

(No Model.)

E. W. BARTON.
CONTRACTING CORE FOR PAPER ROLLS.

No. 459,265.

Patented Sept. 8, 1891

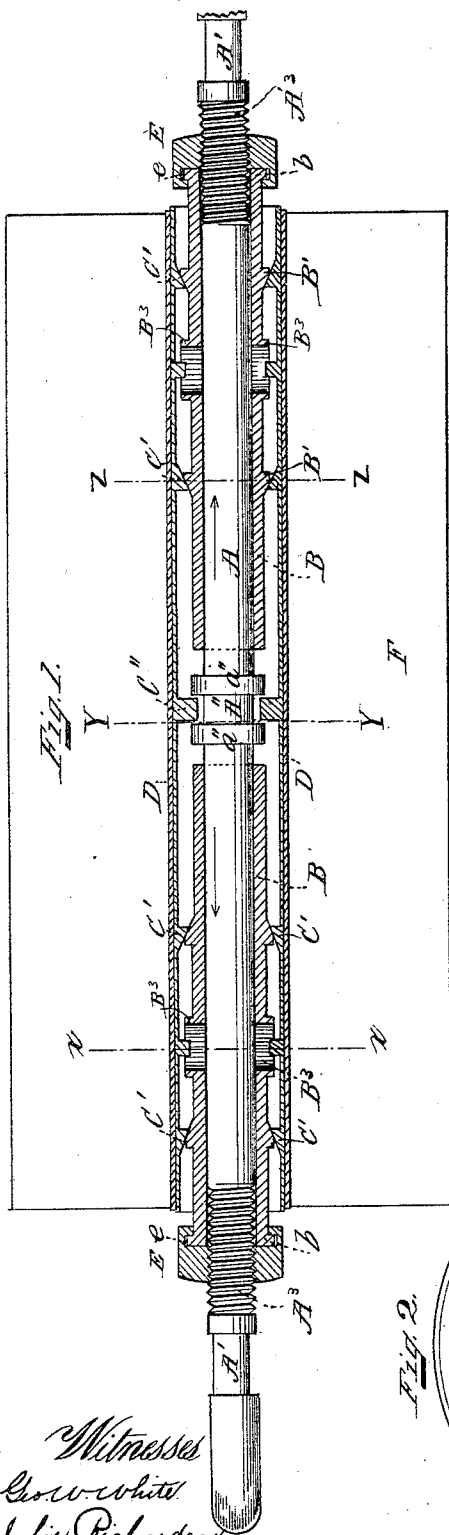


Fig. 1.

Fig. 2.

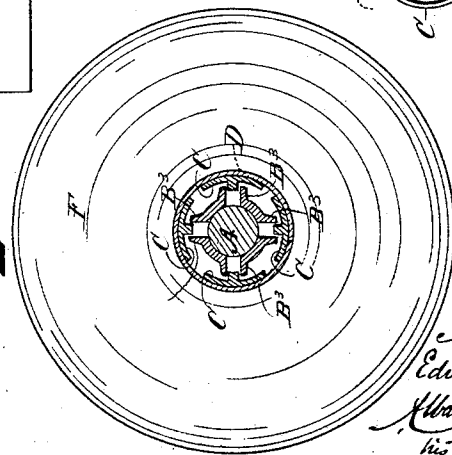


Fig. 3.

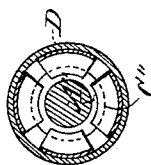


Fig. 4.

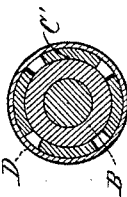


Fig. 5.

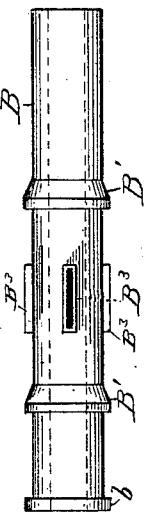
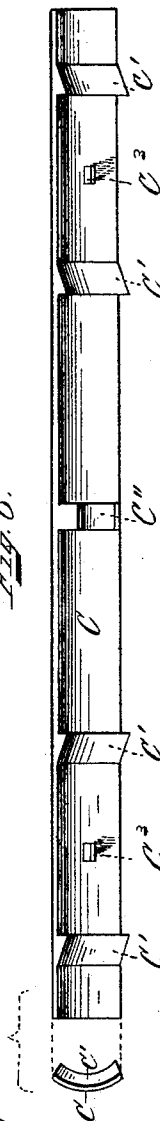


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWIN W. BARTON, OF LAWRENCE, MASSACHUSETTS.

CONTRACTING CORE FOR PAPER ROLLS.

SPECIFICATION forming part of Letters Patent No. 459,265, dated September 8, 1891.

Application filed October 13, 1890. Serial No. 367,932. (No model.)

