(Model.) 2 Sheets—Sheet 1.

C. E. WILLIAMS.

WASHING MACHINE.

No. 442,408. Patented Dec. 9, 1890.

FIG. 1.

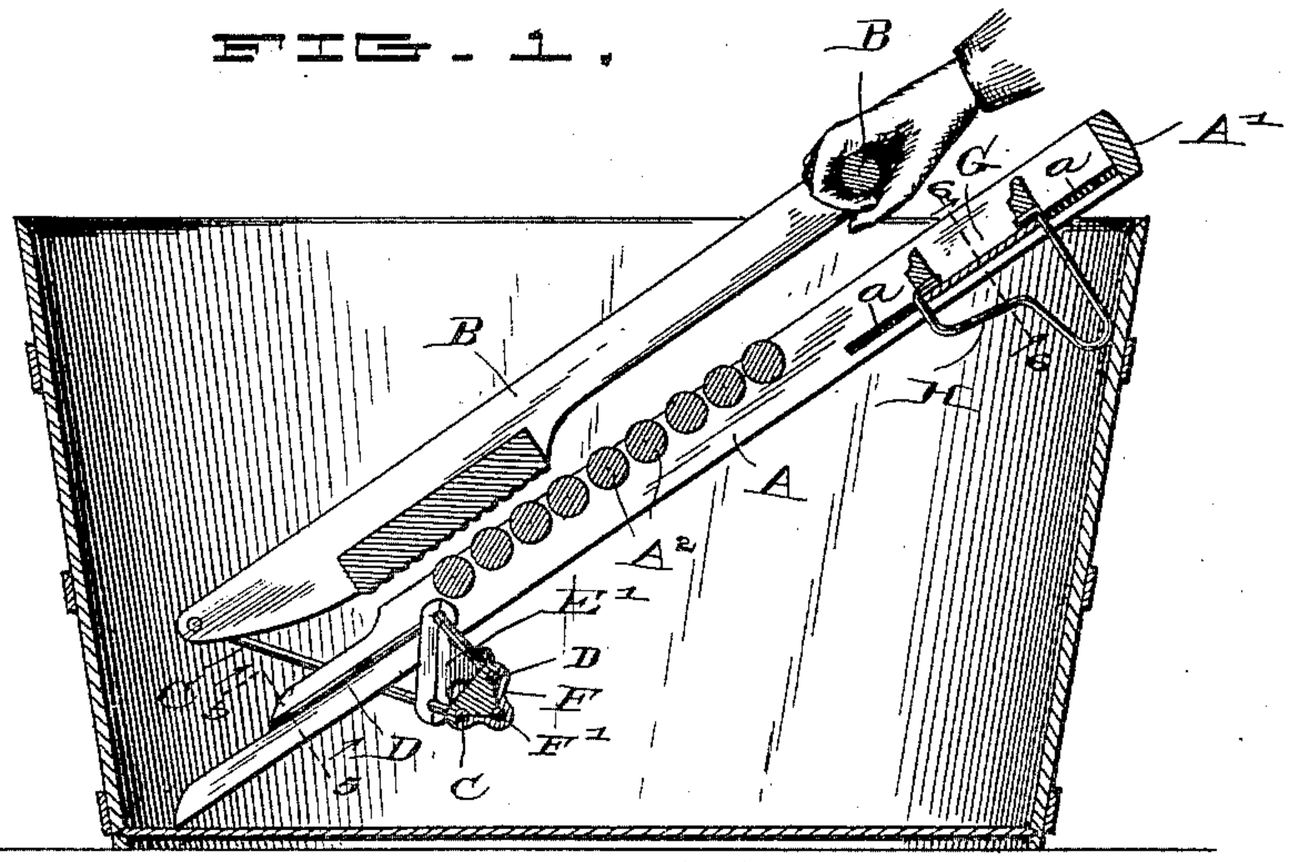
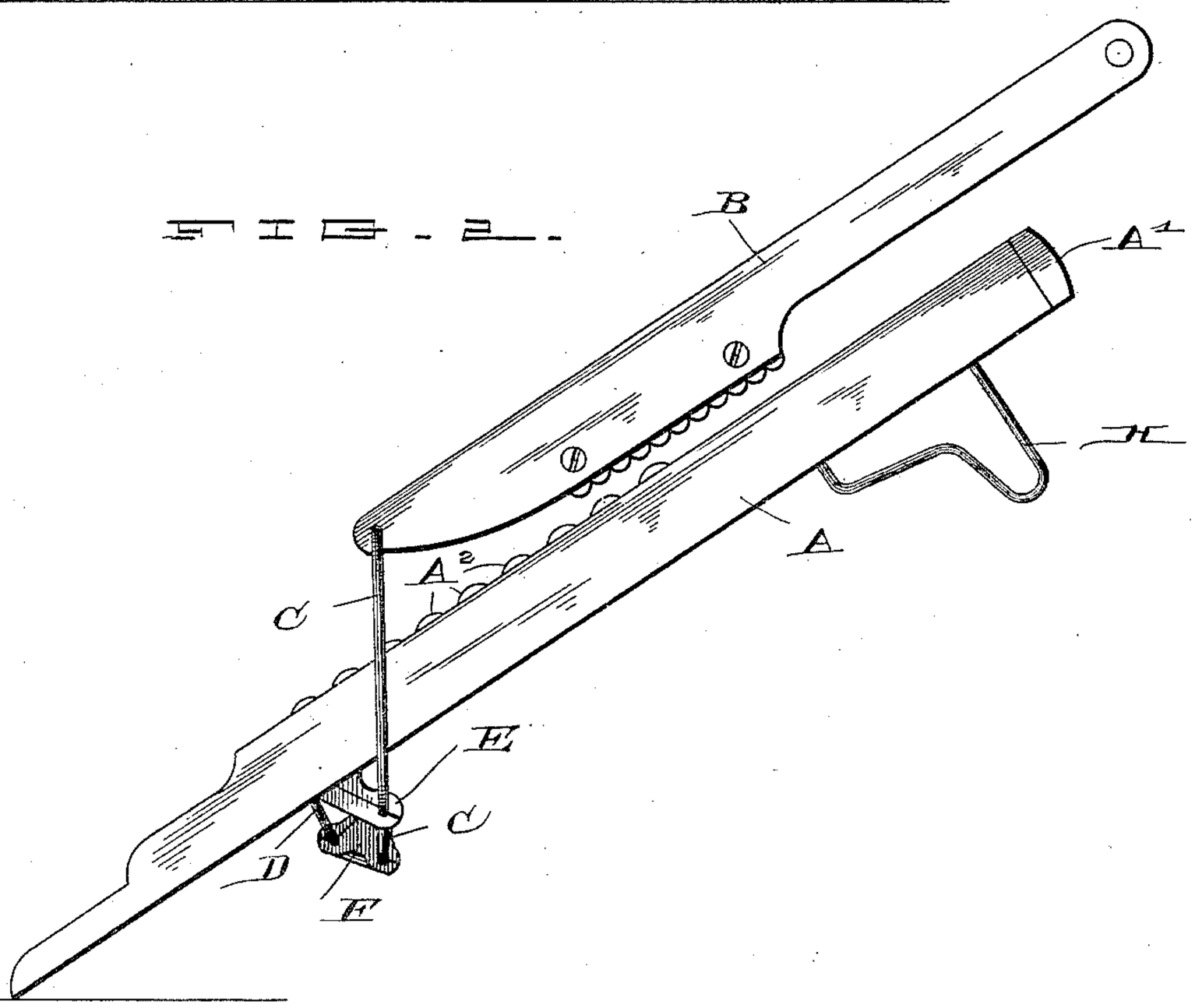


