S. SELLERS.

Cylinder for Paper Making Machine.

No. 167,574. Patented Sept. 7, 1875.

Fig. 1.

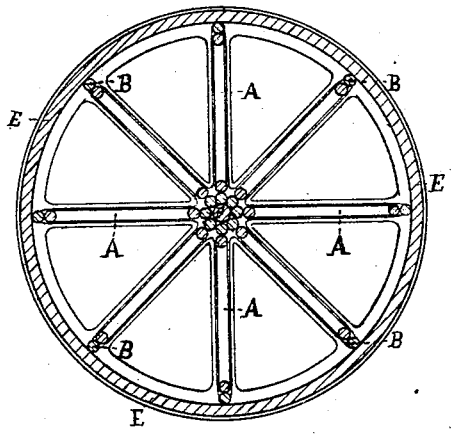
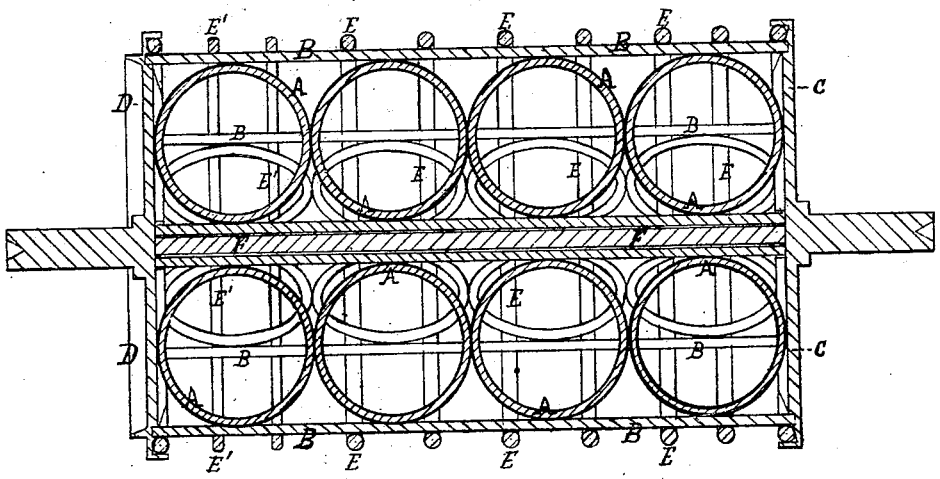


Fig. 2.



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SAMUEL SELLERS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN CYLINDERS FOR PAPER-MAKING MACHINES.

Specification forming part of Letters Patent No. **167,574**, dated September 7, 1875; application filed September 25, 1874.

To all whom it may concern:

Be it known that I, SAMUEL SELLERS, of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Cylinders; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being made to the annexed drawings making part hereof.

My invention consists of a cylinder for paper-making machinery and other purposes, constructed with the supports between the axis and the surface, in planes radial to the axis, in combination with the outer rings or bands for receiving the outer surface, which rings or bands are of such thickness as to permit of turning them truly circular, so that the surface, when applied to said rings or bands, has a regular curve.

To enable others skilled in the art to construct my improved cylinder, I will describe it in detail.

In the drawings, Figure 1 is a cross-sectional view of my invention; Fig. 2, a longitudinal sectional view.

The internal construction of the skeleton is almost similar to that described in Letters Patent of John Whitehead, dated October 21, 1873, No. 143,801, for dandy-roll.

A are the inner rings; B, the longitudinal outer strips, which, together with the rings A, form the supports lying in planes radial to the axis F. C is the closed head of the cylinder; D, the open head, this being a detail of construction used in building a paper-cylinder. E are the outer rings of round metal; E′, an outer ring of "flat-drawn" wire. I prefer that the longitudinal strips B and rings E′ and E should all be of flat-drawn wire, and, in fact, the whole frame, as such wire has more stiffness and rigidity than round wire of the same weight. F are longitudinal strips forming the axis of the cylinder.

The parts may all be secured together by soldering; but, where it is practicable, I prefer to unite them by pinching the superincumbent wire between clips from the lower one. This is done with a chisel and hammer in a way well known to mechanics. Preparatory therefor, however, I prefer to first turn grooves or notches in the outer edge of strips B, at the points at which said strips will come in contact with rings E. When the rings E are of flat-drawn wire, which is flat on its sides, but generally slightly round on its edges, these notches should be nearly square, so as to be almost exactly filled by the impinging edge of the ring E′. These notches are cut of a uniform depth by means of buzz-saws revolving rapidly on a shaft. Preferably there should be as many saws as it is desired to cut notches. These saws are of uniform size. The cylinder, having been completed to the point at which the rings E should be attached, is then turned on its axis exactly parallel to the shaft of the buzz-saws, and it is then, while slowly revolving, brought into contact with the saws, which revolve rapidly in the same direction, and whenever a longitudinal strip, B, comes in contact with the saws all the notches required are cut on it at the same time, at such a depth that the bottoms of all the notches are equidistant from the line of the center of the axis of the partially-completed cylinder. The flat-drawn wire rings E′ are then inserted, and are pinched in place, as described above, at G. If the wires forming rings E′ are round they are harder to pinch, as more metal has to be thrown up by the chisel to clasp the rings at the diameter of their thickness, or the notches have to be cut very deep to receive them. The bottoms of the notches being thus at a uniform distance from the center, it is evident that when the rings E′ are inserted or put in place, that as these rings rest on the bottoms of the notches, and are, moreover, of uniform thickness, they must form a nearly-true circle to receive the outer surface; but there is some space between strips B, and in order to make the cylinder true, and prevent the possibility of irregularity between these strips, I revolve it on its axis against a grindstone or other cutter, the axis of the cylinder and that of the grindstone being parallel. In this way the outer circumference of each ring E′ is made a true circle, and each one is even and true at its outer circumference with the neighboring ring. It is thus that when the outer convex surface-covering of the cylinder is attached a true, regular, and even surface is secured.

In making a cylinder for a paper-machine this is an important desideratum, as where the

surface is untrue, and not a regular curve, the pulp is distributed unevenly; and, when this form of construction is used for a dandy-roller, this feature is equally important. When it is used for a laid dandy I prefer to make slight grooves or continuous incisions all around the tread or outer circumferential surface of the ring E to receive the warp-wires which hold the shoot wires in place, otherwise these warp wires are liable to slide out of position. These continuous incisions will be sufficient to hold them in place. These grooves or incisions can be made by the same process as was described above for making the notches to receive rings E′.

Heretofore, in the dandy-roll construction, as set forth in Whitehead's patent, it has been impracticable to true them; and I do it either by making the notches of a depth such as will bring the bottoms on a curved plane at all points equidistant from the line of the axis of the cylinder, and then inserting rings E′ of even thickness throughout, or irrespective of the said notches, or in addition thereto, as further security, placing the said rings E′ outside of the longitudinal strips B.

It is advisable that, as rings E′ and strips B are to be cut away partially, they should be of sufficient thickness to allow for this and still retain an amount of desired strength.

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

A cylinder for paper-making machinery and other purposes, constructed with bent or ring-shaped wires for supports between the axis and the surface in planes radial to the axis, and having independent outer rings or bands for receiving the outer surface, substantially as and for the purpose described.

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Witnesses:

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