

Feb. 23 , 1926.

1,574,438

F. M. PIERCE

WRAPPING MACHINE

Filed Jan. 10, 1924

3 Sheets-Sheet 1

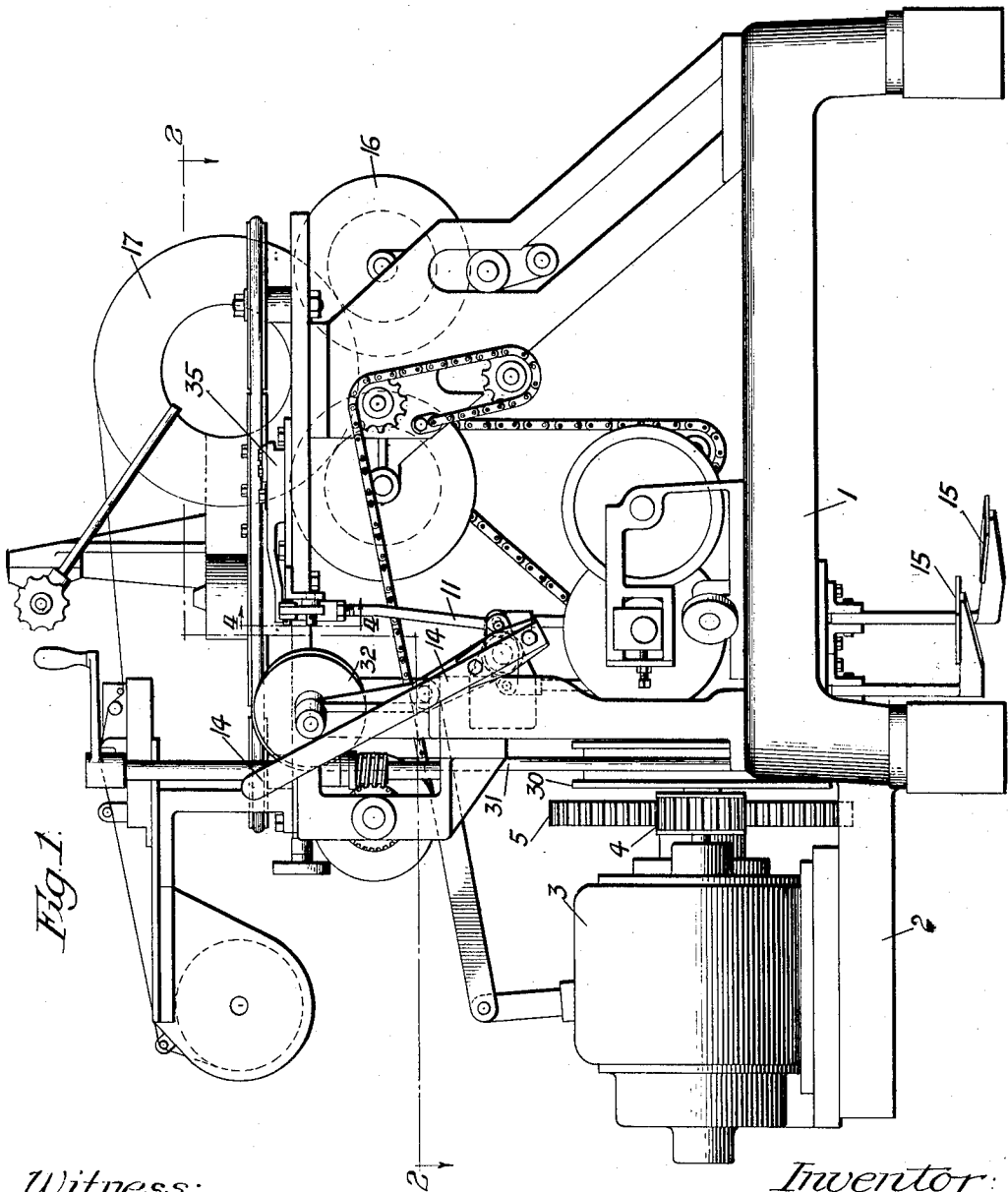


Fig. 1.

