

*A. O. Crane,*  
*Washing Mach.*

*No. 110,831.*

*Patented Jan. 10 1871.*

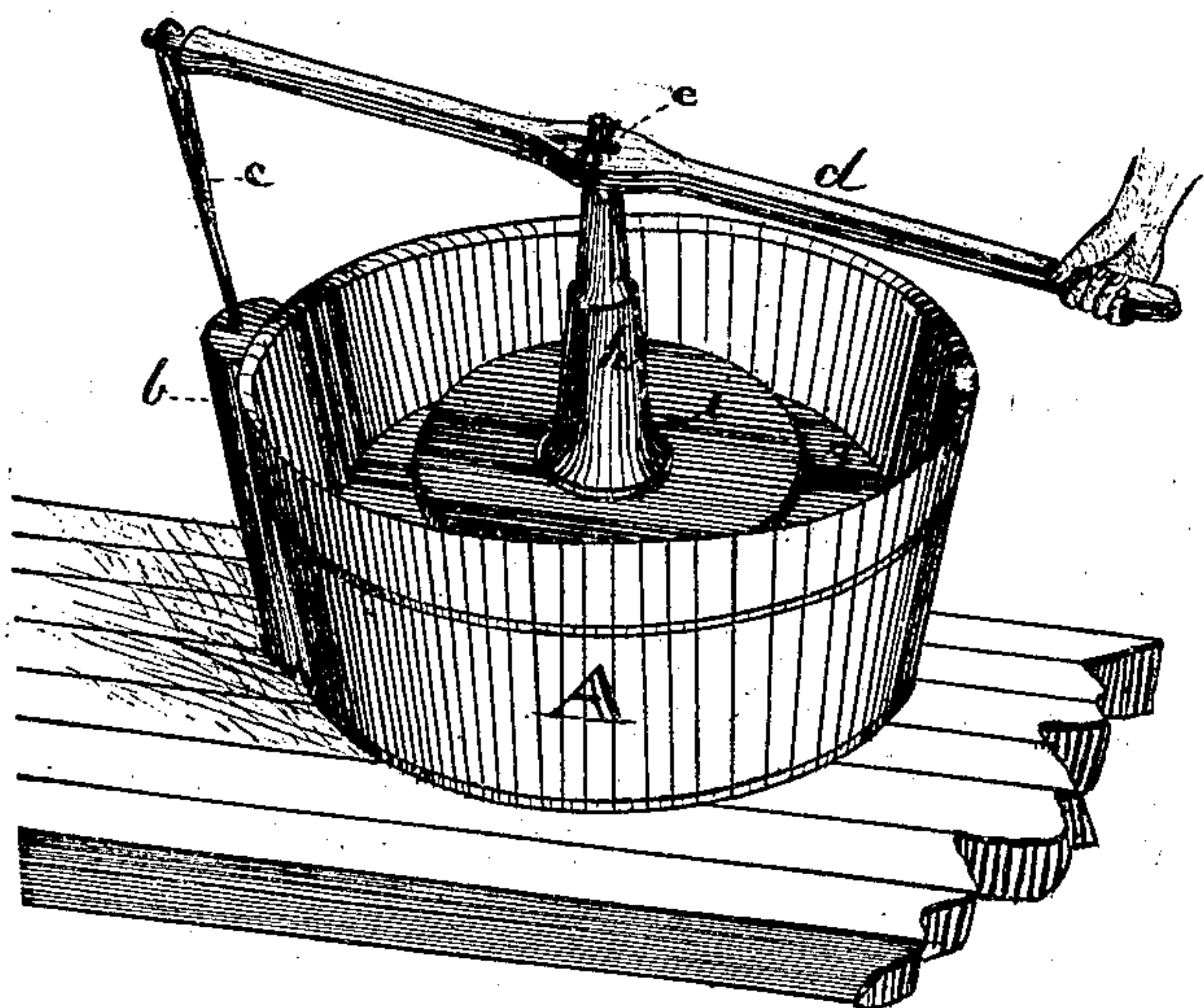


FIG. 1.

