

No. 697,776.

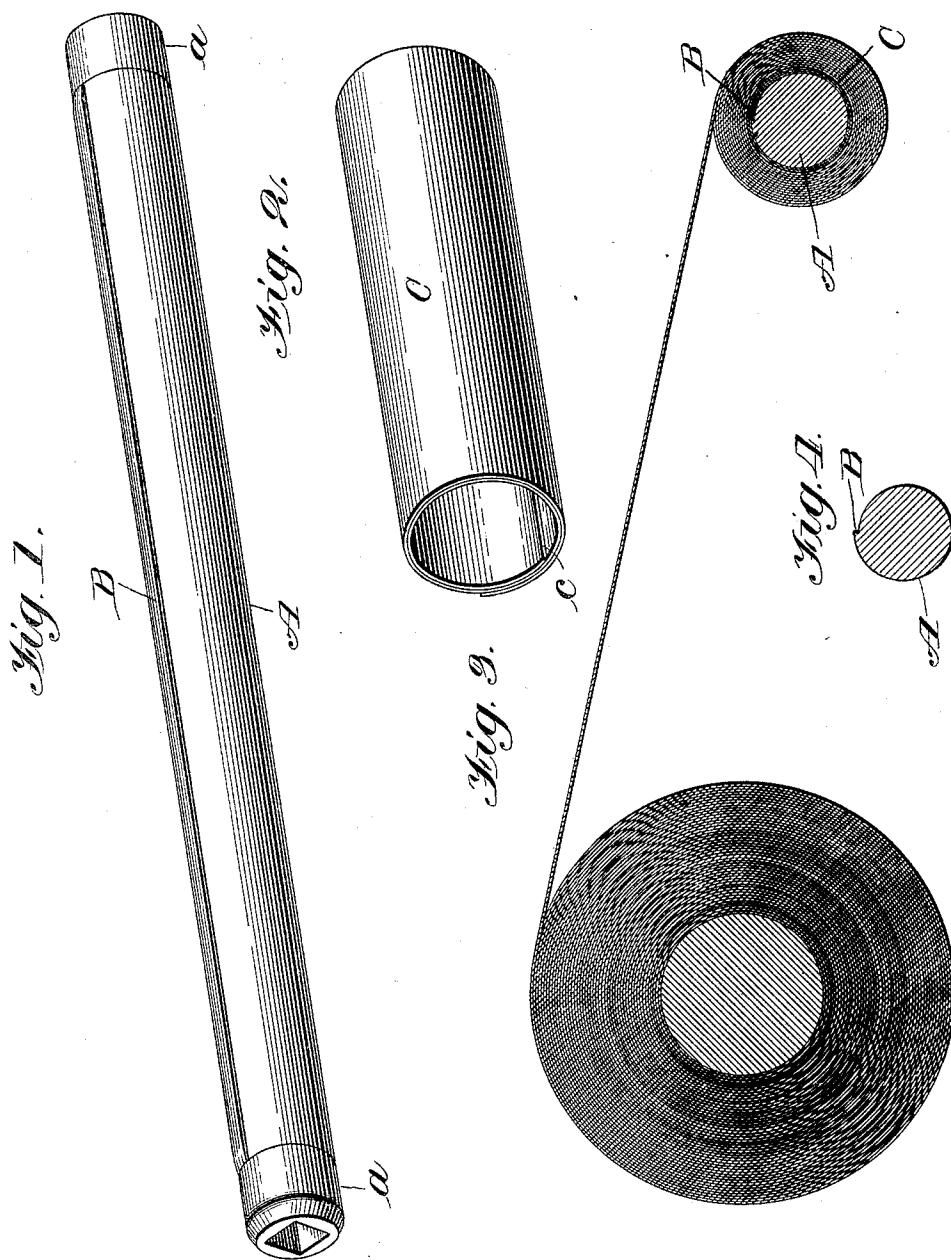
Patented Apr. 15, 1902.

E. J. BARKER.

ROLLER FOR WINDING PAPER ON PASTEBOARD TUBES.

(Application filed Dec. 12, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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ROLLER FOR WINDING PAPER ON PASTEBOARD TUBES.

SPECIFICATION forming part of Letters Patent No. 697,776, dated April 15, 1902.

Application filed December 12, 1901. Serial No. 85,695. (No model.)

To all whom it may concern:

Be it known that I, ENGLAND J. BARKER, a citizen of the United States, and a resident of Morgan Park, Cook county, Illinois, have invented certain new and useful Improvements in Rollers for Winding Paper on Pasteboard Tubes, of which the following is a full, clear, and exact specification.

