No. 614,710. Patented Nov. 22, 1898.

# D. I. ECKERSON.

## WASHING MACHINE.

(Application filed Sept. 4, 1897.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

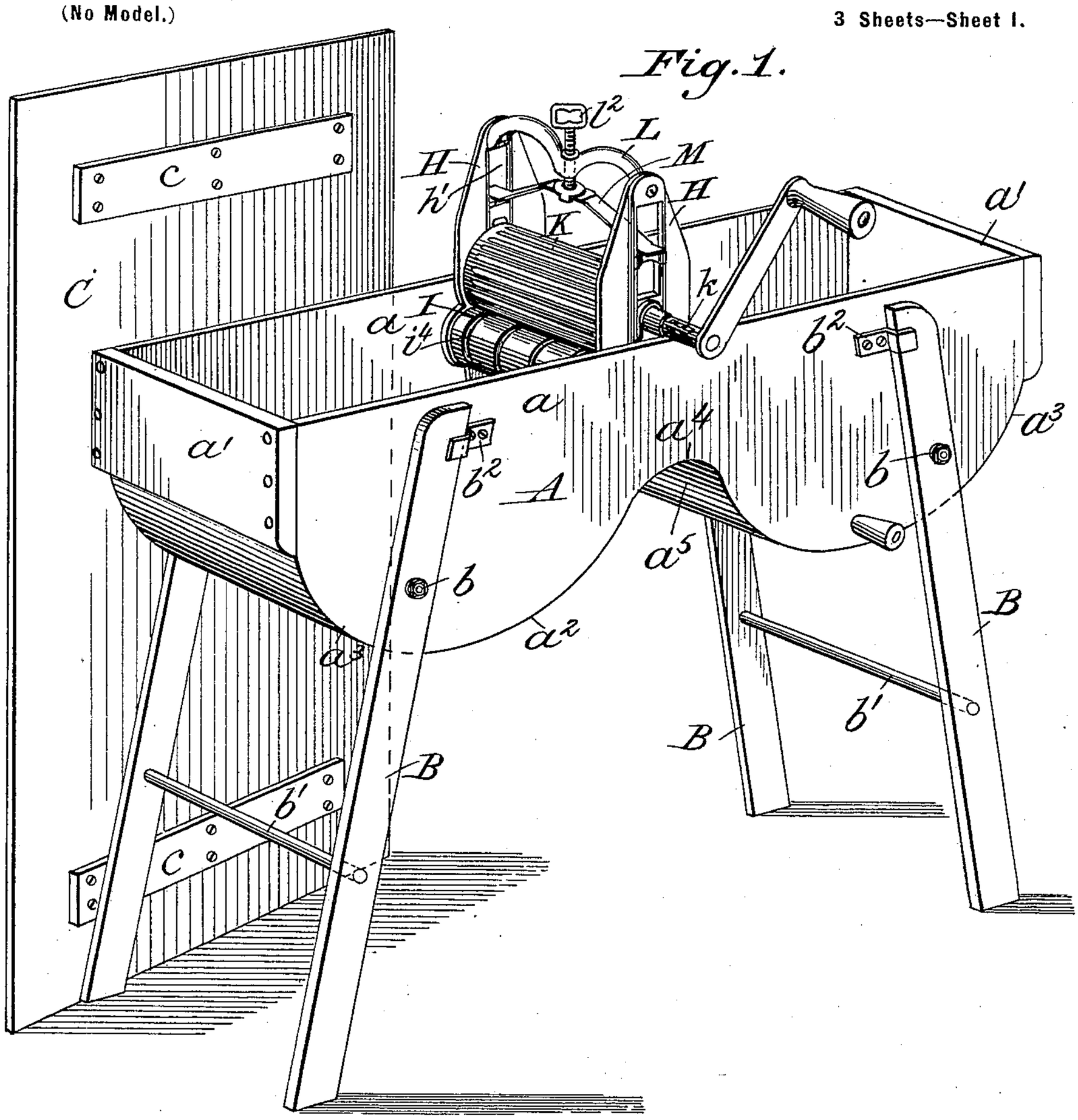
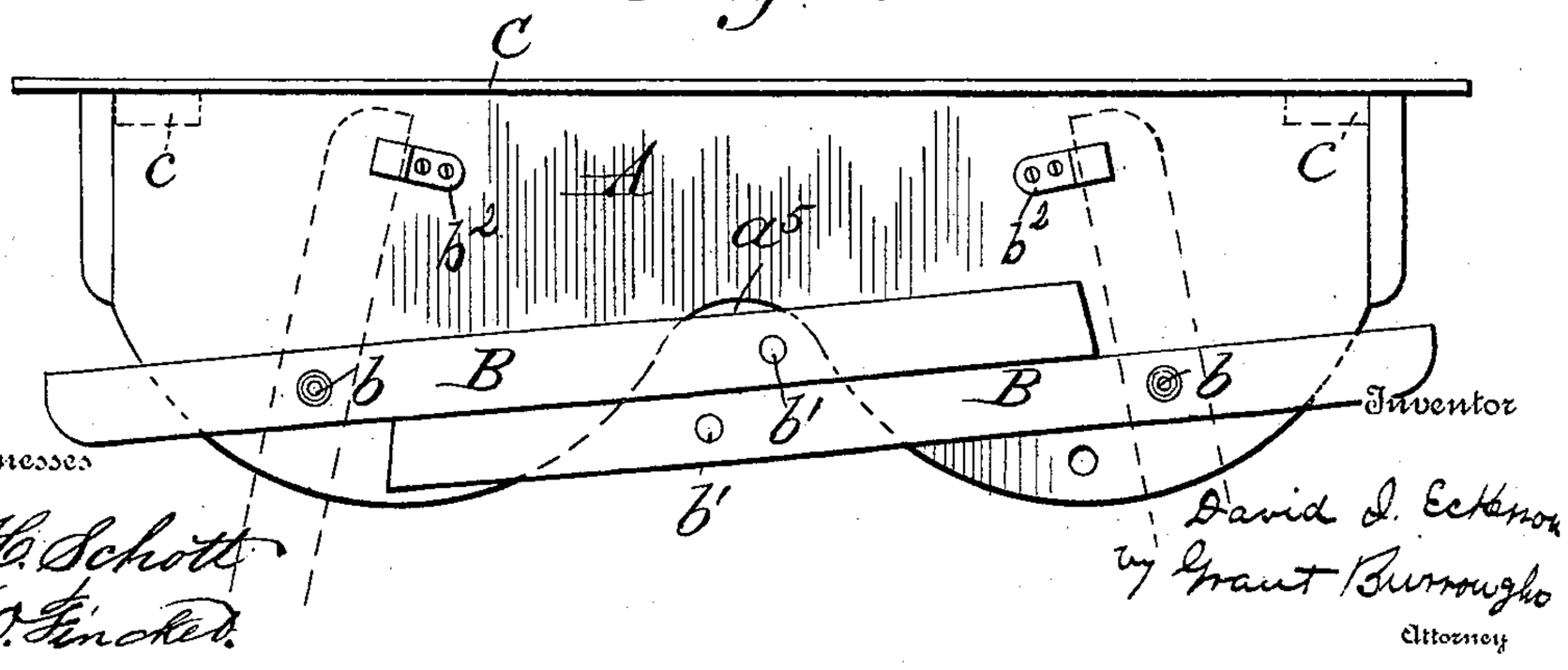



