No. 842,862. PATENTED FEB. 5, 1907.

C. L. CRANE.

CORE FOR PAPER AND FABRIC ROLLS.

APPLICATION FILED NOV. 23, 1906.

Fig. 1.

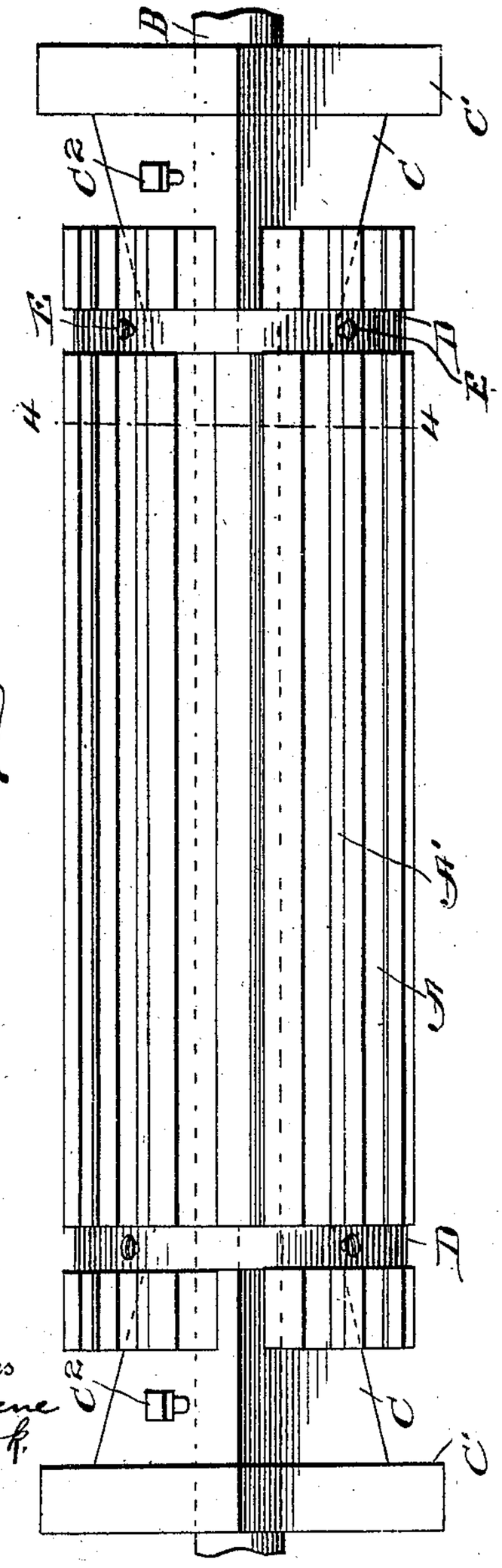


Fig. 2.

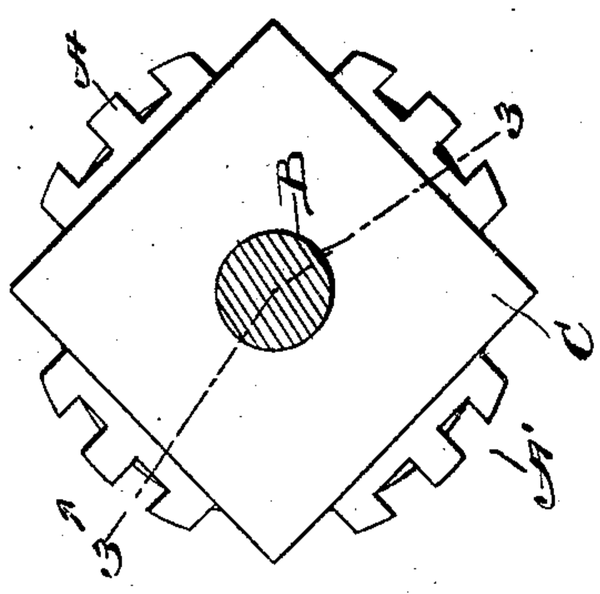


Fig. 3.

