

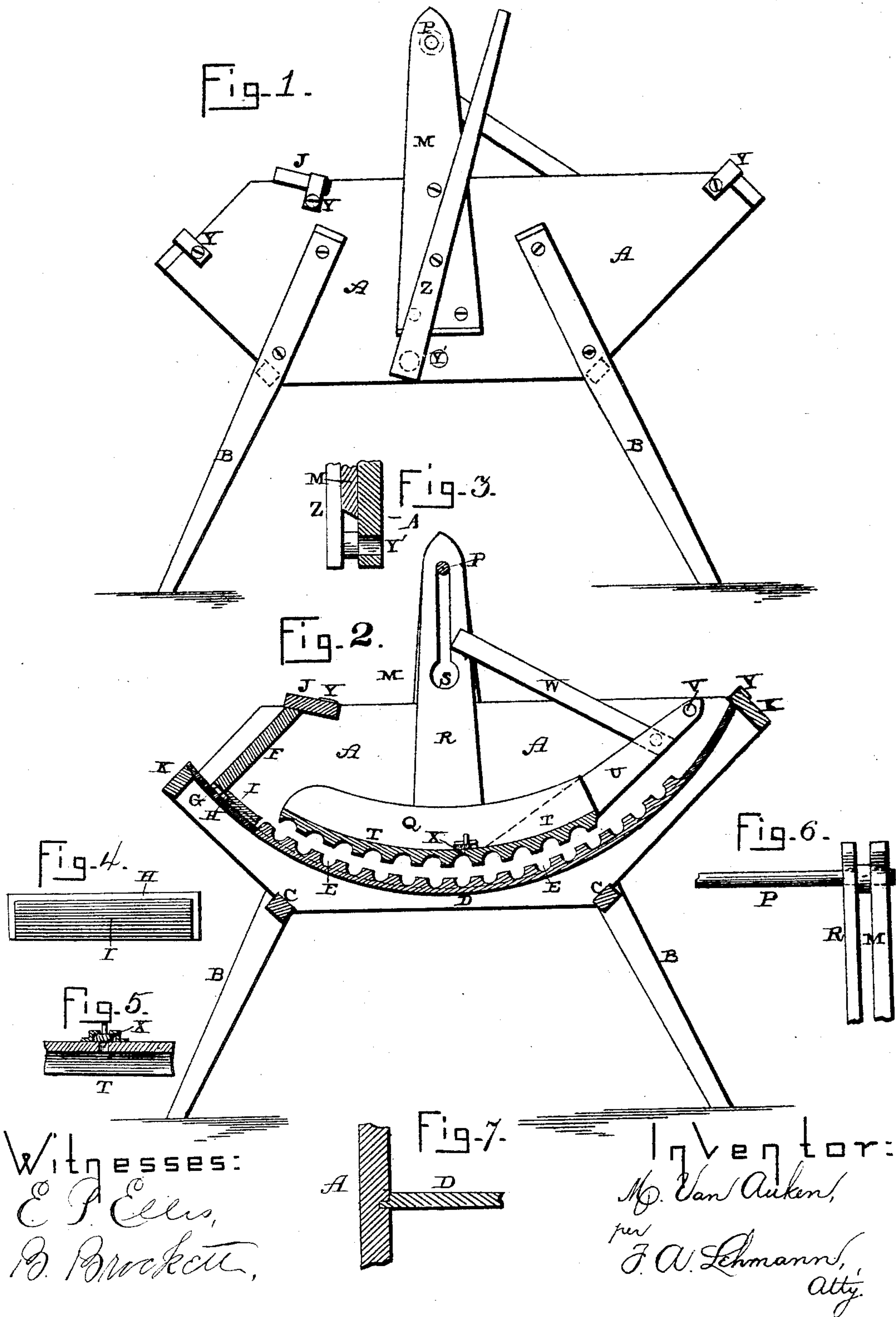
(Model.)

2 Sheets—Sheet 1.

M. VAN AUKEN.  
WASHING MACHINE.

No. 454,309.

Patented June 16, 1891.