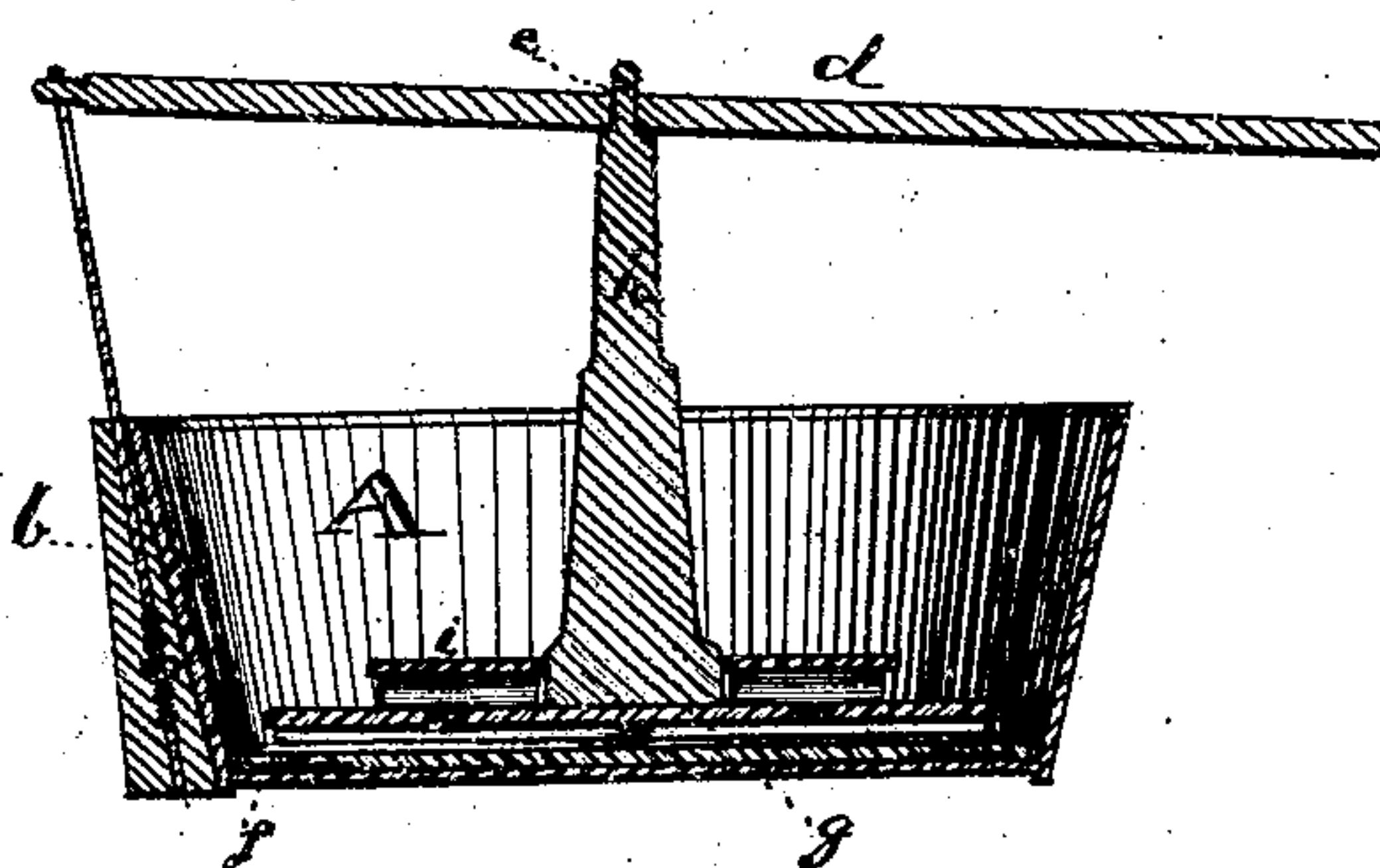


FIG. 2.

