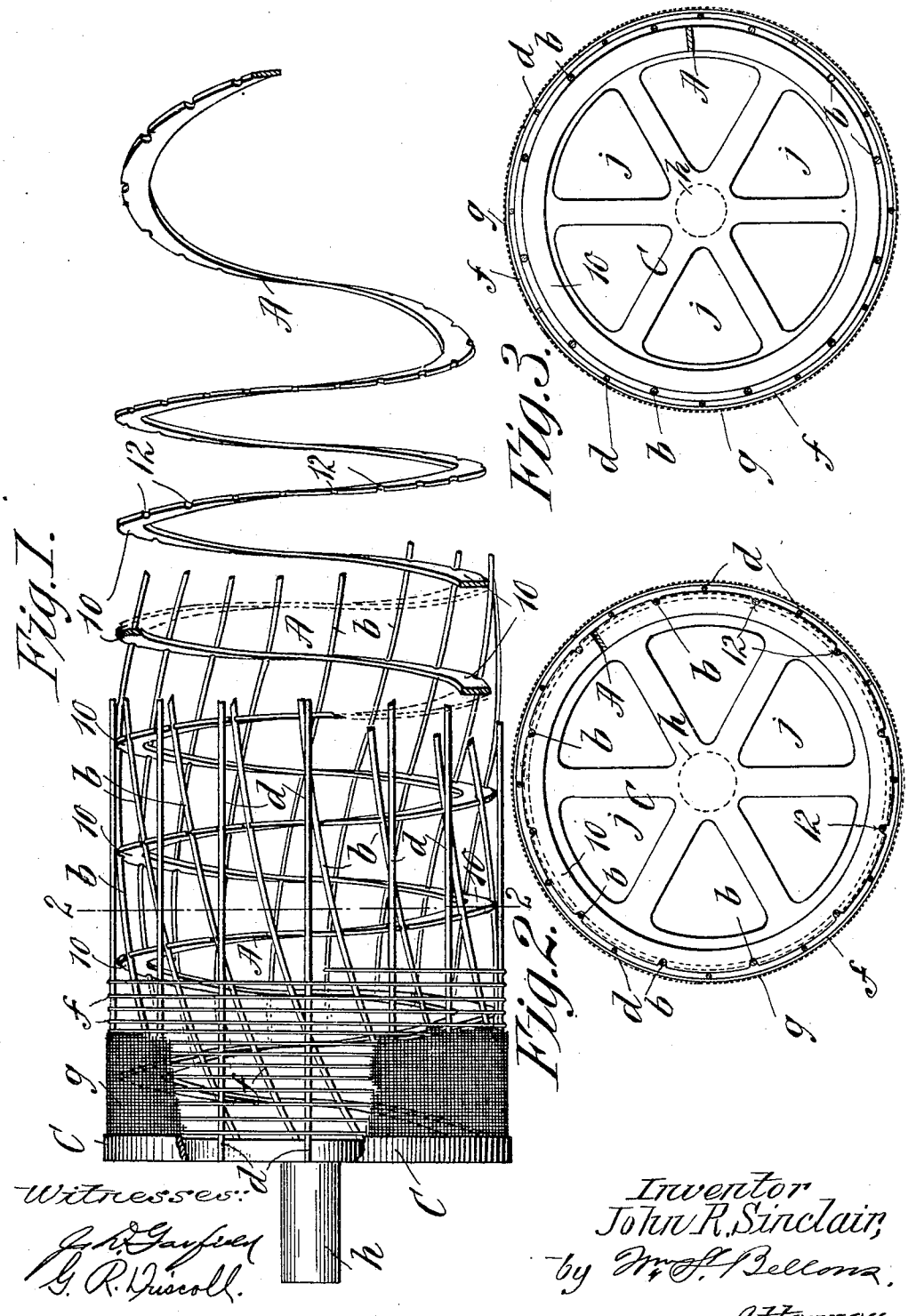
No. 813,835. PATENTED FEB. 27, 1906.

J. R. SINCLAIR.

DANDY ROLL.

APPLICATION FILED NOV. 19, 1904.



Witnesses:
G. R. Gaylord
G. R. Driscoll.

Inventor
John R. Sinclair,
by Wm. F. Bellows.
Attorney.

UNITED STATES PATENT OFFICE.

JOHN R. SINCLAIR, OF HOLYOKE, MASSACHUSETTS.

DANDY-ROLL.

No. 813,835. Specification of Letters Patent. Patented Feb. 27, 1906.

Application filed November 19, 1904. Serial No. 233,429.

To all whom it may concern:

Be it known that I, JOHN R. SINCLAIR, a citizen of the United States of America, and a resident of Holyoke, in the county of Hampden 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.

It is well known in respect of the dandy-rolls employed in paper-machines in conjunction with the running moist paper web for making the water-mark therein that the roll accumulates within itself and from the moist web of paper a most troublesome quantity of frothy and foam-like matter, which causes much trouble and annoyance in that it is required that the dandy-roll be taken off from the machine for the purpose of washing it out, with the result that the machine must be stopped or that in many cases the paper made during the period of absence of the dandy-roll cannot be commercially used because of the lack of the water-mark therein.

A leading object of the invention is to produce a dandy-roll which will be self-clearing of the foam, froth, or pulp which will inevitably accumulate therein, obviating the necessity for removal of the dandy-roll from the Fourdrinier or other paper-machine during the time of the running thereof.

