(No Model.)

H. WHITTINGHAM.

MANUFACTURE OF PAPER WARE FROM PULP AND MACHINE THEREFOR.

No. 309,424. Patented Dec. 16, 1884.

Fig. 1.

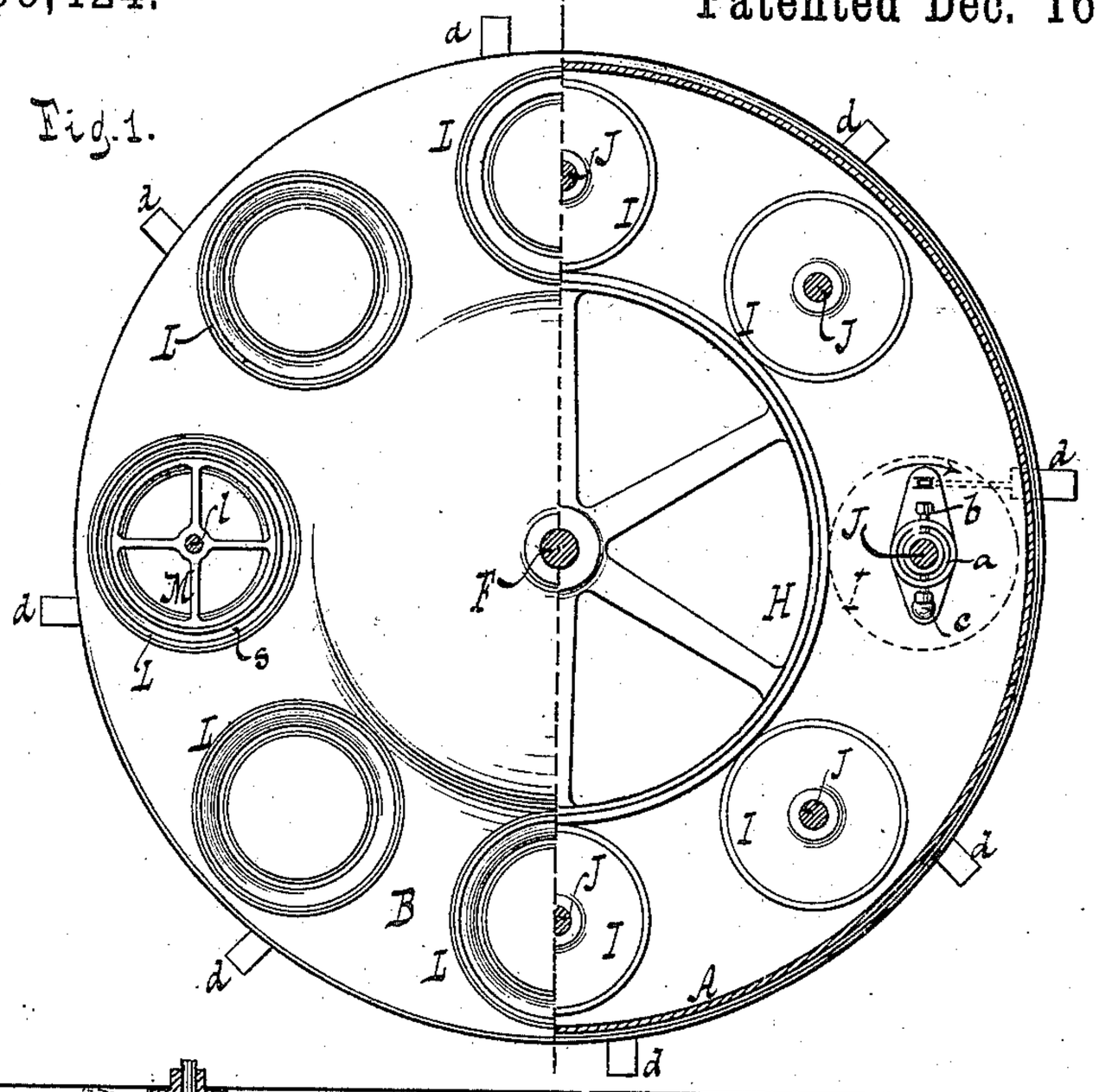


Fig. 3

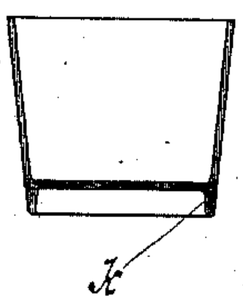
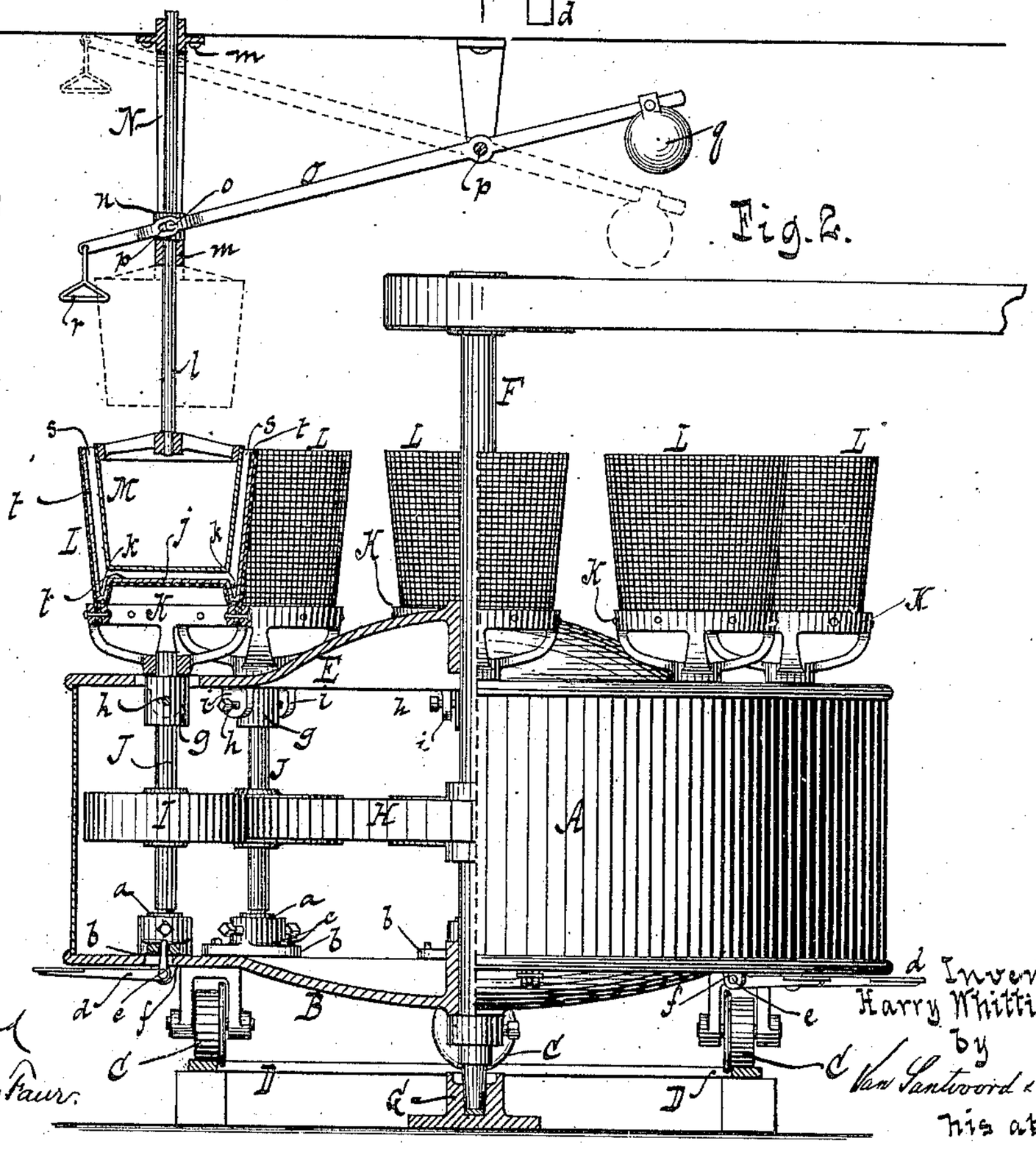


Fig. 2.



UNITED STATES PATENT OFFICE.

HARRY WHITTINGHAM, OF ATLANTIC HIGHLANDS, N. J., ASSIGNOR TO THE ATLANTIC HIGHLANDS PAPER WARE COMPANY, OF NEW YORK, N. Y.

MANUFACTURE OF PAPER-WARE FROM PULP AND MACHINE THEREFOR.

SPECIFICATION forming part of Letters Patent No. 309,424, dated December 16, 1884.

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

To all whom it may concern:

Be it known that I, HARRY WHITTINGHAM, a citizen of the United States, residing at Atlantic Highlands, in the county of Monmouth and State of New Jersey, have invented new and useful Improvements in the Manufacture of Paper-Ware from Pulp, and in Machines Therefor, of which the following is a specification.

This invention relates to an improvement in the art of producing paper-ware, and also to a machine for forming pails and other vessels of paper-pulp.

The peculiar and novel construction of this machine is pointed out in the following specification and claims and illustrated in the accompanying drawings, in which—

Figure 1 represents a plan or top view, partly in section. Fig. 2 is a sectional side elevation. Fig. 3 is a vertical central section of a pail made according to my invention.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates a drum, which is provided with a bottom, B, and a top, E, and which is supported by a series of wheels resting on a circular track, D, so that it can be turned round in either direction. Through the center of the drum extends a vertical shaft, F, the foot of which is stepped in a box, G, secured in or beneath the center of the circular track D. On this shaft, in the interior of the drum A, is firmly mounted a pulley, H, which acts by frictional contact on a series of pulleys, I, mounted on vertical shafts J, which are carried by the drum A, and are situated at equal distances from the central shaft, F. Each of the shafts J is stepped in a box, *a*, which is secured to a plate, *b*, Fig. 1, secured to the bottom B of the drum by a pivot, *c*. The plate *b* is exposed to the action of a bell-crank lever, *d*, which has its fulcrum on a pivot, *e*, secured in lugs *f*, which project from the under surface of the bottom B. By depressing the outer end of the bell-crank lever *d* the plate *b* swings in the direction of the arrow, (marked near it in Fig. 1,) and by this movement of the plate the pulley I is thrown out of contact with the pulley H, so that the motion of the shaft J stops.