Fig. 2.




Witnesses
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## WASHING MACHINE.

(Application filed Sept. 4, 1897.)

(No Model.)

3 Sheets—Sheet 2.

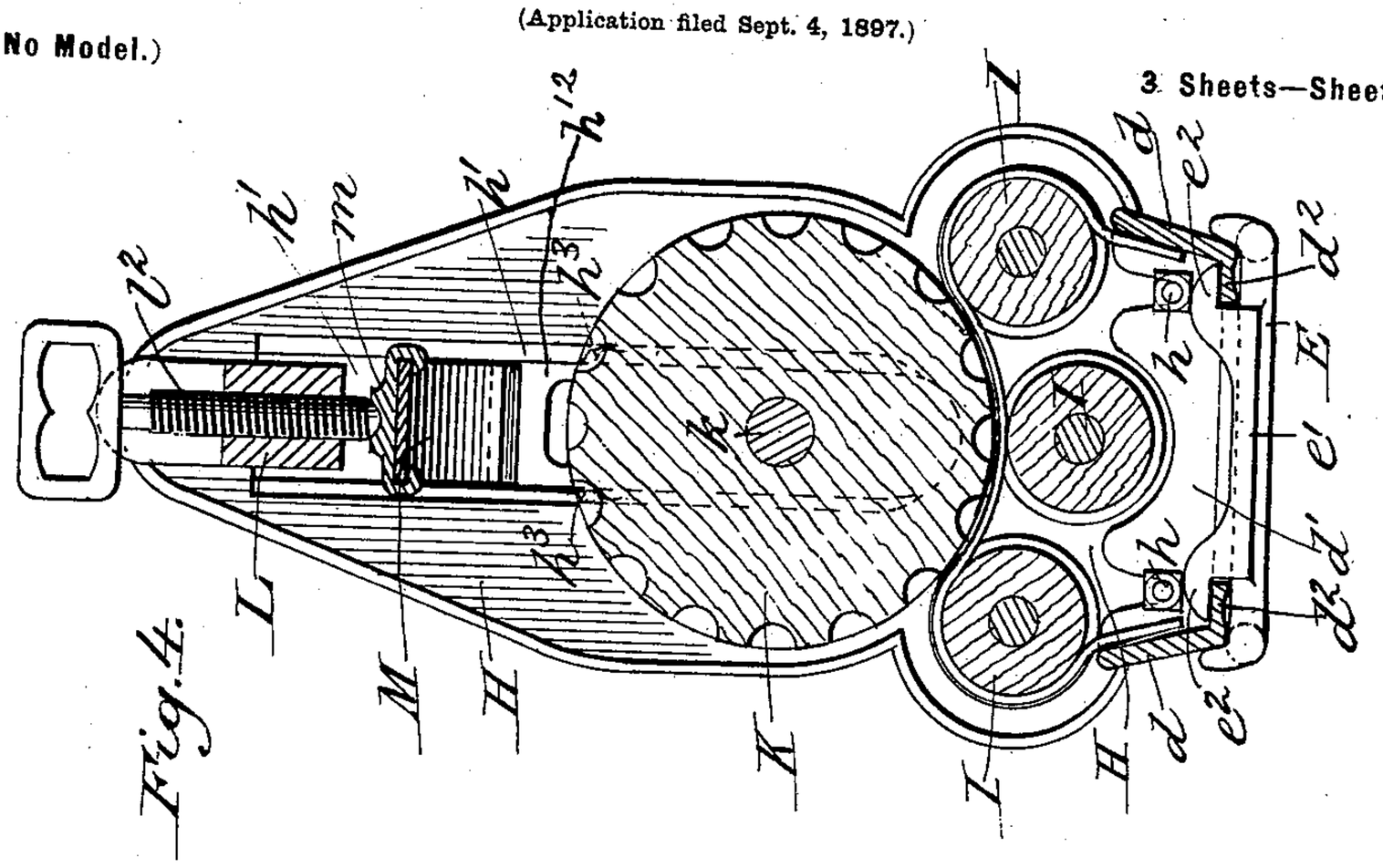

Fig. 4.

