July 28, 1931. W. G. TROTMAN 1,815,939

DANDY ROLL

Filed May 27, 1929

Fig. 1.

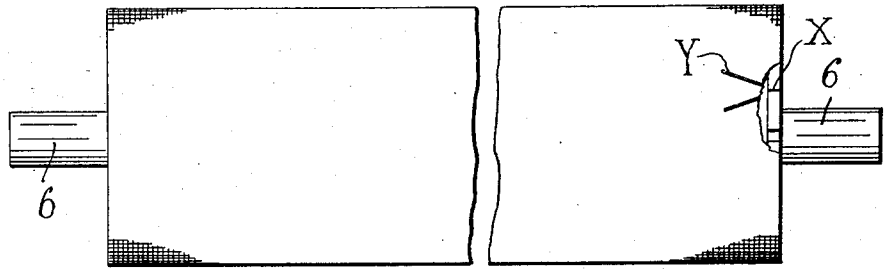


Fig. 2.

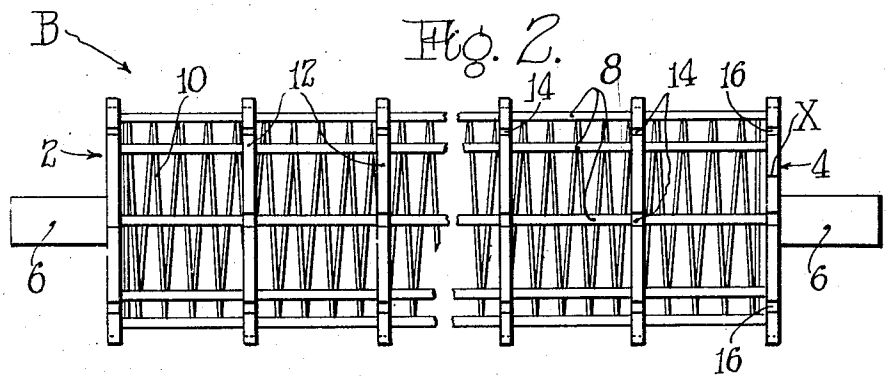


Fig. 3.

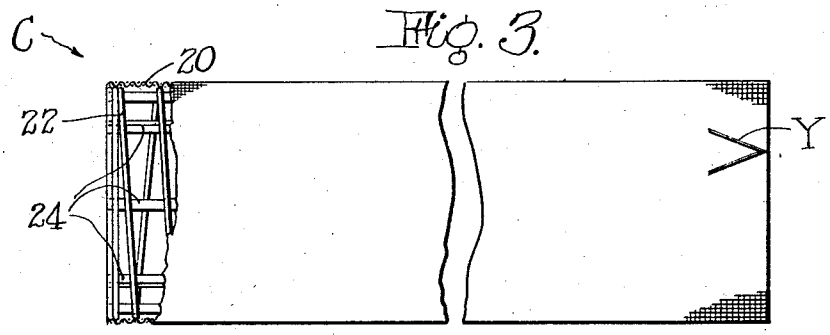
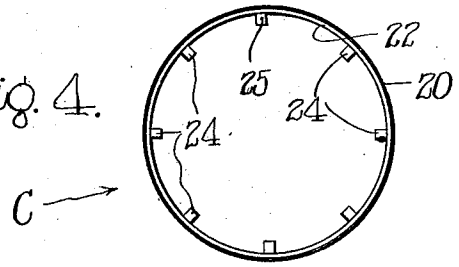


Fig. 4.



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UNITED STATES PATENT OFFICE

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DANDY ROLL

Application filed May 27, 1929. Serial No. 366,319.

This invention relates to improvements in paper-making apparatus and is directed more particularly to improvements in dandy rolls for paper-making machines.

