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WIPER FOR STRIP APPLYING MACHINES

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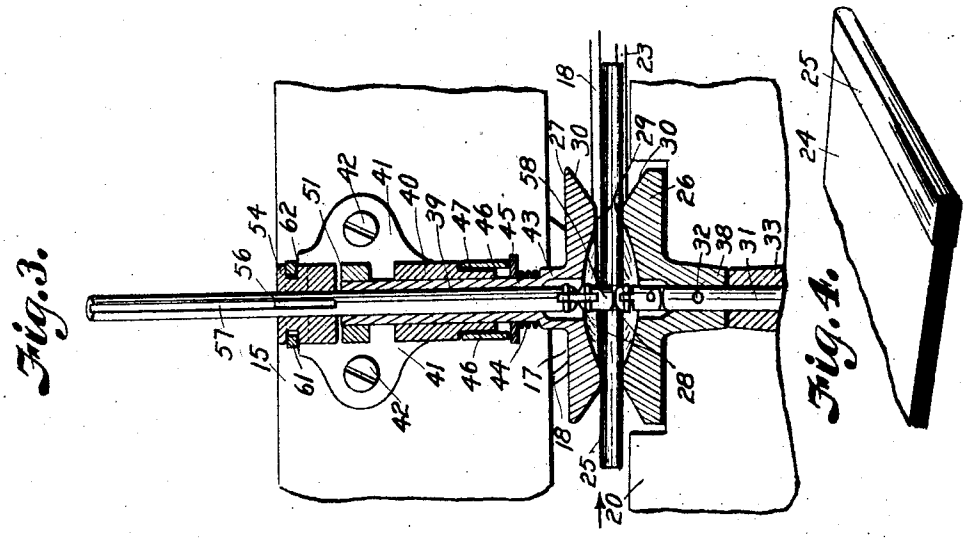


Fig. 3.

Fig. 4.

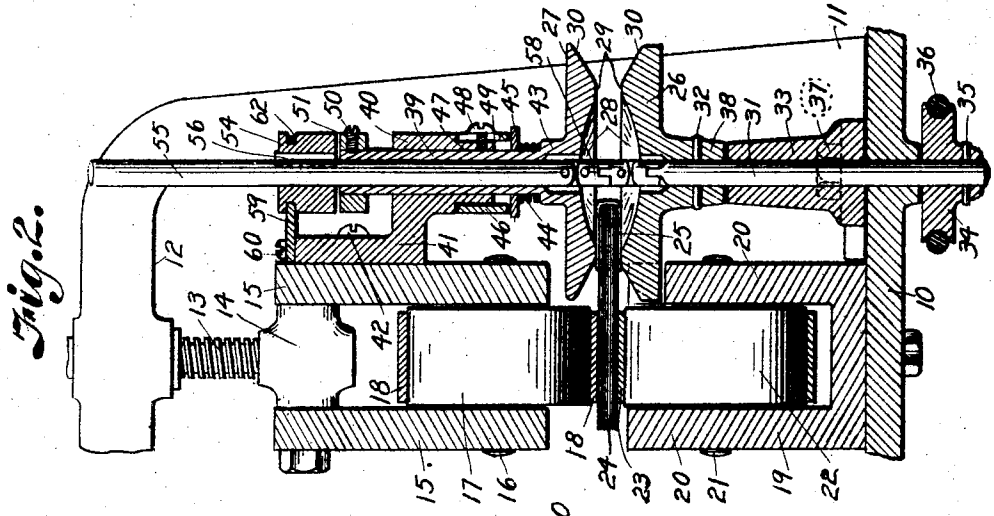


Fig. 2.

