Jan. 24, 1939. G. W. OWENS 2,144,686

ROLL FINISHING DEVICE

Filed Dec. 12, 1935 2 Sheets-Sheet 1

Fig. 1.

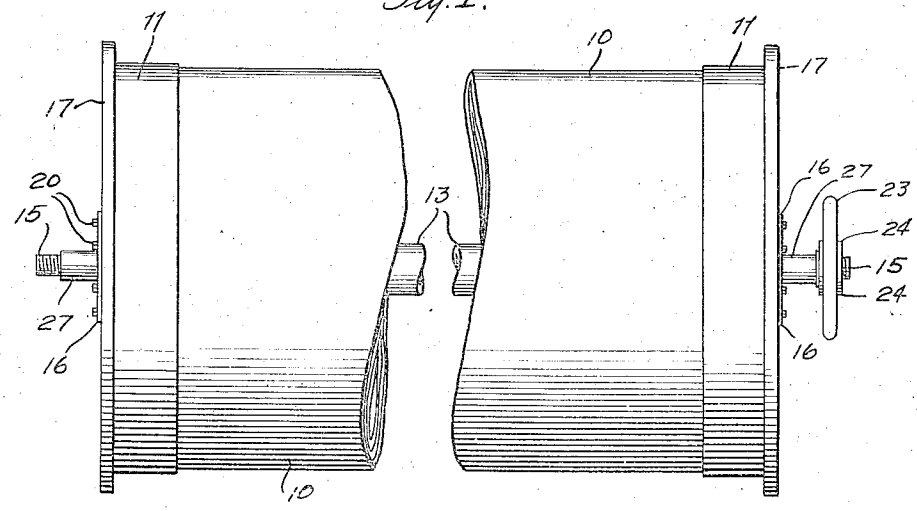


Fig. 2.

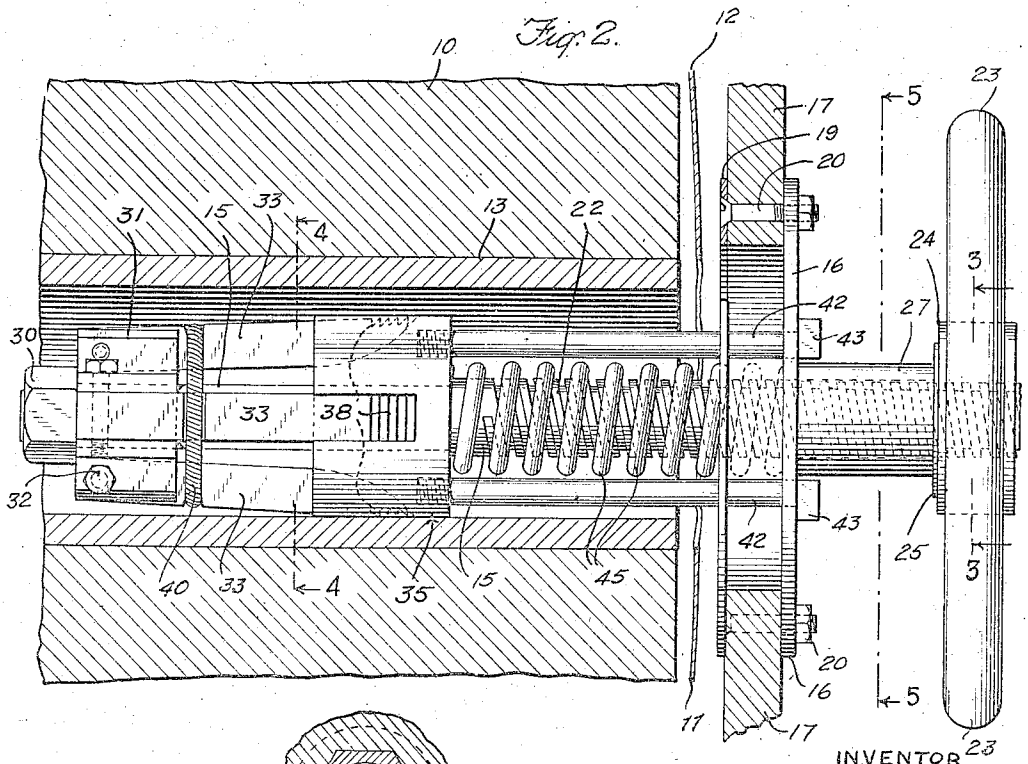
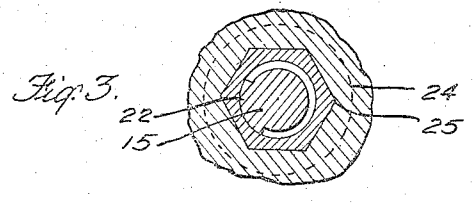


Fig. 3.