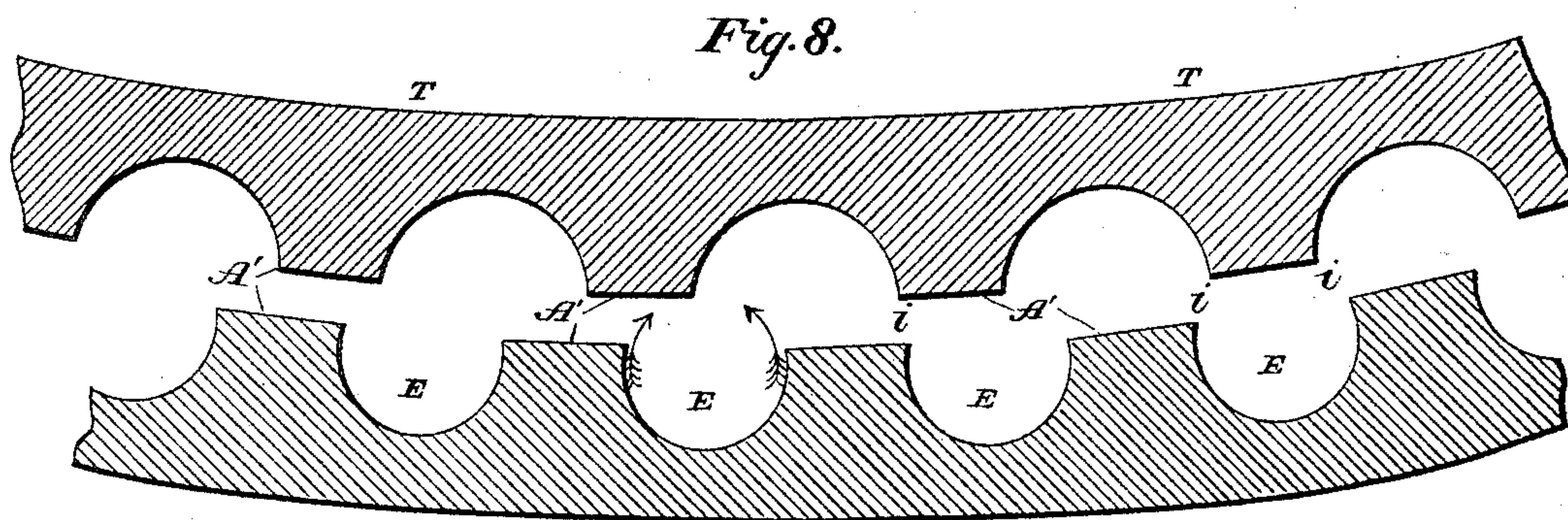
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Witnesses:

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# UNITED STATES PATENT OFFICE.

MINER VAN AUKEN, OF UTICA, NEW YORK.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 454,309, dated June 16, 1891.

Application filed December 30, 1889. Serial No. 335,326. (Model.)

*To all whom it may concern:*

Be it known that I, MINER VAN AUKEN, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Washing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in washing-machines; and it consists in the arrangement and combination of parts which will be more fully described hereinafter.

The object of my invention is to provide a washing-machine which is simple and cheap in construction, easily operated by a person while in an erect position, and which will wash with great rapidity and safety the finest or the coarsest fabrics.

Figure 1 is a side elevation of a machine which embodies my invention. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a detached vertical section of the lower portion of the box opposite the lever Z, the lever and the packing connected thereto for closing the opening in the lower portion of the box being also shown. Fig. 4 is an inverted plan of the board I, showing the grooves made in its ends and back edge. Fig. 5 is a detached section through the rubber and the valve, taken at right angles to Fig. 2. Fig. 6 is a detached view showing one of the rubber supports and the pivotal rod. Fig. 7 is a detached section showing the manner of securing the bottom in the box. Fig. 8 is an enlarged detached vertical section of the rubbing-surfaces, showing the shape of the grooves.

A represents the box, which is preferably of the shape here shown, and which is supported upon the legs B, which extend upward any desired distance along the outside of the box, and are fastened thereto in any suitable manner. The sides of the box are united together at their lower edges by the tie-pieces C, which are inserted in suitable dovetailed cuts or recesses formed in the legs B or the lower edges of the box, or in both, if so preferred.

The bottom D, which forms the rubbing-surface, is made from a board of any suitable

wood material, which has its surface formed into half-circle grooves E by milling, hand-work, or in any other suitable manner. These grooves are made of any size that may be preferred, and will vary according to the size of the machine to which they are applied. This board is then cut into perfectly square pieces, the size of which will be regulated according to the width of the machine, and have tenons of about half an inch cut on their ends. The boards thus formed are then boiled soft and bent into a circular shape, the radii of which is preferably less than the radii of the grooves which are formed in the sides of the box, and into which shape the board is held by inserting it into a grooved plank-jack, and there wedged at their edges and allowed to remain until perfectly seasoned. By this bending of the board the semicircular grooves E have their corners brought nearer together, making them slightly Gothic in form.

The object of making the grooves in a full half-circle, as shown and described, is to cause the water which is forced therein to leave the grooves substantially at right angles to the surface, so that it is most effectively forced through the material which is between the surfaces. Where the water leaves the grooves at an angle to the surfaces, as heretofore, the water glances from the material, instead of being forced through it.

