J. H. & J. H. HARNLY.

WASHING-MACHINE.

No. 180,230. Patented July 25, 1876.

Fig. 1

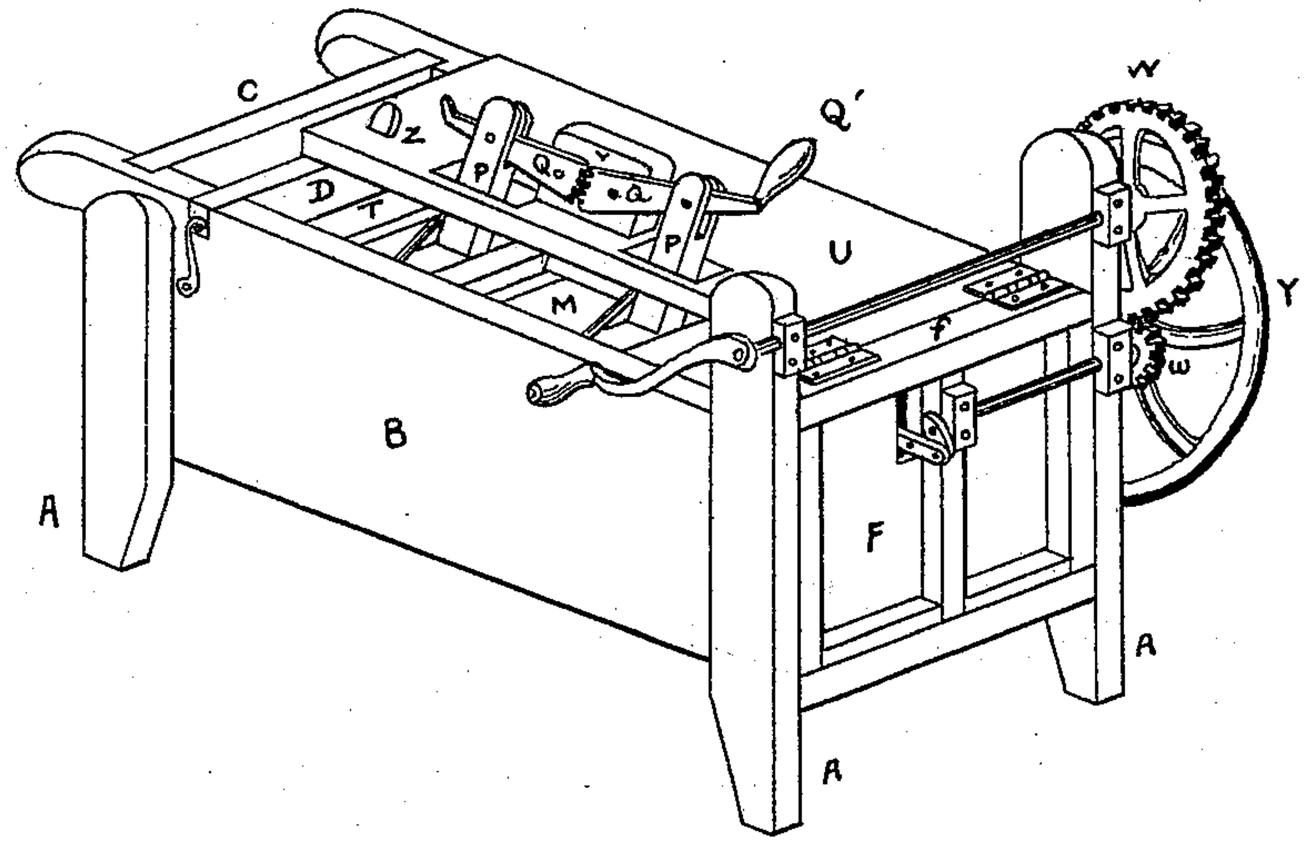
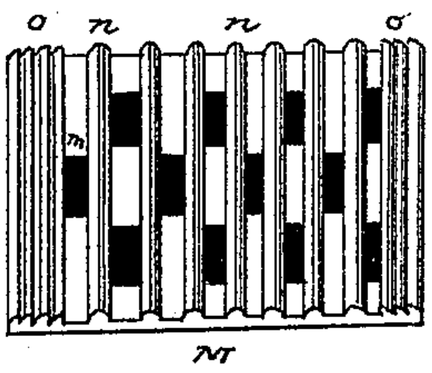


Fig. 2

Fig. 5.



