June 16, 1925. 1,541,962

E. JAGENBERG

MANUFACTURE OF PACKAGES OF ROLLED WEBS OF PAPER

Filed April 12, 1924 3 Sheets-Sheet 1

Fig.1.

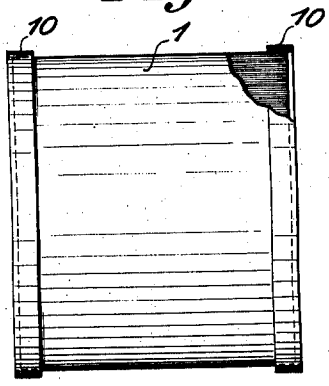



Fig.2.

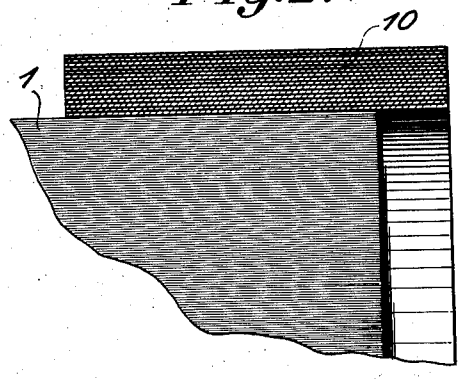



Fig.3.

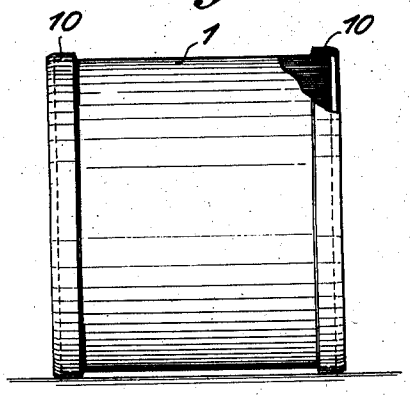



Fig.4.

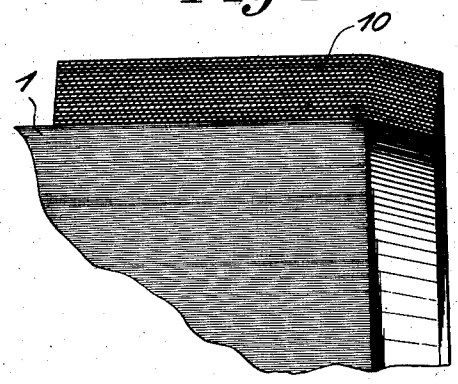
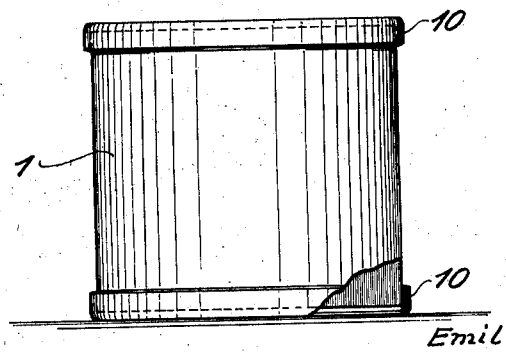



Fig.5.




