

(No Model.)

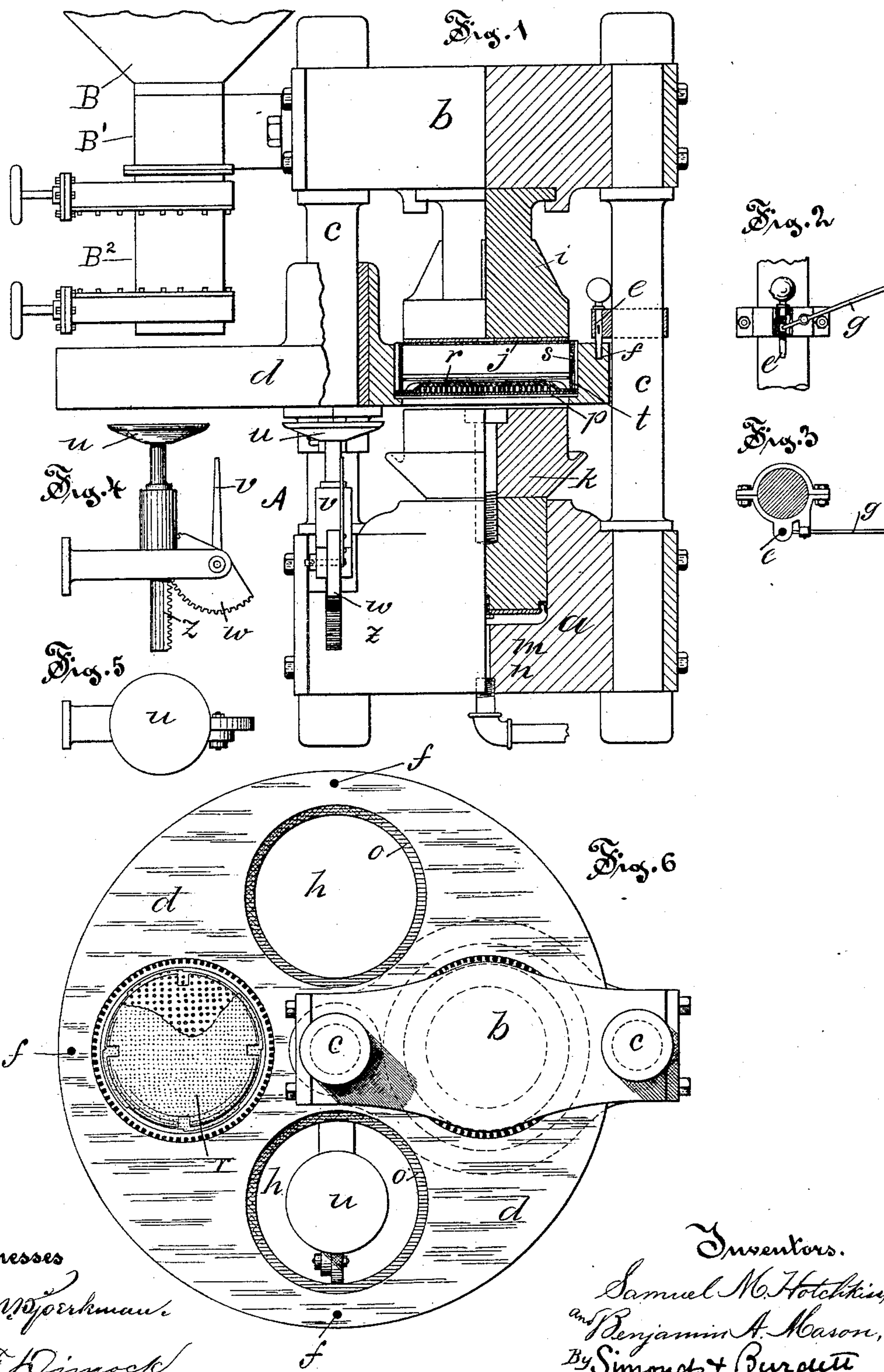
2 Sheets—Sheet 1.