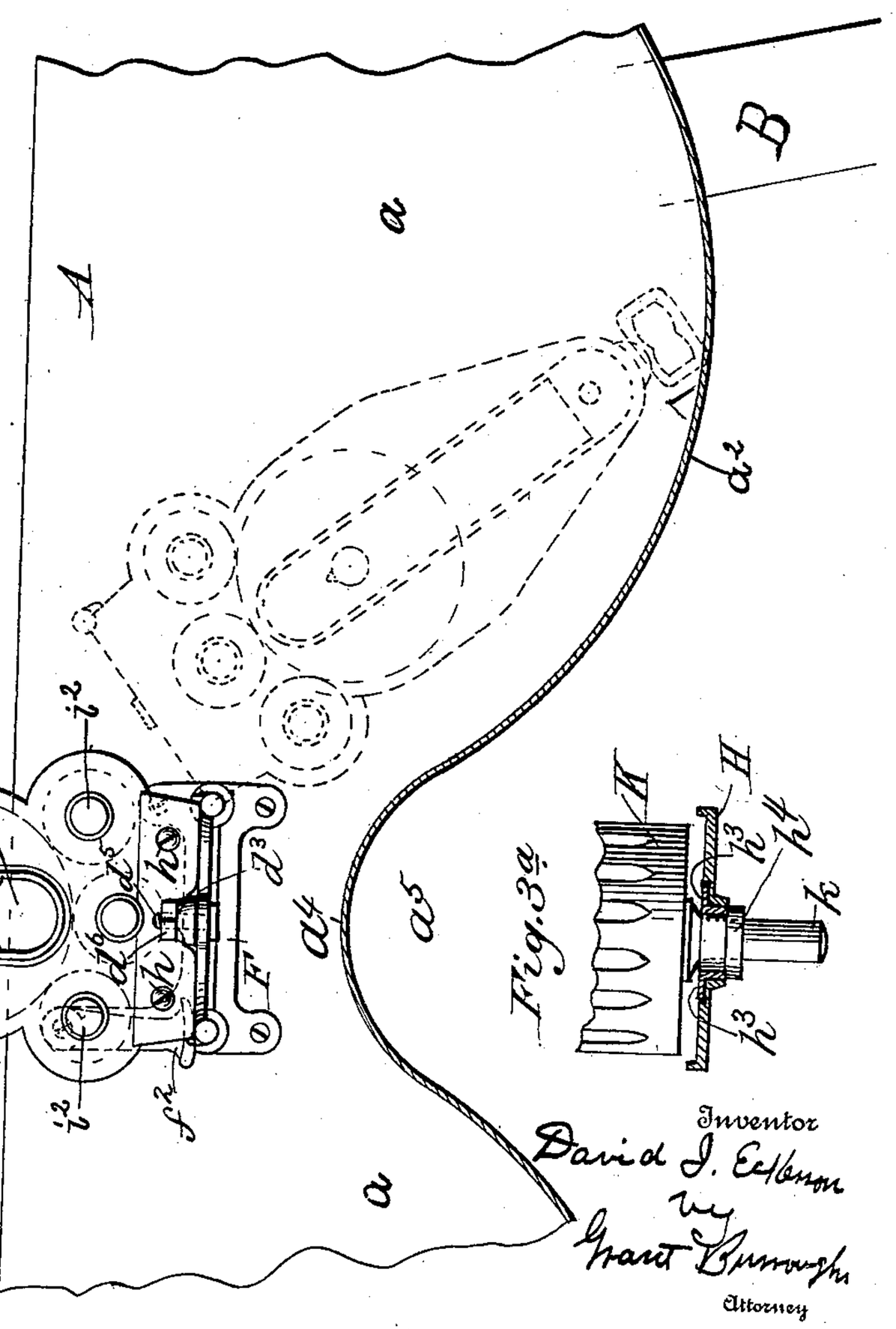

Fig. 3.



Fig. 3a.

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## WASHING MACHINE.

(Application filed Sept. 4, 1897.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 5.

