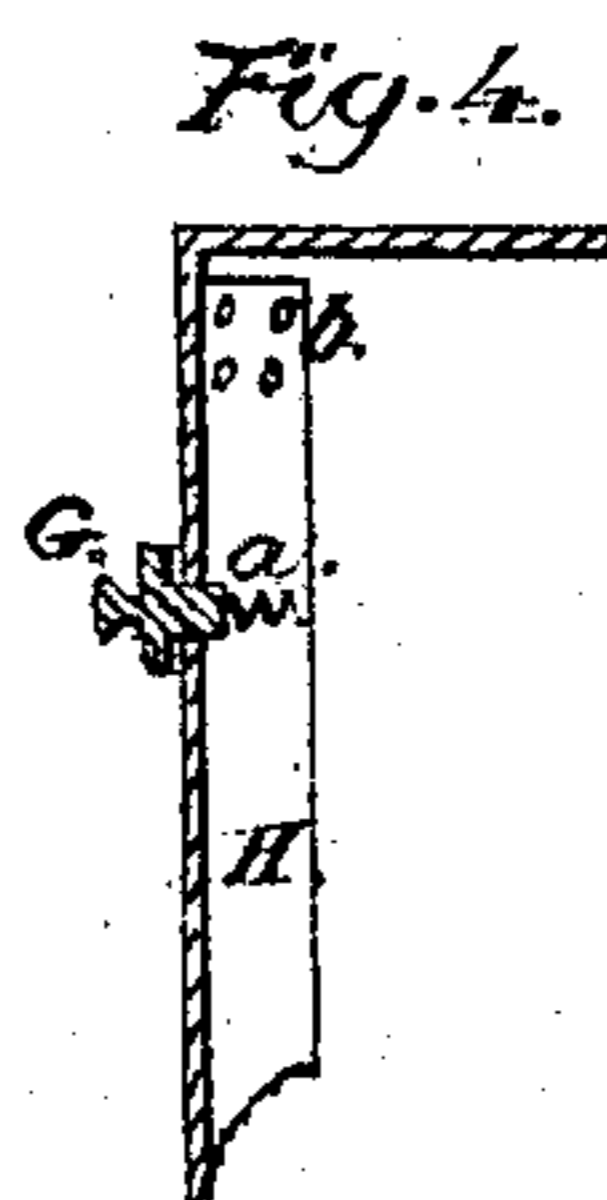
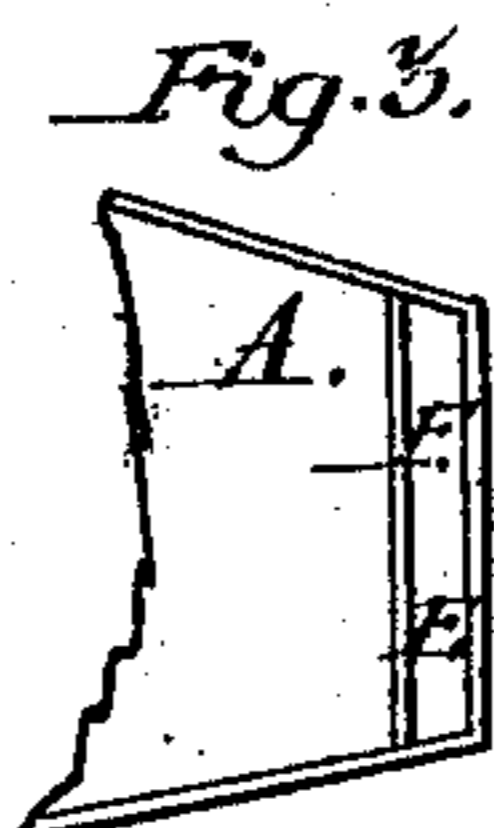
