

July 7, 1959

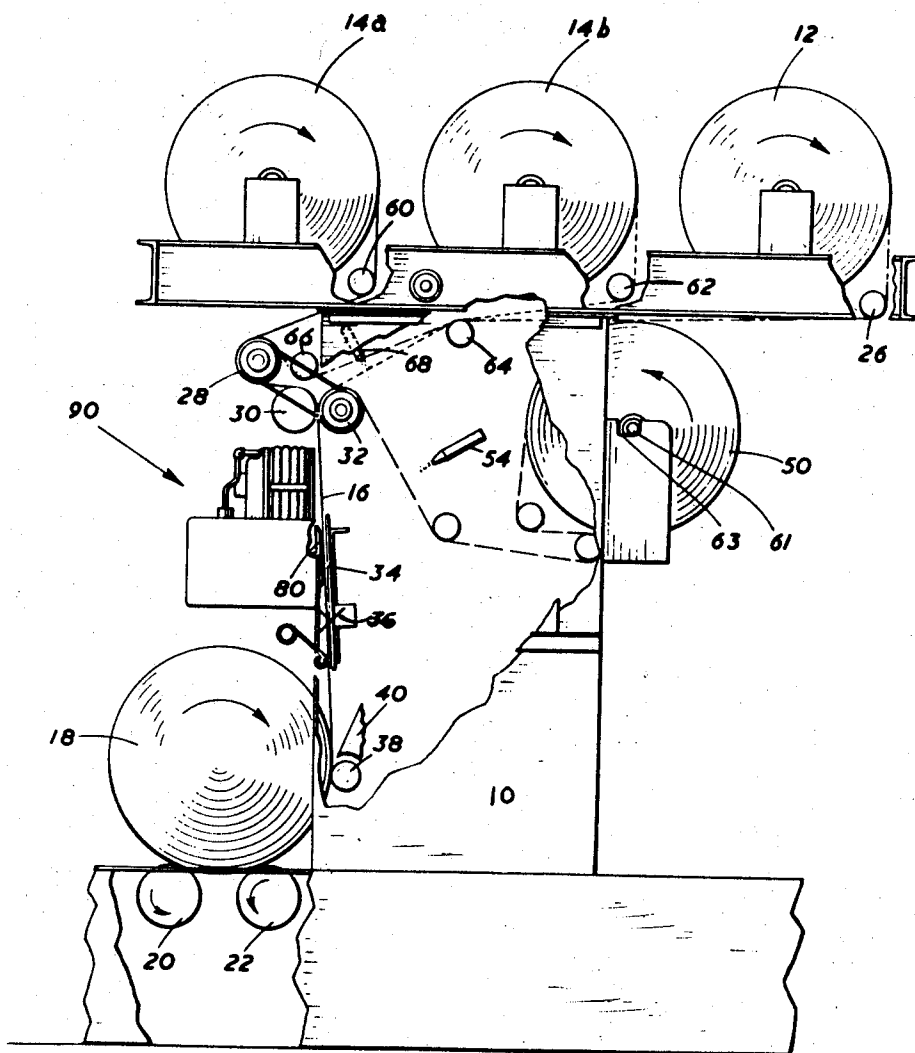
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2,893,189

WRAPPING PAPER SUPPLY MEANS

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4 Sheets-Sheet 1



——— FROM ROLL 14a
 - - - - - " " 14b
 ——— " " 12
 - - - - - " END BAND 50

FIG. 1

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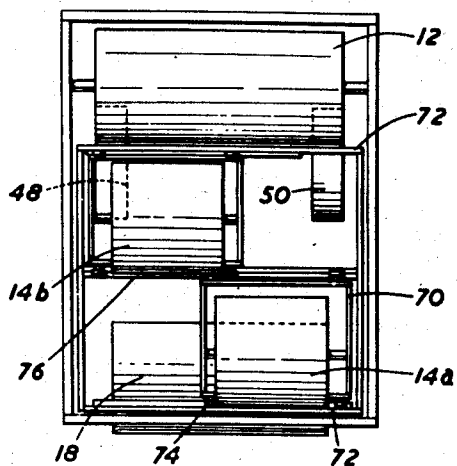