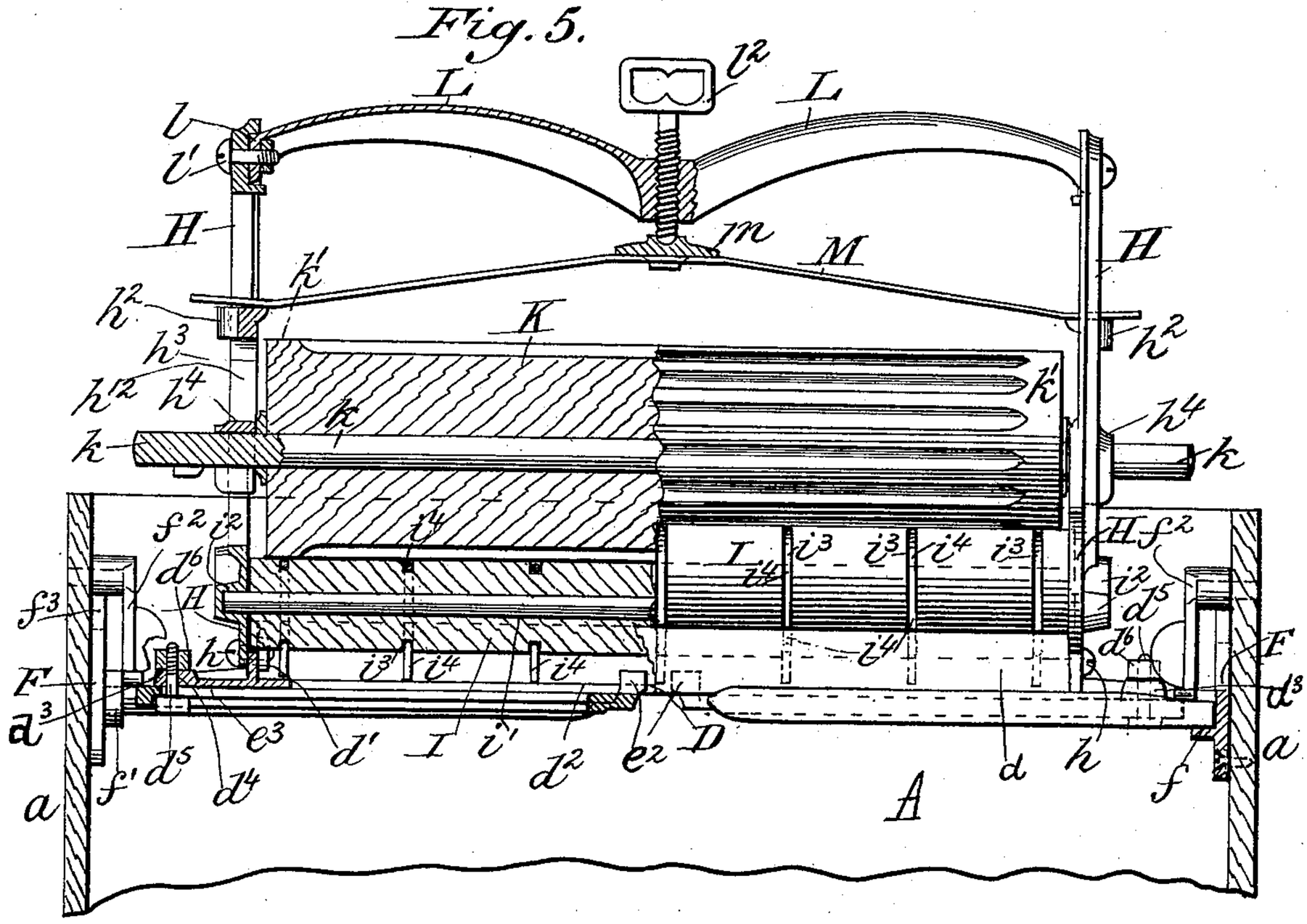



Fig. 6.

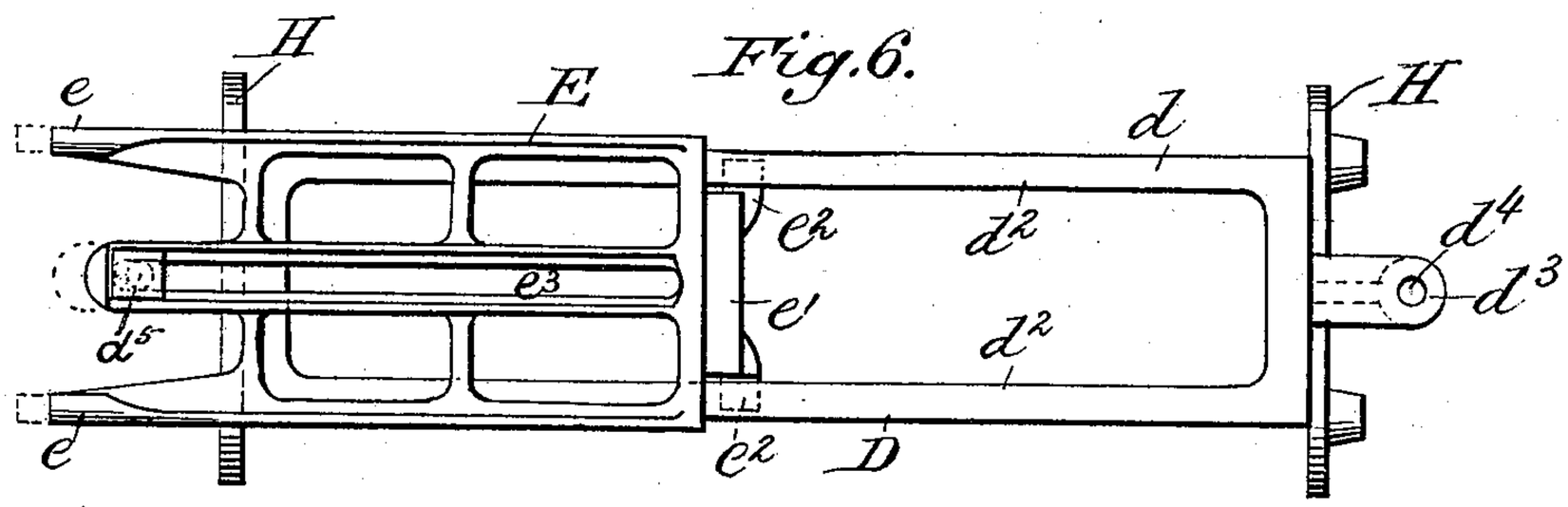



Fig. 7.

