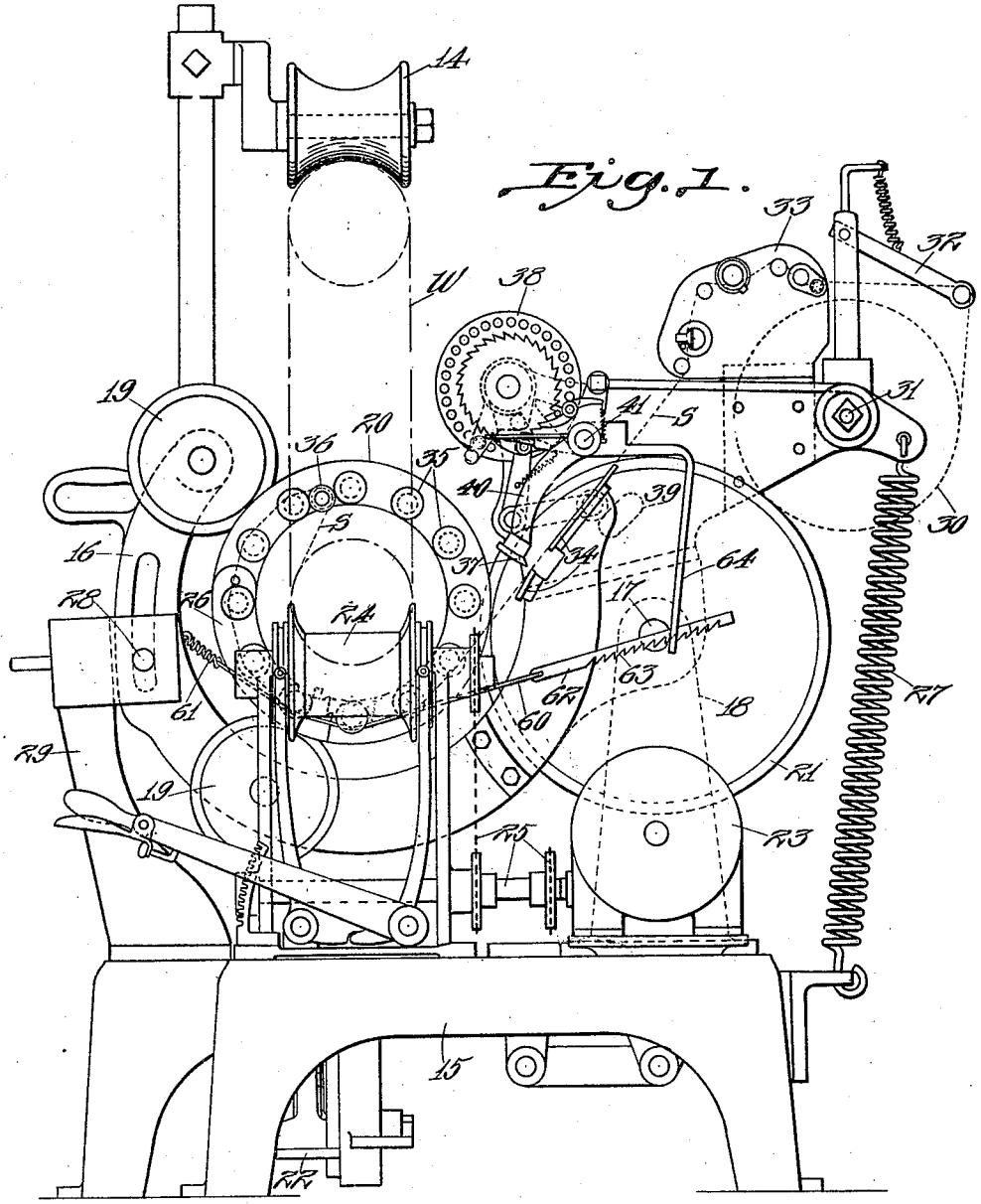
July 8, 1924. 1,500,984

J. DERRY

WRAPPING MACHINE

Filed May 9, 1923 2 Sheets-Sheet 1

Fig. 1.



Inventor:
Jasper Derry,
by Macleod, Calvin, Copeland & Dike
Attorneys.

