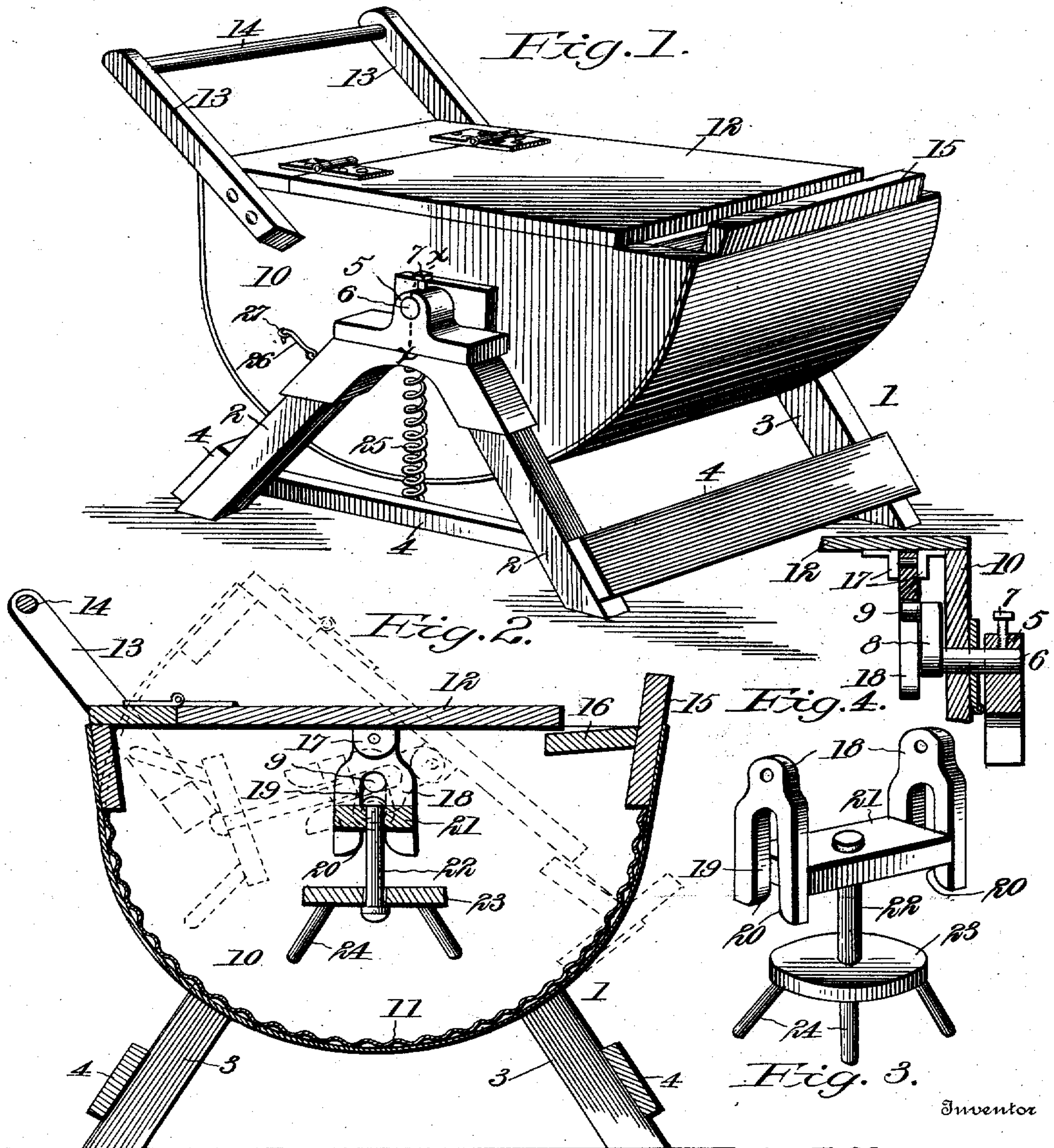


No. 755,742.

PATENTED MAR. 29, 1904.

H. E. CARSTENS.  
WASHING MACHINE.  
APPLICATION FILED MAY 26, 1903.

NO MODEL.



Witnesses  
*C. N. Walker*  
*A. A. Ege*

Inventor  
*H. E. Carstens.*  
By *Theodore Dalton*  
Attorney



## UNITED STATES PATENT OFFICE.

HENRY EMIL CARSTENS, OF DAVENPORT, IOWA.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 755,742, dated March 29, 1904.

Application filed May 26, 1903. Serial No. 158,814. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY EMIL CARSTENS, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented new and useful Improvements in Washing-Machines, of which the following is a specification.

This invention relates to improvements in washing-machines, and has particular reference to that class in which a rocking or swinging body and agitator are employed.