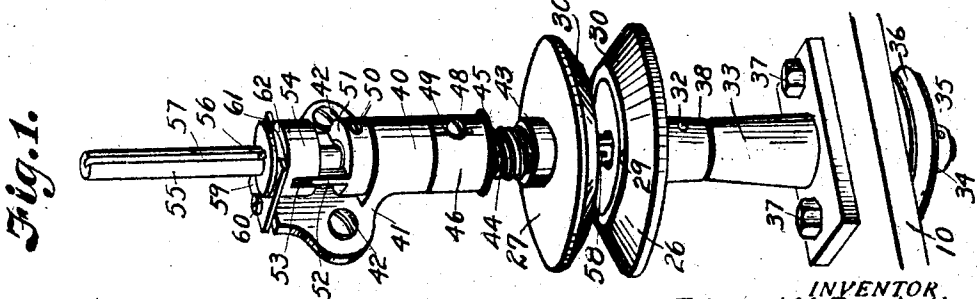


Fig. 1.

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WIPER FOR STRIP-APPLYING MACHINES.

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Our invention relates to strip-applying machines and more particularly to a wiper for compressing a strip against an article such as a book to cause the same to firmly adhere thereto.

It is a purpose of our invention to provide new and improved means for mounting a pair of rotary members to accomplish the above mentioned wiping action so that one of said members is mounted for yielding movement relative to the other of said members, and whereby the feeding means for the articles to which the strips are applied is movable and one of the wiping members is adjustable to adjust for different thicknesses of the articles, such as books, passing into engagement therewith.

Other objects and advantages of the invention will appear as the description of the accompanying drawings proceeds. However, we desire to have it distinctly understood that we do not intend to limit ourselves to the exact details shown or described, but that we intend to include as part of our invention all such obvious changes and modifications of parts as would occur to a person skilled in this art and as would fall within the scope of the claims.

In the drawings:

Fig. 1 is a perspective view of the improved wiping means.

Fig. 2 is a vertical, sectional view of a portion of a machine for applying the strips to articles, showing our improved wiping means.

Fig. 3 is a fragmentary section taken at right angles to Fig. 2, and

Fig. 4 is a perspective view of an article such as is operated on by the machine, after the strip has been applied thereto.

Referring in detail to the drawings:

Our improved wiping apparatus is mounted on a portion of the framework 10 of the machine which has an upstanding arm 11 having the overhanging end portion 12 within which a screw 13 is screw-threadedly engaged, the same carrying a head 14 on the end thereof having the depending bearing brackets 15 secured thereto, through which the shaft 16 extends, the shaft 16 carrying a roller 17 upon which the conveyor belt 18 is mounted. The framework 10 has a bearing member 19 mounted thereon having the upstanding portions 20 in which the shaft 21 is mounted, upon which the roller 22 rotates, the conveyor belt 23 operating over the roller 22. The conveyor belts 18 and 23 cooperate to move articles 24, such as books, to which a strip 25 has been applied, along with the same. By referring to the articles as books it is not intended to restrict the same to any particular article as long as the same includes a plurality of pages or sheets that are bound together at the edge thereof by a strip extending around the edge thereof as does the strip 25. When the articles reach the portion of the machine that is shown in the drawings, the strip has already been placed around the edge thereof in the position shown in Figs. 2 and 4, but it is desirable to firmly compress the strip against the opposite faces of the book or other article that is being bound thereby, and the wiping means described below is provided for this purpose.

The wiping means comprises the rotary members 26 and 27 which are substantially similar in shape on the sides thereof that face each other, being each provided with a central recess 28 and with a projecting annular rib 29 which is preferably somewhat flattened on the upper face thereof and provided with a conical or bevelled outer edge 30. The member 26 is secured to the shaft 31 so as to rotate therewith by any suitable means such as the pin 32, the shaft 31 operating in a bearing 33 and having the drive pulley 34 secured to the lower end thereof to rotate therewith by any suitable means such as the pin 35, the pulley being driven in any desired manner by means of the belt 36. The bearing member 33 is secured to the frame portion 10 by means of the securing members 37, and the hub portion 38 on the rotary member 26 engages with the upper surface of the member 33.

The co-operating rotary member 27 is provided with a rearwardly extending sleeve-like portion 39 which is rotatably mounted in a bearing 40 depending from the bracket 41 that is secured to one of the bearing brackets 15 by the securing members 42. The bearing portion 40 is provided with a bore, the axis of which extends at an oblique angle to the axis of the bearing 33 so that the members 26 and 27 on the sides thereof from which the article is fed toward the same as the said members 26 and 27 rotate,

are closer together than on the sides thereof at which the articles are moved away from the same. The direction of feed is indicated by the arrow in Fig. 3.

