

Feb. 5, 1924.

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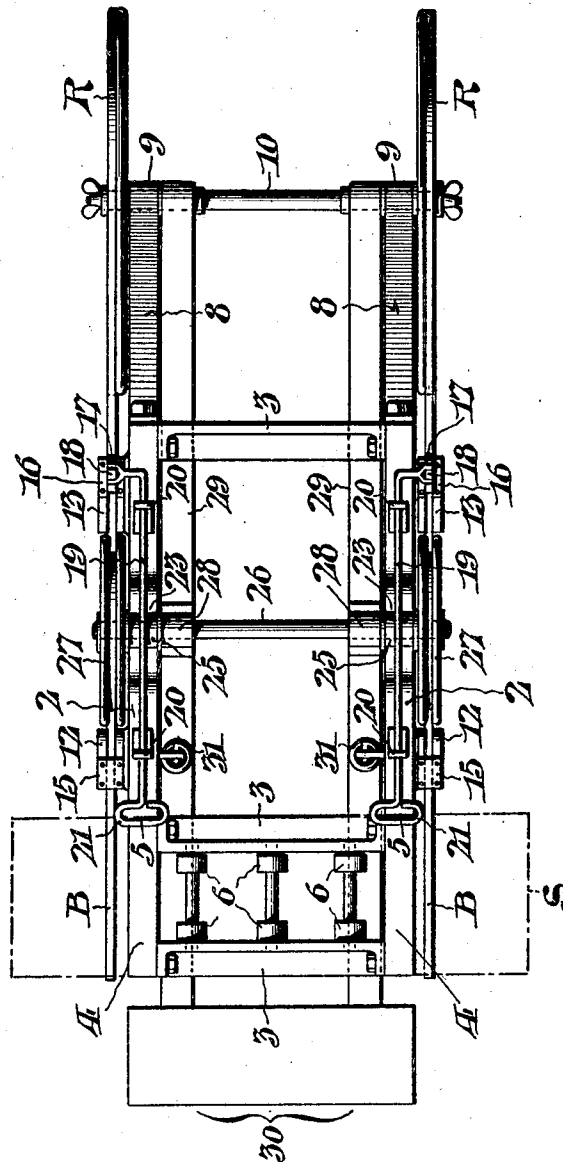
G. RITTER

PACKAGE BINDING MACHINE

Filed Jan. 31, 1920

2 Sheets-Sheet 1

FIG. I.



WITNESSES:

John C. Bergner
James H. Bell

INVENTOR:

George Ritter,
BY
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Feb. 5, 1924.