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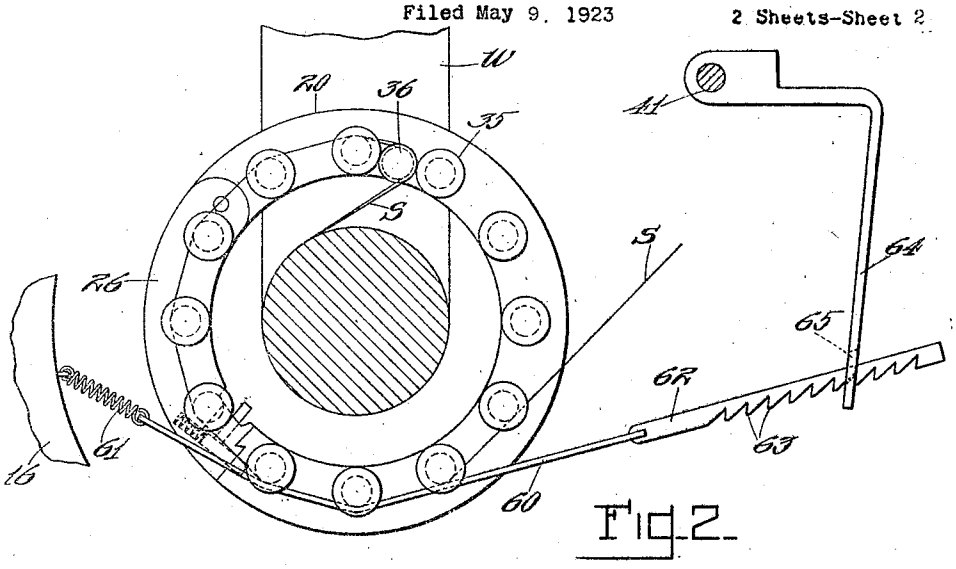


Fig. 2.

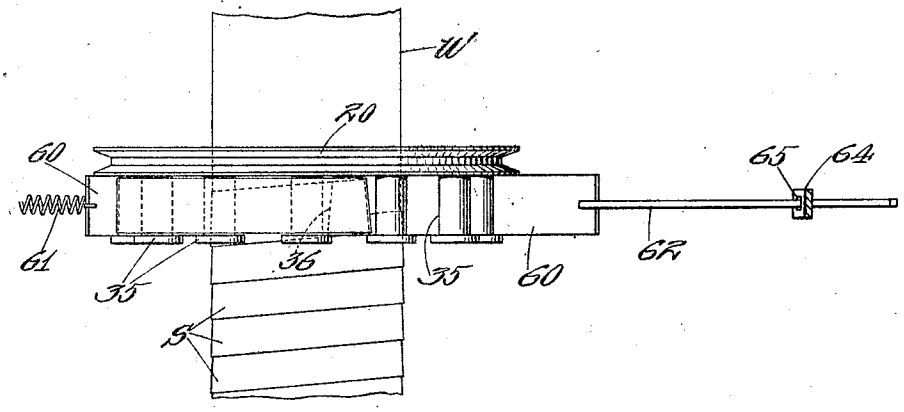


Fig. 3.

Inventor:
Jasper Derry,
by Macleod, Calvin, Hoyland & Dike
Attorneys.

Patented July 8, 1924. 1,500,984

UNITED STATES PATENT OFFICE.

JASPER DERRY, OF MEDFORD, MASSACHUSETTS, ASSIGNOR TO ANDREW TERKELSEN, OF BOSTON, MASSACHUSETTS.

WRAPPING MACHINE.

Application filed May 9, 1923. Serial No. 637,618.

To all whom it may concern:

Be it known that I, JASPER DERRY, a citizen of the United States, residing at Medford, county of Middlesex, and State of Massachusetts, have invented a certain new and useful Improvement in Wrapping Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to wrapping machines of the general type shown and described in an application for Letters Patent filed June 21, 1921, by George W. Prouty, Serial No. 479,410, and adapted primarily for wrapping annular objects, such, for example, as automobile tires, coils of wire, etc.

A machine of this type comprises a work support by which the object to be wrapped is gradually turned; an annular shuttle which is rotated about the work as it is moved therethrough; a reel or the like removed from the shuttle, for supplying thereto wrapping material in the form of a continuous strip which is wrapped about the shuttle as the latter is rotated to wrap said strip about the work; and means between the shuttle and the source of supply for severing the strip of wrapping material after a sufficient quantity thereof has been wrapped upon the shuttle to complete the wrapping of a given object. The present invention has for its purpose to provide means for controlling the portion of the strip so severed from the source of supply in order that the same may be held in place about the shuttle as the latter rotates and be fed to the work under the proper tension until it has been completely wrapped about the work.