The member 27 is further provided with a hub portion 43 that is larger than the sleeve portion 39, and a coiled compression spring 44 surrounds the sleeve 39 and engages with the shoulder formed between the portion 43 and the portion 39 of the rotary member 27 at one end thereof and with the collar or ring-like member 45, embracing the sleeve-like member 39 at the other end thereof. The ring-like member 45 engages with the sleeve 46 which is slidable on the reduced portion 47 of the bearing member 40, being secured thereto by the securing member 48 extending through the slot 49 in the sleeve 46. Thus the rotary member 27 will be yieldingly urged toward the rotary member 26 by means of the spring 44 which can be adjusted by means of the sleeve 46.

Secured to the upper end of the sleeve 39 by any suitable means such as the set screws 50 is a clutch member 51 which has the projecting ribs or flanges 52 extending upwardly therefrom, said ribs or flanges 52 being adapted to enter the slots or grooves 53 in the co-operating clutch member 54 which is keyed to the shaft 55 by means of a key 56 mounted in the keyway 57. The shaft 55 rotates with the shaft 31 through the flexible shaft portion 58 connecting said shafts 31 and 55, thus allowing for the angle between the axes of rotation of the shafts 31 and 55. The clutch member 54 is slidably mounted on the shaft 55 but is held from axial movement on the movable portion of the framework comprising the members 13, 14 and 16 and the bearing member 40 by means of the clip 59 secured to the upper end of the bracket 41 by means of any suitable securing members 60, said clip having a forwardly extending edge portion 61 that fits within the annular groove 62 provided in the clutch member 54.

When it is desired to adjust the movable portion of the framework by means of the screw 13 to move the roller 17 relative to the roller 22 to provide for the passage of a book of a different size than that shown between the conveyor belts 18 and 23, the clutch member 54 is carried along with the movable portion of the framework, sliding along the shaft 55. The tension on the spring 44 is adjusted by releasing the screw 48, adjusting the sleeve 46 and then securing the sleeve in adjusted position by means of the screw 48. As the spring 44 is compressed when the rotatable members 26 and 27 engage with the article, the sleeve 39 moves endwise in the bearing 40, but this movement is permitted because of the sliding connection between the wings or flanges 52 and the openings 53 in the clutch portion 54 no matter what the position of the member 54 may be relative to the shaft 55 due to the vertical adjustment of the roller 17.

What we claim and desire to secure by Letters Patent is:—

1. In a machine of the character described, a framework, a pair of rotary members, means for feeding an article with a strip in engagement therewith between said rotary members to compress said strip against said article, said framework having a portion movable relative to the remainder thereof to adjust said feeding means for various thicknesses of articles, and means for rotating said rotary members substantially in unison comprising a pair of flexibly connected shafts, one of said shafts being mounted in the movable portion of said framework, a member on the movable portion of said framework mounted to rotate with said shaft and held against endwise movement on the movable portion of said framework and a member rotating with one of said rotary members and with said first mentioned member but axially movable relative thereto to connect said rotary member with said shaft.

2. In a machine of the character described, a framework, a pair of rotary members, means for feeding an article with a strip in engagement therewith between said rotary members to compress said strip against said article, said framework having a portion movable relative to the remainder thereof to adjust said feeding means for various thicknesses of articles, and means for rotating said rotary members substantially in unison comprising a pair of flexibly connected shafts, one of said shafts being mounted in the movable portion of said framework, a collar on the movable portion of said framework mounted to rotate with said shaft and held against endwise movement on the movable portion of said framework, a member rotating with one of said rotary members and means connecting said collar and said member to rotate together but permitting relative axial movement of said members.