FIG. 2.



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(Model.)

2 Sheets—Sheet 2.

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FIG. 3.

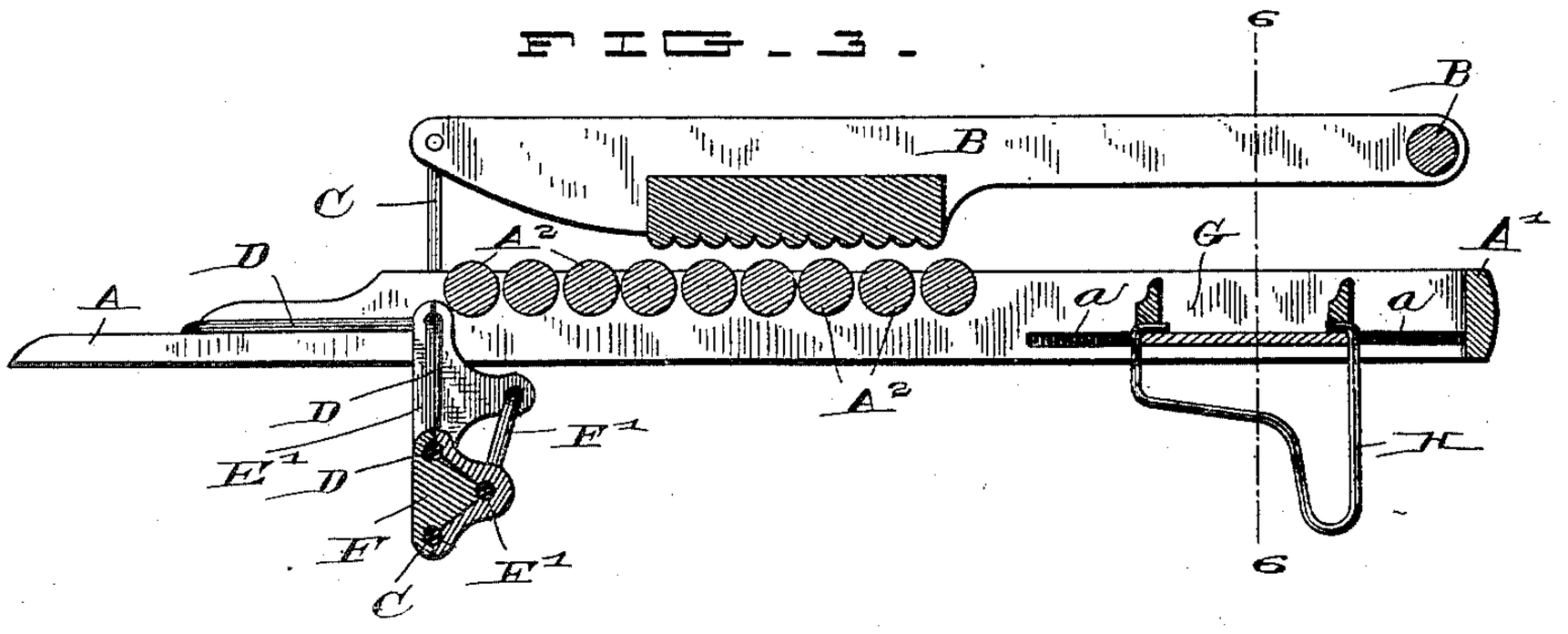

FIG. 4.

