C. C. WEBBER.

Centrifugal-Machine.

No. 167,962. Patented Sept. 21, 1875.

Fig. 1.

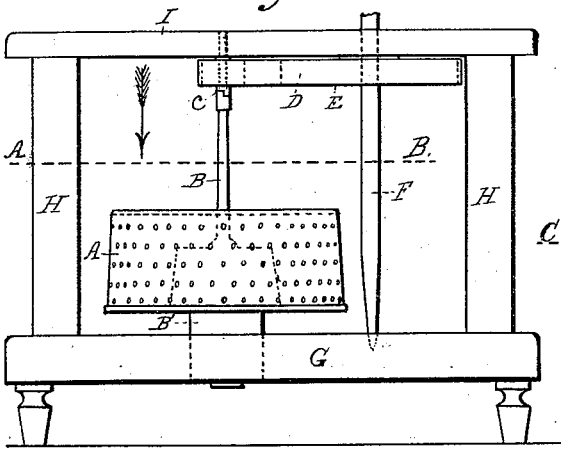


Fig. 2.

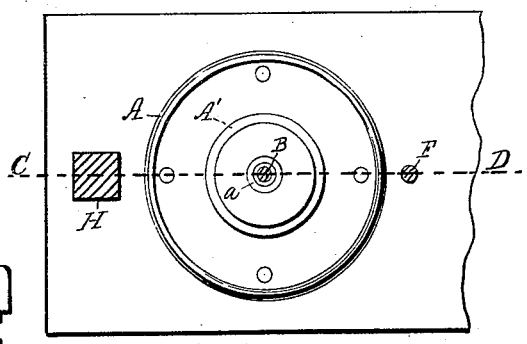
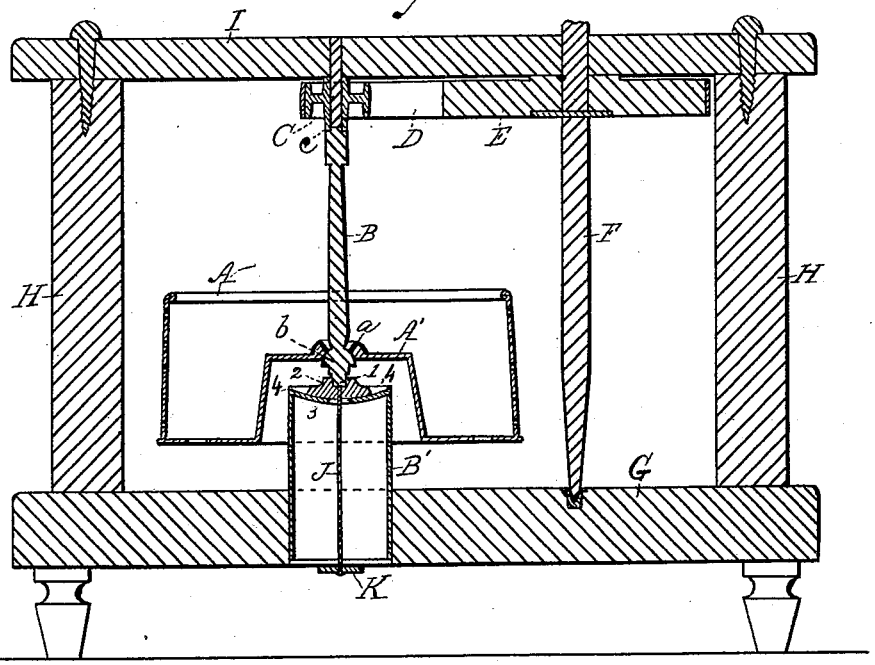


Fig. 3.



WITNESSES;

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CHARLES C. WEBBER, OF HOLYOKE, ASSIGNOR TO RICE, BARTON & FALES MACHINE AND IRON COMPANY, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN CENTRIFUGAL MACHINES.

Specification forming part of Letters Patent No. **167,962**, dated September 21, 1875; application filed August 9, 1875.