The foregoing and other 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 or embodiment thereof illustrated in the accompanying drawings. It will be understood, however, that the particular construction and arrangement 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 the complete machine.

Fig. 2 is an enlarged front elevation of the shuttle together with the adjustable friction band cooperating therewith to hold and control the severed portion of the strip of wrapping material.

Fig. 3 is a plan view of the parts shown in Fig. 2.

The frame of the 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. The yoke 16 is provided with guide rollers 19 for an annular shuttle 20 which is rotated by a driving member in the form of a friction disk 21 secured to the shaft 17 and driven through connections (not shown in detail) under the control of a starting treadle 22 from an electric motor 23. The tire or other work W to be wrapped is held by a weighted roller 14 upon 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 will be turned relatively slowly with respect to the speed of rotation of the shuttle 20. Said shuttle is formed with a hinged segment 26 normally closing a gap through which the work W may be inserted, while the yoke 16 may be adjusted about the axis of the shaft 17 to center the shuttle 20 with respect to annular objects of different sizes, said yoke being counterbalanced by a spring 27 and being locked in adjusted position by means of a clamp 28 carried by an upright 29 rising from the base 15.

The wrapping material, in the form of a continuous strip S of paper, is supplied from a roll 30 supported by a reel or spindle 31 carried by a yoke 16. Said paper passes from the roll 30 over a tension device 32, thence through a folding device designated as a whole in Figure 1 by the numeral 33, and thence over a guide plate 34 to the shuttle 20. Said shuttle 20 comprises an annulus having on one face a circular series of rollers 35 about which the

strip S is wrapped when the shuttle is rotated, said strip being fed from the shuttle about a guide roller 36 to the work W. Between the shuttle 20 and the source of supply 30 there is provided a cutting mechanism comprising a knife 37 carried by an arm 40 on a shaft 41. Said knife 37 cooperates with a portion of the guide plate 34 to sever the strip S when a sufficient length thereof has been wound around the shuttle rollers 35 to complete the wrapping of the work W. The shaft 41 is automatically rocked to actuate the knife 37, after a predetermined number of rotations of the driving disk 21, by a counting mechanism 38 actuated at each rotation of said driving disk by a cam projection 39 thereon, said counting mechanism being manually adjustable in accordance with the size of the articles wrapped.

From the foregoing the purpose, location and function of the parts referred to will be sufficiently understood for the purpose of the present case. With the exception of those hereinafter described, and in so far as the others enter into combination therewith, as pointed out in the claims, these parts are not involved in the present invention and may be of any suitable construction and arrangement.

The means for controlling the severed portion of the strip comprises an automatically operated and manually adjustable friction device, which is shown enlarged in Figs. 2 and 3, and which consists of a band 60 secured to the yoke 16 at one end by means of a coil spring 61. Attached to the other end of said band is a link 62 having on its lower side a series of notches or teeth 63. An arm 64 is attached to and operated by the shaft 41, forming a part of the measuring and cutting mechanism, and is provided with an opening 65 near its lower extremity. The link 63 passes through the said opening 65, and the friction band 60 is consequently supported by and connected with the arm 64.

In operation, the wrapping material S is fed across the plate 34 shown in Fig. 1 past the knife 37 and onto the shuttle rollers 35. In commencing the wrapping operation the strip S is placed by the operator around the series of annular rollers 35 and led over the guide roller 36 to the work W. The machine is then started, and the material S is wound about the shuttle rollers 35 while the work is being wrapped, the wrapping material being drawn from the shuttle over the roller 36 as the shuttle revolves. When sufficient material has been wound around the rollers 35, the measuring mechanism 38 operates to rock the shaft 41, thereby causing the knife 37 to sever this portion of the strip S from the source of supply. After the strip S has been severed, part of the tension or feed resisting action of the various parts is removed, and there is nothing to hold the severed portion in place about the shuttle. In order to secure the necessary tension on the remaining part of the wrapping material during the remainder of the wrapping operation, as well as to prevent said material from being thrown off the shuttle, the tension mechanism above described is brought into operation. Before starting the machine, the operator, by means of engagement of the teeth 63 on the link 62 with the arm 64, adjusts said link 64 to the proper position. Since the arm 64 is secured to the shaft 41 of the measuring and cutting mechanism, when the latter is actuated the arm 64 is raised, so as to cause the tension band 60 to bear on the portion of the strip S rotating with the shuttle. After the wrapping operation is completed, the knife 37 is raised to the inoperative position, thus lowering the tension band 60 from contact with the shuttle rollers 35. By use of the above described tension device, which controls the severed portion of the wrapping material substantially throughout its length and holds the same tightly in place about the shuttle, there is no waste of wrapping material, no injury thereto due to flapping of the loose end, it being possible to continue the wrapping operation until practically all the wrapping material has been drawn from the shuttle rollers.