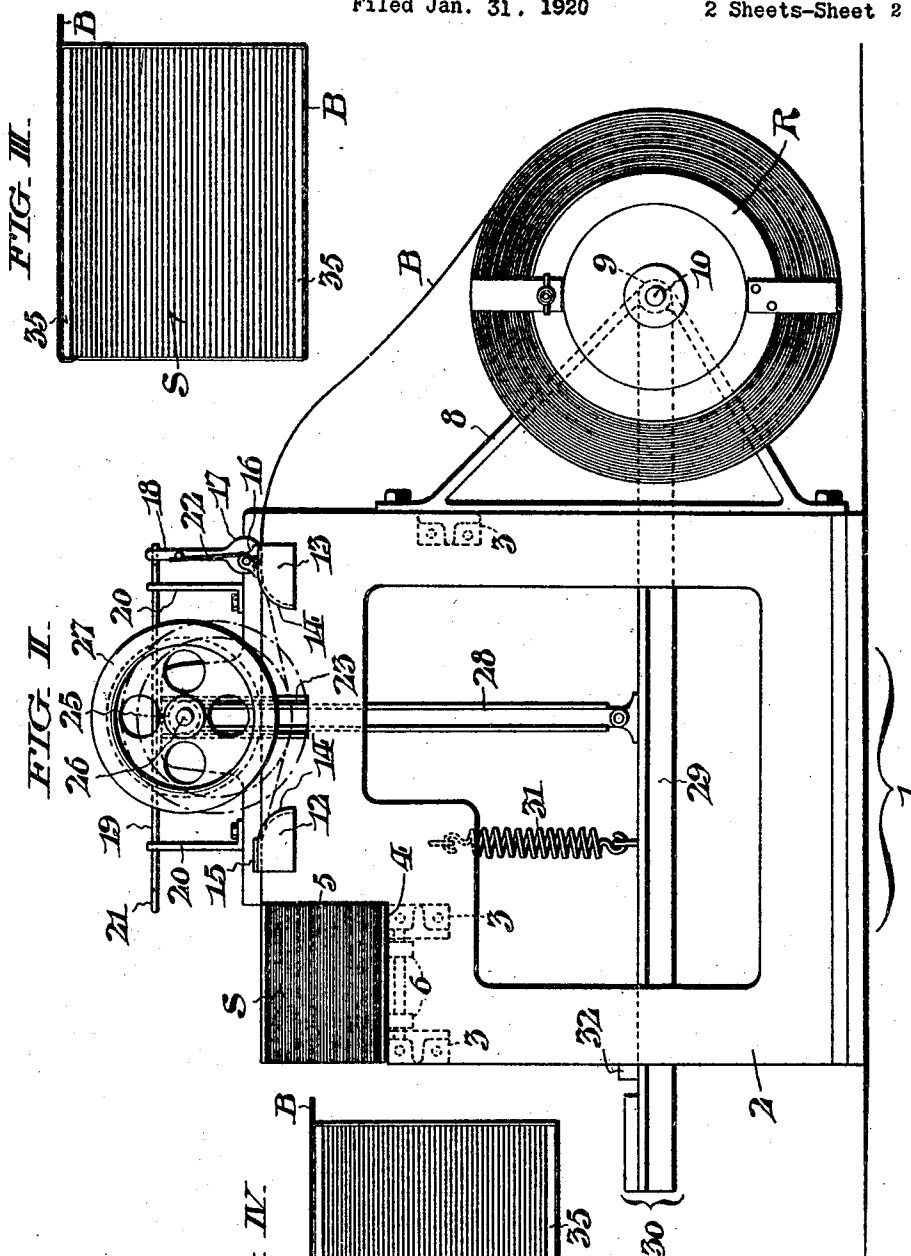
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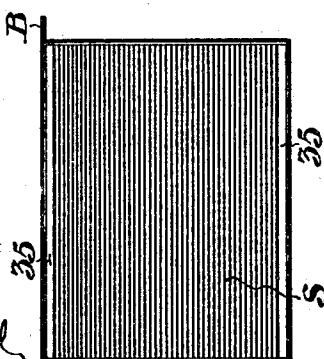
Filed Jan. 31, 1920

2 Sheets-Sheet 2



WITNESSES:
John C. Berger
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FIG. IV.



INVENTOR:
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UNITED STATES PATENT OFFICE.

GEORGE RITTER, OF PERTH AMBOY, NEW JERSEY, ASSIGNOR TO THE BARBER ASPHALT PAVING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF WEST VIRGINIA.

PACKAGE-BINDING MACHINE.

Application filed January 31, 1920. Serial No. 355,425.

To all whom it may concern:

Be it known that I, GEORGE RITTER, a citizen of the United States, residing in Perth Amboy, in the county of Middlesex and State of New Jersey, have invented certain new and useful Improvements in Package-Binding Machines, whereof the following is a specification, reference being had to the accompanying drawings.

The invention relates generally to package binding machines, and more specifically to machines of this classification especially adapted for binding, by means of cord, wire or tape, manufactured products in sheet form, such, for example, as cardboard or prepared roofing shingles, which have been previously built into stacks of appropriate size for convenient handling in shipping.

The invention is directed to a binding machine having means for so supporting the package to be bound that the ends of one or more binding strands after having been properly anchored, may be readily wrapped about the same initially; and means for subsequently placing sufficient tension upon the binding strands at points between the sources of supply and the package, to draw them tightly about the latter, and thus hold them until properly secured by the operative.

The invention also comprehends means for clamping the binding strands during the drawing operation above noted, said means being manually releasable to permit the ready drawing of adequate lengths of the strands from their sources of supply in preparation for the initial wrapping operation.

The invention is also in part directed to means for preventing the relative shifting of the sheets of the stacks during the binding operation.

The invention further includes certain other novel features of construction and arrangement which will become apparent from the detailed description which follows.

Referring to the drawings, Fig. 1, illustrates a plan view of a package binding machine conveniently embodying my invention.

Fig. II, is a side elevation of the same as viewed from the bottom of Fig. I.

Fig. III, is a detail view showing one method by which the end of the binding strand may be anchored in the package; and

Fig. IV, is a view similar to Fig. III, showing another method by which the same result may be effected.

The machine, representative of my invention, comprises a frame structure comprehensively indicated at 1, consisting of two side standards 2, 2, which are united by transverse braces 3, 3, 3. At the left hand end of the machine, these standards are cut away as at 4, 4, so as to conveniently accommodate the package to be bound.