To all whom it may concern:

Be it known that I, CHARLES C. WEBBER, of Holyoke, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Centrifugal Hydro-Extractors; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings forming a part of the specification, and in which—

Figure 1 represents a side view of the centrifugal hydro-extractor with my present improvements applied thereto. Fig. 2 represents a section on line A B, Fig. 1; and Fig. 3 represents upon an enlarged scale a longitudinal vertical central section of my said centrifugal hydro-extractor, the section being indicated by line C D, Fig. 2.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, the part marked A represents the receiving drum or receptacle into which the material is placed from which water or moisture is to be extracted by the operation of the machine. This receptacle is made with an inverted cup-bottom, A′, having a center hub, *a*, the under side of which hub is made concave to fit the convex or rounded part *b* of the supporting or driving shaft B, which is driven in this instance by means of pulley C, belt D, and pulley E upon the driving-shaft F, the driving-shaft F being driven by means of belt or gearing in any suitable and well-known manner. Shaft F is stepped in the lower frame-piece G, from which rise the end-pieces H H for supporting the top frame-piece I, in which the upper ends of shaft F and the journal of pulley C turn and have their bearings. The lower end of journal of pulley C is connected with the upper end of shaft B by means of a block or universal joint, *c*, which permits the lower end 1 of shaft B, which is stepped in the piece 2, to swing out of line when the receptacle A is rotated. The under side of the step-piece 2 is made slightly convex, and rests upon a corresponding concave surface, 3, which forms the upper end of the tubular supporting-stand B′, the lower end of which is securely fastened to the bottom frame-piece G. A small hole is made through the center of the concave supporting-face 3 for the passage of the upper end of the vertical spring-arm J, the lower end of which spring-arm is securely fastened to a cross-bar, K, secured to the under side of the bottom frame-piece G. The upper end of the spring-bar J enters a hole in the center of the sliding convex 2. Shaft B is cut in a little just above its convex portion *b*, while the hole in the center of hub *a* is countersunk upon its upper side, all as indicated in Fig. 3 of the drawings.

By this construction and arrangement of the parts the material from which the moisture or liquid is to be removed when it is placed in the drum or receptacle A, the top of which is open for that purpose, may be placed in such receptacle so as to throw it out of balance, and still the machine will operate satisfactorily, and that, too, without creating much or injurious vibration either to the frame of the machine or to the floor of the building upon which it stands. This is owing to the fact that the lower end of shaft B rests in the step 2, which can swing about on the top of the head or face 3 of the tubular stand B′, while at the same time the receptacle or receiving-drum A is free to rock in all directions, receiving its rotary motion entirely through the friction between the concave surface of its hub *a* and the convex surface *b*. To prevent the possibility of accidents, however, by the swinging of the step-piece 2 entirely off of the tubular stand B′ or concave face 3, a vertically-projecting flange, 4, is extended entirely around the top of the part 3, against which the edge of the step 2, which is made round, will strike and prevent undue lateral movement of step 2 and the lower end 1 of shaft B. The office or function of the vertical central spring-arm J is to exert a constant and easy force upon the step 2 to keep it in a central position. In making the concave face 3 it should be so made as to permit the step 2 to move in the arc of a circle, the center of which is the joint *c* between shaft B and journal of pulley C. Any form of universal or ball joint may be used for connecting the lower end of the jour.

nal of pulley C with the upper end of shaft B, which will allow shaft C to swing freely in all directions. It will be understood that the sides of the drum or receptacle A may be made in any of the forms of open work which have been employed heretofore for such purpose. The hole in the center of the supporting concave head or face 3 should be sufficiently large to allow the step 2 to move the desired distance in all directions without the upper end of spring J striking against the part 3. By making the supporting and driving connection between the receptacle A and the driving-shaft B entirely frictional, in case either the receptacle or the driving-shaft is suddenly retarded or the driving-shaft put in motion, there is less liability of breakage than there would be if shaft B and receptacle A were so connected as to render it impossible for one to move independently of the other.

Having described my improvements in centrifugal hydro-extractors, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination of the receptacle or drum A, provided with a concave hub, *a*, with the shaft B, provided with a convex supporting and driving surface, *b*, substantially as and for the purposes set forth.

2. The combination, with the lower end 1 of shaft B and the concave supporting-surface 3 of the stand or supporting-base B′, of the freely-moving convex step 2, substantially as and for the purposes set forth.

3. The combination, with the step 2 and swinging shaft B, of the vertical spring J, substantially as and for the purposes set forth.

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Witnesses:

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JOEL S. WEBBER.