S. M. HOTCHKISS & B. A. MASON.

MAKING BARREL HEADS FROM PULP.

No. 318,740.

Patented May 26, 1885.



Witnesses
W. M. Spierkman.
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Inventors.
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Fig. 7.

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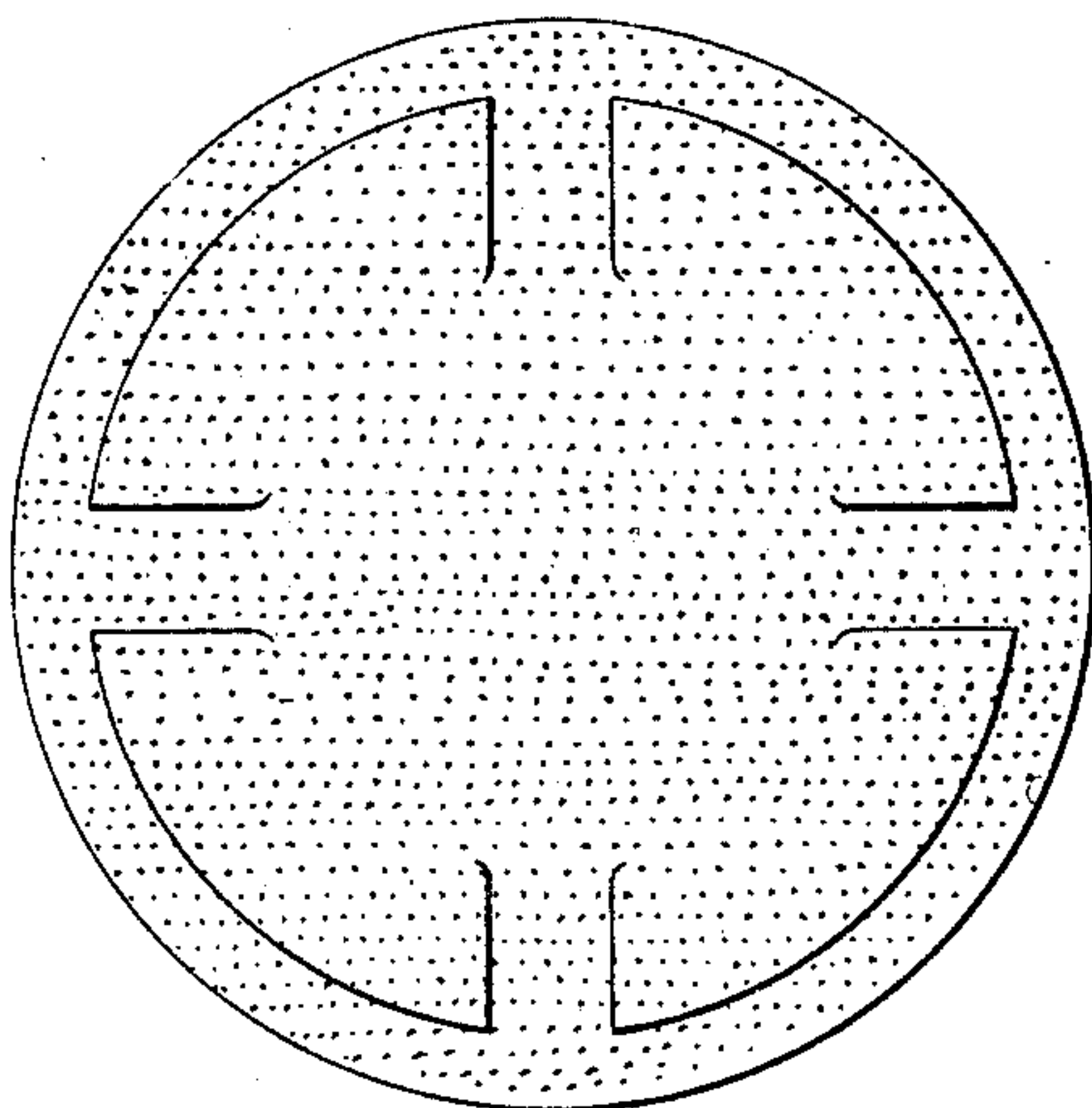


Fig. 8.

