H. M. SPENCER.

DANDY ROLL.

APPLICATION FILED AUG. 5, 1912.

1,102,554. Patented July 7, 1914.

Fig. 1.

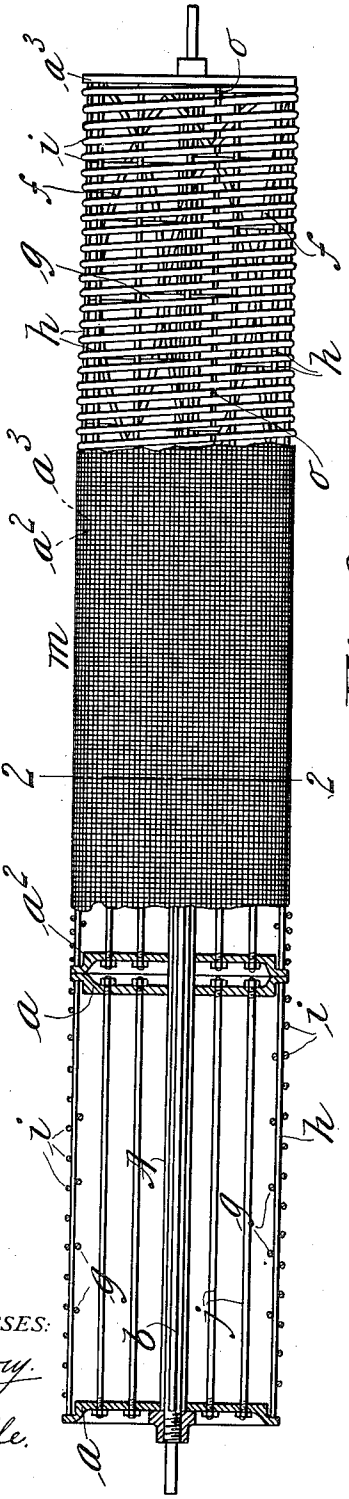


Fig. 3.

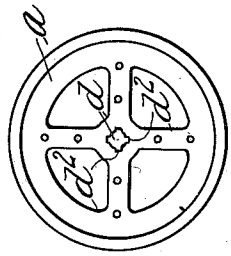


Fig. 2.

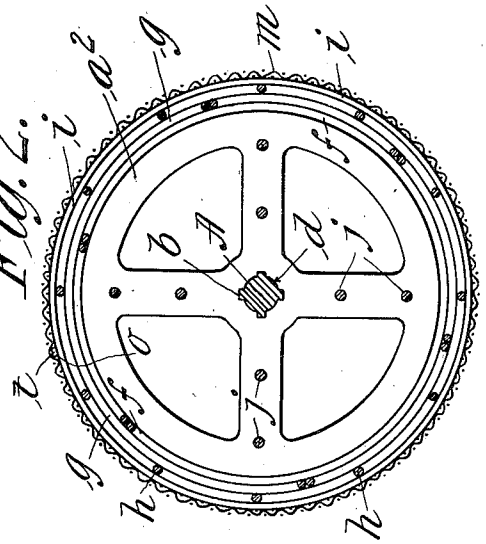
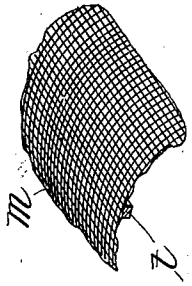


Fig. 4.



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DANDY-ROLL.

1,102,554. Specification of Letters Patent. Patented July 7, 1914.

Application filed August 5, 1912. Serial No. 713,450.

To all whom it may concern:

Be it known that I, HENRY M. SPENCER, a citizen of the United States of America, and resident of South Hadley Falls, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Dandy-Rolls, of which the following is a full, clear, and exact description.

This invention relating to improvements in dandy rolls for paper machines has for its object to provide a construction whereby, by the interchange of certain parts comprised in the roll, different designs, lettering or configuration may be watermarked in the paper. And another object is to construct the dandy roll having detachably engaged sections which may be interchanged one for another so that the dandy roll may be easily rendered serviceable from time to time as different occasions require for forming several watermarks along the running web of paper which are distinctively different one from another.

The invention is described in conjunction with the accompanying drawings and is set forth in the claims.