The dash-board F is let into the sides the same depth as the bottom, and has a notch G cut in its lower edge at its center, which communicates with a groove H, formed along the back edge of the board I, which is placed at the rear end of the bottom D, and which is the same thickness as the depth of the grooves. This board is grooved on its under rear side and ends, and these grooves connect with the groove H at its rear edge, and which notch and grooves carry the water that drips on the inclined dash back into the box.

A tie K is applied at each end of the machine and these ties hold the sides A of the box securely together. The opening G being located at the center of the dash-board F, the board I serves to prevent the water passing directly through the opening, as it would do if the opening were made near either end of the dash-board.

Rising from the center at opposite sides of



the box are the standards M, through the upper ends of which pass the supporting-rod P, upon which the rubber Q is supported. This rod P has shoulders formed near each end, and these shoulders catch against the outer sides of the grooved uprights R and prevent them from coming in contact with the sides of the box as they are swung back and forth. This rod P is inserted through the uprights R at the enlarged openings S at the bottom of the slot, which permits the rubber to rise and fall, according to the quantity of clothes in the box. The rubbing surface T of the rubber is grooved like the bottom D. Then before it is applied to the rubber Q it is boiled so as to soften the wood, and then when this grooved surface T is bent, dried, and applied to the rubber Q the grooves are opened, so as to make them larger than the grooves in the bottom D and to form a slight ellipse. The rubbing-surface T and the bottom D being curved in opposite directions, the grooves in the bottom D are contracted or made smaller at their outer edges, giving the grooves a slight Gothic form, so that they will catch and hold the clothes, and thus prevent them from moving too much, while the grooves in the rubbing-surface T are slightly expanded or opened, so as to allow them to properly wash the clothes on the top, driving at the same time the water down into the lower grooves in the bottom, and force up what water was in the lower grooves E through the clothes, thus creating a double action of the water back and forth through the clothes, so as to cleanse that portion of them which does not come in contact with the rubber and bottom surfaces without injuring the clothes in the slightest degree. By means of this construction the finest handkerchiefs or the heaviest and coarsest articles may be washed rapidly and easily without handling and in perfect safety.

By making one surface with contracted grooves and the other with expanded or larger grooves the water from one set of grooves leaves them at a different angle from that which leaves the other series of grooves, thus preventing the forced water from coming in contact with one another, and their force being neutralized, as where the grooves are of the same size and their walls not extending at different angles.

Secured to one end of the washer are the two arms U, which have a handle V passed through their outer ends, and these arms are connected to the slotted hangers R by means of the ties W, so as to prevent the parts from working loose.

In order to vary the pressure of the rubber Q upon the articles being washed, there is formed a hole or opening X through the center of the rubber, and which opening X is to be closed by a swing or slide valve. When

this valve is removed from the opening X, the water passes through the opening upon the top of the rubber and adds its weight to it. If it is not desired that the water should increase the pressure of the rubber upon the clothes, the opening X should be kept closed.

All of the tie-boards are held firmly in place by means of the metal clips Y, which are bent L-shaped and have one of their ends secured to the sides of the box A and their opposite ends fastened to the tie-boards. These clips are made from heavy galvanized sheet-iron, which have suitable holes punched through them with a countersink-punch, leaving the barbs on the inner sides, and these barbs are forced into the wood, so as to help secure the clips more rigidly in position, and thus greatly increase the resisting power of the clips over what they would have if simply secured by the screws alone.

Made in the side A is an outlet-opening Y', and this opening is closed by means of a lever Z, which is pivoted to the outside of the side A and has its upper end extending upward a suitable distance so as to be convenient to be operated.

As shown more plainly in the enlarged Fig. 8 of the rubbing-surfaces, the grooves in one surface are a greater portion of a circle than the grooves in the other surface, whereby the water leaves the surfaces at different angles. Each groove is cut a suitable distance from its adjoining groove in each surface, forming the spaces A', and these surfaces are made flat on their tops, as shown, so that the points are formed in contradistinction to forming the surfaces of grooves in the form of fluting which have rounded corners.

Having thus described my invention, I claim—

1. In a reciprocating-rubber washing-machine, the combination of a box having a rubber bottom consisting of transverse contracted grooves, and a reciprocating rubber having transverse expanded grooves, as and for the purposes set forth.

2. In a reciprocating-rubber washing-machine, the combination of the box having a bottom consisting of transverse grooves which are deeper than the half of a circle, and a reciprocating rubbing-surface consisting of grooves which are less than a half-circle, whereby the material being washed is held by the lower surface while being rubbed by the upper surface and the water forced through the goods from the grooves of the two surfaces at different angles, substantially as shown and described.

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

MINER VAN AUKEN.

Witnesses:

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J. FRANCIS CONDON.