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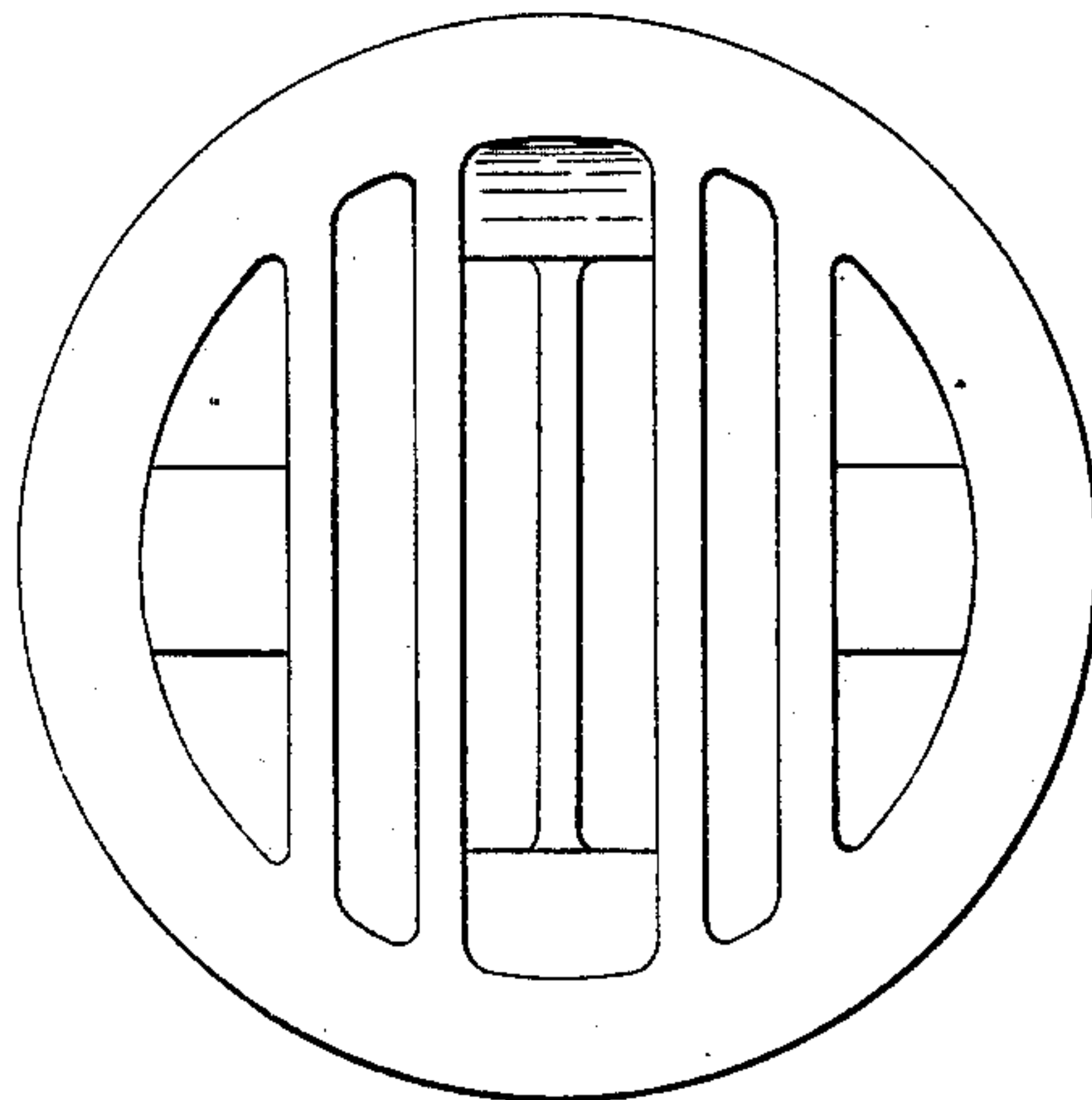