The object of the invention is to provide a washing-machine which will be simple in construction durable in use, and efficient in its operation and wherein the clothes are thoroughly and rapidly cleansed with the least possible amount of agitation, to the end that tearing or other injury to the fabrics is obviated and exertion on the part of the operator reduced.

Heretofore in washing-machines of this type the agitator for the clothes has been mounted so as to swing in a direction opposite to that of the body, thereby causing the same to act as a rubber and to force the clothes in a direction contrary to the movement imparted thereto by the rocking of the body. This action results in an unnecessary amount of agitation and injury to the clothes and requires considerable effort to operate the machine; but the present invention is designed to prevent these difficulties by providing means for swinging the agitator in the same direction with the body containing the clothes and accelerating the movement of the former, whereby the clothes will be carried and held by the agitator at each oscillation of the body and will act as a sieve through which the water will percolate to thoroughly clean the same, while at the same time permitting the clothes to gradually fall to the bottom of the body preparatory to being again engaged by the agitator upon the next oscillation of the body. These objects are obtained by the novel construction, combination, and operative aggroupment of the parts, all as will be more fully described hereinafter and pointed out in the appended claims.

In the drawings forming a part of this invention, Figure 1 is a perspective view of the

washing-machine constructed in accordance with my invention. Fig. 2 is a central vertical longitudinal section showing in dotted lines the position of the parts when the body is swung in one direction. Fig. 3 is a perspective view of the agitator and its hangers removed from the machine. Fig. 4 is a fragmental view in vertical transverse section on the line *x x* of Fig. 1, showing the relative arrangement of one of the trunnions with the parts of the machine.

In the drawings similar reference-notations indicate the same parts appearing in the several illustrations, and reference being made to the drawings, 1 designates a frame of such shape as may be fixed upon to meet the purposes of its use. This frame comprises two pairs of legs 2 3, which are braced around the lower ends thereof by suitable stays 4, and on the upper end of each pair of legs is mounted a socketed casing or cap 5, having a transverse aperture to receive the trunnion 6, which is locked therein by means of a set-screw 7. Each of the trunnions 6 is formed at its inner end with a right-angular extension 8, from the end of which projects a lug or pin 9, arranged in the plane above the portion 6, thus forming a crank-shaped member, the function for which will hereinafter be pointed out.

The body 10 of the machine consists of a semicylindrical receptacle having the usual corrugated metal lining 11 and provided on its top with a hinged cover 12. The body is further provided with a pair of outwardly-extended arms 13, which are connected at their outer ends with a handle-bar 14, and at its opposite end there is formed a cleat 15, adapted to receive a wringer, which is not shown in the drawings. From this cleat 15 extends a downwardly-inclined drain-board 16 for conducting the water into the machine when the clothes are being wrung. The body 10 is mounted for oscillation between the legs 2 and 3 of the frame, being journaled on the trunnions 6.

On the inner side of the cover 12 are two pairs of ears 17, between which are pivoted the depending hangers 18 of the agitator. These hangers are bifurcated at their lower ends, as at 19, in which bifurcation the lugs



9 of the trunnions engage and slide when the body is rocked on its journal. To provide for conveniently engaging the lugs 19 in the bifurcations of the hangers, the latter are provided at their lower ends with beveled or rounded corners 20. The hangers are connected near their lower ends by a block or cross-head 21, in which is mounted the depending stem 22 of the agitator 23. This agitator is loosely mounted on the stem 22 to permit it to slide vertically or rotate to accommodate the amount of clothes in the washing-machine, and from its bottom project the usual pins 24, which engage the clothes to hold them elevated at the end of each oscillation of the body.

From the description thus far given it will be perceived that the agitator is carried by the body and that it is permitted to swing independently of the same by means of its pivotal connection with the cover of the body; but its movements are controlled by the movements of the body, and those movements are always in the same direction with the body.

As stated in the preliminary portion of the specification, the motion of the agitator is accelerated with relation to the motion of the body, and this is accomplished by the fulcrum for the agitator (which comprises the lug 9 in the bifurcations 19) being in a plane above the fulcrum of the body, whereby when the body is rocked on its journal 6 the hangers 18 are carried with it and the latter slides on the lug 9, causing the agitator to be moved faster up toward the top of the body.

Secured at one end to one of the braces 4 is a coil-spring 25, which is engaged at its other end with the body 10 and which acts to assist the returning motion from the end of each oscillation and always causes the body to assume its normal position when left at rest.

To one of the legs 2 is secured a hook 26, adapted to engage an eye 27 on the side of the body when the machine is at rest and water or clothes are being introduced or removed therefrom.