FIG. 2

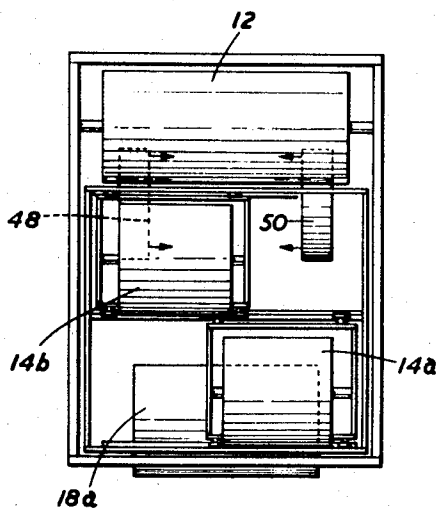


FIG. 3

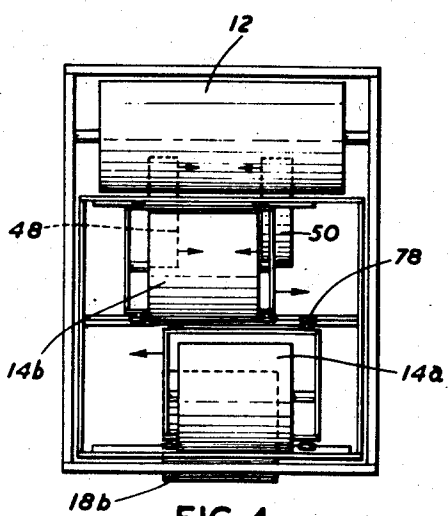


FIG. 4

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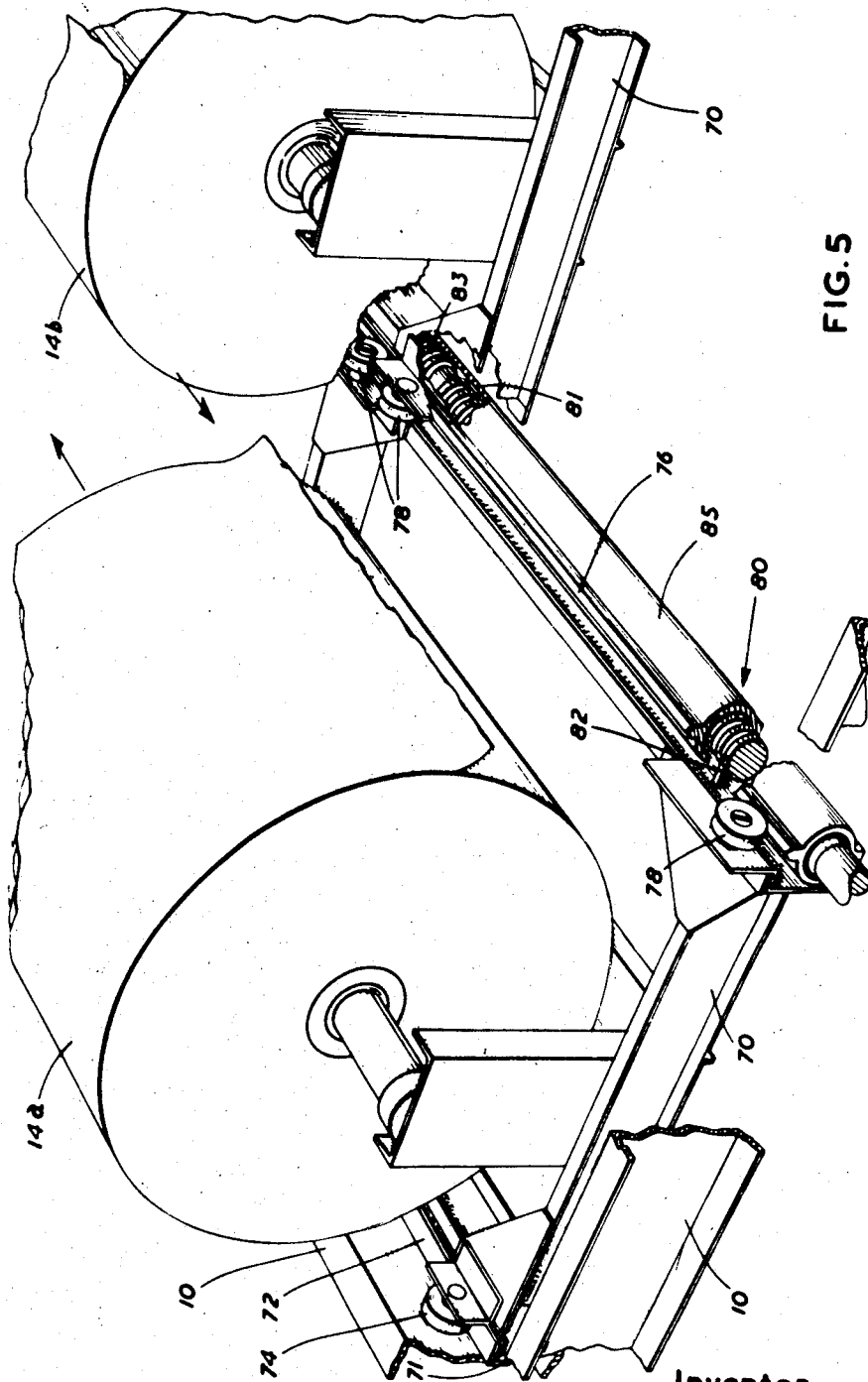
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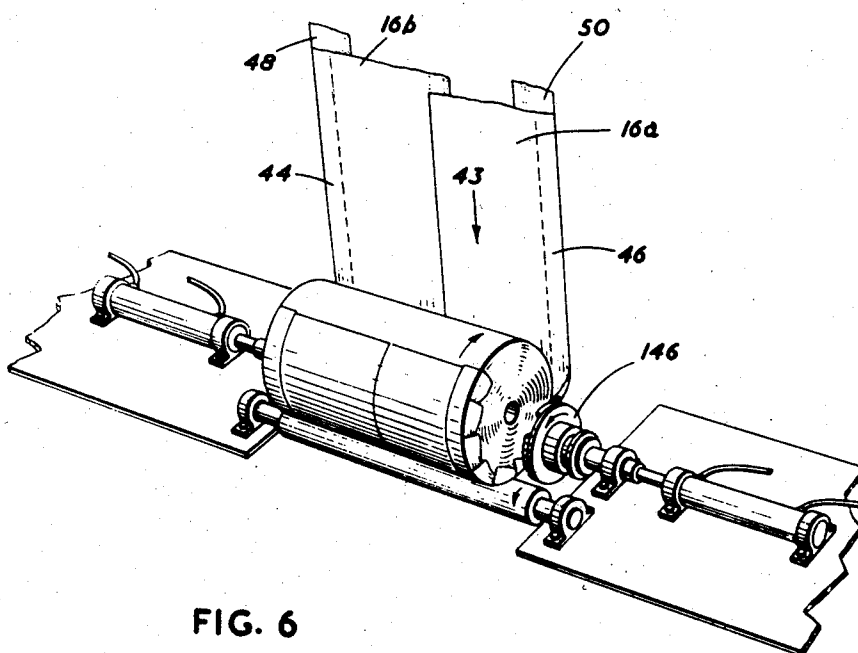
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WRAPPING PAPER SUPPLY MEANS

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3 Claims. (Cl. 53—198)

This invention relates to a roll wrapping machine and improvements therein. By a roll I mean any cylindrical object to be wrapped in paper, but the invention is particularly applicable to rolls of paper to be so wrapped.

The wrapping machine and improvements are shown in the attached drawings in which:

Figure 1 shows a schematic illustration of the operation of the invention.

Figures 2 to 4 illustrate the adaptability of the invention to wrap a roll of varying widths.

Figure 5 illustrates in perspective the means for varying the wrapping.

Figure 6 illustrates the strip used with the invention.

The overall operation of the machine may be indicated by a reference to Figure 1.