To all whom it may concern:

Be it known that I, EDWIN W. BARTON, a citizen of the United States, and a resident of Lawrence, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Contracting Cores for Paper Rolls, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to expanding and contracting cores for paper rolls, and has for its object to provide novel means for expanding and contracting the core without the necessity of in any way manipulating the central shaft which serves to support the core in bearings. To accomplish this object my invention involves the features of construction, the combination or arrangement of devices, and the principles of operation hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 represents a central longitudinal section of the invention, showing the central shaft in elevation. Fig. 2 represents a cross-section on the line X X, shown in Fig. 1, Fig. 3 represents a cross-section on the line Y Y, shown in Fig. 1, Fig. 4 represents a cross-section on the line Z Z, also shown in Fig. 1. Fig. 5 represents a side elevation of one of the expansion-sleeves, and Fig. 6 represents in perspective and end views one of the expansion-bars forming a part of the structure.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In the drawings, A represents a central shaft, having journals A' A' near its ends, as usual, for the purpose of supporting it in bearings while the paper is being wound upon the core and unwound from it. Midway between its ends, or nearly so, the said shaft has an annular groove A'', preferably located between shoulders a'' a'', as shown in Fig. 1, the purpose of which will hereinafter be described.

On the shaft A is located a pair of longitudinally-adjustable expansion-sleeves B B, each such sleeve being provided with one or more cones or tapering shoulders B' B', adapted to rest and press against correspond-

ing tapering projections or inclines C' C' on segmental expansion-bars C C, as shown in the drawings.

C'' is a projection on the inside of each bar C, adapted to rest in the annular groove for the purpose of preventing longitudinal movement of said expansion-bars relative to the shaft A during the longitudinal adjustment of the expansion-sleeves B B.

For the purpose of arranging and keeping the bars C C at equal distances apart around the sleeves B B, I make studs or projections C³ C³ on the under side of each of the said bars C, adapted to project into slots or perforations B³ B³ in the sleeves B B, as shown in Figs. 1, 2, 5, and 6.

The bars C C are surrounded by a flexible sheath or tube D, preferably made of india-rubber, which forms a protecting cover for the expansion-bars C and serves to positively retract the said bars when the sleeves B B are moved in the direction of arrows shown in Fig. 1.

Each sleeve is longitudinally adjustable on the shaft A by means of a nut E, engaging the screw-threaded part A³ of the shaft A, such nut having an annular groove e, adapted to receive the annular projection or flange b on the end of the said sleeve B, as shown in Fig. 1, so that the nut is thereby swiveled or journaled to freely rotate on the end of the sleeve in such manner that the sleeve is moved lengthwise on the central shaft A for the purpose of expanding or contracting the core without the necessity of in any way manipulating such central shaft A, by which means it is possible to expand and contract the core while the shaft is journaled in its bearings and is held against lengthwise movement.

F represents the spirally-wound paper roll surrounding the elastic tube D, as shown in Figs. 1 and 2.

The operation of the device is as follows: Before the paper is wound upon the improved core the bars C C are expanded by moving the sleeves B B toward the middle of the shaft A, as shown in Fig. 1. The paper is then wound spirally around the expanded elastic sleeve D, that incloses the bars C C, until the paper roll is made of the desired diameter,

when the device is removed from within the roll F simply by moving the sleeves B B in the direction shown by arrows in Fig. 1, causing the inclines B' B' to recede from the inclines C' C' on the bars C C, allowing the latter to be contracted by the elastic tube D, which surrounds them and draws them together as soon as they are released from the cones B' B'. After the device has thus been contracted it is withdrawn from the central perforation in the paper roll, leaving the latter without any tube or other device, in which condition it is shipped to the consumer, where a duplicate core is introduced into the central cavity of the paper roll and expanded until secured thereto, when the paper may be unwound and used as usual.

By my invention I provide a core which can be contracted and expanded without in any way manipulating the central shaft which serves to support the core, while if the sheath that serves to cover and protect the expansion-bars is made of elastic material it also fulfills the conditions required to positively retract such bars.

The invention provides a novel and desirable core for paper rolls and avoids the necessity of shipping the core with the paper roll for its subsequent removal by the consumer.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

1. The combination, in a core for paper rolls, of a smooth-surfaced shaft, sleeves moving lengthwise on the shaft and provided with cones or tapering shoulders affixed thereupon, a series of expansion-bars having tapering projections on their inner sides, and means for moving the sleeves lengthwise independent of any movement of the central shaft, substantially as described.

2. The combination, in a core for paper rolls, of a central shaft having smooth surfaces and screw-threaded end portions, a pair of sleeves movable lengthwise on the shaft and having cones or tapering shoulders, a series of expansion-bars having tapering projections on their inner sides, and screw-nuts engaging the screw-threaded portions of the central shaft and acting upon the sleeves for the purpose of adjusting them lengthwise independent of any movement of the central shaft, substantially as described.

3. The combination, in a core for paper rolls, of a central shaft, a pair of sleeves movable lengthwise on the shaft and having cones or tapering shoulders, a series of expansion-bars having tapering projections on their inner sides, means for adjusting the sleeves lengthwise to expand the expansion-bars, and an elastic sheath which wholly incloses and protects the expansion-bars and serves to positively retract the same, substantially as described.

4. The combination, in a core for paper rolls, of a central shaft having smooth surfaces and screw-threaded end portions, a pair of sleeves movable lengthwise on the shaft and having cones or tapering shoulders, a series of expansion-bars engaged with the central shaft at a point between the inner ends of the sleeves and provided with internal tapering projections, and means for moving the sleeves lengthwise on the central shaft, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 13th day of September, A. D. 1890.

EDWIN W. BARTON.

Witnesses:

ALBAN ANDRÉN,
GEO. W. WHITE.