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Filed Dec. 12, 1935 2 Sheets-Sheet 2

Fig. 4.

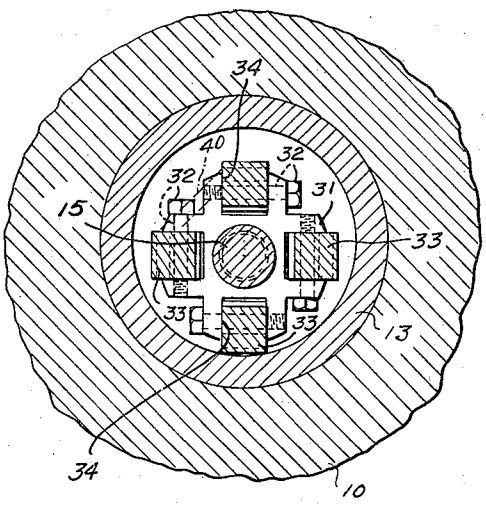
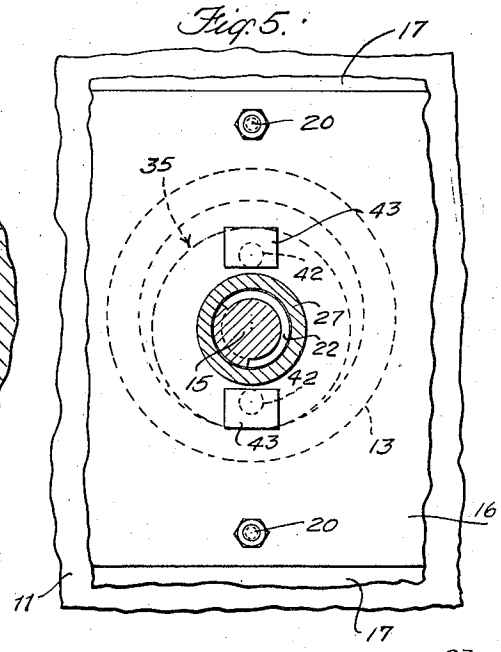


Fig. 5.



