C. F. JENKINS.

MAKING SPIRALLY WOUND TUBES.

APPLICATION FILED MAY 25, 1908.

916,162. Patented Mar. 23, 1909.

Fig. 1.

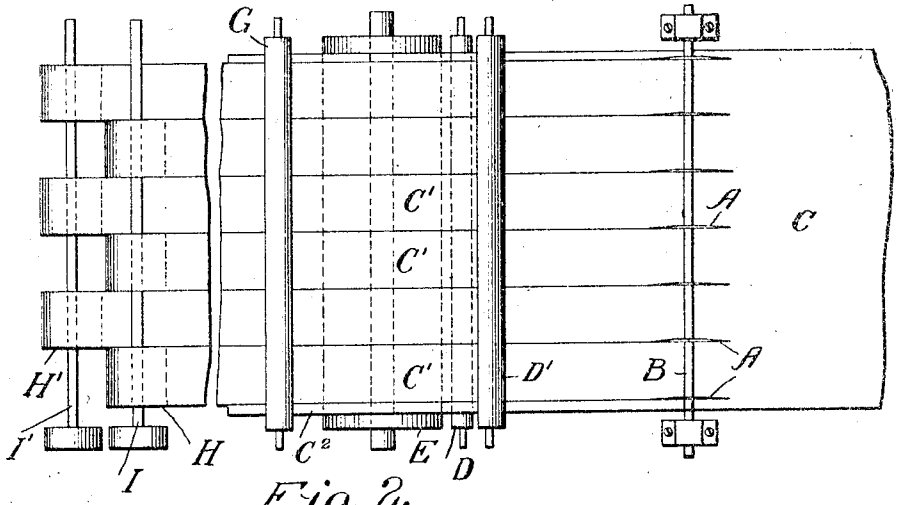


Fig. 2.

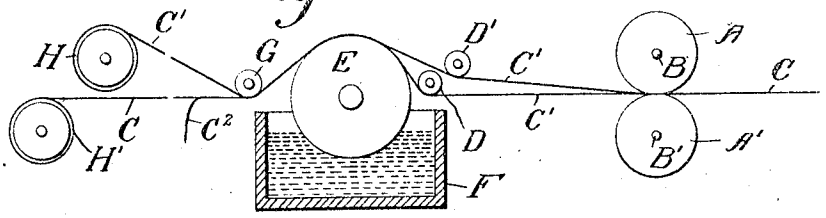
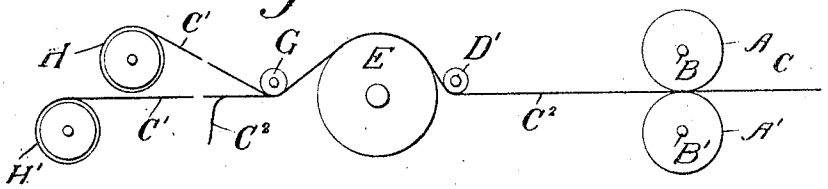


Fig. 3.



Witnesses

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MAKING SPIRALLY-WOUND TUBES.

No. 916,162. Specification of Letters Patent. Patented March 23, 1909.

Application filed May 25, 1908. Serial No. 434,728.

To all whom it may concern:

Be it known that I, CHARLES FRANCIS JENKINS, citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Making Spirally-Wound Tubes, of which the following is a specification, reference being had therein to the accompanying drawing.

In preparing strips of paper stock for making spirally wound waterproof paper tubes it is desirable to apply the waterproofing material to one face and both edges of each strip without permitting such material to reach any portion of the remaining face, to which adhesive is to be applied. To apply thus this waterproofing material perfectly and rapidly has heretofore proved a very difficult matter since in applying it to the edges of the strips it has not been found a simple matter to prevent it from reaching the marginal portions of that face which should be absolutely free from it, since its presence prevents proper adhesion of these marginal portions and when a formed tube has been cut transversely to form short segments, marginal non-adherent portions become loose slender tapering strips at the ends of the tubes. If these tube segments are to be made into waterproof boxes, for example, the failure to secure perfect adhesion of these marginal portions makes perfect closure by bottoms and tops very uncertain, and at the same time leaves a glued surface accessible to the liquid that may be placed in the box. Obviously, therefore, the evil becomes a very serious matter.

In the accompanying drawings, Figure 1 is a plan view of apparatus for preparing the paper strips. Fig. 2 is a side elevation of the same devices. Fig. 3 is a view similar to Fig. 2 showing a slight modification.

In these figures, A, A′ represents a series of rotary shearing devices mounted upon shafts B, B′ for dividing a sheet C of stock into strips C′, C². These strips move on together, after the shearing, alternate strips passing under a guide roller D and the remaining strips passing under a like roller D′ slightly above the plane of the roller D. From the rollers D, D′ all the strips pass over an adjacent roller E, the lower side of which runs in a waterproofing liquid in a tank F and thus applies the liquid to the lower faces of all the strips. Owing to the relative location of the rollers D, D′ the strips passing below the former strike the roller E a little sooner than the strips from the roller D′ and their edges are at this instant offset slightly, downwardly, with respect to the latter, so that the liquid applied by the roller E passes over their exposed edges, but an instant later the edges of the other rub over these exposed edges as the two sets return into registry and all rest together on the roller E. The application of the liquid to the edges is thus assured while at the same time any surplus liquid is effectually prevented from reaching the upper faces of any of the strips. From the roller E all the strips except the marginal ones, pass beneath a third guide roller G and thence to rollers or drums H, H′ upon which they are wound. The rollers H, which receive alternate strips of the set, are mounted upon a shaft I, while the remaining strips pass to the rollers H′ mounted upon a shaft I′ not in the same horizontal plane as the shaft I. By this means interference of neighboring strips, in winding, is avoided. After the strips pass the roller E, the marginal strips—which are merely the usual parts trimmed from the sheet—having served their purpose are discarded and not wound upon the rollers. Fig. 3 shows substantially the same devices except that the roller D is omitted. With certain kinds of stock and liquid, the one roller suffices, the liquid entering the cut between the strips so as to properly coat or impregnate them although there is no offsetting.

It is to be understood that the term liquid as here used includes pasty liquids or any material having sufficient fluidity to flow or be brushed over the surface of the stock; and it is obvious that it may be adhesive in character.

What I claim is:

1. In apparatus of the class described, the combination with means for advancing a sheet of stock, of means for slitting the advancing sheet, means for throwing alternate strips slightly out of registry with the remaining strips to offset the edges of the two sets, and means for applying liquid to one face of one set of strips during such offsetting.

2. In apparatus of the class described, the combination with means for advancing a sheet of stock, of means for slitting the advancing sheet into strips, and means for ap-

plying liquid to one face of the divided advancing sheet while the edges of adjacent strips prevent surplus liquid from passing over the edges to the opposite face of any strip.

3. The combination of slitting shears, the liquid applying roller, the two guide rollers, in different horizontal planes, adjacent to the liquid applying roller, and distinct winding rollers in different horizontal planes, for winding, respectively, alternate strips, and the remaining strips.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES FRANCIS JENKINS.

Witnesses:

W. CLARENCE DUVALL,

WALLACE GREENE.