Witness:

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Feb. 23 , 1926.

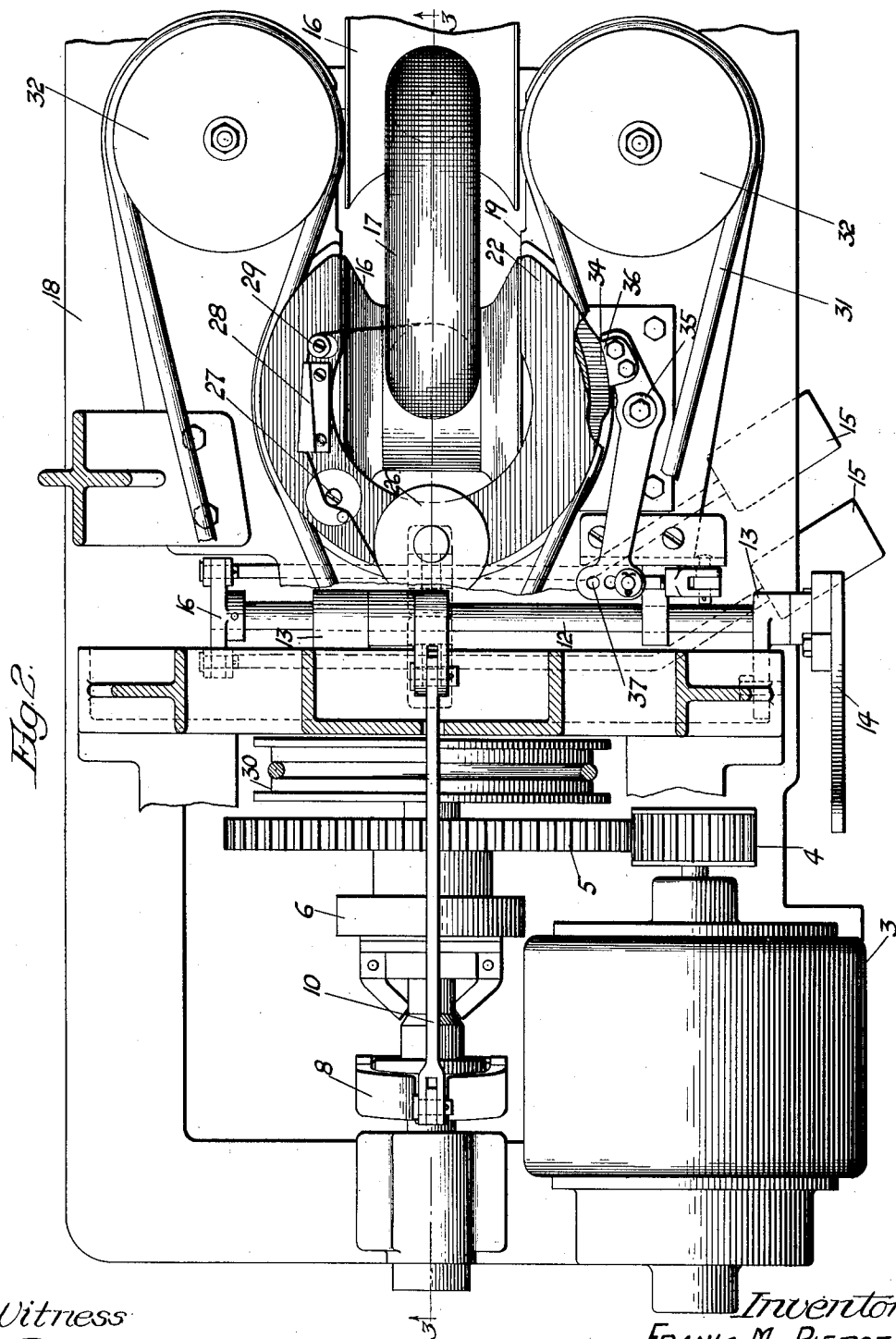
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3 Sheets-Sheet 2