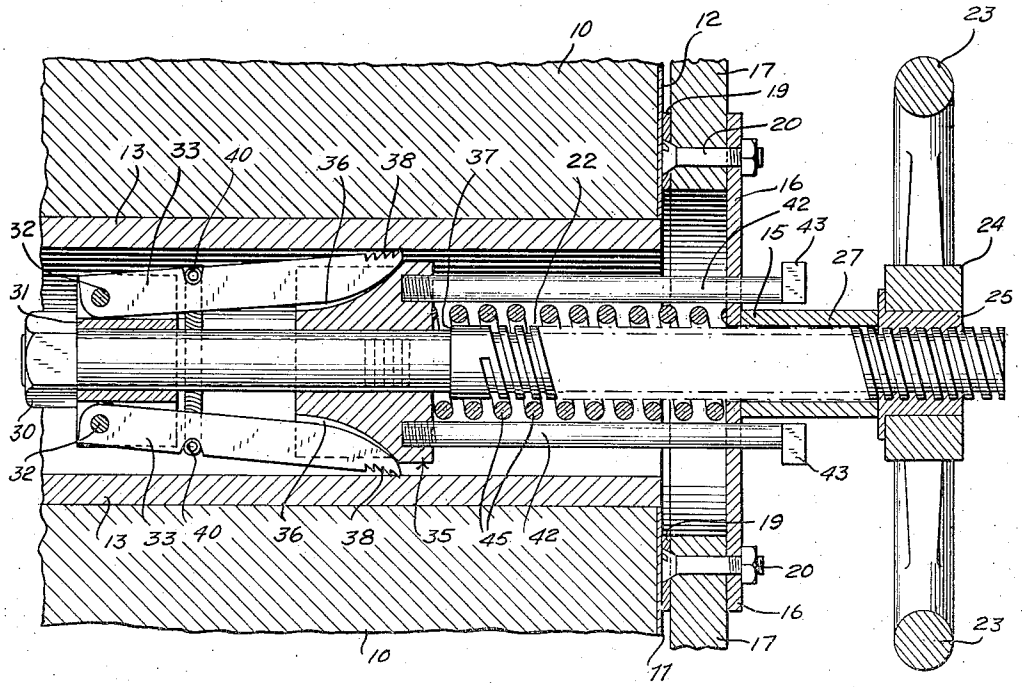


Fig. 6.

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UNITED STATES PATENT OFFICE

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ROLL FINISHING DEVICE

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Application December 12, 1935, Serial No. 54,015

3 Claims. (Cl. 93—2)

My present invention relates to improvements in roll finishing devices. In most paper mills it is the practice to cover the rolls of paper as they are delivered from the paper making machines with one or more layers of wrapping paper usually waterproofed. When such paper has been wrapped around the roll, the ends thereof project over the ends of the roll (or have pasted thereon portions which do so); such projecting portions must then be folded down over the end of the roll and secured in place, as for example by placing a disk of larger diameter on the end of the roll, then folding and pasting the excess portion of the disk over on the cylindrical surface of the roll. Or other means may be employed for finishing the roll. However, in order to facilitate the securing together of the ends of the paper which have been folded over the end of the roll, it is desirable to employ a clamping device of some sort which will hold the folded portions tightly against the end of the roll until the finishing surfaces can be secured in place.

It is a principal object of the present invention to provide such a clamping device which may be readily secured within the hollow spindle of the roll and brought home tightly against the surface constituting the end of the roll.

To this end the invention consists of the novel arrangement of parts about to be described, the features of novelty being pointed out in the appended claims.

The device will be best understood by reference to the following detailed description taken with the accompanying drawings in which

Figure 1 shows a roll of paper with my improved device in place at each end,

Figure 2 is a view on a larger scale through the core of the roll showing a preferred embodiment of my device inserted, parts being in section.

Figure 3 is a view taken along section 3—3 of Figure 2.

Figure 4 is a section along section 4—4 of Figure 2.

Figure 5 is a view along section 5—5 of Figure 2.

Figure 6 is a view similar to Figure 2 showing the device in clamped position.

Referring now to Figure 2, a roll of paper 10 is shown provided with an end covering 11, the portion thereof which extended beyond the roll having been folded over the roll end, one such fold being indicated at 12 Figure 2. The roll 10 has a hollow iron core 13 into which is to be inserted the clamping portion of my device. The latter comprises a shaft 15 which passes through a metal plate 16 secured to a disk 17 of ply wood or other suitable material, such plate being disposed so as to cover a circular hole in the disk as is shown. On the reverse side of the disk 17 is a ring 19 through which pass bolts 20 by means of which the plate 16 is secured to the disk 17. Shaft 15 is provided with a screw thread 22 on which turns a hand wheel 23 having a hub 24, the latter preferably being provided with an interior threaded bushing 25 which may be of hexagonal shape as shown in Figure 3 so as to have locking, yet removable, engagement with the hub 24. The wheel 23 is caused to exert pressure against the plate 16 by means of a sleeve or bushing 27 slidable on the shaft 15.

In order to secure the device within the core 13 a clamping device is provided as follows:

Secured to the end of the shaft by means of a nut 30 is a fitting 31 in which is pivotally secured by pivots 32 locking dogs 33, such dogs riding in grooves 34 of the fitting as best shown in Figure 4. Co-acting with the dogs 33 is a member 35 having cam grooves 36 to receive corresponding surfaces of the dogs, the movement of the member 35 to the right of Figures 2 and 6 being limited by a shoulder 37 of the shaft 15. Preferably the engaging portions of the dogs are provided with teeth 38. When the device is not engaged with the core 38, the dogs are maintained in a retracted position by means of a circular coil spring 40 resting in corresponding notches of the dogs, such spring being under tension at all times. In order to keep the member 35 from rotating, the same is provided with preferably four holding rods or bolts 42 which are threaded into the end of the cam member and extended parallel to and surround the shaft 15 passing through the plate 16. This arrangement permits the plate 16 to slide freely with respect to the bolts, but such movement being limited in one direction by means of bolt heads 43. Extending between the end of the cam member 35 and the plate 16 is a tension spring 45 preferably coiled around the shaft 15.