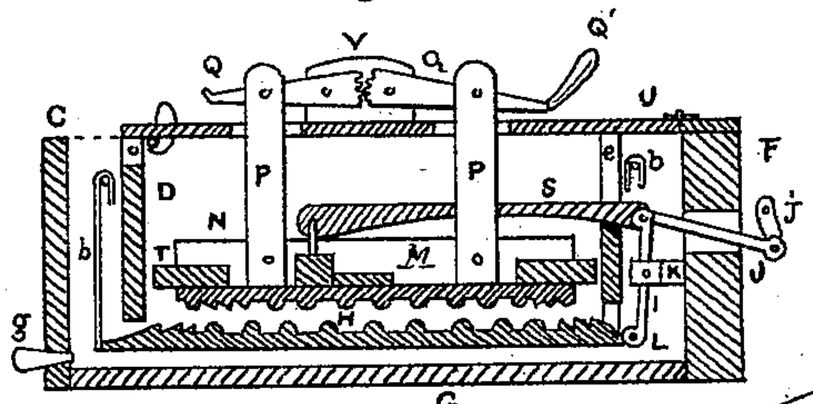
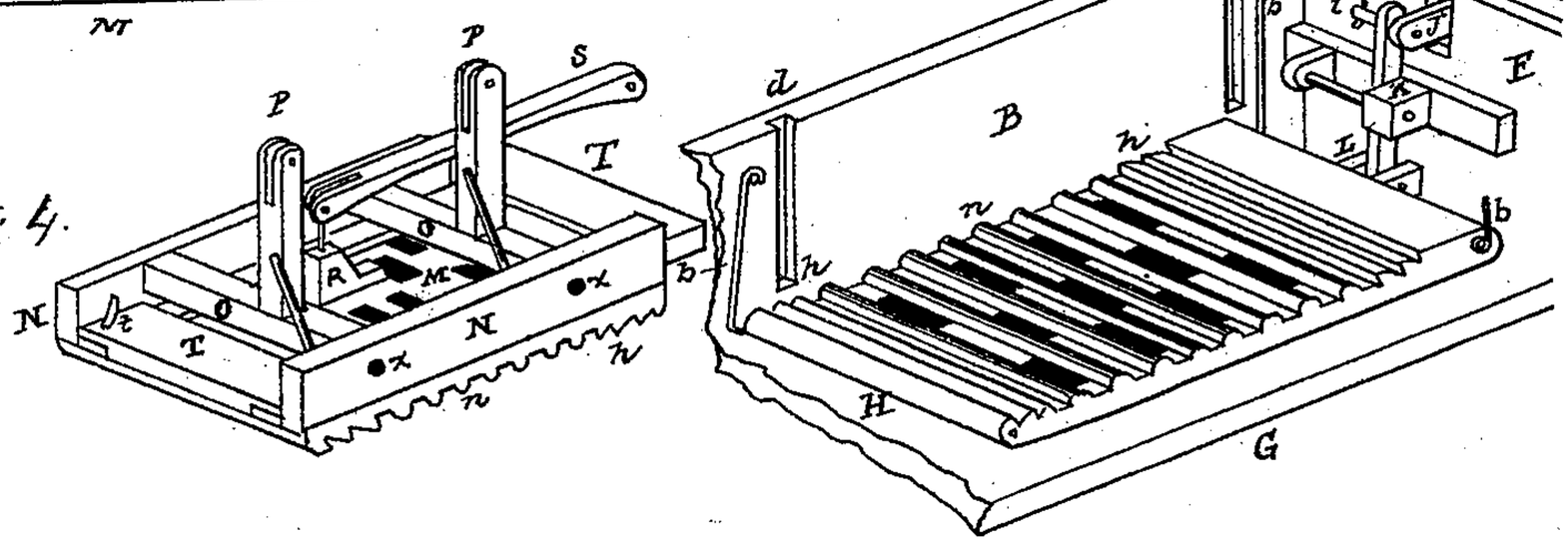


Fig. 3

Fig. 4.



Witnesses

Benj. D. Danner.
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John H. Harnly
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Inventor

UNITED STATES PATENT OFFICE.

JOHN H. HARNLY AND JACOB H. HARNLY, OF PENN TOWNSHIP, LANCASTER COUNTY, PENNSYLVANIA.

IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **180,230**, dated July 25, 1876; application filed May 27, 1876.

To all whom it may concern:

Be it known that we, JOHN H. HARNLY and JACOB H. HARNLY, of Penn township, (Manheim P. O.,) in the county of Lancaster and State of Pennsylvania, have jointly invented certain Improvements in Reciprocating Washing-Machines, of which the following is a specification:

This invention relates to a class of washing-machines in which a pair of reciprocating rubbers are employed, actuated by gearing and crank action. The novelty consists in the arrangement and combination of the rubbers and appliances.