In the present instance, the machine, as illustrated, is designed more especially for binding stacks of rectangular sheets, such, for example, as cardboard or prepared roofing shingles. The vertical edges 5, formed by the cuts in the standards 2, serve as a gauge or abutment to sustain the sheets against displacement during the binding operations. In order to facilitate the placing and manipulation of the stacks in the machine, a supporting means comprising a group of rolls 6, has been provided. These rolls are journaled between two of the cross bars 3, 3, forming parts of the frame structure. By this arrangement, it will be seen that the stacks may be readily placed in the machine, and with equal facility shifted laterally or endwise upon the supporting rolls to the proper position for binding. When the stack is thus positioned, as shown in Fig. I, its ends project beyond the side standards of the frame structure so as to be accessible from all sides to permit the wrapping of the binding strands in a manner which will be better understood from further description.

At the opposite end of the machine, the standards 2, are supplemented with extension brackets 8, 8, which are formed with bearings 9, 9, for the support of a transversely disposed axle 10. The outer ends of the axle protrude beyond the brackets 8, 8, to serve as mounting trunnions for reels R, R, for the binding strands, indicated by

B. These strands may be of cord, wire or tape, depending upon the nature of the goods to be packed. The standards 2, 2, except in being right and left, are exact counterparts of one another; and this is also true of their appendages, so that the description of one will serve for the other also, and the similar parts will therefore be indicated by the same reference numerals. Considering, for the present, the standard 2, nearest the observer in Fig. II, it will be seen that upon its outer face, the same has integral, spaced projections 12 and 13, which are appropriately complementarily rounded, as indicated at 14, 14, and also grooved (as shown in dotted lines) to serve as guides for the binding strand B in its passage from the supply reel R, to the point of wrapping. The projection 12, is supplemented with a cover plate 15, which serves to form in conjunction with the groove, a closed guide passage. The guide 13, is likewise covered by a bridging bracket 16 which also serves as a fulcrum support for a disk 17, which, as seen in Fig. II, is eccentrically mounted and provided with an integral extension lever 18. This lever is operatively connected at its upper end to a slide rod 19, guided in upstanding brackets 20, 20, suitably secured to the standard 2, and provided at its opposite extremity with a handle 21. A leaf spring 22, operative against the lever extension 18, of the disk 17, serves normally to force the edge of said disk toward the guide 13, to clamp and hold fast the binding strand for a purpose which will be later set forth. In order to render the grip more positive, the periphery of the disk 17, may be serrated or notched in any approved manner.

Intermediate the guides 12 and 13, the standards 2 have slideways 23, adapted for guiding bearing blocks 25, 25, within which is secured a transversely extending rod 26. Upon the protruding ends of the rod are freely mounted sheaves 27, 27. Said rod and its mountings may be bodily moved vertically through the instrumentality of links, 28, 28, connected to the side levers 29, of a treadle comprehensively indicated in the drawings by the numeral 30. The side levers of this treadle are freely fulcrumed intermediate the standards 2, about the axle 10, which supports the supply reels for the binding strands, and are subject to the pull of springs 31, which tend to normally maintain the sheaves 27, in the upper or normal position illustrated in full lines in the drawings, the extent of the upper movement of the treadle being determined by a stop bar 32. The treadle 30 and the links 28, 28, therefore, serve as a common actuating means for both sheaves 27, 27 to enable the several wrapped strands "B" to be taken up and tightened about the package concurrently, as hereinafter described.

In operation, the stacked sheets are placed upon the roller support as already noted, and the operative then releases the normally gripping clamps 17, by drawing upon the slide rods 19, so that adequate lengths of the wrapping strands may be readily drawn through the guide and clamping means 13, 17 from the supply reels R. This is, of course, done first upon one side of the machine, and then upon the other. The free ends of the strands may be anchored in the package either as shown in Fig. III or according to the method of Fig. IV. In the first instance, it will be seen that the ends of the strand are (as shown at 35 in Fig. III) tucked between a pair of adjacent sheets of the stack or directly beneath a protective reinforcing board or plate, which may be employed if desired. In the other instance, (Fig. IV) the ends of the strands are simply bent about one corner of the stack, and anchored beneath second layers of the strands during succeeding enveloping in a manner which is clearly obvious. In either case, the strands are wrapped at least once about the package, and this, it will be seen, may be readily done by reason of the manner in which the stack is supported. After the end portions of the strands have been initially wrapped around the package as indicated, the treadle 30 is depressed, and the sheaves 27, 27 are thereby caused to engage and take up on both the binding strands concurrently, between the points where they are clamped and held fast by the devices 17, 17 and the package. In this operation, the strands are deflected sidewise or transversely and drawn down between the guides 12 and 13, as indicated by dot and dash lines in Fig. II, and are thus drawn tight about the package and held until properly fastened in any approved manner by the operative.