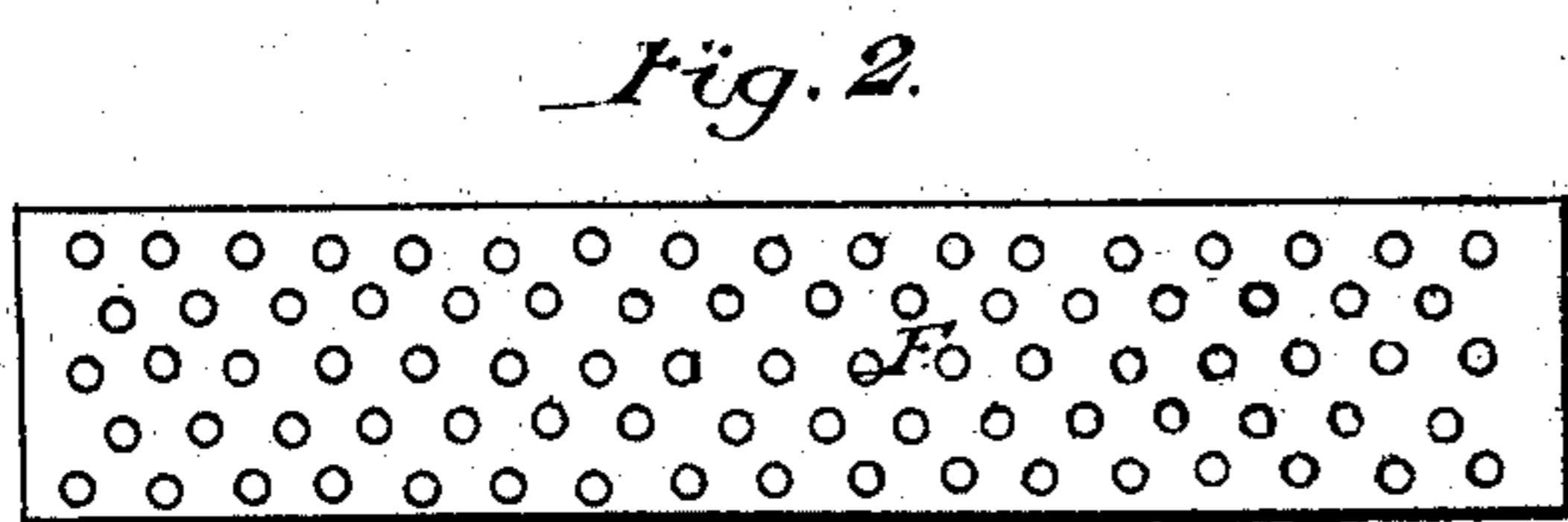
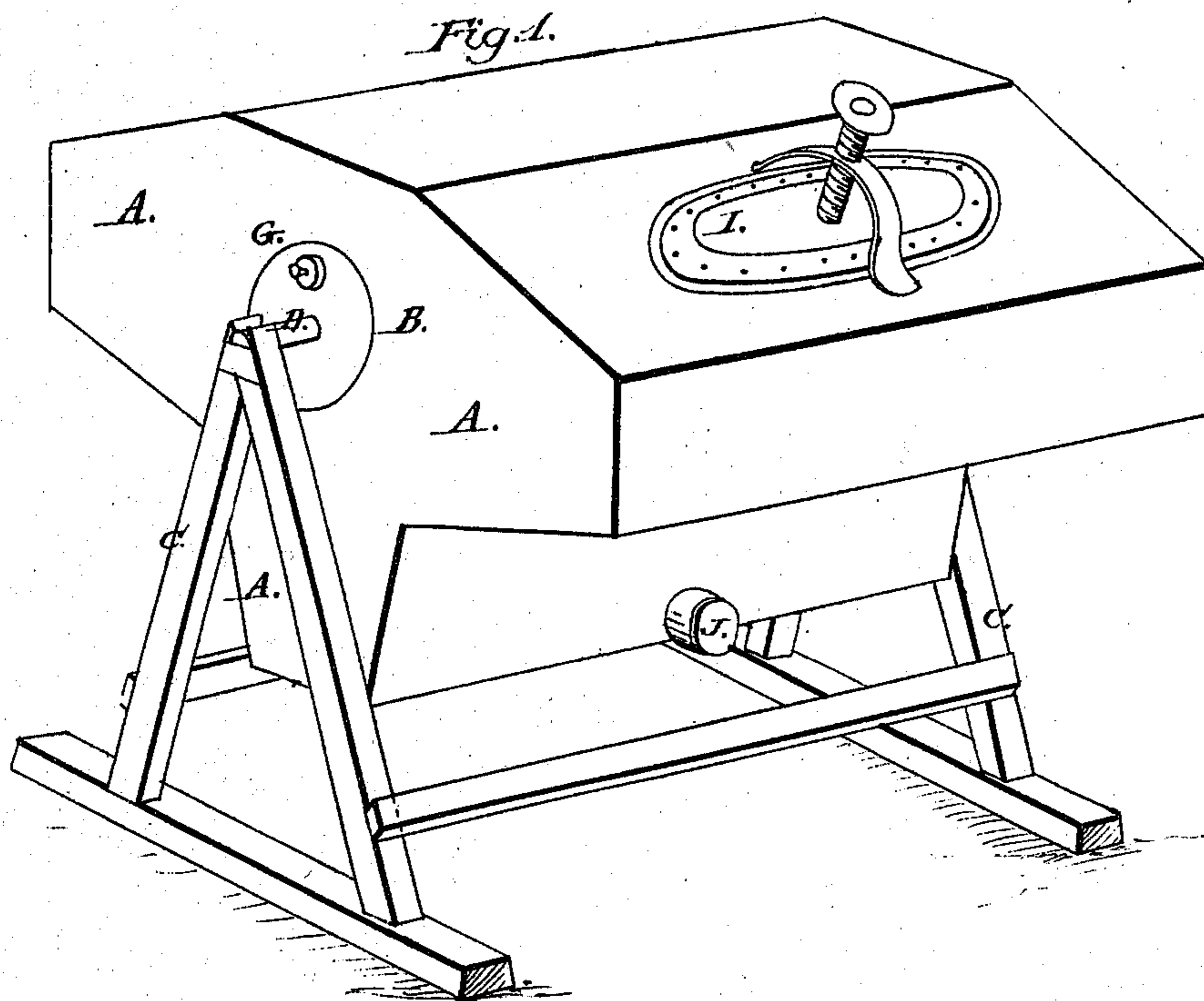