As is well known a dandy roll consists essentially of a roll body having an outer covering of woven wire cloth which carries watermarking devices affixed thereto for contacting with and watermarking a paper web. It is necessary when it is desired to change a watermark to remove the dandy roll from the paper machine and either change the watermarking devices or substitute another roll. Also when it is desired to vary the spacing of the watermarks in the paper it is necessary to employ dandy rolls of different circumference in order to bring the watermarking devices the desired distance apart. All this makes it necessary to provide numerous complete dandy rolls all of which entails expense and is objectionable.

The object of this invention is to provide a dandy roll comprising a separable body and unitary cover which is rigid in construction so as to be adapted for removal from the dandy roll body without injury thereto. In this way it is possible to provide numerous coverings for a single body. Also according to one important feature of the invention coverings of different diameter and circumference may be provided for a single body by means of all of which the watermark may be quickly changed by merely substituting one cover for another.

The novel features and advantages of the invention will be described in the form at present preferred in connection with the accompanying drawings, in which

Fig. 1 is a side elevational view of a dandy roll embodying the novel features of the invention.

Fig. 2 is a side elevational view of a dandy roll support or body for supporting the covering.

Fig. 3 is a side elevational view of a covering embodying the features of the invention with parts broken away for clearness, and

Fig. 4 is an end elevational view of the unitary covering shown in Fig. 1.

Referring to the drawings, the invention will now be described in detail.

The invention consists generally of a dandy roll body B of some suitable form to act as a support and a unitary separable or removable cover C as shown in Fig. 3, which cover is adapted to slip axially over the body.

The body comprises end header plates 2 and 4 each of which carries a trunnion or shaft 6. A plurality of longitudinal tie rods 8 are affixed to the plates 2 and 4 as shown. A spirally formed member 10, the opposite ends of which are affixed to the heads 2 and 4 is arranged intermediate its ends so that the convolutions thereof bear against the inner sides of the rods 8. In this way the rods 8 are supported by the member 10.

At the points of contact between the rods 8 and the member 10 the parts may be secured together by brazing, soldering or the like so that the parts are tied together to provide a strong rigid roll body suitable for supporting the cover C.

A plurality of rings 12 surrounds the rods and are spaced apart thereon between the plates 2 and 4 and preferably carry a plurality of notches or grooves 14 in the peripheries thereof. The notches or grooves of one ring are in alignment with those of adjacent rings and similar grooves 16 are provided in the periphery of the heads and in alignment therewith. These grooves provide a plurality of guideways spaced about the roll body and extend from end to end thereof.

The cover C comprises an outer shell 20 of woven wire fabric material such as is commonly used in dandy roll construction. This is bent or formed into the shape of a tube and is held in shape and supported by an inner supporting core member 22. Preferably this core member 22 is formed of wire or rod which is wound spirally as shown so that the convolutions thereof bear against the inner surfaces of the covering 20 and support the cover in the desired tubular shape. It may be secured to the cover by soldering or by any other well known means so that the cover and support constitute a unitary rigid and substantial structure. The cover is held in

a true cylindrical shape and is suitable for receiving watermarking devices of any desired form.

It will be noted that this cover support by being thus formed is suitable for adequately supporting the covering and at the same time does not interfere with the functioning of the cover in the well-known manner. Longitudinally of the cover I provide a plurality of bars 24 spaced about the inner circumference of the suppor 22. These bars 24 are secured in some convenient manner as by soldering or the like to the convolutions and the spiral of the support and serve to tie the convolutions together and thereby co-operate therewith to provide the rigid substantial core support for the covering. The bars 24 are arranged to slide along the grooves 14 and 16 of the support B so that the cover may be slipped axially on and off said support. By means of the grooves and bars the cover C is held against a rotary motion with respect to the body B. It will be noted that the bars in effect space the cover from the roll body.