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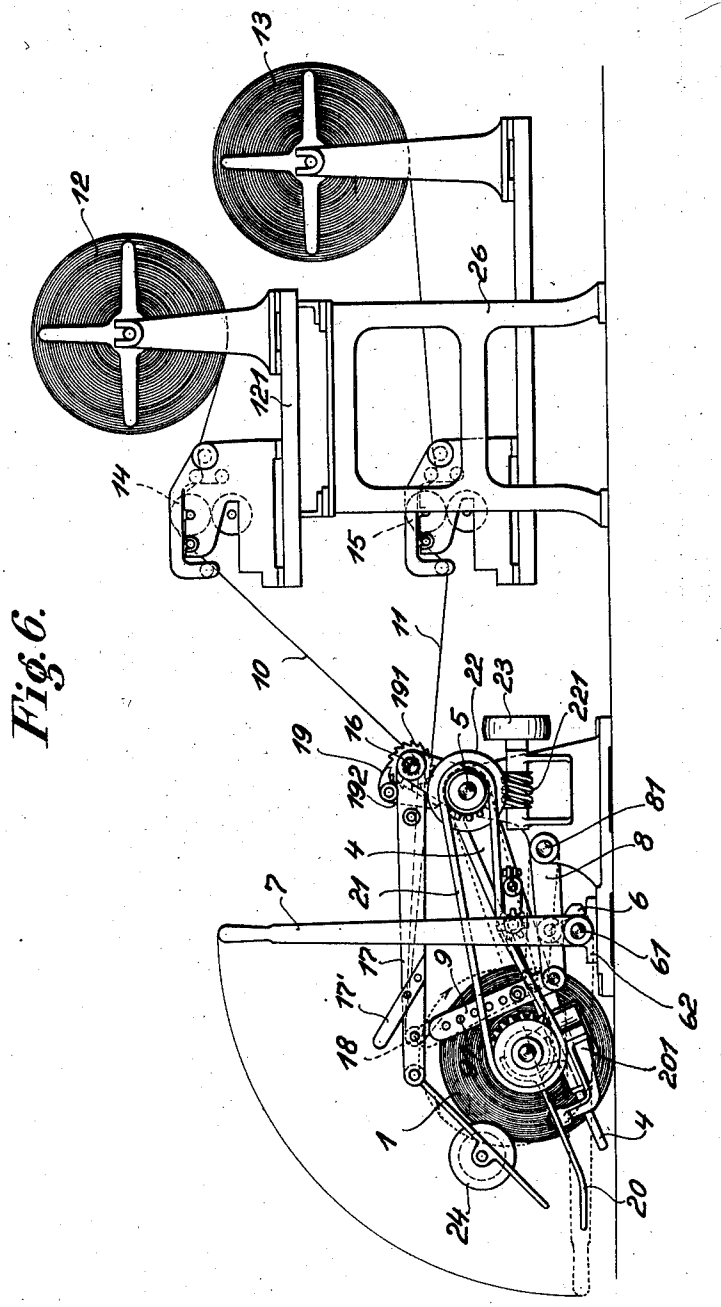



Fig. 6.