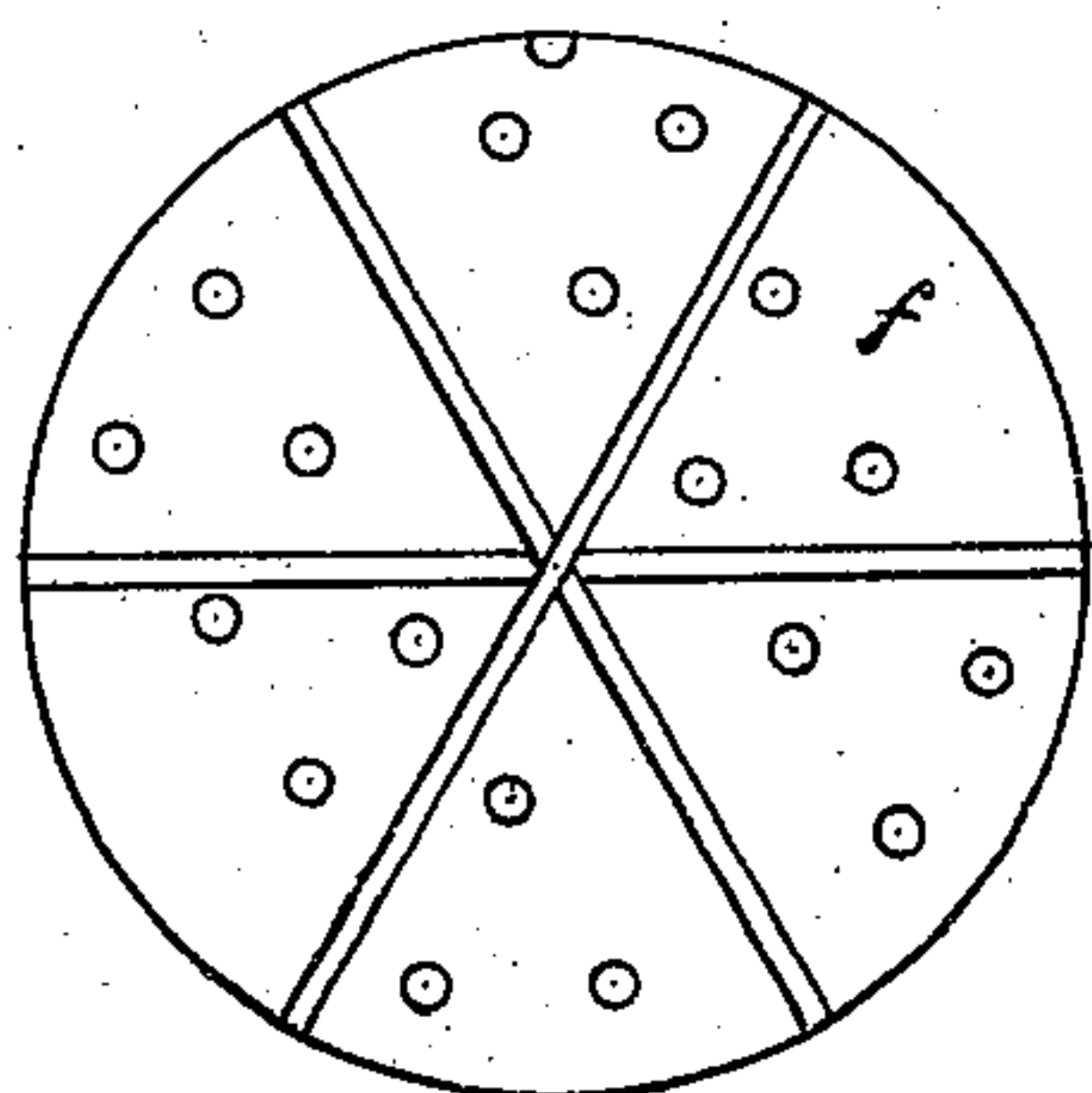


FIG. 3.