3. In a machine of the character described, a framework, a pair of rotary members, one of said rotary members being mounted for yielding movement toward the other thereof, means for feeding an article with a strip in engagement therewith between said rotary members to compress said strip against said article, said framework having a portion movable relative to the remainder thereof to adjust said feeding means for various thicknesses of articles, and means for rotating said rotary members substantially in unison comprising a pair of flexibly connected shafts, one of said shafts being mounted in the movable portion of said framework, a member on the movable por-

tion of said framework mounted to rotate with said shaft and held against endwise movement on the movable portion of said framework and a member rotating with said yieldingly mounted rotary member and with said first mentioned member but axially movable relative thereto to connect said rotary member with said shaft.

4. In a machine of the character described, a pair of bearings out of axial alignment, a pair of shafts mounted in said bearings, a flexible connection between said shafts, a rotary member secured to one of said shafts to rotate therewith, a second rotary member mounted for axial movement on the other of said shafts, yielding means for moving said second rotary member toward said first rotary member and means for connecting said second rotary member to its shaft to rotate therewith comprising a member rotating with said shaft, a member rotating with said yieldingly mounted rotary member and relatively slidable means on said members to key said members together.

5. In a machine of the character described, a pair of bearings out of axial alignment, a pair of shafts mounted in said bearings, a flexible connection between said shafts, a rotary member secured to one of said shafts to rotate therewith, a second rotary member mounted for axial movement on the other of said shafts, yielding means for moving said second rotary member toward said first rotary member and means for connecting said second rotary member to its shaft to rotate therewith comprising a pair of relatively slidable clutch members, one of said members being mounted to rotate with said rotary member and the other of said members being mounted to rotate with said shaft.

6. In a machine of the character described, a pair of bearings out of axial alignment, a pair of shafts mounted in said bearings, a flexible connection between said shafts, a rotary member secured to one of said shafts to rotate therewith, a second rotary member mounted for axial movement on the other of said shafts, yielding means for moving said second rotary member toward said first rotary member and means for connecting said second rotary member to its shaft to rotate therewith comprising a pair of relatively slidable clutch members, one of said members being mounted to rotate with said rotary member and slidable on said shaft therewith and the other of said members being mounted to rotate with said shaft and held against axial movement on said shaft.

7. In a machine of the character described, a pair of bearings out of axial alignment, a pair of shafts mounted in said bearings, a flexible connection between said shafts, a rotary disk-like member having a projecting annular rib thereon secured to one of said shafts to rotate therewith, a second rotary disk-like member having a projecting annular rib thereon mounted for axial movement on the other of said shafts, yielding means for moving said second rotary member toward said first rotary member and means for connecting said second rotary member to its shaft to rotate therewith comprising a member rotating with said shaft, and a member rotating with said yieldingly mounted rotary member and relatively slidable means on said members to key said members together.

8. In a machine of the character described, a pair of bearings out of axial alignment, a pair of shafts mounted in said bearings, a flexible connection between said shafts, a rotary disk-like member having a projecting annular rib thereon secured to one of said shafts to rotate therewith, a second rotary disk-like member having a projecting annular rib thereon mounted for axial movement on the other of said shafts, yielding means for moving said second rotary member toward said first rotary member and means for connecting said second rotary member to its shaft to rotate therewith comprising a pair of relatively slidable clutch members, one of said members being mounted to rotate with said rotary member and slidable on said shaft therewith and the other of said members being mounted to rotate with said shaft and held against axial movement on said shaft.

9. In a machine of the character described, a pair of bearings out of axial alignment, a pair of shafts mounted in said bearings, a flexible connection between said shafts, a rotary disk-like member having a projecting annular rib thereon secured to one of said shafts to rotate therewith, a second rotary disk-like member having a projecting annular rib thereon mounted for axial movement on the other of said shafts, yielding means for moving said second rotary member toward said first rotary member and means for connecting said second rotary member to its shaft to rotate therewith comprising a pair of relatively slidable clutch members, one of said members being mounted to rotate with said rotary member and slidable on said shaft therewith and the other of said members being mounted to rotate with said shaft and held against axial movement on said shaft, the means for holding said last mentioned member against axial movement on its shaft comprising means carried by the bearing for said shaft engaging in a groove in said last mentioned member.

In testimony whereof we affix our signatures.

EDWARD M. BRACKETT.
FRED M. BRACKETT.