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MANUFACTURE OF PACKAGES OF ROLLED WEBS OF PAPER

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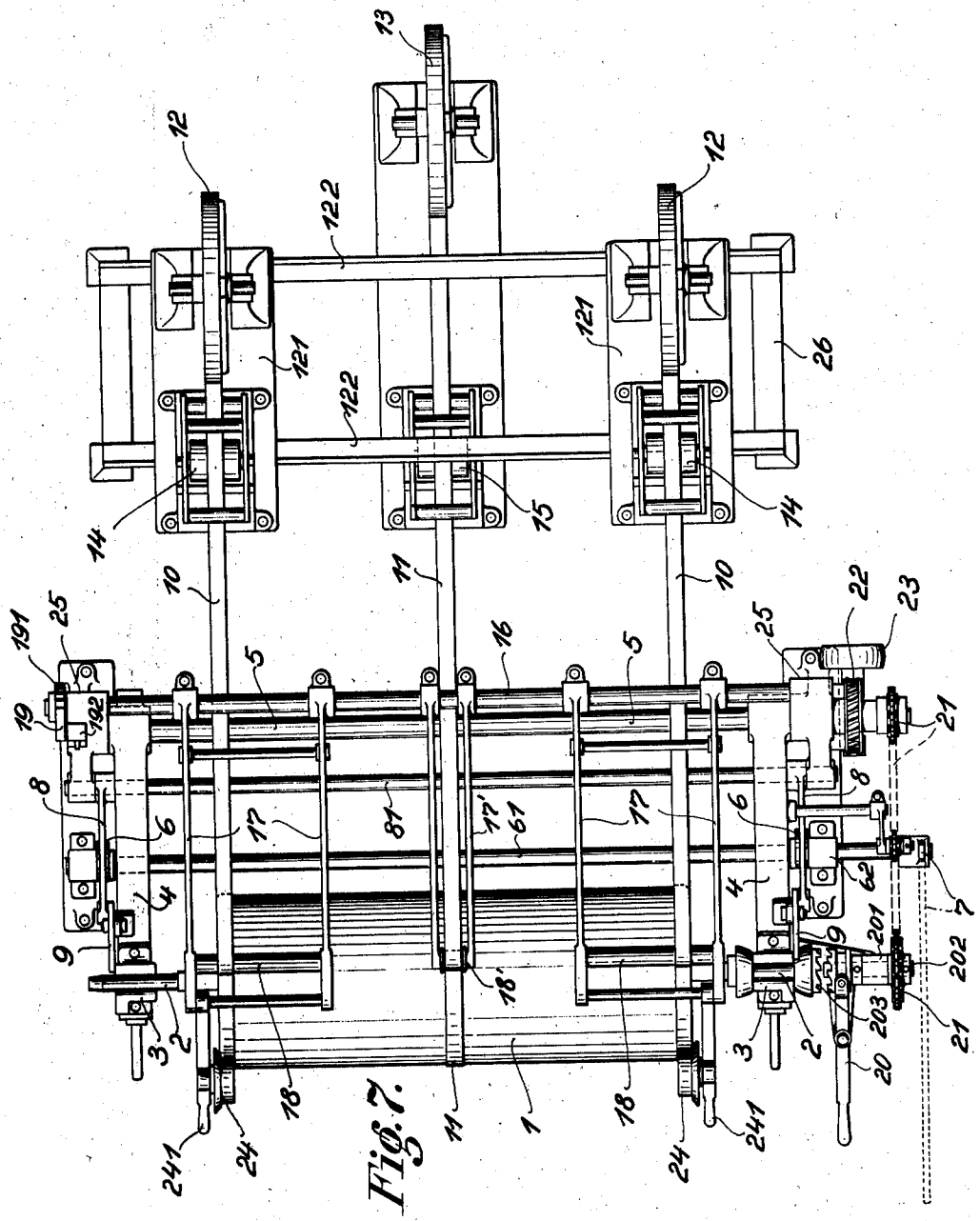


Fig. 7.

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Patented June 16, 1925. 1,541,962

# UNITED STATES PATENT OFFICE.

EMIL JAGENBERG, OF DUSSELDORF, GERMANY.

## MANUFACTURE OF PACKAGES OF ROLLED WEBS OF PAPER.

Application filed April 12, 1924. Serial No. 706,018.

*To all whom it may concern:*

Be it known that I, EMIL JAGENBERG, a citizen of the German Republic, and residing at Dusseldorf, Germany, have invented certain new and useful Improvements in the Manufacture of Packages of Rolled Webs of Paper, of which the following is a specification.

My invention relates to improvements in a method of and apparatus for packing the rolled webs, and one of the objects of the improvements is to provide a package which gives full protection to the edges of the roll and permits the same to be put on its end faces, to be tilted and to be rolled without injuring the roll. Another object of the improvements is to provide a packing machine by means of which the said package of the rolled web can readily be made.

For the purpose of explaining the invention the packed roll and the machine for making the package have been shown by way of example in the accompanying drawings, in which the same reference characters have been used in all the views to indicate corresponding parts. In said drawings,

Fig. 1, is an elevation partly in section showing the roll partly packed,

Fig. 2, is a detail sectional view on an enlarged scale showing reinforcing layers of paper applied to the margin of the roll,

Fig. 3, is an elevation similar to the one shown in Fig. 1 and showing the rollers for bending the marginal reinforcing strips in operative positions,

Fig. 4, is a detail sectional view similar to the one shown in Fig. 2 and illustrating one of the rollers,

Fig. 5, shows the packed roll complete,

Fig. 6, is an elevation showing the machine for applying the reinforcing bands to the rolled web, and

Fig. 7, is a plan view of Fig. 6.