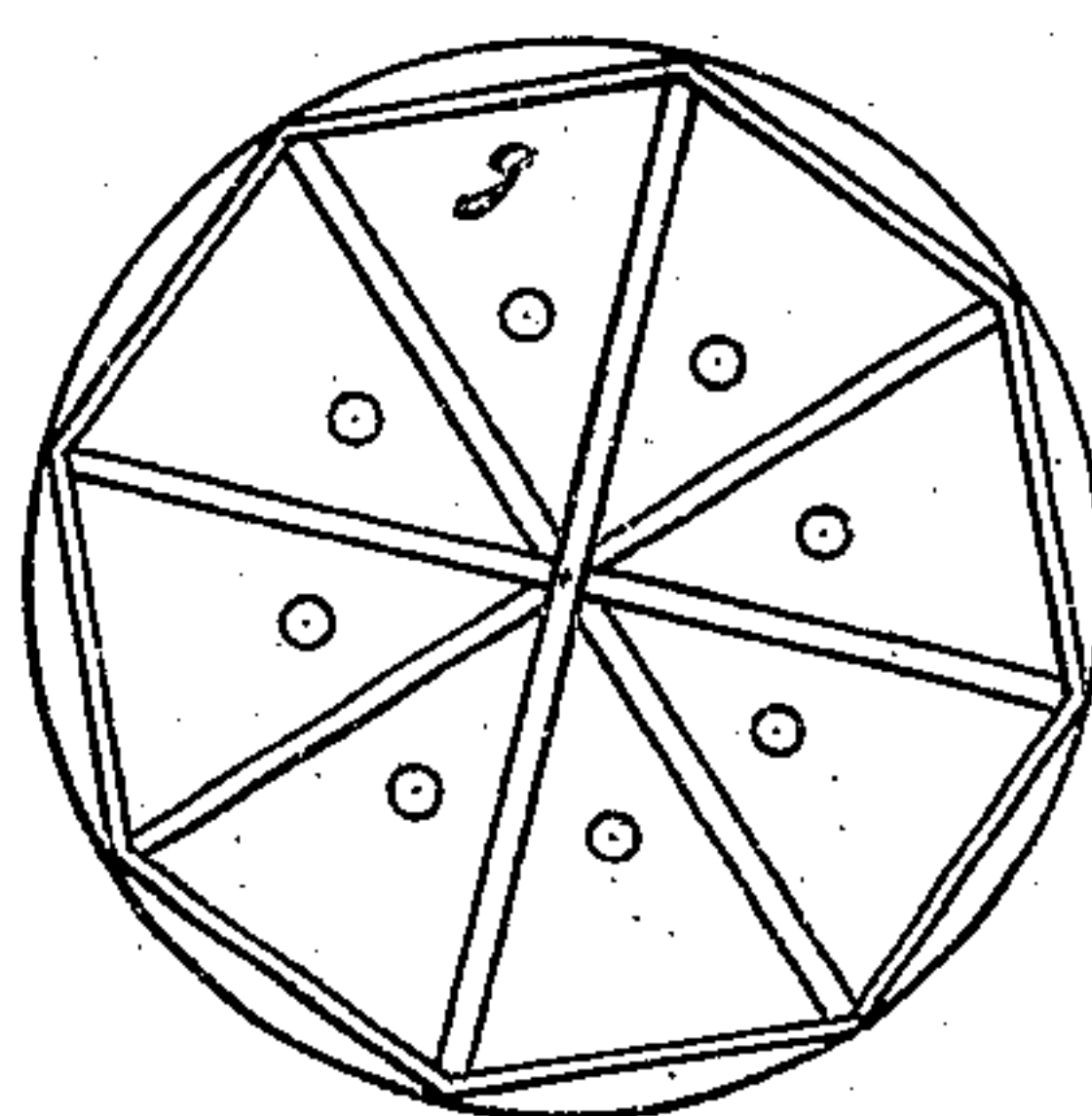


FIG. 4.

Witnesses: *William Standish*  
*James M. Keith*

Inventor *A. O. Crane*



# UNITED STATES PATENT OFFICE.

ALBERT O. CRANE, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **110,831**, dated January 10, 1871.

*To all whom it may concern:*

Be it known that I, ALBERT O. CRANE, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented certain Improvements in Washing-Machines, of which the following is a specification.

My invention consists in certain improvements in those machines in which the cleansing is effected by forcing the water in and out of the articles to be washed by means of a follower or plunger moved up and down in a tub having a raised and perforated false bottom.

In the accompanying drawings, Figure 1 is a view of the machine ready for operation. Fig. 2 is a sectional view of the same drawn through the middle. Fig. 3 is a full view of the upper side of the false bottom. Fig. 4 is a full view of the lower side of the plunger or follower.

*A* is a common washing-tub.