In order to permit the shaft J to follow the motion of the plate *b*, the box *g*, which forms the bearing of said shaft near its upper end, swings between center points, *h h*, formed on screws which pass through lugs *i i*, projecting from the inner surface of the top E of the drum. By these means the motion of each of the shafts J can be stopped whenever it is desirable.

On the upper end of each of the shafts J is firmly secured a ring, K, and in this ring is fastened the mold L. In the example shown in the drawings the mold is intended for the formation of pails. It is made of wire-gauze, open at the top, and provided with a lining, *t*, of felt or other fibrous material, and with a bottom, *j*. The central portion of this bottom is raised so as to form an annular rill or gutter, *k*, at its junction with the walls of the mold. The object of the fibrous lining *t* is to prevent the paper-pulp from catching in the meshes of the wire-gauze, or in the holes of the perforated sheet metal forming the outside walls of the mold. With the several molds is combined a follower, M, which is secured to the bottom end of a vertical rod, *l*. This rod is guided in boxes *m m*, formed at the top and bottom of a hanger, N, which is firmly secured to the ceiling, or to a beam overhead.

On the rod *l* is firmly secured a collar, *n*, from which extend pins *o*, which engage with slots *p* in a lever, O, the fulcrum of which is on a pivot, *p*, secured in a hanger which is fastened overhead.

On the rear end of the lever O is secured a weight, *q*, which has a tendency to raise the follower M to the position shown in dotted lines in Fig. 2. From the front end of said lever is suspended a handle, *r*, by means of which the follower can be depressed to the position shown in full lines in Fig. 2. By moving the drum A on its circular track D each of the molds L can be brought beneath the follower M.

In order to form a pail a quantity of paper-pulp is mixed with water so as to form a plastic mass, and of this mass a sufficient quantity is introdnced into one of the molds to cover the central portion of the bottom *j* and then fill the rill *k*. During this operation the mold must be stationary, which is effected by throwing the appropriate pulley I out of contact with the central pulley, H, and the follower

M must be in its elevated position. When the required quantity of pulp has been introduced into the mold, as above stated, the follower is depressed and the annular space *s* between the follower and the mold is filled up with pulp. The pulley J of the mold is then brought in contact with the central pulley, H, and, after the mold has made a few revolutions, the follower is permitted to rise, while the mold continues to revolve until the moisture has been separated from the pulp by centrifugal force. When this has been accomplished, the motion of the mold is stopped and the pail is removed.

In the example represented by the drawings I have shown eight molds, so that while one mold is being charged or discharged the revolving motion of the remaining molds can be continued, and a large number of pails can be formed in a comparatively short time. It will also be seen by inspecting Fig. 3 that, by forming in the interior of the mold the rill or gutter *k*, the vessel, when completed, has a circular foot, *k'*, formed in one integral part with the bottom and the body of the vessel. The shape of the mold may, however, be changed without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. The within-described improvement in the art of manufacturing paper-ware, which consists in preparing paper-pulp so as to form a plastic mass, placing a quantity of this plastic mass into a suitable mold, and finally expelling the moisture by centrifugal force.

2. The combination, substantially as hereinbefore described, with the mold L and the follower M, of mechanism, substantially as herein described, for imparting to the mold a revolving motion, and of means for raising and depressing the follower.

3. The combination, substantially as hereinbefore described, with the central shaft, F, and the pulley H, of a series of molds, each mounted on a shaft, J, the pulleys I, mounted on the shafts J, and the follower M, common to all the molds.

4. The combination, substantially as hereinbefore described, with the central shaft, F, and the pulley H, of a series of molds, each mounted on a shaft, J, the pulleys I, mounted on the shafts J, mechanism, substantially such as herein described, for throwing each of the pulleys I out of contact with the central pulley, H, and the follower M, common to all the molds.

5. The combination, substantially as hereinbefore described, with the central shaft, F, and pulley H, of the drum A, constructed to turn on the central shaft, the shafts J, carried by said drum, the molds supported by these shafts, the pulleys I, and the follower M.

6. The combination, substantially as hereinbefore described, with the central shaft, F, and pulley H, of the drum A, constructed to turn on the central shaft, the wheels C, the circular track D, the shafts J, carried by said drum, the molds supported by these shafts, the pulleys I, and the follower M.

7. In a machine for forming paper-ware, the mold L, made of foraminous material—such as wire-gauze or perforated sheet metal—and provided with a lining of felt or other fibrous material, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

HARRY WHITTINGHAM. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.