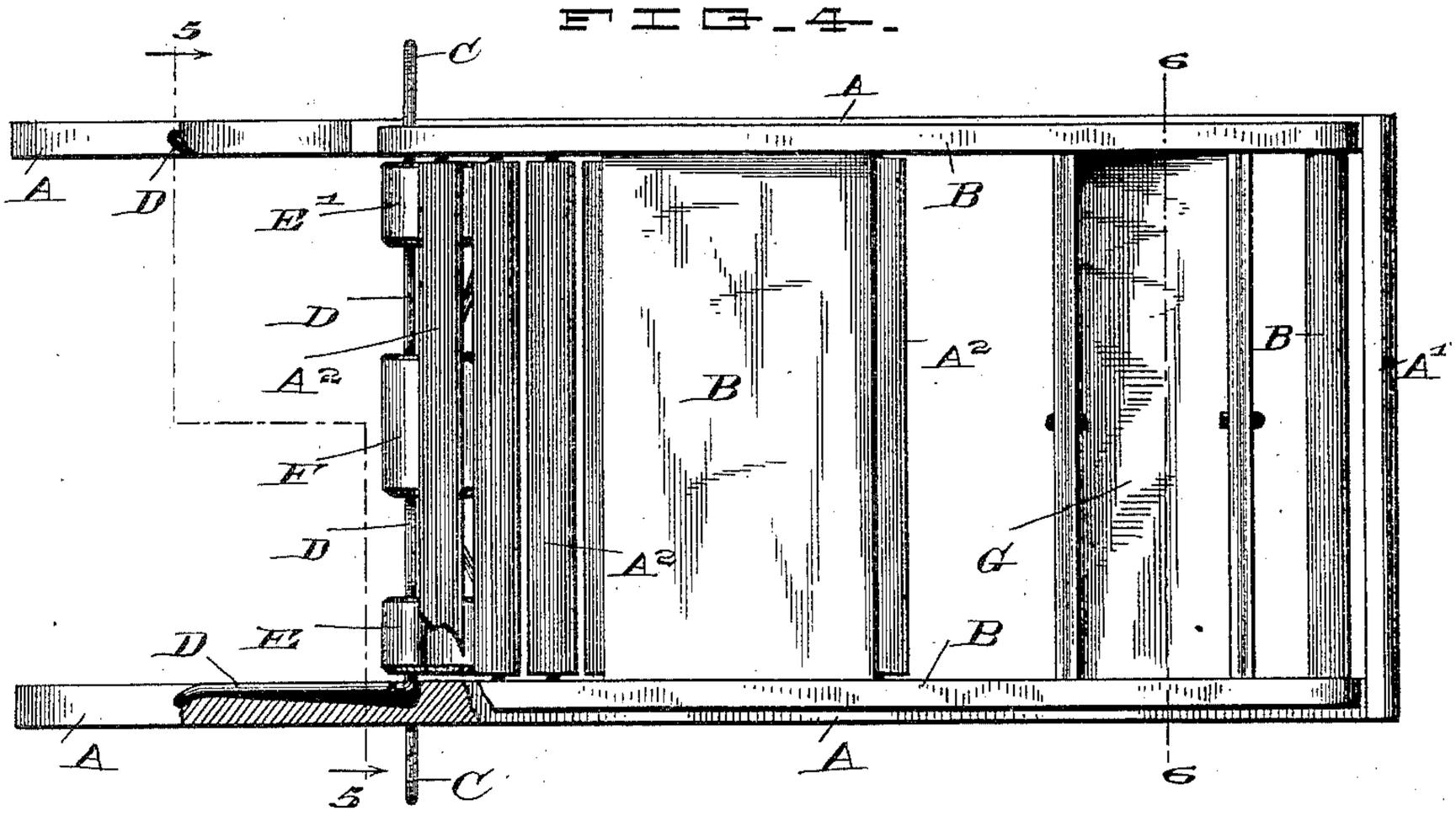

FIG. 5.

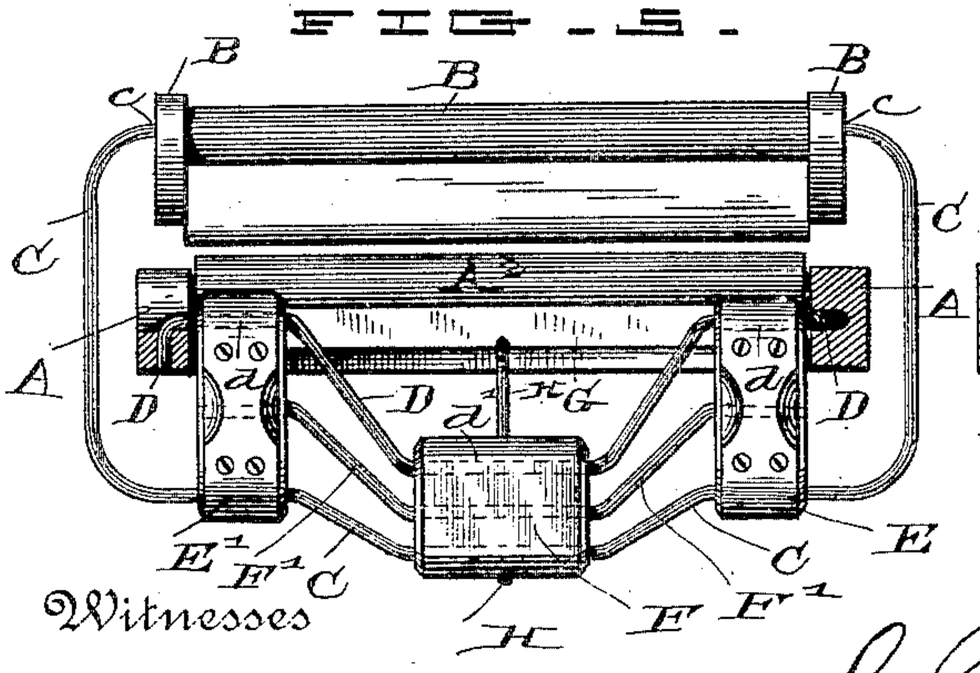

FIG. 6.