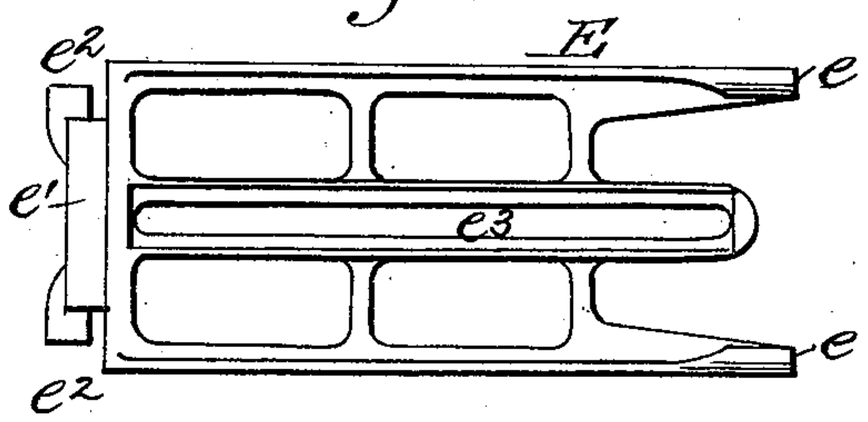
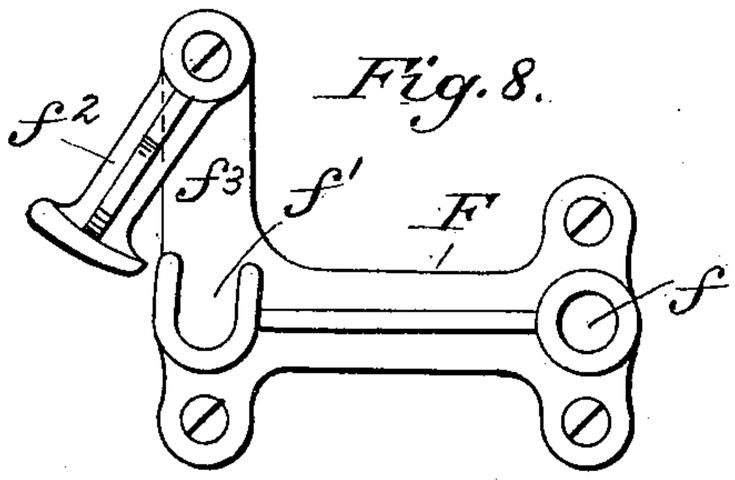



Fig. 8.




Witnesses

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# UNITED STATES PATENT OFFICE.

DAVID I. ECKERSON, OF WORCESTER, NEW YORK, ASSIGNOR OF ONE-HALF TO JULIUS T. HADSELL AND PORTER R. HADSELL, OF SAME PLACE.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 614,710, dated November 22, 1898.

Application filed September 4, 1897. Serial No. 650,632. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID I. ECKERSON, a citizen of the United States, residing at Worcester, in the county of Otsego and State of New York, have invented certain new and useful Improvments in Washing-Machines, of which the following is a full, clear, and exact description, such as will enable those skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to improvements in washing-machines. It has for its object the provision of a tub which is economical in the use of water and at the same time gives sufficient room for the proper treatment of the goods being washed and which facilitates the passage of the goods through the machine. It also has for its object the provision of a washing mechanism that can be mounted in tubs of various widths and held therein securely in its operative position or turned into the tub on which it is mounted, so as to be wholly contained within the latter; and, further, it has for its object the construction of a roller mechanism that is comparatively noiseless in its operation, efficient in its purpose, and of easy operation.

The invention consists in the novel construction, combination, and arrangement of parts, such as will be hereinafter fully described, pointed out in the appended claims, and illustrated in the accompanying drawings.

In the accompanying drawings, in which similar letters of reference designate corresponding parts, Figure 1 is a perspective view showing the tub, the roller mechanism mounted therein, and the cover for the tub. Fig. 2 is a side elevation showing the tub with its cover in place and its legs folded against its bottom. Fig. 3 is an enlarged detail view showing an end elevation of the roller mechanism, and in dotted lines shows it turned down into the tub. Fig. $3^a$ is a horizontal section on the line $3^a$ $3^a$ of Fig. 3. Fig. 4 is a view showing a transverse section of the roller mechanism. Fig. 5 is a side view, partly in elevation and partly in section, showing the roller mechanism mounted in the tub. Fig. 6 is a detail view showing a plan of the under side of the base of the roller-supporting frame with one of the adjustable slides in place. Fig. 7 is a detail plan view of one of the adjustable slides. Fig. 8 is a detail view showing one of the brackets for supporting the roller mechanism in the tub.