Witness

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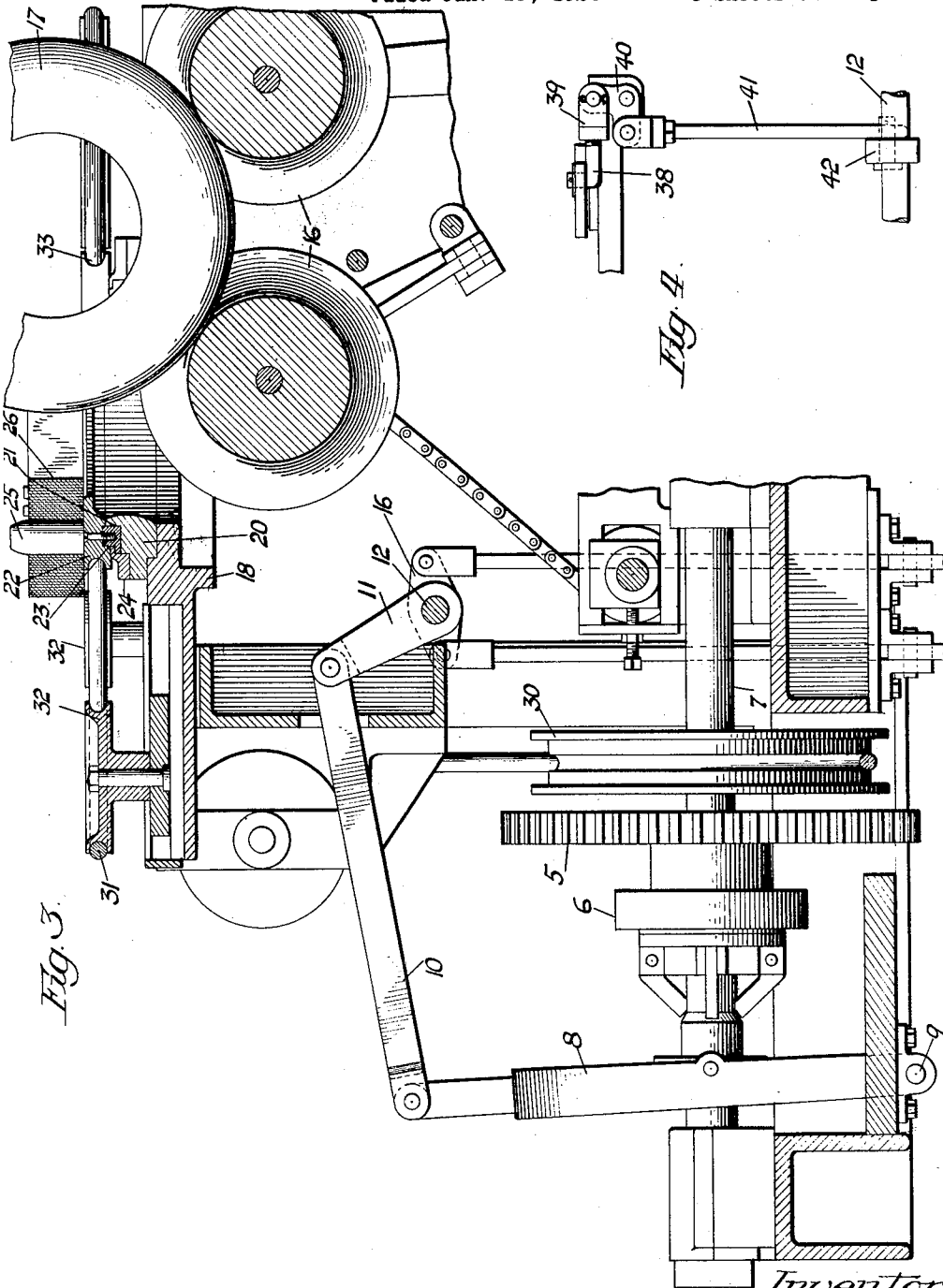
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F. M. PIERCE
WRAPPING MACHINE

Filed Jan. 10, 1924

3 Sheets-Sheet 3



Witness:

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Inventor
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UNITED STATES PATENT OFFICE.