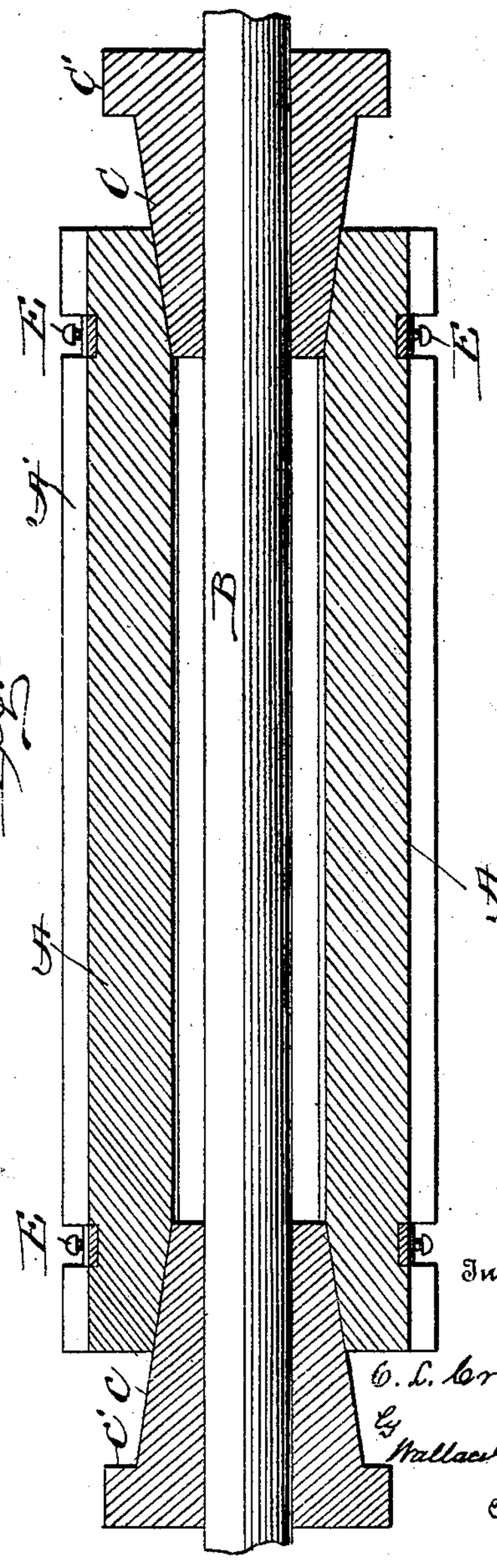
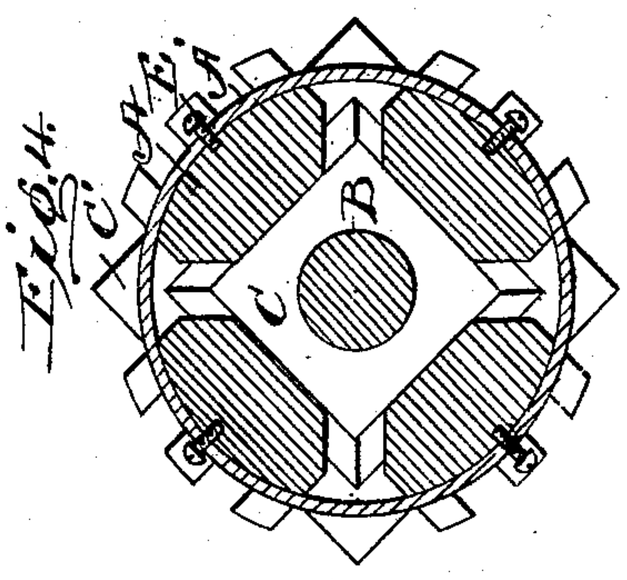


Fig. 4.



Witnesses
R. C. Greene
P. D. Cook.

Inventor
C. L. Crane.
by Wallace Greene,
Attorney

UNITED STATES PATENT OFFICE.

CHARLES L. CRANE, OF WILLIMANTIC, CONNECTICUT.

CORE FOR PAPER AND FABRIC ROLLS.

No. 842,862. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed November 23, 1906. Serial No. 344,704.

To all whom it may concern:

Be it known that I, CHARLES L. CRANE, a citizen of the United States, residing at Willimantic, in the county of Windham and State of Connecticut, have invented certain new and useful Improvements in Cores for Paper and Fabric Rolls, of which the following is a specification.

My invention relates to expansible cores for rolls of paper, fabric, and the like; and its objects are to produce a device that shall be simple and inexpensive and that may be expanded and released almost instantly without the use of any special appliances. Many devices for the same general purpose have been produced; but so far as I am aware they are not used generally because they are neither simple nor quickly operated.

In the accompanying drawings, Figure 1 is a side view of the device clamped upon a shaft. Fig. 2 is an end view of the same device. Fig. 3 is a section on the line 3 3 of Fig. 2. Fig. 4 is a section on the line 4 4 of Fig. 1.