When it is desired to vary the circumference and diameter of the cover 20 the bars may be of different depth. That is to say, with a covering of relatively large diameter the bars 24 may be somewhat deeper than when the covering is to be somewhat smaller. In that way a covering of one diameter may have bars of a particular depth for fitting within the grooves while a covering of another diameter may have bars of another depth for fitting the same grooves. By this means it is possible to provide covers of various diameters which may carry numerous watermarks. By selecting bars of the proper depth the numerous covers are interchangeable and may be easily removed from and applied to the support B. As will be noted the cover proper does not contact with the rings or other parts constituting the roll body since it is supported by the bars which fit within the guideways.

As one feature of the invention I provide means so that covers may be slipped on the body in one way only. This is accomplished by locating one of the bars as 24′ so that it is not equidistant from the adjacent bars 24. Likewise the grooves in the members 2, 4 and 12 are arranged to receive the bars of the cover.

In order that bars and guideways may be registered prior to the slipping of a cover onto the body means are provided on the cover and member 4 which consists of a line X and arrow Y as shown.

The support B may take any form desired and be provided with longitudinal guideways in order to properly receive the cover, the form shown being one I have found to be desirable for the practise of the invention.

It will readily be seen that by means of the invention the cover is a unitary rigid structure of itself and separate from the roll body and is distinguished from the sheet of woven fabric which is merely wrapped around a support. According to the invention one dandy roll body is sufficient for a paper-making machine, while numerous removable covers may be provided therefor in order to obtain a variety of watermarking effects.

Various changes may be made in the practise of the invention without departing from the spirit and scope thereof and therefore I prefer to be limited, if at all, by the appended claims rather than by the foregoing description.

What I claim is:

1. Paper-making apparatus of the class described comprising in combination, a cylindrical dandy roll body including longitudinal spaced rods relatively narrow rings thereon spaced longitudinally of the rods provided with spaced grooves about the peripheries thereof, a cover member in the form of a cylinder having longitudinally extending bars spaced around the inner periphery thereof which are receivable in the grooves of the rings.

2. Paper-making apparatus of the class described comprising in combination, a dandy roll body including disk-like end members, a spirally arranged member extending between said end members, rods extending between said end members at the outer side of the spirally arranged member and rings spaced along said rods, the end members and rings having spaced grooves around the peripheries thereof, a cover member having longitudinally disposed bars spaced around the inner periphery thereof which are receivable in the grooves in said rings and headers whereby the cover is supported by the body and held against relative rotative movement by said bars and grooves.

3. A separable dandy roll body and cover therefor comprising in combination, end plates in spaced apart relation having trunnion shafts extending outwardly therefrom, a spirally arranged member extending between the adjacent inner faces of said plates supporting a plurality of longitudinally extending rods disposed on the outer circumference thereof, a plurality of rings encircling said rod and supported thereby which are spaced apart between said end plates, the outer peripheries of said plates and rings being provided with aligned guideways spaced about the peripheries thereof, a spirally arranged member supporting a paper-making screen to form a complete cylinder and bars extending longitudinally within said spirally arranged member which are spaced about the inner periphery thereof and which are receivable in the guideways of said plates and rings whereby the cover member is supported

and held against relative rotative movements on said body.

4. A dandy-roll structure comprising in combination, a dandy roll body and a movable cover therefor, the said body including circular end plates in spaced relation having trunnion shafts extending outwardly from the outer faces thereof, a spirally arranged member extending between and secured to the inner faces of said plates, rods extending longitudinally of said body between said plates which are spaced around the outer periphery of the spirally arranged member, rings spaced upon and encircling said rods between said plates, the said end plates and rings having a plurality of guideways in alignment and spaced about the outer periphery thereof, the said cover including a hollow core formed by a spirally wound member and a covering of wire cloth disposed about and supported by said spirally wound core member, a plurality of bars extending longitudinally and interiorly of said spirally wound member which are receivable in the guideways of said rings and plates of the body whereby the core is supported by and held against relative rotative movement with respect to the body.

In testimony whereof I affix my signature.

WALTER G. TROTMAN.