FRANK M. PIERCE, OF CHICAGO, ILLINOIS, ASSIGNOR TO PIERCE WRAPPING MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

WRAPPING MACHINE.

Application filed January 10, 1924. Serial No. 685,325.

To all whom it may concern:

Be it known that I, FRANK M. PIERCE, a citizen of the United States, and a resident of Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Wrapping Machines, of which the following is a specification.

This invention relates to machines for use in wrapping annular objects, such as automobile tires, coils of wire, or similar articles, with a spirally applied wrapping, such, for example, as a paper wrapping. The invention relates to machines of the type shown in my prior Patent No. 1,399,989 dated December 13, 1921, and is for an improvement thereon, by means of which the machine therein shown may be operated more rapidly and economically.

The machine shown herein is of the type wherein the article to be wrapped is supported and rotated by positively driven feed rollers within the path of a rapidly revolving ring shuttle which passes through the central opening of the rotating article, the shuttle carrying the paper or other material which is thereby wrapped about the article. This type of machine is generally well known. The shuttle is carried in a shuttle frame and both the shuttle and the frame are provided with openings through which the article may be placed in position and removed when the wrapping is completed; the openings for this purpose being in registry. The present invention has for its object the provision of mechanism whereby the shuttle is automatically stopped with its opening or gap in registry with the opening or gap in the shuttle supporting frame. This mechanism is in combination with the devices which disengage the rotating parts of the machine from its drive so that the stoppage of the shuttle and the other elements of the machine occur simultaneously.

In the drawings:

Figure 1 is a side elevation of the wrapping machine having my improvement applied thereto;

Figure 2 is a plan view partially in section on the line 2—2 of Figure 1;

Figure 3 is a vertical section on the line 3—3 of Figure 2; and

Figure 4 is a detail of the lever mechanism for the shuttle brake, the view being taken on the line 4—4 of Figure 1.

It will be understood that the machine herein shown is in its principal operative features similar to that shown in my prior patent above referred to and it is therefore unnecessary to describe the details of the machine except in so far as they relate to the specific improvements to be covered herein.

The machine comprises a base 1, at one side of which is arranged a support 2 for the operating motor 3, the pinion 4 of which engages a gear 5 which carries a clutch 6, both being rotatable upon the main driving shaft 7. The clutch is operated to connect it to the driving shaft by means of a shifting lever 8 pivoted to the base of the machine at 9 and connected at its upper end to a link 10 which is, in turn, secured to a control shaft 12 mounted in suitable bearings 13 on the machine frame. The forward end of the shaft is provided with a hand lever 14 and, if desired, foot treadles 15 may also be incorporated in the machine, these treadles being connected to a cross bar 16 secured to the shaft 12 at any convenient point. By the operation of the lever 14 or foot treadles 15, the machine may be stopped or started as desired.

In the frame of the machine are mounted the adjustable supporting rollers or drums 16, which are concave or flanged as desired, and are intended to support and drive the object to be wrapped, herein shown at 17. The means for adjusting the rollers to accommodate various sizes of articles need not be described herein, nor will the means for driving one or both of them, as neither of these features form any part of the present invention, it being sufficient merely to state that the rollers are driven from the main shaft and are adjustable to position circular objects of varying diameters.

The top plate of the machine is indicated by the numeral 18 and is provided with a gap or slot 19 which is over the drums 16 and in which the article is positioned. On top of the plate and surrounding the inner end of the slot is a shuttle carrier 20, the upper surface of which is formed with a

track or raceway 21. The shuttle carrier is also broken away to correspond with the slot 19.

The shuttle is indicated by the numeral 22 and is guided in the track 21 by a wearing rib 23, being held in position by an overhanging retaining member 24. The shuttle is substantially ring shaped as shown, being broken away to permit the insertion of the article, the parts being positioned in Figure 2 so that the article may be inserted or removed. The shuttle carries upon its upper surface a pin or spool 25 upon which the roll of wrapping material 26 is supported, the material passing from the spool over a tension device 27, through a folder 28 and over a guide-pin 29 to the article.