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UNITED STATES PATENT OFFICE.

CHARLES EDWIN WILLIAMS, OF UTICA, NEW YORK.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 442,408, dated December 9, 1890.

Application filed August 19, 1890. Serial No. 362,432. (Model.)

To all whom it may concern:

Be it known that I, CHARLES EDWIN WILLIAMS, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Wash-Boards, of which the following is a specification.

My said invention relates to that class of wash-boards which are provided with a rubbing device as a substitute for the hands of a user in the ordinary wash-board, thus obviating much of the painful and laborious work necessary with such a board.

This invention consists in various improvements in the construction of wash-boards of the class above mentioned, and said invention will first be fully described, and then pointed out in the claims.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a central vertical sectional view of a wash-board embodying my improvements in a tub in position for use; Fig. 2, a side elevation thereof, the rubber being shown in the other position from that shown in Fig. 1; Fig. 3, a central longitudinal sectional view of the same, the rubber being shown in its intermediate position; Fig. 4, a top or plan view with a fragment broken out to show one end of the rod D more plainly; Fig. 5, a bottom end elevation, the lower ends of the legs being cut in section on the dotted line 5 5 in Fig. 4; and Fig. 6, a transverse sectional view through the soap-box and upper portion of the board on the dotted line 6 6.

In said drawings, the portions marked A represent the sides of the main frame of the board; B, the rubber; C, the swinging arms; D, a bent rod; E, E′, and F, links by which the rubber is connected through the arms C with the frame-work of the board; G, the soap-box, and H a projection or stop generally mounted upon said soap-box, which is adapted to be drawn up against the inner side of the tub, as shown in Fig. 1, and thus serve as a clamp for holding the board in proper position in the tub.

The sides A of the wash-board are connected together at their upper ends by the head-piece A′, which is screwed, nailed, or otherwise secured thereon. At the lower end they are kept from swinging too far apart by the bent rod D, the ends of which engage therewith, as shown most plainly in Figs. 4 and 5. Near the upper ends grooves *a* are formed in their inside faces, into which the ends of the bottom of the soap-box enter, and lower down is a series of bearings for the gudgeons of the rollers A^2, which form the rubbing-surface.

The rubber B consists of substantially a rectangular frame made preferably of substantially the form shown, the upper cross portion of which forms the handle, and the lower cross portion of which is of considerable width, and has its under side (which is immediately above the rollers constituting the rubbing-surface of the board) corrugated. This rubber in operation is moved up and down over said rubbing-surface in a manner which will be readily understood.

The parts C, D, E, E′, and F, as before stated, serve to connect the rubber to the frame of the wash-board. These devices are so formed and connected together, as will be presently described, that the rubber is carried in a plane substantially parallel with that of the surface of the wash-board in its ordinary movement, and thus the rubbing is made uniform at all points when this device is used.

The swinging arms C are formed, preferably, of a single rod of metal bent in the form shown most plainly in Fig. 5, the ends of which enter bearings in the lower ends of the sides of the rubber B. The horizontal portions below the board pass through bearings in the links E and E′, and the central portion, which is bent down still lower, passes through a bearing in the link F, said links also having bearings which pass over corresponding portions of the bent rod D. Said bent rod D extends from the sides A of the frame of the wash-board a little distance toward the center at each side, (at the points marked *d*,) and is then bent down to a point marked *d′* substantially the same distance below the points *d*, just mentioned, as the points *c*, where the ends of the swinging arms engage with the ends of the rubber B, are above said points *d*, and at said lower point engages with the link F, while the central portion of the rod forming the arms C also engages with the lower end of said link F.