*b* is a wooden block screwed firmly upon the side of the tub. This block is perforated longitudinally with a hole about a half an inch in diameter. At about the center of the block is set a nut having a screw-thread cut therein, and so placed that its hole coincides with said longitudinal hole in the block.

*c* is an iron rod about half an inch in diameter, upon one end of which an eye is formed about an inch and a quarter in diameter. On the lower end of this rod is cut a screw-thread fitting the thread of said nut and extending three or four inches up said rod from its lower extremity. The length of this rod and of block *b* varies with the size of the tub; but they should be long enough to have the requisite height, strength, and stiffness adequate to the service for which they are designed, as hereinafter set forth. Said rod is designed to be passed through the hole in the block, screwed through said nut, and to serve as a fulcrum to the lever *d*, working in the said eye of the rod *c*. This rod *c* may be elevated or lowered to suit the height of the contents of the tub.

*d* is a strong lever, in length about six inches more than the diameter of the tub. One end is shaped to penetrate the eye in the rod *c* an inch and a half or two inches, and having a shoulder or bearing which prevents further penetration. At a point in said lever which is over the center of the tub when the machine is in use a hole or eye, *E*, is bored perpendicularly through the lever.

*f* is a false bottom, raised by feet or knobs about half an inch from the bottom of the tub. The top surface of this false bottom is broken or made uneven by corrugations, or by cleats or bars radiating from the center toward the circumference, and about three-quarters of an inch in height. Between each two of these cleats or bars are made three or more holes of about three-quarters of an inch in diameter. In a tub of two feet diameter there should be twenty-five or thirty of these holes. This false bottom may be held in place when in use by buttons or any other similar means, but should be removable at pleasure.

*g* is a follower or plunger. It is best made circular and an inch less in diameter than the tub in which it is to be used. The under side is divided by cleats, like the false bottom, with this exception, that there should not be the same number of cleats or corrugations in both. For example, if the false bottom has six cleats or corrugations the under side of the plunger should have eight or nine. Also upon the outer ends of each two of the bars or cleats is fixed a cleat like the others, thus forming compartments, as it were. In each of these compartments and about one-third of the distance from the center to the circumference is bored a hole three-quarters of an inch in diameter. On the upper surface of the plunger the circumference is chamfered down nearly to an edge. In the center is fixed firmly the standard *h*, about a foot long. The top of this standard is formed to fit and pass through the eye *E* in the lever *d*, where the same is held by a pin, key, or other device. Around this standard and about three-quarters of an inch from the bottom is placed a circular shield, *i*, of sufficient diameter to extend over and about an inch beyond the outermost of said holes in the plunger. This shield is kept in place, and one-half or three-quarters of an inch from the plunger, by means of blocks or cleats.

Mode of operation: When the block *b* is made fast upon a washing-tub and the false bottom *f* is in its place, with the water and the articles to be washed in the tub, the plunger is placed on the water, the rod *c* elevated to such a height that when the end of the lever *d* is inserted in the eye of the rod, and the end of the standard is keyed into the eye *E* of the lever, the handle end of the lever will be elevated a little higher than the other end. Press-

ing down the lever the water will be expressed from the articles to be washed and rise between the edge of the plunger and the sides of the tub and through the holes in the plunger. The circular shield and the chamfered edge of the plunger above described prevent the water from spurting upward and scattering as the plunger is pressed downward. Upon raising the lever the clothes are drawn up with the plunger, and the water, for the most part, runs down between the edge of the plunger and the sides of the tub beneath the clothes, whence, upon again depressing the plunger, it is driven through the clothes, &c. The plunger should be raised by a quicker motion than that used in depressing it, in order to draw the clothes upward.

The block *b* may be permanently secured

upon the tub, or made to be held thereon by clamps or other suitable means, and removable at pleasure.

The cleats on the false bottom and on the plunger need not be placed necessarily in the position described, but may be placed in any other suitable position.

I claim as my invention and desire to secure by Letters Patent—

A washing-machine consisting of a combination of a common washing-tub, *A*, with a false bottom, *g*, plunger *i* and *h*, and lever *d*, constructed and operated as and for the purposes and in the manner herein set forth.

A. O. CRANE.

Witnesses:

WILLIAM STANDISH,  
JAMES M. KEITH.