While I have specifically described my invention as adapted for binding packages of sheet forms, it will be apparent from the above description that the same may be employed with equal facility for wrapping various objects of other forms without departing from the spirit of the invention.

Having thus described my invention, I claim:

1. A machine of the character described, comprising means for supporting a package to be bound to permit the end portion of a binding strand to be wrapped about the package; means for holding said strand fast at a point intermediate the supply and said package; and means for engaging the strand and taking up on it, to draw it tight about the package, between the point where it is held fast as aforesaid and the package.

2. A machine of the character described, comprising means for supporting a package to be bound to permit the end portion of a binding strand to be wrapped around the

package; normally gripping guide and clamp means for said strand through which the same may be drawn to be so wrapped; and means for engaging the strand and taking
 5 up on it, to draw it tight about the package, between the point where it is clamped by the means aforesaid and the package.

3. A machine of the character described, comprising means for supporting a package
 10 to be bound to permit the end portion of a binding strand to be wrapped about the package; means for holding said strand fast at a point intermediate the supply and said package; and means for engaging the strand
 15 and deflecting it sidewise, to draw it tight about the package, between the point where it is held fast as aforesaid and the package.

4. A machine of the character described, comprising means for supporting a package
 20 to be bound to permit the end portion of a binding strand to be wrapped about the package; a grooved guide for said strand through which the same may be drawn to be so wrapped; normally gripping means for
 25 clamping the strand in the groove of said guide; and tension means operating on the strand between the clamp and the package to draw the strand tight about the latter.

5. A machine of the character described, comprising means for supporting a pack-
 30 age to be bound to permit the end portion of a binding strand to be wrapped about the package; a normally gripping eccentrically mounted disk for clamping the strand
 35 in the groove of the guide; means for swinging said disk about its axis when it is desired to release the strand; and tension means operating on the strand between the clamp and the package to draw the strand tight-
 40 ly about the latter.

6. A machine of the character described, comprising means for supporting a pack-
 45 age to be bound to permit the end portion of a binding strand to be wrapped about the package; a pair of spaced guides through which the strand may be drawn to be so wrapped; and tension means for en-
 50 gaging the strand in the space between said guides and deflecting the same sidewise, to draw it tight about the package.

7. A machine of the character described, comprising means for supporting a package
 55 to be bound to permit the end portion of a binding strand to be wrapped about the package; a pair of spaced guides through which the strand may be drawn to be so wrapped; and tension means comprising a sheave for engaging the strand in the interval between said guides, and a treadle for

moving said sheave transversely of said
 60 strand to draw the same down between said guides and tighten it about the package.

8. A machine of the character described, comprising means for supporting a pack-
 65 age to be bound to permit the end portions of a plurality of binding strands to be wrapped around the package; means for gripping the strands, tension means operat-
 70 ing between the gripping means and package for drawing said strands tight around the package, and common means for con-
 currently operating said tension means as aforesaid, so as to tighten said strands at once.

9. A machine of the character described, comprising means for supporting a pack-
 75 age to be bound to permit the end portions of a plurality of binding strands to be wrapped about the package; means for con-
 80 currently holding said strands fast at points intermediate the sources of supply and the package; and means for concurrently en-
 85 gaging and taking up on said strands, to draw them tight about the package, be-
 tween the points where they are held as aforesaid and the package.

10. A machine of the character described, comprising means for supporting a pack-
 90 age to be bound to permit the end portions of a plurality of binding strands to be wrapped about the package; normally grip-
 ping guide and clamp means for each of said strands through which the same may be
 95 drawn to be so wrapped; and means actuated in common for concurrently engaging the strands and taking up on them, to draw them tight about the package, between the
 points where they are clamped by the means aforesaid and the package.

11. A machine of the character described, comprising means for supporting a pack-
 100 age to be bound to permit the end portions of a plurality of binding strands to be wrapped about the package; a pair of
 105 spaced guides for each strand through which the same may be drawn to be so wrapped; and tension means, including a plurality of sheaves upon a common axis, for concurrently engaging said strands be-
 110 tween their respective guides and drawing them tight about the package.

In testimony whereof, I have hereunto signed my name at Maurer, New Jersey, this 24th day of January, 1920.

GEORGE RITTER.

Witnesses:

G. R. CORNINGS,

DENNIS J. DESMOND.