The effect of this is that a stroke of the rubber can be carried through a distance almost twice as great as the distance between the pivot-points of the swinging arms in a plane so nearly parallel with the straight face of the wash-board as to permit it to be considered as traveling in such a plane for all practical purposes. In order to insure that the links shall all travel together without getting "caught on centers," a small rod F′ is provided, which passes through a bearing in the link F to one side of and between the rods C and D and enters corresponding bearings in the links E and E′, as shown most plainly in Figs. 3 and 5.

The rod D not only serves as a part of the mechanism by which the peculiar movement of the rubber is permitted, but also, as before stated, connects the lower ends of the sides A together. It extends some distance from the point where it approaches said sides A toward the lower end of said sides, and is embedded in grooves in the inner faces thereof, (see particularly Figs. 3, 4, and 5,) but does not quite touch the bottom of said grooves, as shown. At its extreme ends it is bent again and passes down through holes in the sides A, as shown most plainly at the left of Fig. 5. The portions in the grooves, not being quite in contact with the bottom thereof, permit the sides to be sprung together somewhat for the purpose of holding the projection or stop H, as hereinafter explained, and also serve to brace and stiffen the frame generally. This bent rod D thus practically forms a portion of the frame-work of the board, the other portions being the sides A and head-piece A′.

The soap-box G has projecting ends to its bottom, which enter the grooves *a* in the sides A of the board. It is enabled to be moved to any location desired within the limit of the length of these slots.

The projection or stop H is simply a metal wire or rod, the ends of which enter bearings in the sides of the soap-box, as shown. When the board is placed in the tub, the lower ends of the sides A are forced down into the lower corner of said tub tightly, which presses them together somewhat and binds the soap-box quite firmly in position. Said soap-box is then forced up as far toward the upper ends of the grooves *a* as it will go, bringing this stop H against the inner surface of the side of the tub upon which the upper end of the wash-board rests, and thus constitutes a clamp, holding said wash-board firmly in said tub, as shown in Fig. 1. In the drawings the vertical side of this stop or clamp H is shown as next the inner surface of the tub. When the board is used with a small tub, this stop or clamp can be reversed, which, as will be readily seen, will enable a portion of said stop or clamp to project over the edge of the tub, while still serving its purpose, thus adapting it to use with such smaller tub.

As before described, the rod D, by which the lower ends of the sides A are held together, is of a somewhat yielding character, which permits the sides A to be forced toward each other, clamping the soap-box in place.

As before explained, the rod F′ is located to one side of and between the rods C and D. The links E, E′, and F are consequently formed, as shown most plainly in Fig. 3, so that the bearings are in triangular relation. I also prefer that the side projection shall be somewhat greater on the links E and E′ than it is on the link F; but the precise projection or relation is not material. The result (that of preventing the parts from getting caught on centers) will be accomplished so long as substantially the arrangement shown is employed. This rod F′ also limits the movement of the rubber and stops it at the proper point at each end of its travel, preventing said rubber from striking the tub in its downward movement and from passing entirely beyond the rollers or rubbing-surface of the board when moved in either direction. It is somewhat yielding or elastic, and the termination of the stroke is thus rendered less abrupt, and therefore does not cause any jar upon the hands of the user.

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

1. The combination, with a wash-board and its movable rubber, of connecting mechanism consisting of the swinging arms C, bent rod D, and links E, E′, and F, substantially as described.

2. The combination, in mechanism for connecting a wash-board and its rubber, of the bent rod D, the swinging arms C, composed of a single piece, and also bent downwardly in its center, links E, E′, and F, and a supplemental rod F′, substantially as and for the purpose set forth.

3. The combination, in a wash-board, of the sides A, containing grooves, the soap-box G, mounted in said grooves, and a projection or stay attached to said soap-box, whereby the wash-board may be held in position in the tub, substantially as set forth.

4. The combination, in a wash board, of side pieces supporting a rubbing-surface, a rubber having a corrugated face adapted to move in a substantially parallel plane over said rubbing-surface, said rubber being connected to said board by means of swinging arms, which extend below said board and are there connected to said frame by means of swinging links, and supporting and governing rods for said links, substantially as shown and described.

In witness whereof I have hereunto set my hand and seal, at Kalamazoo, Michigan, this 14th day of August, A. D. 1890.

CHARLES EDWIN WILLIAMS. [L. S.]

Witnesses:
WM. BALLANTINE,
GEORGE M. WEST.