The operation of my improved device will now be apparent. With the wheel 23 in retracted position the device is inserted within the core preferably as far as it will go (the space between the plate 17 and the end of the roll in Figure 2 being exaggerated for sake of clearness) and the locking dogs 33 brought into operative position by turning up on the hand wheel 23. In so doing the disk 17, and consequently the entire clamping device, will be held manually against rotation until the locking dogs 33 start to hold, whereby

rotation inward of the wheel 23 will first press the sleeve 27 against the plate 16 after which continued movement of the wheel will cause the shaft 15 to be withdrawn slightly thereby bringing the end 30 of the shaft carrying the dogs 33 toward the cam block 35 and causing the dogs to move upward and grip the interior surface of the core 13, the cam block being prevented from moving more than slightly to the right by means of the spring 45. After the dogs assume a gripping position further rotation inward of the wheel 23 will no longer cause the shaft 15 to move but instead said wheel or rather the bushing 27 will be drawn tightly against the plate 16 thereby bringing the disk 17 tightly against the end of the roll and compressing and clamping the paper wrapper.

The rolls may be finished using my improved device in the following manner:

When the roll of paper is brought to the finishing room it usually has thereon a waterproof wrapper which projects several inches beyond the ends of the roll. It is then usual to place one or two additional wrappers on the roll which may project even further over the ends as for example a total of eight inches. The ends of the wrappers are now broken down over the ends of the roll and one or more roll head wrappers or disks of the diameter of the roll without paste are placed over the ends thereof. Then a roll head wrapper, say eight inches larger in diameter than the roll is placed over said end wrappers. This larger wrapper has its outer circumferential portion cut radially to a depth of four inches, and the serrations thus formed coated with glue. The clamping device is then inserted and the clamping disk 17 brought home against the end of the roll. The serrated ends are now turned down and pasted against the cylindrical surface of the roll whereupon a band of gummed kraft tape 11, Fig. 1, is pasted around the circumference of the roll at each end thus sealing the roll head in place. The gum sticks upon contact and the finishing device is then withdrawn.

It will be understood that my improved device while primarily designed for the specific purpose disclosed is useful in any case where it is required to anchor a plate or other object tightly against any surface which is provided with an internal bore. It will also be understood that various changes may be made in the specific construction shown without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. A device for finishing the paper wrappings on the ends of a hollow cored paper roll, said device comprising a shaft adapted to be inserted within the core, and an expansible clamping unit carried by one end of the shaft for clamping the same within the core, a press plate carried by said shaft and movable thereon, a rotatable hub on the other end of said shaft, means for translating rotation of said hub into core engaging expansion of said clamping unit and means whereby continued rotation of the hub forces the plate against the end of said roll to compress and clamp the end wrappings thereon.

2. A device for finishing the paper wrappings on the ends of a hollow cored paper roll, said device comprising an apertured annular plate and means for forcing the plate against the end of the roll to compress and clamp the end wrappings thereon, said means comprising a shaft passing through the aperture in the plate and adapted to be inserted into the core of the roll, the shaft having means at one end for gripping the core and having means at the other end for forcing the plate against the end of the roll to compress and clamp the end wrappings thereon.

3. A device for finishing the paper wrappings on the ends of a hollow cored paper roll, said device comprising an apertured annular plate and means for forcing the plate against the end of the roll to compress and clamp the end wrappings thereon, said means comprising a shaft transfixing said plate and adapted to be inserted within said core, clamping means carried by one end of said shaft for clamping said shaft within said core, spring means interposed between said clamping means and said plate, and a hub screwed upon the other end of said shaft and engaging one face of said plate whereby said plate may be forced against the end of the roll.

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