Referring at first to Figs. 1 to 5, the rolled web 1 of paper or the like is packed by means of a pair of marginal rings 10 made from strips of paper or the like rolled around the roll in several layers, the superposed layers of the strips being bound together into a rigid ring by means of a suitable cement. As shown the said rings project beyond the edges of the roll. The thickness and the breadth of the rings are such that, after the cement has set, they are sufficiently hard to take up the shocks without injuring the edges of the rolled web. Therefore the roll reinforced by the said rings can be tilted or placed on one of its end faces without injuring the web, because the projecting portions of the rings protect the edges of the roll. Furthermore the rings provide suitable bearing members for the web when rolling the same over the ground, the rings having a function similar to tires and reducing the resistance opposed to rolling. The rings are securely held on the rolled web by the paper applied thereto in a wet state and shrinking when drying. While the strips are still wet I prefer to bend the projecting portions inwardly, which may be done for example by means of rollers 24.

The packing or reinforcing rings are applied to the rolled web by passing strips of paper over glue applying rollers 14 and winding the same in several superposed layers on the rolled web which for this purpose is rotated. While applying the strips the rollers 24 act on the same for directly bending the projecting portions inwardly and towards the end faces of the roll. In some cases, and more particularly in case of long rolls I prefer to apply one or more additional reinforcing rings 11 at parts intermediate the ends of the roll, which rings are likewise made from strips of paper.

When rolling the rolled web the surface thereof does not make contact with the ground, the rings 10 and 11 providing bearing members. In Fig. 5 I have shown a rolled web placed on one of its end faces. As shown, the bent portion of the lower ring provides a support for the roll, which protects the edge thereof also when tilting the same as is shown in the said figure in dotted lines.

In Figs. 6 and 7 I have shown a machine which is suitable for applying the paper strips.

As shown in the said figures the machine consists of a pair of frame members 25 mounted on a suitable foundation (not shown) and providing bearings for a shaft 5. On the said shaft arms 4 are rockingly mounted which are formed at their ends each with a bearing 3 adapted to support a spindle 2 carrying the rolled web 1. The arms 4 are adapted to be simultaneously rocked upwardly for lifting a rolled web supported thereon away from the ground. To show what may be done a shaft 61 is mounted in bearings 62 provided on the

frame members 25, and to the said shaft cams 6 are secured which are adapted for engagement with rock arms 8 mounted on a shaft 81 and connected by links 9 with the arms 4. To the shaft 61 an operating hand lever 7 is keyed. As shown the links 9 are provided with a plurality of bores 91 permitting the arms 4 to be connected with the links 9 different distances away from the arms 8 so as to accommodate rolls 1 of different diameters. The arms 4 are shiftable longitudinally of the shaft 5 so that spindles 2 and rolls 1 of different lengths can be readily placed on the machine.

At the rear of the frame members 25 there is a frame 26 having reels 12 and 13 of paper strips and glue applying apparatus 14 of any known or preferred construction mounted thereon. As shown the reels of paper and the glue applying apparatus are independent of each other and the reels 12 and the glue applying apparatus 14 are mounted each on a slide 121 shiftable transversely of the machine on guide members 122, so that each reel and cooperating glue appying apparatus may be set in different positions according to the length of the rolled web 1. On the frame members 25 a rock shaft 16 is mounted which has frames 17 and 17′ secured thereto, and the said frames carry rollers 18 and 18′ located above the rolled web 1. The shaft 16 is adapted to be rocked upwardly by hand for setting the rollers 18 and 18′ different distances away from the roll 1, for which purpose an arm 171 is secured to one of the frames 17. A ratchet wheel 191 is keyed to the shaft 16 which is engaged by a pawl 19 mounted on an arm 192 rising from one of the frame members 4.

On an arm 201 secured to one of the arms 4 a shaft 202 is mounted coaxially of the spindle 2, and the said shaft is adapted to be connected with the spindle by a clutch 203 operated by a lever 20. The shaft 202 is connected with a worm gearing 22 loosely mounted on the shaft 5 by means of a chain and sprocket gearing 21. The worm 221 of the gearing 22 carries a belt pulley 23 adapted to receive power from a suitable source for rotating the roll 1.

On the frames 17 rock arms 241 are mounted which carry the rollers 24.

