(No Model.)

J. WALDRON.

WINDING ROLL FOR WINDING PAPER AND OTHER FABRICS.

No. 385,026. Patented June 26, 1888.

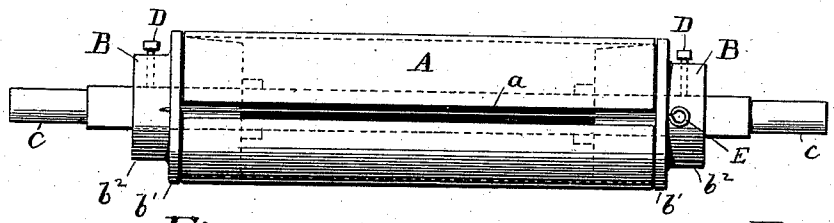


Fig. 1

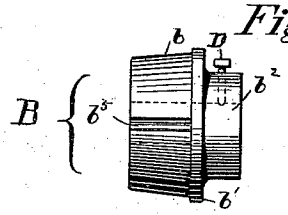


Fig. 3.

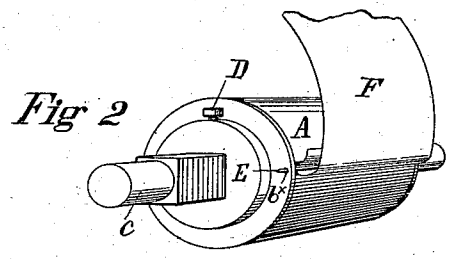


Fig 2

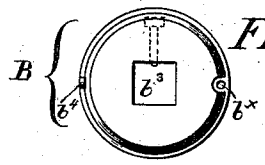


Fig. 4.

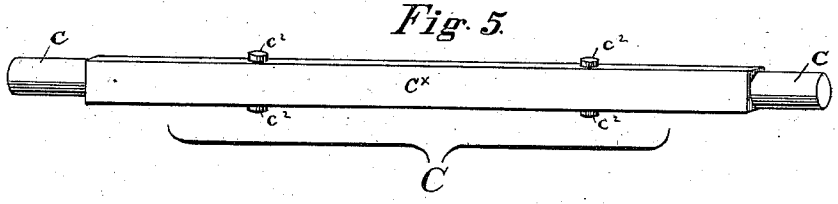


Fig. 5.

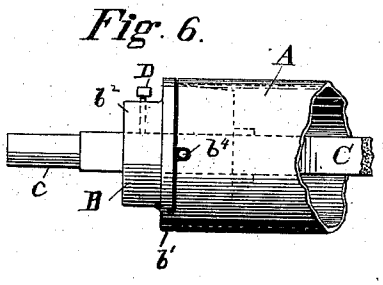


Fig. 6.

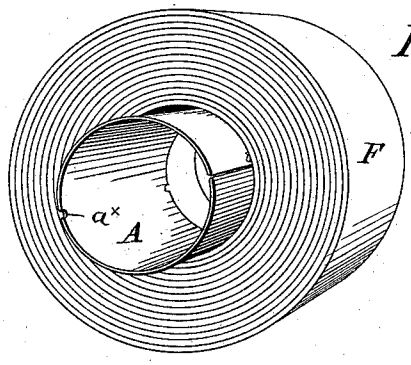


Fig. 7.

WITNESSES:

R B Shepherd

F. Norman Dixon.

John Waldron

INVENTOR

By his Attorneys,

W. C. Munn & Co

J Bonsall Taylor.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOHN WALDRON, OF NEW BRUNSWICK, NEW JERSEY.

WINDING-ROLL FOR WINDING PAPER AND OTHER FABRICS.

SPECIFICATION forming part of Letters Patent No. 385,026, dated June 26, 1888.

Application filed July 28, 1887. Serial No. 245,474. (No model.)

To all whom it may concern:

Be it known that I, JOHN WALDRON, a citizen of the United States, residing in New Brunswick, in the State of New Jersey, have invented certain new and useful Improvements in Winding Rolls for Winding Paper and other Fabrics, of which the following is a specification.

My invention relates to a class of winding rolls largely employed in the manufacture of coated papers such as wall papers,—but also employed in other branches of manufacture, for winding into wound rolls strips of various fabrics.

Heretofore, as winding rolls of the foregoing character have been constructed, it has been difficult to remove from them a completely wound roll of paper or other material, for the reason that the frictional grip of the fabric upon the roll has been such as to hold the latter very firmly within the core of the roll. It has been the practice in the manufacture of coated wall papers, to employ winding rolls made of two parts or sections oppositely tapered off, or so conformed as to overlap each other and to be removable by withdrawal of the respective sections from the respective ends of the wound roll.

The object of my invention is the construction of a collapsible winding roll which is so constructed as to be of a given diameter at the time of commencing and during the operation of winding the fabric upon it, but which is adapted to be collapsed or rendered of less diameter after the winding has been completed, so that said winding roll is readily removable from the wound roll of fabric.

A good form of winding roll embodying my invention is represented in the accompanying drawings and described in this specification, the particular subject matter claimed as novel being hereinafter definitely specified.

In the drawings, Figure 1 is a view in front elevation of a winding roll in readiness for use. Fig. 2 is a view of the same in perspective, showing the mode of attachment of the end of the strip of the fabric to be wound. Fig. 3 is a side elevational, and Fig. 4 an inside end, view, of one of the spreading heads removed from the shaft and shell. Fig. 5 is a view in perspective of the shaft alone. Fig. 6 is a fragmentary rear elevational view of a portion of the end of the roll in readiness for use, the view being supposed to represent the back face of the right hand end portion of the roll of Fig. 1. Fig. 7 is a view in perspective of a wound roll of fabric, and of the shell collapsed and supposed being removed from said roll after the removal from the latter of the shaft and spreading heads.