A cabinet schematically shown at 10 supports a series of rollers 12, 14A, 14B, carrying wrapping paper adapted to supply the wrapping paper strip 16 to wrap a roll 18 as shown at the bottom of the machine resting on and rotated by a pair of drive rollers 20 and 22.

The wrapping paper strip is hereinafter referred to as the "wrapping strip 16" or as the "strip 16" to distinguish it from the roll of paper or other material 18 to be wrapped. For the purposes of this application it is sufficient if the paper 18 is considered as a cylindrical body to be wrapped.

The paper supplied (say) by roll 12 is led under a tension roller 26 about a driven roller 28 and between a pair of horizontally disposed puller rollers 30 and 32. The horizontally disposed puller rollers provide a vertical path for the strip into guide means 34 where the cutting and gluing is performed.

After the necessary glue is applied and the paper is cut as will be hereinafter described, the paper length is supplied between press roll 38 and the roll 18 under the assistance of any suitable guide means such as those schematically shown at 40.

The roll to be wrapped is rotated under the impulsion of drive rollers 20 and 22.

The leading end of a length of a glued strip 16 is caught between the press roll 38 and the roll to be wrapped 18 and the press roll pressure attaches the strip end to roll 18 where it is pulled around with that roll. When the length of the strip 16 from the end initially stuck to roll 18 to the cutting means is sufficient to supply the requisite number of wrapping turns, the wrapping movement of strip 16 is halted by stopping puller rollers 30 and 32 and drive rollers 20 and 22, and a cutting means 36 cuts off the wrapping length. The movement of the drive rolls 20 and 22 is then recommenced until the cut end of the first length of strip 16 is wound on the roll 18.

Glue for attaching the beginning and end of the length is applied by suitable means adjacent the cutting means 36.

It should be noted that the drive means for puller rolls 30 and 32 and for drive rolls 20 and 22 are driven at a speed to ensure the travel of paper therethrough at approximately the same rate. It is possible but has not been found necessary to exactly synchronize these rollers.

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The wrapping paper strip 16 must be not only wide enough to provide a portion 43 to cover the roll 18 to be wrapped but must also be wide enough to supply an extension 44 and 46 on each side for crimping over each end thereof (see Figure 6).

Crimping means 146 to crimp the over-extending portions 44 and 46 of the strip 16 (see Figure 6) on to the ends of the rolls 18 are provided as illustrated at each end of the roll.

Due to the wear that comes at the corners of the rolls reinforcing strips known as bands 48 and 50 are attached to each side of the strip 16 for reinforcement purposes (see Figure 6). These bands are carried on band rollers such as those shown at 50 and glue is sprayed on them as shown schematically at 54 before application to the strip 16 at the pullers 30 and 32 (see Figure 1).

As stated above, for the normal size of roll wrapped in any mill, the wrapping paper on roll number 12 will supply the necessary width for wrapping and crimping. However, from time to time other sizes of rolls will require to be wrapped and it has heretofore been the practice with such machines to place in a series of rolls extending backward from the machine as many sizes as are necessary to perform the wrapping. This has however been disadvantageous since the changeover from one roll size to another has required the removal of the strip of the width being previously used and the threading through of the new roll to be used. This operation is a tedious one.

The normal paper size for any mill will therefore be supplied by strips from roll 12 which is of the normal width for such wrapping (see Figure 2). However, for variants from such width, rolls 14A and 14B will be used. It will be obvious that for the changeover from wrapper roll 12, the strip 16, from roll 12 must be removed, and strips 16A and 16B from rolls 14A and 14B threaded into position. Thus some removal and threading is necessary. However, it will be seen from Figures 3 and 4 that a wide range of widths is possible with wrapper rolls 14A and 14B so that in a sequence of wrappings of different widths a much smaller number of rethreadings is necessary.

It may also be pointed out that other pairs of wrapper rolls similar to 14A and 14B may be substituted if other ranges are required.

Wrapper roll 14A is threaded under a tension roller 60 about drive roller 28 and between puller rollers 30 and 32 (see Figure 1).

Wrapper roll 14B is threaded under a tension roller 62, over roller 64, under roller 66, about drive roller 28 and between puller rollers 30 and 32 (see Figure 1).

