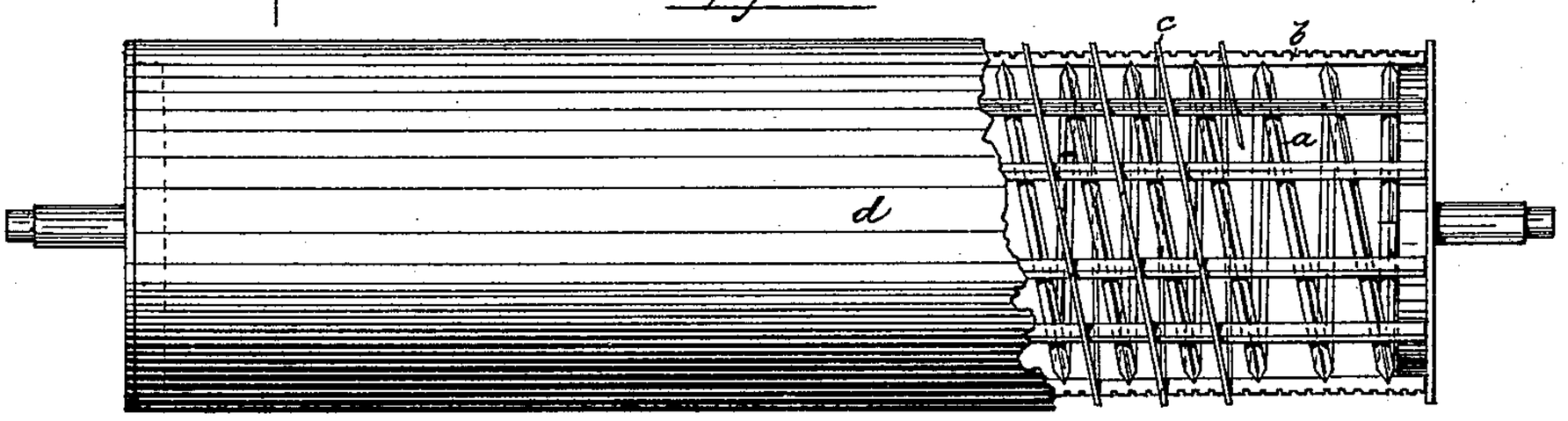
(No Model.)

C. SMITH.

ROLL FOR USE IN PAPER MAKING.

No. 303,404. Patented Aug. 12, 1884.

Fig. 1.



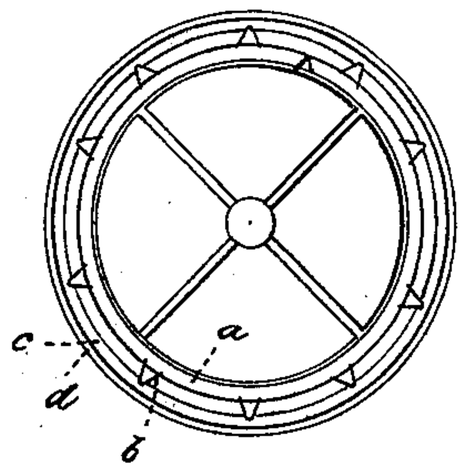


Fig. 2.

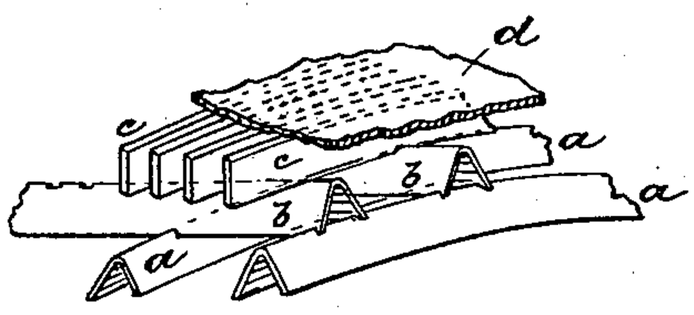


Fig. 3.

