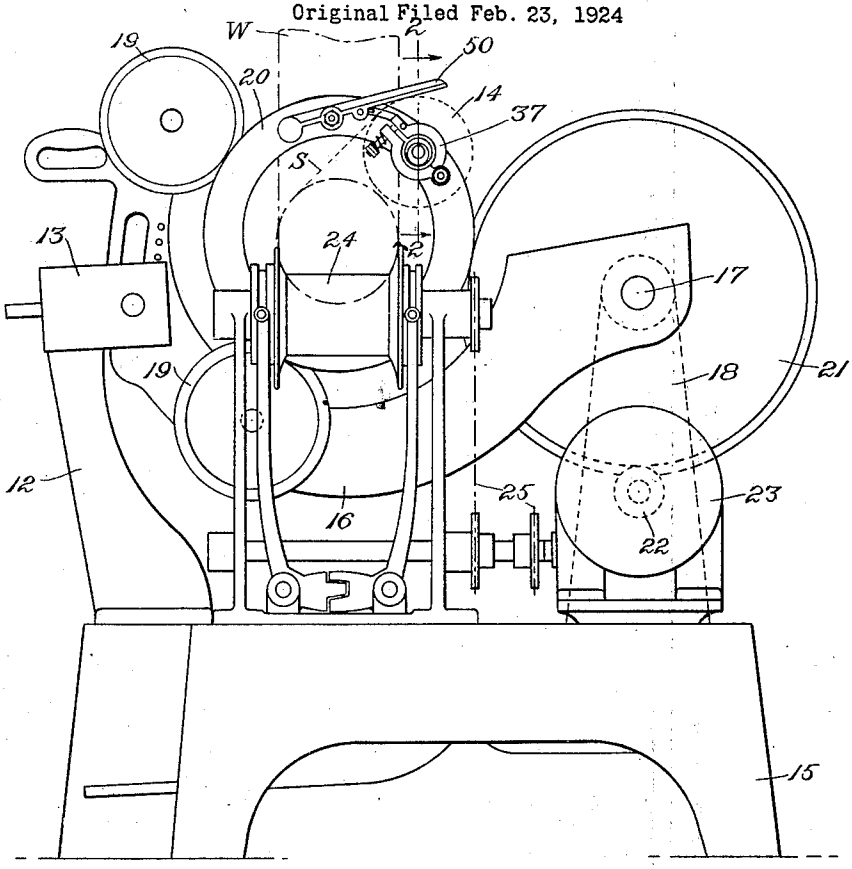
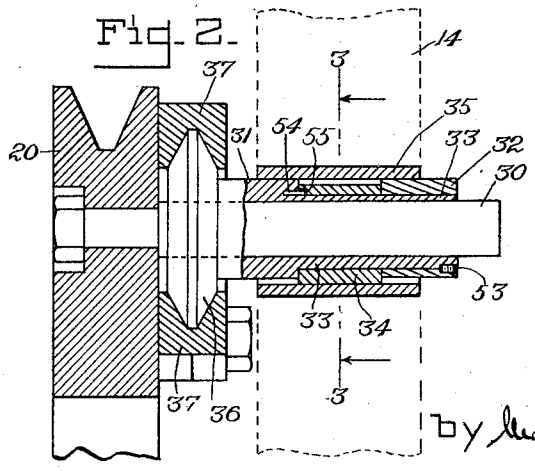


Fig. 1.

Fig. 2.



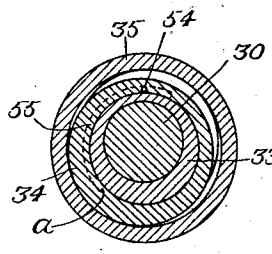


Fig. 3.

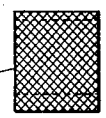


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ROLL HOLDER FOR WRAPPING MACHINES.

Original application filed February 23, 1924, Serial No. 694,582. Divided and this application filed May 28, 1925. Serial No. 33,401.

This invention relates to spindles for supporting rolls of paper or similar material and especially, although not exclusively, to roll-holding spindles employed in connection with tension mechanism of the type shown and described in my prior application filed February 23, 1924, Serial No. 694,582, of which this case is a division. The general object of the invention is to provide an improved roll-holding spindle of simple construction having means automatically operative upon incipient rotation of the roll with respect to the spindle for locking the former to the latter for rotation in unison therewith, so that, by applying suitable braking means to the spindle, the rotation of the roll will be resisted.

The more particular objects of the invention, together with means whereby the same may be carried into effect, will best be understood from the following description of one form and application thereof illustrated in the accompanying drawings. It will be understood, however, that the particular construction and application described and shown have been chosen for illustrative purposes merely, and that the invention, as defined by the claims hereunto appended, may be otherwise practised without departure from the spirit and scope thereof.

In said drawings:

Fig. 1 is a front elevation of a wrapping machine having the invention applied thereto.