Heretofore in machines for winding paper on pasteboard tubes for commercial use, and particularly the long narrow strips used in autographic registering-machines and in telegraphic printing-machines and for toilet purposes, the tubes are simply slipped over a removable roller, and as this roller revolves the friction between its cylindrical surface and the inner circumference of the tube is depended upon to insure the tube revolving with the roller and winding the paper upon the same. In order to do this economically, it has been customary for the width of the paper on the feed-roll of the machine to be two or more times as wide as the length of the pasteboard tubes, which are placed end to end on the roller, and the paper was split or cut into the proper width just before it was wound on the tubes. The great objection to present means for winding the paper on the tubes is the liability of the tubes slipping. In view of the fact that even a thousandth of an inch difference in the diameter of the inner circumference of the tube will be responsible for the failure of the friction holding the tube against its slipping on the roller and the further fact that it is very difficult in view of the materials used to always get this inner circumference the same the difficulty in winding the paper on the tubes is apparent, and especially when several tubes are being wound on the same roller at the same time.

The object of my invention is to prevent the pasteboard tubes from slipping while being wound, while at the same time being easily slipped upon or removed from the roller. This I accomplish by the means hereinafter fully described and as particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of the roller of a machine for winding a continuous web of paper on pasteboard tubes. Fig. 2 is a perspective view of a pasteboard

tube. Fig. 3 is a sectional view of the feed-roller and winding-roller of said machine. Fig. 4 is a cross-section through said winding-roller.

In the drawings, A represents a roller of suitable length, which is preferably made of wood and has its ends provided with suitable metallic ferrules *a a*, which have squared sockets in them for the reception of the corresponding extension of the revolving actuating-shaft of the machine in connection with which my invention is to be used. This roller A is provided with a longitudinal shoulder B, which is made by making the circumference thereof conform to a spiral plane, as shown in Fig. 4, or, as in practice it is more apt to be done, by making a longitudinal groove of suitable length and planing down the approach to one side of the groove until only one side wall of the said groove remains and the approach to the base of this wall or shoulder B is gradual. The radius of the crest or outer edge of shoulder B is slightly greater than that of the ferrule *a*, and it projects slightly beyond the circumferential plane of the same. The circumference of said ferrule, however, may be the same as that of the wooden portion of the roller A, and it may be provided with a shoulder similar to and aligning with shoulder B.

The pasteboard tubes C, onto which the paper is to be wound for commercial purposes and which are used in conjunction with my invention, consists of a suitable strip of pasteboard, which is wound and spirally lapped upon itself several times and cemented to form a tube the inner edge of the pasteboard in which is exposed and forms a longitudinal shoulder *c* in its inner circumference. It will be apparent that the diameter of the roller A is made with reference to the diameter of the inner circumference of the tubes C. Thus when said tubes are slipped longitudinally upon the roller in such position that their shoulders *c* will oppose the shoulders B of said roller the revolution of the latter in the proper direction will revolve the tubes therewith as the paper is wound upon the same without a possibility of the tubes slipping and causing the paper to buckle or otherwise interfere with the perfect and continuous winding of the same.

What I claim as new is—

1. A roller for winding paper on tubes having a longitudinal shoulder on their inner circumferences, which has such construction as to present an opposing edge to said shoulder.
2. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumferences, which is provided with a longitudinal shoulder adapted to oppose the shoulder of said tube, when revolving.
3. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumferences, which is provided with a longitudinal shoulder by reducing the circumference of the roller adjacent to its shoulder, which latter is adapted to oppose the shoulder of said tube when revolving.
4. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumferences, which is provided with a longitudinal shoulder by making its circumference conform to a spiral plane, that is adapted to oppose the shoulder of said tube when revolving.
5. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumferences comprising a wooden body so constructed as to present an opposing edge to said shoulder, and metallic ferrules on the ends thereof.
6. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumferences, comprising a wooden body which is provided with a longitudinal shoulder adapted to oppose the shoulder of the tube when revolving, and metallic ferrules on the ends thereof.
7. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumferences, comprising a wooden body which is provided with a longitudinal shoulder by reducing the circumference of the roller adjacent to its shoulder, which latter is adapted to oppose the shoulder of the tube when revolving, and metallic ferrules on the ends thereof.
8. A roller for winding paper on paper tubes having a longitudinal shoulder on their in-

ner circumferences, comprising a wooden body which is provided with a longitudinal shoulder by making its circumference conform to a spiral plane which shoulder is adapted to oppose the shoulder of said tube when revolving; and metallic ferrules on the ends thereof.

9. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumferences, comprising a wooden body so constructed as to present an opposing edge to said shoulder, and metallic ferrules on the ends thereof beyond the circumference of which said edge projects.

10. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumferences, comprising a wooden body which is provided with a longitudinal shoulder adapted to oppose the shoulder of the tube when revolving, and metallic ferrules on the ends thereof, beyond the circumference of which said shoulder projects.

11. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumferences, comprising a wooden body which is provided with a longitudinal shoulder by reducing the circumference of the roller adjacent to its shoulder which latter is adapted to oppose the shoulder of the tube when revolving, and metallic ferrules on the ends thereof, beyond the circumference of which said shoulder projects.

12. A roller for winding paper on paper tubes having a longitudinal shoulder on their inner circumferences, comprising a wooden body which is provided with a longitudinal shoulder by making its circumference conform to a spiral plane which shoulder is adapted to oppose the shoulder of said tube when revolving, and metallic ferrules on the ends thereof, beyond the circumference of which said shoulder projects.

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