Another object attained by the same provisions in the roll as that for accomplishing the self-clearing thereof is to insure a lighter roll construction and yet one which has the usual strength, or a roll construction of the usual weight which is of greatly-increased strength.

The invention embodies a dandy-roll consisting of end heads, one of which is essentially apertured, a wire or strip cross-sectionally of the form of an elongated rectangle and of comparatively slight thickness wound into a succession of helixes and with such so-wound strip arranged with its larger cross-sectional dimension substantially radial to the roll center, with its convolutions separated and extending from one end head to the other, wires engaging the outer edges of the flat-strip helixes, and extending from end to end of the roll on gradually-sweeping helical lines, longitudinal wires, a winding-wire, and a wire-gauze covering whereby is produced within and throughout the length of the roll a spiral channel having smooth parallel sides and its base or side uniting portion constituted by the aforesaid helical strip-supported wires and gauze covering and the walls of said continuous spiral channel offering but a minimum of obstruction to the endwise progression of accumulations within the dandy-roll.

A dandy-roll having the novel features of this invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a one end portion of the roll with parts thereof stripped and broken away for clearness. Fig. 2 is a cross-section on line 2 2, Fig. 1. Fig. 3 is a cross-sectional view similar to Fig. 1, but showing a slight difference in the structural arrangement.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents a strip of quite thin and also comparatively very wide metal, such as brass, formed into a succession of comparatively closely arranged helixes or coils 10 10, with their outer edges all conforming to the shape of a true cylinder, extending from end to end of the roll, as of course is understood, and being of sufficient length so that when wound or coiled a roll-body of sufficient length is produced.

b b represent a set or series of round wires which extend from end to end of the roll-body, suitably spaced, in quite gradual helically-curving lines crossing in contact somewhat obliquely on the outer edges of the rings constituted by the coils or convolutions of the spirally-wound thin flat strip A, connection of the sets of wires *b b* with the coils 10 being made by soldering, and, if desired, and as represented in Figs. 1 and 2, the coils 10 may be at their outer edges provided with notches 12, within which the said wires *b b* may be seated and engaged.

d d represent the parallel and quite widely spaced longitudinal wires extending from end to end of the dandy-roll and secured to the opposite end heads C, one of which is shown at the left in Fig. 1, and said longitudinal wires are connected with the supporting structure or roll-body constituted by the spirally-wound flat strip A, essentially and in part preferably and furthermore by the set of gradually-inclining wires *b b* by soldering.

f represents the usual winding-wire, and *g* the outer gauze or wire-cloth covering for the roll-body, on which the water-marking characters or configurations are placed.

The end heads, as shown in Figs. 2 and 3, (or at least one thereof,) which are provided

with journals or gudgeons *h*, are apertured, as represented at *j j*, the end heads thus being of a very open or spider-formed construction.

It is therefore seen from the foregoing description and the illustrated construction of this dandy-roll that it comprises as a leading and novel characteristic a helical inwardly-open channel extending uninterruptedly from one end of the roll to the other, the side walls of such channel being constituted by the plain smooth parallel sides of the very thin and, comparatively considered, very wide thin metallic strip spirally wound and which supports at its continuous outer edge, which is conformed to the perimeter of a cylinder, the outer fabrication of the roll-shell, which latter makes the continuous bottom wall or base of the channel and which roll-shell fabrication, constituting such base of the spiral channel, is as little obstructive of the endwise progression of accumulations within the roll as it is practically possible of attainment, and in use the rotating roll will cause a progression endwise of the thereincontained accumulations of pulp and foam for exit through the one end open head, toward which by the spirality of the parallel-sided channel-walls the stuff is made to proceed, it being apparent that the stuff has entire freedom of entrance into the channel at any point in the length thereof.

The employment of the quite thin and very wide metallic strip A besides giving advantageously large wall depth for the channel sides resists the tension or transversal strains on the roll-body and serves most efficiently to preserve the roll in its required true cylindrical shape.

In practice the body or supported structure of these dandy-rolls is frequently made as represented in Fig. 3, wherein it is seen that the gradually spirally extending stay-wires *b b* cross in contact on the many-times-coiled strip A at the very outer edge of the latter, such strip not being notched, as represented in the other views.

This roll has all the advantages of what is known as a "ring-roll"—that is, one in which the outer cylindrical fabrication is carried on a series of spaced rings held by bracing or truss wires, with, however, the avoidance of the disadvantages constituted by the obstructing internal bracing or trussing parts and by the still more certainly obstructing rings.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

A dandy-roll consisting of end heads, one of which is essentially apertured, a wire or strip, cross-sectionally of the form of an elongated rectangle and of comparatively slight thickness, wound into a succession of helixes, and with such so-wound strip arranged with its larger cross-sectional dimension substantially radial to the roll center with its convolutions separated, and extending from one end head to the other, wires engaging the outer edges of the flat-strip helixes, and extending from end to end of the roll on gradually-sweeping helical lines, longitudinal wires, a winding-wire and a wire-gauze covering whereby is produced within and throughout the length of the roll a spiral channel having smooth parallel sides and its base or side uniting portion constituted by the aforesaid helical strip-supported wires and gauze covering, and the walls of said continuous spiral channel offering but a minimum of obstruction to the endwise progression of accumulations within the dandy-roll.

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

JOHN R. SINCLAIR.

Witnesses:
WM. S. BELLOWS,
G. R. DRISCOLL.