In the drawings: Figure 1 is a side view with some portions removed and others in longitudinal section of my improved dandy roll. Fig. 2 is a cross sectional view on a larger scale as taken on line 2—2, Fig. 1. Fig. 3 is a face view of one of the heads or ring frames of which several pairs are comprised in the roll. Fig. 4 is a partial perspective view to show a feature of construction to be hereinafter referred to.

In the drawings, A represents a central shaft which extends entirely through the roll and the extremities of the shaft which project beyond the opposite ends of the roll form the journals as usual.

The dandy roll is here represented as so sectionally made as to comprise three separate portions all of the same circumference, in axial alinement and one thereof being endwise continuous with the next. In the make-up of the roll I provide several pairs of heads a a, a^2, a^2, and a^3, a^3, the same having a recessed formation or made as ring frames. The central shaft is made with one or several longitudinal ribs b, and the ring frames have the central opening d in each made with recesses d^2, for an engagement with the ribs b so that there can be no rotative movement of the ring frame relatively to the shaft. The ring frames, in pairs, suitably distanced according to the length of the interchangeable dandy roll sections, support openwork annular frames, each comprising longitudinal truss wires or rods f f, rings g at suitable intervals, longitudinal wires h h outside of and supported by the rings g, and the winding wire i,—the combination and relative arrangement of the truss rods or wires, the rings g, the longitudinal wires and the winding wires being all comprised in an annulus, and secured one to another by soldering or other fastening means in very much the same manner as already quite well known in the manufacture of dandy rolls in present use. The pairs of heads or ring frames respectively supporting the openwork annular frame are preferably united by the tie rods j, as shown.

Each openwork annular frame made substantially as described has the outer cylindrical woven wire covering m which, as is here particularly stated, is removable relatively to the annular frame which it incloses, but it is prevented from having any turning or revoluble movement relatively to the skeleton-like frame; and in this connection it is particularly pointed out that the winding wires i have a longitudinal channel o milled or otherwise formed in which a rod t soldered lengthwise along the inner side of the outer woven wire covering has a slidable or spline like engagement.

The annular supporting frame for the woven wire coverings may in whatever length desired, and also in the desired number, be slidably but non-rotatively engaged with the central shaft, and each of such supporting frames may have the gauze covering therefor provided with any lettering or design for the watermarking, as predetermined, the design on one roll section being in many cases different from those on other of the roll sections; and thus in the running of a paper machine for the production of a comparatively wide web, watermarkings of the paper may by the employment of this sectionally formed dandy, be accomplished for different jobs or orders. That is, the web may be watermarked with various letters or designs in different portions of the width thereof for different customers, the sub-dividing thereof by slitters being performed after the completing and drying of the web.

It is possible to employ sections on one standard shaft of different diameters, and to easily interchange the sections from time to time as occasion may require or render advantageous; and under the exercise of my invention the watermarking equipment for a great diversity of work in a paper mill may be provided at expense materially lessened from that heretofore necessary.

As heretofore intimated, I do not make any claim to an annular openwork dandy roll cover supporting frame consisting in combination with suitable heads or ring frames of truss rods or wires, rings having hoop-like engagements therewith, longitudinal wires and a winding wire, and I may, if desired, employ an annular openwork frame constructed otherwise than as just above specified and as shown so long as the same is adaptable as a light and stiff support for the outer covering.

I claim:—

1. A dandy roll consisting of a central shaft having a longitudinal rib, several pairs of heads or ring frames slidably engaged with the shaft, and having recesses in which the rib of the shaft is engaged, a plurality of openwork annular frames, each comprising truss wires, longitudinal wires and winding wires, the latter being longitudinally recessed along the length of the annular frame, a plurality of outer woven wire cylindrical coverings slidably engaged about, and inclosing, the annular frames, and each having a rib longitudinally at its inner side in engagement with the recesses in the winding wire of the annular frame inclosed thereby, and nuts screwing on the end portions of the shaft and having engagements with the proximate ring frames.

2. In a dandy roll, a central support comprising a comparatively long axially located longitudinally extending shaft, a plurality of openwork annular frames each of less length than said shaft, longitudinally slidably engageable with said central support, means for preventing rotative movement of said annular frames relatively to the central support, means for confining the several annular frames in endwise proximity and against longitudinal displacement, and a plurality of outer woven wire coverings inclosing and slidably engageable on the respective annular frames, and having rib and groove rotative-motion-preventing engagements with the latter.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

HENRY M. SPENCER.

Witnesses:

WM. S. BELLOWS,

G. R. DRISCOLL.