Fig. 9

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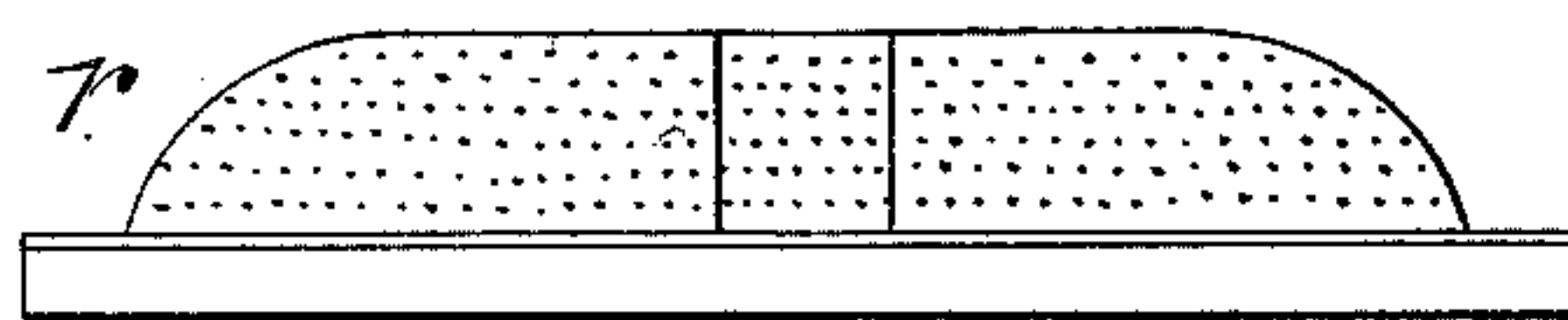
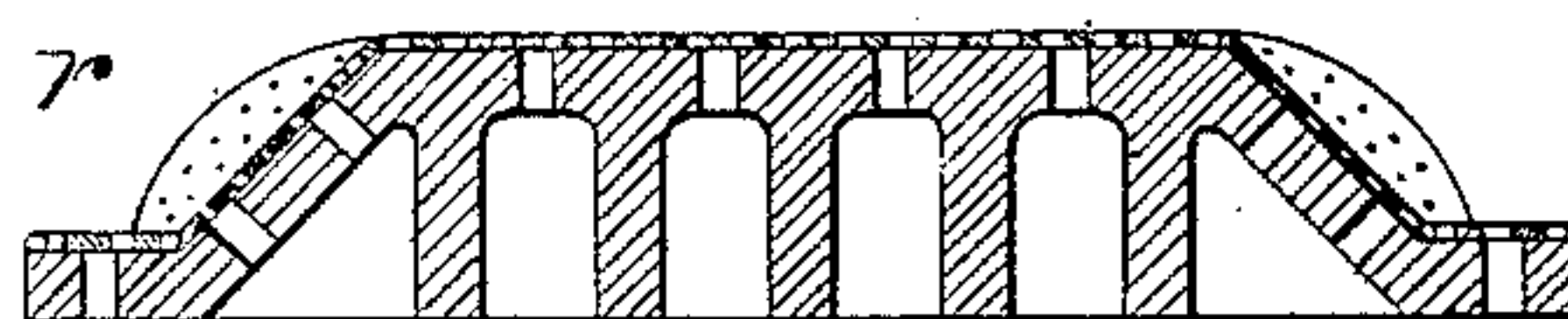


Fig. 10.

r



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UNITED STATES PATENT OFFICE.