Fig. 2 is an enlarged section taken substantially on the line 2—2, Fig. 1.

Fig. 3 is a still further enlarged section taken substantially on the line 3—3, Fig. 2.

Fig. 4 is a detail view of the roll gripping eccentric.

The invention is herein illustrated as applied to a machine of well-known type for wrapping annular objects such, for example, as automobile tires, coils of wire, etc. The frame of said machine comprises a base 15 and a yoke 16 which is pivotally mounted on a shaft 17 journalled in an upright 18 rising from the base 15, said yoke being adjustable about the axis of said shaft, and being secured in adjusted position by a clamp 13 carried by a second upright 12. The yoke 16 is provided with guide rollers 19 for an annular shuttle 20 on which is rotatably mounted a roll 14 of paper or other wrapping material. The shuttle 20 is rotated by a friction disk 21 secured to the shaft 17 and driven by a friction pinion 22 on the shaft of an electric motor 23. The tire or other work W to be wrapped is carried by work supporting rollers 24 (only one of which is shown in Fig. 1) which are driven, through connections generally indicated at 25, from the motor 23, the arrangement being such that the work W is turned relatively slowly with respect to the speed of rotation of the shuttle 20, so that a strip S of paper or other wrapping material is drawn from the roll 14 and wrapped spirally about the work.

In accordance with the invention claimed in my prior application above referred to, means are provided for applying a substantially constant tension to the strip S as it is led from the roll 14 to the work W in order to cause said strip to be wrapped tightly and evenly about the work. Said means, as shown in said application, comprises a brake 37 applied to the roll-holding spindle and means, including a lever 50 engaging the periphery of the roll, for automatically proportioning the force with which said brake is applied to the diameter of the roll. In order that a braking force applied to the spindle may have the effect of resisting the rotation of the roll, it is necessary that the roll be locked to the spindle, and the present invention relates to means for accomplishing this result.

For convenience of construction, the roll-supporting spindle preferably comprises a stud 30 (see Figs. 2 and 3) projecting from the front face of the shuttle, a sleeve 31 rotatably mounted on said spindle and formed with a brake drum portion 36 for co-operation with the brake 37 and with a reduced eccentric extension 33, and a sleeve or collar 32 secured to the outer end of said extension, as by a set screw 53. The sleeves 31 and 32 collectively constitute a substantially unitary spindle member rotatably mounted on the stud 30 and comprising coaxial portions 31 and 32 of equal diameter and an intermediate eccentric portion 33 of reduced diameter. Rotatably mounted on the reduced eccentric portion 33 of the spindle is an eccentric 34 of a diameter substantially

equal to or slightly greater than the diameter of the sleeve portions 31 and 32 and having a knurled or roughened exterior surface, as shown in Fig. 4. The roll 14 is provided with a central, hollow, paper or similar core 35 which is of an interior diameter substantially equal to or slightly greater than the major exterior diameter of the built-up spindle. When the roll is to be placed upon the spindle, the eccentric 34 is turned upon the eccentric 33 in a clockwise direction from the position shown in Fig. 3 into a position substantially concentric with the sleeves 31 and 32. For the convenience of the operator, the latter position is automatically determined by the engagement of a pin 54 with the end *a* of a groove 55 formed in the adjacent end of the eccentric 34. When the roll has been placed on the spindle, incipient rotation thereof, in a counter-clockwise direction, with respect to the spindle, induced by withdrawal of the strip S, will cause the eccentric 34, by the frictional engagement of its roughened surface with the interior of the core 35, to be turned with said roll and thereby move outwardly to grip said core and bind the same firmly upon the spindle so as to be held against rotation with respect thereto. It will be seen that the greater the force tending to turn the roll upon the spindle, the greater will be the wedging action of the eccentric 34 tending to resist such turning.

Having thus described my invention, I claim:—

1. A roll holding spindle having a roll receiving portion, a reduced eccentric portion, and a unitary roll gripping eccentric rotatably mounted on said eccentric portion.

2. A roll holding spindle comprising, in combination, a fixed stud, a sleeve rotatably mounted thereon, said sleeve having a reduced eccentric portion, and a roll gripping eccentric rotatably mounted on said eccentric portion.

3. A roll holding spindle having a concentric roll receiving portion, a reduced eccentric portion, a unitary roll gripping eccentric surrounding and rotatably mounted on said eccentric portion adjacent said roll receiving portion, and means including a relatively fixed collar concentric with said roll receiving portion and mounted on said eccentric portion beyond said rotatable eccentric for retaining said eccentric in place on said eccentric portion.

4. A roll holding spindle having a concentric roll-receiving portion and an intermediate reduced eccentric portion, a unitary roll gripping eccentric surrounding and rotatably mounted on said reduced portion, and means controlling the position of said eccentric including a pin in said roll-receiving portion and a slot in said eccentric.

In testimony whereof I affix my signature.

JASPER DERRY.