J. W. JARBOE.

Machines for Forming Hollow Paper Articles.

No. 158,215. Patented Dec. 29, 1874.

Fig: 1

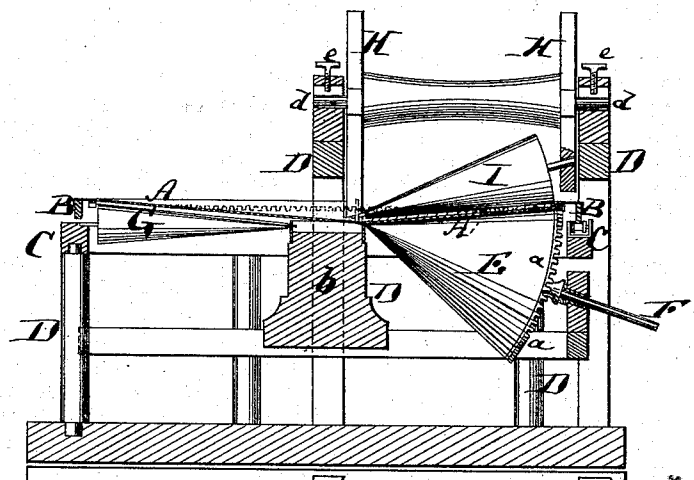
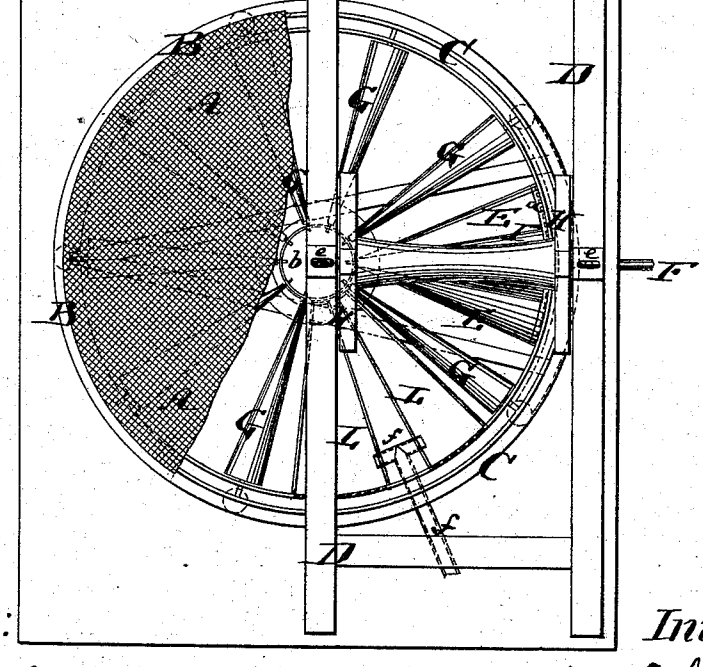


Fig: 2.



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UNITED STATES PATENT OFFICE.

JOHN W. JARBOE, OF GREEN POINT, NEW YORK.

IMPROVEMENT IN MACHINES FOR FORMING HOLLOW PAPER ARTICLES.

Specification forming part of Letters Patent No. **158,215**, dated December 29, 1874; application filed September 22, 1874.

To all whom it may concern:

Be it known that I, JOHN WILLIAM JARBOE, of Green Point, in the county of Kings and State of New York, have invented a new and Improved Machine for Forming Hollow Paper Articles, of which the following is a specification:

Figure 1 is a vertical central section of my improved machine for forming hollow paper bodies; and Fig. 2 is a plan view of the same, partly broken away.

Similar letters of reference indicate corresponding parts in both figures.

This invention relates to a new machine for forming paper tubes, barrels, and other hollow articles from paper-pulp; and the invention consists in the arrangement of parts hereinafter more fully described.

In the accompanying drawing, the letter A represents a circular sieve, made of wire or other suitable material, and attached at its periphery to an annular frame, B, which is supported on an annular stationary frame, C. The frame C is supported on standards D D, or other suitable frame-work. In the frame D is hung, beneath the ring C, a conical roller, E, in such a manner that one side of it will be directly beneath the sieve A, and in a horizontal position, as clearly shown in Fig. 1. To this roller E, or rather to its spindle F, is imparted rotary motion by suitable machinery, and this motion is transmitted to the annular frame B and sieve A by teeth *a a*, arranged around the base of the cone E, and meshing into teeth on the ring B. The sieve is further supported, or at least prevented from sagging, by a series of conical rollers, G G, which are hung beneath it in the frame, as shown.

All the rollers G G, and also the roller E, extend radially from a center block, *b*, of the frame D outward toward the annular supporting-frame C, the block *b* being under the center of the sieve A, which position of said rollers makes it necessary to make them of conical form, as shown, in order to insure the requisite varying degree of velocity to those parts of said rollers that come in contact with the sieve A.

Above the sieve A is hung, in an upward extension of the frame D, a vibrating frame, H, whose pivots *d d* are vertically adjustable in the frame D, as indicated in Fig. 1. In the lower part of the vibrating frame H is hung a roller, I, of the form to be imparted to the interior of the hollow paper article to be produced.

In operating on this machine, paper-pulp is spread over the sieve A, and then rotary motion imparted to the spindle F and to the sieve.

The roller I being directly above the roller E, the sieve, intervening, as shown, is, by its contact with the pulp on the sieve, and by its weight, caused to revolve around its axis, and, in revolving, it takes up the pulp from the sieve A and wraps it around its circumference, gradually moving upward as the thickness of pulp wound around it increases, until finally the extreme limit of upward motion of the roller I and frame H has been reached. This limit can be determined by means of suitable set-screws *e* in the frame D, or otherwise.

When the roller I has been properly covered with paper-pulp of the requisite thickness, said roller is withdrawn from the frame H, and another roller of the requisite form substituted in its place, and the operation continued as before. The covered rollers are retained in the paper covering until the same is sufficiently dry to permit removal.

In operating on this plan I find that it is advisable to get the pulp in a considerably dry condition when it reaches the roller I, and as the pulp when coming from the vat is very wet, I devise means for absorbing moisture from the pulp on the sieve A before it reaches the roller I. This is done chiefly by means of a set of suction-pans or vacuum-vats, L L, which are placed under the sieve A, stationary, and from which I withdraw, through suitable tubes, F, the air, causing them thereby to seek replenishment of air through the covering sieve A, and withdraw moisture from the pulp on such sieve.

The rollers G, E, and I may also, if desired, be made hollow, and heated by steam or other means, for drying the pulp that comes in contact with or passes near them.

When a paper tube has thus been formed, I can form hoops at the ends thereof by using the roller I, carrying the tube over a single or double annular sieve, A, of which ~~every~~ ring is just as wide as the hoops to be produced.

I claim as my invention—

In combination with the horizontally-rotating pulp-carrying sieve or platform A and forming-roller I, the vibrating self-adjusting frame H, arranged as described.

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