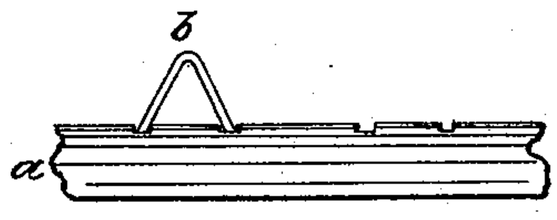


Fig. 4.

Attest:

F. C. Campbell
Edward G. Kempf

Inventor:

Charles Smith,
by Drake & Co.
attys.

UNITED STATES PATENT OFFICE.

CHARLES SMITH, OF BELLEVILLE, NEW JERSEY, ASSIGNOR TO THE EASTWOOD WIRE MANUFACTURING COMPANY, OF SAME PLACE.

ROLL FOR USE IN PAPER-MAKING.

SPECIFICATION forming part of Letters Patent No. 303,404, dated August 12, 1884.

Application filed May 3, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SMITH, a citizen of the United States, residing at Belleville, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Rolls for Use in Paper-Making Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates more especially to certain improvements in the construction of rolls or cylinders for use in paper-making, the object being to increase the stiffness and strength of the said rolls, so that when used, for example, in making the "water-mark" in the paper the surface will remain uniform, to engage evenly with the paper, and thus secure a perfect mark.

The invention consists in the arrangements and combinations of parts, substantially as will be hereinafter set forth, and finally embodied in the clauses of the claims.

Referring to the accompanying drawings, in which similar letters of reference indicate like parts in each of the several figures, Figure 1 is a side elevation of a roll, the outer coverings of which are partially removed to show the interior construction thereof more perfectly. Fig. 2 is a section of said roll, taken on line *x;* and Figs. 3, 4 are views showing the construction and arrangement of parts in detail.

In carrying out the invention I form a cylindrical frame-work of spiral wire, *a*, hollow or Λ-shaped in cross-section. Over this are secured, preferably by solder, longitudinal wires *b*, of the same shape, the outer edges of the spirals being notched or indented to receive the spreading edges of the said longitudinal wires. Said longitudinal wires are likewise indented to receive a binding or winding wire or wires, *c*, and hold it or them at suitable distance apart to allow the free passage of water therebetween. Said windings *c* are preferably flat or oblong in cross-section, substantially as shown in Figs. 3 and 6, and are placed edgewise in the notches, to allow a free passage of the water and yet secure an increased amount of stiffness. Over the winding-wires is stretched a wire-cloth, *d*, in the usual manner, which completes the roll-body. The peculiar shape of the wires *a*, *b*, and *c* gives such added strength to the roll as to keep the same rigid at all points on the periphery without obstructing the passage of water therethrough.

I do not wish to be understood as limiting myself to the exact shape of the wires shown, as the shapes may be varied to some extent without departing from the spirit of my invention.

Having thus described the invention, what I claim as new is—

1. The improved roll for paper-making, the same consisting of the frame-work formed of hollow or Λ-shaped wires *a b*, wound wires *c*, and wire cloth *d*, all arranged and combined substantially as and for the purposes set forth.

2. The combination, in a roll for use in paper-making, of the Λ-shaped and notched or indented wires *a*, arranged cylindrically, the notched and Λ-shaped longitudinal wires *b*, the winding-wires, and wire-cloth, all arranged and operating substantially as and for the purposes set forth.

3. A dandy-roll for producing the water-mark in paper, having Λ-shaped wires in the frame-work thereof, substantially as and for the purposes set forth.

4. In a roll for use in paper-making, the winding-wires *c*, oblong in cross-section and set edgewise on the frame, substantially as and for the purposes set forth.

5. In a roll for use in paper-making, the hollow or Λ-shaped cylindrical frame having longitudinal wires *b* thereon, and winding-wires *c*, oblong in cross-section, arranged edgewise thereover, said parts being arranged and combined substantially as set forth and shown.

In testimony that I claim the foregoing I have hereunto set my hand this 29th day of April, 1884.

CHARLES SMITH.

Witnesses:
CHARLES H. PELL,
F. F. CAMPBELL.