*F. W. Born,*  
*Washing Machine.*

*No. 90,072.*

*Patented May 18. 1869.*



WITNESSES:  
*E. E. Maite*  
*Frank S. Alden*

INVENTOR:  
*Fredrick W. Born.*

# United States Patent Office.

FREDRICK W. BORN, OF CLEVELAND, OHIO.

Letters Patent No. 90,072, dated May 18, 1869.

## IMPROVED WASHING-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, FREDRICK W. BORN, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented a certain new and improved Washing-Machine; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the machine.

Figures 2, 3, and 4, are detached sections.

Like letters of reference refer to like parts in the different views.

This invention relates to a vibratory washing-machine, so constructed with a tri-radial-chambered box or vessel, that the clothes placed therein are thrown from one to the other by the vibratory action of the machine, whereby the articles are washed by the joint action consequent of their being tumbled about—steam and water—as hereinafter more fully described.

In fig. 1, A represents the radial chambers of the machine referred to, the sides of which, as will be observed, are slanting outwardly from the centre.

Each of the said chambers opens into the body or more central part, B, of the machine, and whereby it is supported upon the trusses C, by means of the trunnion D, on which the machine is made to vibrate, as will hereinafter be shown.

Along the extreme side of each radial chamber is formed a chamber, E, fig. 3, by means of a perforated partition or diaphragm, F, a detached view of which is shown in fig. 2.

G, fig. 1, is a valve, opening from the outside, and held in position, and closed by a spring, a, fig. 4, to which it is attached.

H is a tube, secured to one end of the machine, a detached section of which is shown in fig. 4.

Said tube is put in communication with the interior of the machine by means of the perforations b at the upper end, whereas the lower end is close and tight.

Having thus described the construction and arrangement of the machine, the practical operation of the same is as follows:

The articles to be washed are put into the boiler through the man-hole I. This being done, a proper quantity of water, &c., is then thrown in. The machine is then actively vibrated by means of a handle attached to one of the trunnions.

The motion thus given to it causes the clothes to fall from one radial chamber into the other. This tumbling of the clothes upon themselves, and upon the angles of the corners of the chambers, and against

the diaphragm in passing from one to the other, loosens up the dirt, which is washed out by the current of water and steam occasioned by the vibration of the boiler, and the clothes are thereby rapidly and thoroughly cleaned.

The purpose of the diaphragm is, that when the clothes fall against it, the perforations therein allow the water to swash through into the empty chamber E, so that the clothes fall with more force against the side or diaphragm, then upon an accumulation of water at the side, which would be the case were it not for the diaphragm. By thus increasing the force of the percussion of the clothes upon the sides of the chamber, they are more rapidly and thoroughly washed, and with much less labor than they could be without the assistance of the diaphragm.

In the process of washing, the steam from the hot water needs some vent, whereby it may escape from the machine, which, if it is of large size, and the water very hot when thrown into it, the pressure becomes too great for the strength of the machine, and will, therefore, burst it, or prevent the articles therein from being easily and readily thrown about.

To provide for the escape of the steam under such circumstances is the purpose of the tube and valve referred to. The opening of the tube being at the top, the steam can escape into it from the machine, but not the water. The pressure of the steam upon the valve will cause it to open, and through it escape to the outside.

By the use of the valve the steam can escape only when at a certain pressure; hence most of the steam is retained in the boiler for washing the clothes; therefore no cold air can enter therein while the process of washing is continued, unless the steam is of sufficient pressure to open the valve.

By this means the water is kept hot during the working of the machine, thereby facilitating the process, which being accomplished, the suds are drawn off through the pipe J. Clean water is then thrown in and the clothes rinsed, and the work completed for the wringer.

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

The combination of the radial-chambered machine A, the perforated diaphragm F, tube H, and valve G, all constructed and arranged to operate in the manner and for the purpose substantially as described.

FREDRICK W. BORN.

Witnesses:

J. H. BURRIDGE,  
FRANK S. ALDEN.