The body of the core is cylindrical in form and made up of slightly-separated bars A, (shown in this instance as four in number,) each having a plane inner surface intended to lie at some distance from and parallel to the axis of a shaft B, upon which the core is to be detachably fixed, the bars symmetrically arranged about the shaft, each occupying the greater portion of a quadrant. Each bar has longitudinal grooves A in its outer cylindrical surface and is cut away internally at each end to receive pyramidal wedges C, slipped upon the shaft, inserted in each end of the core, provided with projections or shoulders C′ at some distance from the ends of the core, and at will locked to the shaft to prevent either sliding or relative rotation by any suitable devices—for example, set-screws C^2. To limit the outward movement of the bars A under the action of the wedges and also to hold the bars in proper relative position and always in position for the insertion of the wedges, the cylindrical body formed by the bars is circumferentially grooved quite deeply near its ends to receive rings D, preferably of metal, the thickness of which is much less than the depth of the grooves, in which the rings move freely. Each bar is secured to each ring by devices which allow the ring to move in or out in the groove, but prevent its sliding circumferentially therein, or which conversely allow the bars to move radially through a limited distance with respect to the ring, but not to slide around the ring and vary their distance from each other. For illustration, I have shown such devices as consisting of screws E, each passing loosely through a hole in the ring and engaging the block beneath, but not screwed in far enough to bind the ring and prevent the block and screw from moving radially through a distance equal to the difference between the length of the free portion of the shank of the screw and the thickness of the ring. The screw-head is always within the elements of the external surface of the core, and thus the ring is always kept within those elements.

In using the apparatus one of the cores or pyramidal wedges is fixed upon the shaft, the core is put approximately in place, the remaining wedge is slid into position and forced inward—for example, by a blow of a wrench—and the set-screw is firmly seated, thus locking the whole device securely and rigidly to the shaft. When the material has been wound upon the core, the latter is quickly released and allowed to collapse to the desired extent by simply loosening one set-screw and giving a blow upon the projection or shoulder C′. In winding paper or fabric upon a core the first turns are drawn taut and there is little danger of the slipping of the roll, whatever the form of the core. When, however, the roll is placed again upon a core for unwinding, it is not easy to prevent slipping as the goods are unwound if the core be of ordinary form. My core eliminates that evil, for the longitudinal grooves and spaces between the bars make the core practically polygonal, and the wedges fitting the long bevels at the ends of the bars are readily made to force the bars outward with sufficient force to securely engage the ribs with the inner surface of the roll by sinking slightly into the same or making it again slightly polygonal rather than by purely frictional engagement.

Obviously the number of the bars, their internal form, their material, the one-piece character of the wedges, and the means for insuring their rotation with the shaft, as well as other details of construction, are not invariable.

What I claim is—

1. In a core for paper and fabric rolls, the combination with a hollow, cylinder-like body having at all times in its outer surface, longitudinally-extending channels across

each of which a wound sheet may extend in a plane, and made up of radially-movable bars at some distance from its axis, of means for limiting the outward movement of the bars, and wedges adapted to be forced between the ends of the bars and a rotary shaft passing axially through the body.

2. The combination with a hollow cylindrical core composed of slightly-separated longitudinal bars and provided with deep circumferential grooves, of rings fitting hoop-like in said grooves, respectively, and means for securing each bar to said rings while allowing it limited radial movement.

3. The combination with a hollow cylindrical core composed of longitudinal bars and provided with deep circumferential grooves near its ends, of rings lying in said grooves, respectively, means for securing each block to said rings while allowing it free radial movement, and wedges adapted to be forced between the ends of said bars and a shaft inclosed by them.

4. The combination with a set of bars each grooved longitudinally, all arranged in cylindrical form and having deep external transverse grooves near their ends, of perforated rings lying in said grooves, respectively, and each passing inward through a perforation of a ring and fixed in the bar beneath with its head at some distance outside the ring when the latter lies in the bottom of the groove.

5. The combination with a cylindrical body composed of the longitudinally-grooved bars and provided with the deep circumferential grooves near its ends, of the rings lying in said grooves, respectively, the screws attaching the bars loosely to the rings, and the opposing wedges for the ends of said body, normally when in use projecting to some distance beyond said ends and provided with shoulders or projections to aid in withdrawing them, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES L. CRANE.

Witnesses:

GEORGE W. MELONY,

CHARLES M. READE.