Similar letters of reference indicate corresponding parts

In the drawings, A represents a collapsible cylindriform shell of metal or other elastic material; the same being, in fact, a thin-walled tube longitudinally slit or divided along a line parallel with its axis. This shell constitutes the body of the winding roll, and is of a length preferably slightly in excess of the breadth of the strip of fabric to be wound upon it. The shell is preferably made by sawing a longitudinal slit in a section of a tube formed of thin steel, brass, copper, or other metal. The normal breadth of the slit, which is lettered *a*, is that of the saw or other tool employed to cut or form it, and the shell when slit is of a given diameter, which, for the sake of illustration, I will call four inches. It is obvious that, by reason of this slit, it is possible to uniformly expand the tube so as to temporarily increase the breadth of the slit and augment the diameter of the tube to the required extent,—for instance, to four and one quarter inches. When expanded the shell is of a diameter required or desired for the winding of the fabric. It is also obvious that when the means employed to temporarily expand the shell are withdrawn, the shell, by reason of its resilience, will collapse or restore itself to its original and normal diameter.

The means which I employ to effect the expansion of the shell are a couple of spreading heads B, the same being alike, and each being formed with a tapering face *b*,—a circumferential flange *b'*, and a neck *b²*. The taper of the face of each head is greatest where the face joins the flange and least at the edge farthest from the flange. The face of each head is as to its smallest diameter such as to enter the end of the slit roll when the latter is of its normal diameter or collapsed, and as to its greatest diameter such as to cause, when the head is forced into the end of the shell, the expansion of the latter to its desired and

greatest diameter. Each head is axially apertured as at b^3, the aperture being in section preferably square or other than circular.

C is a shaft of length sufficient to extend completely through the shell, and through both heads when the latter are respectively applied to the respective extremities of the shell.

The extremities c of the shaft are turned to form gudgeons so as to permit of the rotation of the shaft in boxings, while the central body $c^\times$ of the shaft is squared, or otherwise conformed to the apertures of the heads, so that the heads when applied upon the shaft are prevented from rotating and fit snugly upon said shaft.

The neck of each head is radially bored and threaded to contain a set screw D, by means of which the heads are fixed longitudinally in position upon the shaft.

The face of each head is provided, conveniently close to the flange, with a lug b^4 which is adapted to engage a notch $a^\times$ in the extremity of the shell, the two notches being preferably formed upon the body of the shell radially opposite to its slit.

It is obvious that when one of the heads is applied to, and by the aid of the set screw locked in place upon, the shaft, the shell can be introduced over the shaft and the other head then applied and forced into and down upon the shell until the latter is expanded between the two heads and caused to abut as to its respective ends against the flanges of the respective heads,—such application being necessarily accomplished by the expansion of the shell itself and the registry of its notches with the lugs on the heads, so that the shell when expanded cannot, even were its frictional grip sufficiently loose to permit it to, turn with respect to the heads.

The expanded shell upon the heads locked upon the shaft, of course presents a slit of greater breadth than the slit in the shell when collapsed, and this opening or broadening of the slit I utilize for the passage of a fastening pin E introduced through holes $b^\times$ formed in the respective flanges of the heads, and also passing through, or more strictly lying within, pin channels b^5 formed longitudinally in the faces of the respective heads.

By the application of the fastening pin the end of the strip of fabric, F, to be wound, can be securely and conveniently temporarily connected with the shell by being passed into and out of the slit and beneath the pin, as shown in Fig. 2.

C^2 are what I term concussion studs, applied to the body of the shaft in such position as to come against the inner wall of each head. The object of these pins is to permit of the collapsing of the shell by maintaining the upper head from movement downward on the shaft when the latter, with the wound roll upon the shell, is stood upon end and raised and struck down upon the floor, to permit of the driving down and out from within the shell, by the concussion of the shock, of the lower head, the set screw of which is of course first eased up or loosened. These studs are simply devices of convenience, and the heads can be withdrawn or removed from the position which they assume when the shell is completely expanded in any preferred manner, but little effort being required to move them longitudinally apart on the shaft and permit of the collapsing of the shell.

The fastening pin is preferably withdrawn before the shell is collapsed. The lugs on the heads are also devices of convenience and not essential to the operation of the device, the gist of which consists in the application to a winding shaft by means of tapering or spreading heads fitted upon said shaft, of a slit shell of elastic material adapted to be expanded under the approach of the heads upon the shaft and to be collapsed by the recession of said heads.

Having thus described my invention, I claim:—

1. The combination, to form a winding roll, of a shaft, a slitted shell of elastic material, and a pair of spreading heads, substantially as set forth.

2. The combination, to form a winding roll, of a shaft, a slitted shell of elastic material, a pair of spreading heads, and a fastening pin, substantially as set forth.

3. The combination, to form a winding roll, of a winding shaft, two spreading heads fitted for endwise movement upon said shaft and having oppositely tapering faces, and a longitudinally slitted shell of elastic material, adapted to be diametrically expanded by forcing into it the tapering faces of the spreading heads, and mounted upon the shaft, substantially as set forth.

4. The combination, to form a winding roll, of a winding shaft, two spreading heads fitted for endwise movement upon said shaft and having oppositely tapering faces, a longitudinally slitted shell of elastic material, adapted to be diametrically expanded by forcing into it the tapering faces of the spreading heads, and mounted upon the shaft, and a fastening pin applied to the heads and passing through the expanded slit of the shell, substantially as set forth.

In testimony whereof I have hereunto signed my name this 22d day of July, A. D. 1887.

JOHN WALDRON.

In presence of—

CHAS. D. HELM,

W. E. VAN DEVENTER.