The shuttle is driven from a pulley 30 on the main shaft by a belt 31. The belt is guided by a series of pulleys, indicated by the numerals 32, so that it passes from the pulley 30 to the top plate of the machine and then in a horizontal plane around two sides of the shuttle, being received in a groove 33 in the outer periphery thereof and back to the pulley 30.

At one point on the outer periphery of the shuttle is formed an enlargement or projection 34, which, in this form of the invention and as shown in Figure 2, is in the form of a cam or curved lug which is preferably formed as an eccentric curved surface projecting outwardly from the outer surface of the shuttle. On the upper surface of the top plate 18 is pivoted a lever 35, the free end of which is provided with a brake shoe 36 adapted to contact with the cam 34 and is so located so that when the lever is rocked about its pivot toward the shuttle, the latter will be stopped with its gap in line with the gap in the shuttle frame. The rear end of the lever is provided with a series of holes 37 for major adjustment purposes, in which is received one end of an angular pin 38 which is adjustably received in a pivoted fork 39 so that minor adjustments may be made (Figure 4). The fork 39 is pivoted to a small bell crank 40 which is in turn connected to the upper end of a link 41 which at its lower end is pivotally connected to an arm 42 carried upon the shaft 12.

By the mechanism which has been described, it will be seen that as the shaft 12 is rocked toward the left, as shown in Figure 1, the clutch 6 will be released and the brake 34 will be brought into position to engage the projection 36 as the shuttle revolves, and the shuttle will be stopped with its parts in position so that the object can be removed. Should the lever be operated just as the cam is passing the brake, it will continue its revolution and be caught and held when these parts are again brought into cooperation.

It is apparent that the particular form of braking mechanism for the shuttle is not essential, but that other means may be provided to arrest the movement of the shuttle at the proper time. The present invention aims to provide a positive stop for the shuttle with the gap or shuttle opening in line with the corresponding gap in the shuttle frame. It may be used in all types of wrapping machines of this general design and with open gap shuttles or those which are provided with swinging or removable gates. The action of the attachment is quick and positive and will save time in the operation of the machine.

Changes and modifications other than those suggested may be made in the design of the machine within the scope of the claims appended hereto.

What is claimed is:

1. In a wrapping machine of the character described, the combination of a shuttle frame, a ring shuttle mounted on said frame, the frame and shuttle being provided with openings through which the article may be passed, means including a clutch to rotate the shuttle, a brake mechanism adjacent the shuttle, a cam formation on the outer periphery of the shuttle and with which the brake is adapted to engage, and a common operating member to release the clutch and apply the brake to the cam.

2. In a wrapping machine, the combination of a ring shuttle constructed so as to permit the insertion of an article to be wrapped therein, means to rotate the ring shuttle including a clutch and means adapted to stop the rotation of the shuttle at a definite point comprising a brake, a fixed formation on the shuttle, means to move the brake so that it is in position to engage the formation and a simultaneously operating clutch releasing mechanism.

3. In a wrapping machine, the combination of a ring shuttle constructed so as to permit the insertion of an article to be wrapped therein, driving mechanism for the ring shuttle including means to disconnect it therefrom, a brake, a fixed formation on the shuttle, and means operable to simultaneously apply the brake to engage the formation and disconnect the driving mechanism.

4. In a wrapping machine, the combination of a ring shuttle having a gap therein, a stop formation located on the shuttle at a fixed point spaced from the gap, and a brake lever movable to engage the formation.

5. In a wrapping machine, the combination of a ring shuttle constructed so as to permit the insertion of an article to be wrapped therein, a cam formation on the outer periphery of the shuttle, a pivoted brake adjacent the shuttle, and means to move the brake to engage the cam formation.

6. In a wrapping machine, the combination of a ring shuttle having a gap therein, a shuttle support also having a gap therein, and means to frictionally engage
5 the shuttle and acting to bring it to rest with its gap in registry with the gap in the frame.

7. In a wrapping machine, the combination of a ring shuttle having an opening therethrough, and means to frictionally en- 10
gage the shuttle and acting to bring it to rest with its opening in a definite position.

FRANK M. PIERCE.