SAMUEL M. HOTCHKISS AND BENJAMIN A. MASON, OF HARTFORD, CONN.

MAKING BARREL-HEADS FROM PULP.

SPECIFICATION forming part of Letters Patent No. 318,740, dated May 26, 1885.

Application filed January 24, 1885. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL M. HOTCHKISS and BENJAMIN A. MASON, of Hartford, in the county of Hartford and State of Connecticut, have invented a certain new and useful Improvement Pertaining to Making Barrel-Heads and the Like from Pulp, of which the following is a description, reference being had to the accompanying drawings, where—

10 Figure 1 is a view of the machine made use of, in elevation, with portions represented in vertical section. Fig. 2 is a detail view of a small portion of the machine illustrated in Fig. 1, showing the device for locking the revolving disk or table at the proper point while a barrel-head is being formed, the view being an elevation view looking at the device from a point midway between the main pillars of the machine. Fig. 3 is a detail plan view of the device shown in Fig. 2. Fig. 4 is a detail view of the device for ejecting a barrel-head and appurtenant parts from the revolving disk or table at the proper time. The view is an elevation view from the side A. Fig. 5 is a detail plan view of the device shown in Fig. 4. Fig. 6 is a top or plan view of the machine shown in Fig. 1. A portion of one of the mold-faced parts is shown as broken away for the purpose of exposing the part beneath. Fig. 7 is a plan view, enlarged scale, of the head-former. Fig. 8 is a bottom view, enlarged scale, of the head-former. Fig. 9 is an elevation view, enlarged scale, of the head-former. Fig. 10 is a view of the head-former in central vertical section.

This machine is designed for forming barrel-heads and other similar articles from pulp.

40 The frame of the machine is composed of the base-casting *a* and the top casting, *b*, strongly united by the pillars or bolts *c*.

The letter *d* denotes a rotating table or disk hinged on one of the pillars *c*. It is intended to be rotated by hand and to be locked in place at different points in its rotation while a barrel-head is being formed. The locking-pin *e* is provided for this purpose, co-operating with the sockets *f* in the table, entering the same by gravity when permitted, and lifted out therefrom, when desired, by the lever *g*.

50 In the rotating table of the machine there are four of these sockets *f*, each of which is appurtenant to one of the orifices in the rotating

table designed for the formation of a barrel-head. These four orifices are readily observed in Fig. 6, and (two of them) are denoted by the letters *h*. In the forming of a barrel-head one of these orifices is brought into vertical line with the piston which does the pressing, which is underneath the rotating table, and with the stationary platen, forming a resisting medium above the rotating table. The stationary resisting-platen just referred to is suspended from the top casting, and its face or lower end is equipped with a face-plate, *j*, surfaced with a finely-perforated mold-face, and this face-plate is perforated vertically through and through and grooved laterally on top, said construction of finely-perforated mold-face, perforated face-plate, and grooves on the back thereof being for the escape of water expressed from the article being formed under compression.

The piston above referred to is denoted by the letter *k*. Practically it is best made in two parts screwed or bolted together, as shown, but it is virtually one piece and will be so treated herein. Its periphery is furnished at one point with a drainage cup or shelf to catch the water which is expressed from the article under compression, from which drainage-cup it is properly conducted away. This piston *k* enters and reciprocates vertically in the hydraulic cylinder *m*, formed in the base-casting *a*. To raise this piston, and in the raising form and compress a barrel-head, water is forced into the hydraulic cylinder *m* through duct *n* by a hydraulic pump, raising the piston to its work with great power. The weight of the piston causes it to fall or retract when that movement is desired simply by permitting the water to escape from the cylinder.

It will be understood from what has been already described that the barrel-head or other article is formed within the orifice *h* and between the piston *k* and platen *i*. The other parts appurtenant thereto not already shown will now be described.