In the drawings, A designates the tub. It consists of the sides $a$, the end pieces $a'$, and the bottom $a^2$. The latter is shaped so that its ends $a^3$ are in the form of semicylinders connected by the curved portion $a^4$. By forming the bottom in this way the tub is practically divided into two parts by the inner edges of the end portions and the curved portion connecting them. This formation of the tub permits an economy in the use of water and at the same time gives considerable room within which the goods can be treated. The rise in the middle of the tub also serves as a guide to carry the goods away from the machine after they have passed between the rollers. The recess $a^5$, formed in the under side of the bottom of the tub, allows the legs supporting the tub to be turned up beneath the bottom, so that the tub can rest on the latter, and thereby occupy as little room as possible.

To the sides of the tub are attached the legs B. They are pivoted to the sides by the bolts $b$, passing through the same near their upper ends into said sides. The legs at each end of the tub are connected by a cross-piece $b'$. To support the tub, the legs are turned to the position shown in Fig. 1. To hold them in their proper relative positions, cleats $b^2$ are provided. When it is desired to adjust the tub so as to occupy as little room as possible, the legs are turned up beneath the tub, with their cross-pieces $b'$ resting in the recess $a^5$, formed in the under side of the bottom.

A cover C is provided whereby the tub can be turned into a table or bench, if it is so desired. The cross-pieces $c$ serve to strengthen the cover, and their dimensions are such as to fit inside the tub when the cover is in place, and thereby serve to hold the cover in place.

The washing-roller mechanisn is mounted in the tub immediately over the rise or curved portion $a^4$ in the bottom. It is pivoted in place, so that it can be turned down into the

tub and be out of the way. It is also provided with a mechanism for locking it in its upright operative position.

The roller mechanism is secured on the base D, formed with the sides $d$ and ends $d'$, Figs. 3, 4, and 6. Flanges $d^2$ project from the lower edges of the sides $d$ into the interior of the base. They serve to strengthen the base and at the same time form guides for the adjustable mechanism, whereby the roller mechanism is secured in the tub.

To the under side of the base are adjustably secured the slides E, Figs. 4, 6, and 7. Each of them has projecting from its outer end the lugs $e$. The purpose of the latter will be explained farther on. Projecting from the inner end of each slide is a lug $e'$. The latter extends between the flanges or guides $d^2$ of the base and has the hooks $e^2$, extending over the said flanges or guides. A slot $e^3$ is formed in the slide and extends the length of the same. Projecting from the base D is a lug $d^3$, provided with an aperture $d^4$. A bolt $d^5$ passes through the slot $e^3$ in the slide and the aperture $d^4$ in the lug $d^3$. A nut $d^6$ is turned onto the projecting end of the bolt $d^5$. By means of the hooks $e^2$ engaging with the flanges $d^2$ the slide can be adjusted relatively to the base and secured thereto by the bolt $d^5$. By means of these slides the roller mechanism can be used with tubs of different widths.

To the inner face of each of the sides $a$ of the tub a bracket F is secured immediately above the rise $d^4$ in the bottom, Figs. 3, 5, and 8. In this bracket are the closed and open sockets $f$ and $f'$, adapted to receive the lugs $e$, carried by the slide E. The open socket $f'$ is provided with a latch $f^2$ for closing the same. The latch is pivoted to one end of the arm $f^3$ of the bracket. The purpose of the bracket is to hold the roller mechanism in an operative position or to allow it to be turned into the tub out of the way when not in use. When the roller mechanism is in an operative position, the lugs $e$ of the slide E rest in the sockets of the bracket F. The latch $f^2$ is turned to close the open socket $f'$, and thereby holds the lug resting in the said socket in place. When it is desired to turn the roller mechanism into the tub out of the way, the latch $f^2$ is turned to open the socket $f'$. The roller mechanism can then be turned, the lug $e$, resting in the socket $f$, forming the pivot, until it rests on the bottom of the tub and entirely contained within the latter, as shown in dotted lines in Fig. 3. The cover C can then be placed in position and a table thereby formed.

To the end pieces $d'$ of the base are secured the standards H by the screws $h$. Between the lower ends of said standards are mounted the rollers I, that form the bed on which the main roller works. The rollers are three in number, mounted in the arc of a circle. Each of the rollers is made of wood mounted on a metal shaft $i'$, extending through the same, with its ends journaled in bearings $i^2$, formed in the standards H. In the periphery of each of the rollers I are formed the annular grooves $i^3$. The said grooves are cut so as to register when the rollers are in position. Wires $i^4$ pass from one side of the base D over the rollers to the other side. Each wire has its ends turned to engage with the inner faces of the sides $d$ of the base. The said wire partly encircles the two outer rollers and rests on the intermediate roller. It is seated in the contiguous grooves of the three rollers. These wires serve to guide the goods through the machine and prevent them from passing between the rollers forming the bed.