The operation may be briefly stated as follows: It being premised that the required amount of clothes to be washed is contained in the body and water has been introduced, the operator rocks the body on its journal 6. Referring to Fig. 2 of the drawings, the parts are shown in dotted lines in the positions they occupy when the body has been rocked in the direction of the arrow, and upon this movement the clothes, which are normally at the bottom of the body, are engaged by the pins 24 of the agitator and carried upwardly therewith, while the water will percolate through the clothes and fall to the opposite end of the body. The agitator being revoluble and slidable on the stem 22 will permit the clothes to gradually fall to the bottom of the body, so that upon the next oscillation of the latter the clothes will be again engaged by the pins

and carried to the opposite end of the body, while the water will again percolate there-through, this operation being repeated until the clothes are thoroughly cleansed. The accelerated movement of the agitator tends to push the clothes up against the top of the body and in a measure compressing them to rinse the water therefrom, and this continuous rinsing action hastens the washing operation. It may be further explained that the accelerated movement of the agitator is due to the fact that the fulcrum-lug 9 constantly changes its position in the bifurcation during the movement of the body, such change emanating from the sliding connection between the lug and the hangers, which increases the distance between the pivotal connection of the hangers with the cover and the lug, which is stationary.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A washing-machine comprising a rocking body, an agitator connected to and movable with the body, and means located within the body for accelerating the movements of the agitator with relation to the movements of the body.

2. A washing-machine comprising a rocking body, an agitator pivotally connected with the body and mounted for oscillatory movement within the same, and means located within the body for swinging the agitator in the same direction with and at a greater rate of speed than the body.

3. A washing-machine comprising a body, an agitator pivotally hung from the top of the body and capable of a swinging movement therein, means located within the body for swinging the agitator simultaneously with the body and in the same direction therewith, and for accelerating the movements of the agitator with relation to the movements of the body.

4. A washing-machine comprising a rocking body, trunnions on which the body is journaled, an agitator pivotally connected with movement therein, and means carried by the trunnions for swinging the agitator in the same direction with and at a greater rate of speed than the body.

5. A washing-machine comprising a body, trunnions on which the body is journaled, an agitator mounted for oscillation within the body, and means located in the body connecting the body and the agitator for moving the agitator in the same direction with the body.

6. A washing-machine comprising a body, trunnions on which the body is journaled, an agitator mounted for oscillation within the body, means located in the body connecting the body and the agitator for moving the agitator in the same direction with the body, and at a greater rate of speed than the body.



7. In a washing-machine, the combination with a frame having trunnions fixed therein, of a body journaled on the trunnions and mounted for oscillation within the frame, an  
 5 agitator pivotally connected with the top of the body and having an engagement within the body with the trunnions for moving the agitator in the same direction with the body at each oscillation thereof.
- 10 8. In a washing-machine, the combination with a frame having trunnions fixed therein, a body journaled on the trunnions and adapted to rock thereon, an agitator pivotally connected to the top of the body and mounted  
 15 for oscillation therein and having a connection within the body with the trunnions at a point above the journal for the body, whereby the agitator is swung in the same direction with and at a greater speed than the body.
- 20 9. In a washing-machine, the combination with a frame having trunnions fixed therein, said trunnions having a vertically-offset portion provided with a lug, a body journaled on the trunnions and mounted for oscillation  
 25 within the frame, an agitator pivotally connected with the top of the body and engaged with the lug of the trunnions whereby the agitator will move in the same direction with and at a greater speed than the body upon the  
 30 oscillation of the latter.
10. A washing-machine provided with a rocking body, trunnions on which the body is

journaled, hangers pivotally connected with the top of the body, an agitator supported by the hangers, and means on the trunnions to  
 35 be engaged by the hangers for moving the agitator in the same direction with the body and accelerating its movement with relation thereto.

11. In a washing-machine, the combination 40 with a frame, of trunnions fixed in said frame and having an upwardly-disposed extension at one end provided with a lug, a body journaled on the trunnions between the frame and the extension, bifurcated hangers pivotally  
 45 connected with the top of the body and engaging the lug, a block connecting the hangers, a stem depending from the block, and an agitator loosely mounted upon the stem.

12. In a washing-machine, the combination 50 with a frame, and a body mounted for oscillation within said frame, of trunnions for the body, and an agitator pivotally connected with the body and having a sliding pivotal engagement with the trunnions, as and for the  
 55 purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY EMIL CARSTENS.

Witnesses:

PAUL MEYER,  
 LOUIS KOELL.

Correction in Letters Patent No. 755,742.

It is hereby certified that in Letters Patent No. 755,742, granted March 29, 1904, upon the application of Henry Emil Carstens, of Davenport, Iowa, for an improvement in "Washing-Machines," an error appears in the printed specification requiring correction, as follows: On page 2, lines 112 and 113 should be transposed; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of April, A. D., 1904.

[SEAL.]

F. I. ALLEN,  
 Commissioner of Patents.

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F. I. ALLEN,  
*Commissioner of Patents.*