The operation of the machine is as follows: The roll 1 having the spindle 2 passed therethrough is placed between the arms 4 with the projecting ends of the spindle above the bearings 3. Now the arms 4 are lifted so that the spindle is engaged by the bearings 3 and the links 9 are connected at the proper holes 91 with the arms 4. The hand lever 7 is rocked so that the cams 6 engage the arms 8 and elevate the arms 4 with the roll 1 clear of the ground. The strips of paper 12 and 13 are passed through the glue applying apparatus, around the shaft 16, over the rollers 18, 18′ and on the circumference of the roll 1. The rolls 18, 18′ are set the proper distance away from the roll 1 according to the desired direction of the strips passing on the roll 1, by lifting the frames 17 and 17′ and fixing the same in set position by means of the pawl 19. The clutch 201 is operated for connecting the spindle 2 to the driving mechanism, whereupon the roll 1 is slowly rotated in a direction for taking the strips 10 and 11 from the reels 12 and 13. As all the reels 12 and 13 are mounted independently of each other all the strips are wound with uniform tension around the roll 1. As the roll 1 rotates the rollers 24 bend the projecting portions of the strips 10 towards the end faces of the roll 1. After rings of the desired thickness have been produced the roll 1 is removed by first opening the clutch 203 and rocking the lever 7 into initial position, and thereafter disconnecting the links 9 and the arms 4.

While in describing the invention reference has been made to a particular example embodying the same I wish it to be understood that my invention is not limited to the constructions shown in the drawings.

I claim:

1. In a machine for packaging rolled webs, means for rotatably supporting a web roll, means for applying a protecting strip about the periphery of the roll so as to overhang an end thereof, and means having rolling contact with the protecting strip and supported by the roll to bend the overhanging portion of the strip over the end of the roll by and during movement of the roll.

2. In a machine for packing rolled webs, the combination, with a member adapted to have a rolled web rotatably supported thereon, of means to lift said member, means for imparting rotary movement to the rolled web placed on said member, and means to feed a strip of flexible material to said rolled web.

3. In a machine for packing rolled webs, the combination, with a member adapted to have a rolled web rotatably supported thereon, of means to lift said member, means for imparting rotary movement to the rolled web placed on said member, loosely and independently mounted reels of strips of flexible material in position for having the strips taken therefrom upon rotation of the rolled web, and gumming means for said strips.

4. In a machine for packing rolled webs, the combination, with a member adapted to have a rolled web rotatably supported thereon, of means to lift said member, means for imparting rotary movement to the rolled web placed on said member, coupling means for connecting said means for imparting rotary movement with the rolled web, and means to feed a strip of flexible material to said rolled web.

5. In a machine for packing rolled webs,

the combination, with a support for a rolled web, and means for rotating the rolled web, of means to feed a strip of flexible material to the rolled web at the margin thereof, mean for bending the portion of the strip projecting beyond the edge of the rolled web toward the end face of the rolled web, and means to apply cement to the strip.

6. In a machine for packing rolled webs, the combination, with a support for a rolled web, and means for rotating the rolled web, of means to feed a strip of flexible material to the rolled web at the margin thereof, a roller supported by the rolled web and having rolling contact therewith for bending the portion of the strip projecting beyond the edge of the rolled web toward the end face of the rolled web, and means to apply cement to the strip.

7. In a machine for packing rolled webs, the combination, with a member adapted to have a rolled web rotatably supported thereon and comprising two bearings shiftable towards and away from each other to accommodate rolls of different lengths, of means to lift said member, means for imparting rotary movement to the rolled web placed on said member, and means to feed a strip of flexible material to said rolled web.

8. In a machine for packing rolled webs, the combination, with a member adapted to have a rolled web rotatably supported thereon and comprising a shaft, a pair of arms rockingly mounted thereon and adjustable longitudinally of the axis of the shaft, bearings one on each of said arms, and a spindle adapted to be passed axially through said rolled web and to be mounted in said bearings, of means to lift said arms, means for imparting rotary movement to the rolled web placed on said member, and means to feed a strip of flexible material to said rolled web.

In testimony whereof I affix my signature.

EMIL JAGENBERG.