Certain features shown and referred to herein are covered by claims of other applications for Letters Patent as follows:—

As to the driving mechanism, application Ser. No. 637,655 filed May 9, 1923 by George W. Prouty, Philip O. Tengberg and myself;

As to the paper folder, Ser. No. 637,656 filed May 9, 1923 by George W. Prouty and myself; and

As to the means for supporting and adjusting the shuttle-carrying yoke, Ser. No. 637,657 filed May 9, 1923 by George W. Prouty and myself.

Having thus described my invention, I claim:—

1. In a wrapping machine, in combination, an annular shuttle, means removed from said shuttle for supplying a strip of wrapping material thereto, means for rotating said shuttle to wrap said strip about the work, means for severing said strip between the shuttle and the source of supply, and means engaging the severed portion of said strip adjacent its free end for holding and controlling the same until it is completely wrapped about the work.

2. In a wrapping machine, in combination, an annular shuttle, means removed from said shuttle for supplying a strip of wrapping material thereto, means for rotating said shuttle to wrap said strip about the shuttle and thence about the work, and

means for pressing against the shuttle the portion of the strip wrapped thereabout.

3. In a wrapping machine, in combination, an annular shuttle, means removed from said shuttle for supplying a strip of wrapping material thereto, means for rotating said shuttle to wrap said strip about the work, means for severing said strip between the shuttle and the source of supply, and means controlled by said severing means cooperating with said shuttle for holding and controlling the severed portion of the strip until it is completely wrapped about the work.

4. In a wrapping machine, in combination, an annular shuttle, means removed from said shuttle for supplying a strip of wrapping material thereto, means for rotating said shuttle to wrap said strip about the work, means controlled by the rotation of said shuttle for severing said strip between the shuttle and the source of supply, and means controlled by said severing means cooperating with said shuttle for holding and controlling the severed portion of the strip until it is completely wrapped about the work.

5. In a wrapping machine, in combination, an annular shuttle, means removed from said shuttle for supplying a strip of wrapping material thereto, means for rotating said shuttle to wrap said strip about the work, means for severing said strip between the shuttle and the source of supply, and means for pressing the severed portion of the strip against the shuttle to hold and control the same until it is completely wrapped about the work.

6. In a wrapping machine, in combination, an annular shuttle, means removed from said shuttle for supplying a strip of wrapping material thereto, means for rotating said shuttle to wrap said strip about the work, means for severing said strip between the shuttle and the source of supply, and means for pressing the severed portion of the strip against the shuttle to hold and control the same until it is completely wrapped about the work, said last named means being adjustable to control the degree of pressure exerted thereby upon the strip.

7. In a machine of the class described, an annular shuttle through which the work is adapted to be moved, means for rotating said shuttle, means on said shuttle for receiving a strip of wrapping material to be fed to the work, and a friction band adapted to press said material against said last named means to provide a tension on said material as it is fed to the work.

8. In a machine of the class described, an annular shuttle through which the work is adapted to be moved, means for rotating said shuttle, means on said shuttle for receiving a continuous strip of wrapping material from the source of supply, measuring and severing mechanism removed from said shuttle for automatically severing a predetermined length of said material from the said source of supply, and a friction band adapted to press said material against the strip receiving means on said shuttle to provide a tension on said material as it is fed to the work, said friction band being brought into operative position by said measuring and severing mechanism.

9. In a machine of the class described, an annular shuttle through which the work is adapted to be moved, means for rotating said shuttle, means on said shuttle for receiving a continuous strip of wrapping material from the source of supply, measuring and severing mechanism removed from said shuttle for automatically severing a predetermined length of said material from the said source of supply, a friction band adapted to press said material against the strip receiving means on said shuttle to provide a tension on said material as it is fed to the work, and an adjustable connection between said friction band and said measuring and severing mechanism for tightening the former when the latter is operated to sever the strip.

In testimony whereof I affix my signature.

JASPER DERRY.