In each of the standards H a groove $h'$ is formed, Figs. 3 and 4, in which is mounted a sliding block $h^{12}$, provided with flanges $h^2$ and $h^3$, that serve to retain said block in said groove. In the lower end of the block is formed a bearing $h^4$.

The main roller K is considerably larger than those forming the roller-bed. Its shaft $k$ is journaled in the bearings of the blocks $h^{12}$. It has its periphery corrugated to enable it to better serve its purpose. These corrugations extend nearly the entire length of the roller, leaving at each end a smooth portion $k'$. As the roller K rests on the rollers I, if the corrugations extended the entire length of said roller K the machine would make considerable noise by reason of the rollers I slipping into said corrugations. This noise is objectionable, and is avoided in the present instance by providing the larger roller with the smooth sections $k'$. The said smooth sections bear on the rollers I and prevent the latter from slipping into the corrugations of the roller K.

The upper ends of the standards H are connected by the cross-piece L. The latter is made of a hollow casting and is shaped somewhat like two arcs of circles joined together. At each end of the cross-piece is a flange $l$, through which a screw $l'$ passes and secures the said cross-piece to the upper end of a standard H. Intermediate of the ends of the cross-piece is formed a screw-socket in which the screw $l^2$ turns.

A spring M bears at each end on the upper end of a sliding block $h^{12}$. Intermediate of the ends of said spring a bearing-plate $m$ is mounted, on which the lower end of the screw $l^2$ impinges. By means of said spring and said screw the pressure with which the main roller bears upon the roller-bed can be regulated.

On the end of the shaft of the main roller a handle of any construction suitable in the premises is mounted for operating the roller mechanism.

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

1. In a washing-machine, the combination of a tub, a bracket having an open and a closed socket secured to the inner face of the side of said tub, means for closing said open socket, a base, lugs projecting from said base and regis-

tering with said sockets, standards mounted on said base and having slots, rollers journaled between the lower ends of said standards, spring-pressed blocks movably mounted in said slots, a roller having its shaft journaled in said blocks, and a cross-piece connecting the upper ends of said standards.

2. In a washing-machine, the combination of a tub, a bracket having an open and a closed socket secured to the inner face of a side of said tub, means for closing said open socket, a roller mechanism, a lug projecting from said mechanism and pivoted in said closed socket, and a second lug projecting from said mechanism and adapted to register with said open socket.

3. In a washing-machine, the combination of a tub, a bracket having a closed and an open socket secured to the inner face of a side of said tub, a latch hinged to said bracket for closing said open socket, a roller mechanism, a lug projecting from said mechanism and pivoted in said closed socket, and a second lug projecting from said mechanism and adapted to register with said open socket.

4. In a washing-machine, the combination of a tub, a bracket having a closed and an open socket secured to the inner face of a side of said tub, means for closing said open socket, a roller mechanism, a slide adjustably mounted on said roller mechanism, a lug projecting from said slide and pivoted in said closed socket, and a second lug projecting from said slide and adapted to register with said open socket.

5. In a washing-machine, the combination of a tub, a bracket having a closed and an open socket secured to the inner face of a side of said tub, a latch hinged to said bracket for closing said open socket, a roller mechanism, a slide adjustably mounted on said roller mechanism, a lug projecting from said slide and pivoted in said closed socket, and a second lug projecting from said slide and adapted to register with said open socket.

6. In a washing-machine, the combination of a tub, a bracket having an open and a closed socket secured to the inner face of the side of said tub, means for closing said open socket, a base, a slide adjustably mounted on said base, lugs projecting from said slide and registering with said sockets, standards mounted on said base and having slots formed therein, rollers journaled between the lower ends of said standards, spring-pressed blocks movably mounted in said slots, a roller having its shaft journaled in said blocks, and a cross-piece connecting the upper ends of said standards.

7. In a washing-machine, the combination of a tub, a bracket having an open and a closed socket secured to the inner face of the side of said tub, a latch for closing said open socket, a base, a slide adjustably mounted on said base, a lug projecting from said slide and pivoted in said closed socket, a second lug projecting from said slide and adapted to register with said open socket, standards mounted on said base and having slots formed therein, rollers journaled between the lower ends of said standards, blocks movably mounted in said slots, a roller having its shaft journaled in said blocks, a cross-piece connecting the upper ends of said standards, a spring resting with its ends on said blocks, and a screw mounted in said cross-piece and impinging on said spring.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

DAVID I. ECKERSON.

Witnesses:

B. GOODENOUGH,

R. W. MITCHELL.