Each orifice *h* is furnished with a ledge or shelf, *o*, on which lies a plate, *p*, perforated through and through vertically for the escape of expressed water. On this plate *p* lies another and peculiarly-shaped plate, *r*, which may well be called a "former," because it gives

form and shape to what would commonly be called the "outer side" of the barrel-head. This former is furnished on its upper surface or working-face with a finely-perforated mold-face, and is perforated through and through vertically and grooved laterally underneath for the escape of water expressed from the article under compression. The rim or periphery of the barrel-head is formed by the rim-former *t*, which lies on the head-former.

On top of the rim-former *t* is a cup-ring, *s*. These parts—the plate *p*, the former *r*, the rim-former *t*, and the cup-ring *s*—are set into one of the orifices *h*, and the resulting recess or cup is filled with pulp before these parts are brought underneath the fixed platen, the cup-ring *s* making said cup or recess larger and capable of holding more pulp than would otherwise be the case. As the water in the pulp will begin to drain off and away as soon as the pulp is placed in said cup or recess, it is evident that by permitting this drainage to go on to a greater or less degree the operator can adjust the density of the article to be formed at pleasure.

It will be observed that the forming of the barrel-head in a horizontal position is essential in arriving at homogeneity and equal density of the barrel-head in all its parts, for if the barrel-head were to be formed in a vertical position, then the natural drainage, which begins the moment the pulp is placed in the matrix, cup, or space where the article is to be formed, will make one part of the barrel-head more dense than another part, with serious resulting defects in warping and drying.

The cup or matrix being filled with pulp, as already described, it is brought between the piston and the platen. The piston is raised and the barrel-head is formed under great pressure, expressing the water to a great degree, after which the piston is dropped, the table *d* is rotated along in its course, and at the proper point in such rotation the barrel-head thus formed is removed from the table. The proper point for thus removing the barrel-head is when it is immediately over the ejecting device. The letter *u* denotes the ejector, having a vertical movement in a proper socket attached to the frame of the machine for that purpose. The ejector is raised and lowered through the medium of the lever *v*, gear *w*, and rack *z*, appurtenant to the ejector. The operation of these parts is so simple as to be readily understood. The ejector in rising

carries with it the plate *p*, the former *r*, the rim-former *t*, the cup-ring *s*, and the barrel-head, the latter remaining in the rim-former *t* for removal to a drying-press. The plate *p* is replaced in the head-forming orifice in the rotating table; also the former *r*. Another rim-former takes the place of the one just removed, and the cup-ring *s* is put back into its place, and these parts are now ready to be used in the forming of another barrel-head. The barrel-head which has just been formed is removed to the drying-press in the rim-former with a certain special advantage—to wit: this or almost any other article formed from pulp under powerful compression, in substantially the manner already described, will immediately expand somewhat when the pressure is removed, and as it is desirable to have all barrel-heads of the same diameter, that end is attained by keeping the barrel-head in the rim-former until the material is dried and fixed in shape.

In suitable position, preferably fast to the side of the machine, the pulp-vat *B* is secured with an outlet-tube, *B'*, arranged over the table, so that the pulp may be discharged from the service-measure *B*² in the tube into the orifices *h*, when each of the latter comes in succession under the tube.

The improvement claimed herein is—

1. In combination, the fixed platen, the pressing-piston, the revolving table provided with forming-orifices, the head-formers *r*, and the rim-formers *t*, substantially as described, and for the purpose set forth.

2. In combination, the fixed platen, the pressing-piston, a forming-orifice, the head-former *r*, the rim-former *t*, and the cup-rings *s*, substantially as described, and for the purpose set forth.

3. In combination, the fixed platen, the pressing-piston, the rotating table provided with forming-orifices, and the ejector, substantially as described, and for the purpose set forth.

4. In combination, the fixed platen, the pressing-piston, the rotary table provided with forming-orifices, the ejector, the head-former, the rim-former, and the cup-ring, substantially as described.

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