To one of the overlapping strips 16A or 16B Figure 6 glue must be supplied on the overlap portion thereof so that a composite strip is formed as the strip goes through the puller rolls 30 and 32. The glue may be supplied at any convenient location to one of the strips, such as at 68 (see Figure 1).

Referring now to Figures 3 and 4 it will be seen that rolls 14A and 14B may be combined in various spacings to supply at rolls 30 and 32 a unitary wrapping strip 16 of variable width. Each roll 14A, 14B is pivotally mounted on a carriage 70 Figure 5 which is supported on the cabinet 10 as hereinafter described. Angle irons 72 attached to the top of the cabinet at the forward and rearward end thereof is provided with a respective horizontal rolling surface 72 for wheels 74 on each carriage 70 for movement in a direction parallel to the axis of the strip roll 14A or 14B. Intermediate the two angle irons 70 a rail 76 is provided adapted to receive four grooved wheels 78, two being pivotally mounted on each carriage and such grooved wheels 78 from each carriage are designed to ride on the rail. In the case of each such carriage the sheave-rail cooperation maintains the carriage in position. As seen in Figure 6, the grooved wheels 78 for the respective

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carriages alternate along rail 76 to provide for the strip overlap. Thus either respective roller and carriage assembly may be moved axially by movement of the grooved wheels 78 while lateral movement of the carriages 70 is prevented by the cooperation between the grooved wheels 78 and the guide rail 76. The relative location of the two carriages 70 determines the width of, or the amount of overlap of strips 16A and 16B controlling the width of the resulting wrapping strip 16. The relative location of the carriages 70 is controlled by a lead screw 80 running longitudinally beneath the central rail 76 and cooperating with a tooth 82 attached respectively to each of the carriages. A circular tube 85 forming a structural part of the support for the mounting rail forms a housing for lead screw 80. The lead screw 80 is divided longitudinally into two threads 81, 83 having opposite sense so that a rotation thereof in one direction causes the teeth 82 to draw carriages 70 together and rotation thereof in the opposite direction causes their separation. The overlap and therefore the width of the composite strip 16 provided may therefore be controlled.

I claim:

1. A roll wrapping machine including a cabinet having rolling surfaces thereon, a rail running parallel to and located intermediate said rolling surfaces, a pair of carriages each provided with two wheels adapted to run on said surface and two wheels adapted to run on said rail, a lead screw extending parallel to said rail, provided with two extents of threading of opposite sense, means for rotating said lead screw, a tooth mounted on each of said carriages, one tooth meshing with each of said extents, means for rotating said lead screw, a roll of strip mounted on each said carriage pivotal about an axis substantially parallel to said lead screw, means for guiding strip from each of said rolls to be wrapped said carriages and said strip being so arranged that said strip is in overlapping relationship; and gluing means for attaching said two strips in the overlapping region.

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2. A roll wrapping machine including a frame having rolling surfaces thereon, a rail running parallel to and located intermediate said rolling surfaces, a pair of carriages having means projecting from one side thereof movably mounting one side of said carriages on said rail, the opposite side being movably supported on a rolling surface, a means operatively connected to said carriages for synchronously shifting said carriages relatively to one another to cause adjacent ends of said rolls to overlap one another to a predetermined variable degree, means for guiding strip from each of said rolls to be wrapped, said carriages and said strip being so arranged that said strip is overlapped to a predetermined degree, and gluing means for attaching said two strips in the overlapping region.

3. In a roll wrapping machine having a supply of wrapping strip and means for applying said strip to the roll to be wrapped, a means of providing strip for different widths of roll comprising a plurality of rolls of strip arranged to supply said strip in overlapping relation, gluing means for attaching said strips in overlapping relation, and means for synchronously moving said rolls of strip axially relatively to one another to control the amount of overlap therebetween and the overall width of wrapper formed by said lapped strips, including shiftable carriages mounting said strip rolls, said carriages being movable relatively to one another in the axial direction of said rolls, a lead screw disposed to extend in the axial direction of said rolls between said carriages, and a tooth attached to each of said carriages for cooperative engagement with said lead screw.

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