The accompanying drawings, with the letters of reference marked thereon, and a brief explanation, will enable those skilled in the art to make and use the same, and in which—

Figure 1 is a perspective view of the machine; Fig. 2, a longitudinal vertical section; Fig. 3, a partial perspective view of the lower swinging rubber and connections. Fig. 4 is a perspective view of the upper rubber and appliances detached. Fig. 5 shows the under surface of the upper rubber.

The box B is of an oblong square form, supported on legs A, and has partial partitions D E sliding in side grooves *d e*, and made removable. Between these partitions and the rubbers H M the clothing to be washed is placed. The mechanism to produce the reciprocating motion of the rubbers is the ordinary crank-handle on a shaft, having a cog-wheel, W, at its other end, which engages with pinion *w*. Affixed to a crank-shaft is the ordinary balance or fly wheel Y. The crank *j*, by its pitman J, connects with the upper end of a double lever, I, having its fulcrum centrally in a bearing, *k*, on the inner side of the machine or end F. There is also a connecting-arm, S, attached to the upper rubber M at R, its other end connected with the pivot-bolt *i* in the upper end, that unites the pitman J with said double lever I. The lower end of said lever I being connected with the lower swinging rubber H at L, this rubber H is suspended at the four corners by rods *b*, and has play back and forth under the partial partitions D and E. There is a water-space beneath the lower rubber, and a plug, *g*, at one end, to draw off the water from the box. This connection of the rubbers H and M with the two ends of the lever I on its central fulcrum in K makes the operation plain. On reference to Fig 4, the arrangement of the upper rubber M will be more readily understood. This consists of two vertical sides, N, to which the rubber M is connected. These sides N are perforated at *x*, for the rounded ends of the cross-pieces O, which support the uprights P, jointly turning in their respective bearings *x* under these cross-pieces O, and upon the inner top of the rubber and between the side pieces N is an open frame the entire length of the chamber, but allows the rubber and appliances to move to and fro freely. The ends of the frame are marked T; but it is not connected with the chamber, and lifts up with the rubbers, which latter have a connection with the lid U of the machine, which lid is hinged on top to the cross-piece F.

By means of the two posts P, which penetrate and have ample play in openings made through the lid, the upper ends of said posts are slotted to receive the arms of the levers Q Q′, and are secured by a pivot-bolt. These levers Q are widened, and the rounded ends provided with cogs, that act upon each other, meeting centrally upon a block, V, on the top of the lid, and in which they have their fulcrum-bearings. This hinged lid U has a spring-catch, Z, which holds it down, while the rubber may rise and fall freely, mutually regulated by the cogged levers Q, connected with the posts P, one of which levers has a handle, Q′, upon which pressure may be given by hand, or lessened, if desirable, while turning the machine with the other hand. The front portion of the top may be partially open, as shown. The lid U, when laid back, lifts the upper rubber and its appliances with it, and leaves the inner chamber free for removing the material washed. Adjustable stops and guides or keepers *t* are also shown on the end pieces T of the frame in the upper rubber M. The rubbers H and M have serrated ridges *o* on their outer ends, and pointing inward, to aid as feed-rubbers to work the material toward the center of the machine. The intermediate space has rounded corrugations

n, with intermediate flat spaces, in which spaces are oblong openings *m*, to allow the water to pass freely from beneath the under rubber through the upper.

Being aware of the numerous devices employed to produce a washing-machine calculated to lessen the labor, and perform with satisfaction, has led us to test various arrangements, and we find that, after experimenting, the best results are produced by forming the rubbers as shown and described, which we are not aware were so made and used before, combining the serrated feed ends with the series of rounded elevated rubbers *n*, having flat spaces and perforations between them, these rubbers and their reciprocal motion swinging or sliding freely in their hinged combination and general arrangement.

What we deem as novel and useful, and desire to claim, is—

1. The combination of the upper rubber M, with its raised side pieces N, cross-pieces and slotted posts O P, rack-levers Q Q′, fulcrum-block V on the hinged lid U, the whole arranged substantially as and for the purpose specified.

2. The combination of the rubbers M and H, both provided with rounded, inwardly-inclined serrated ridges *o* at each end, the intermediate space having rounded ridges *n*, separated by a flat space, which spaces have oblong openings, the whole arranged and operated substantially as and for the purpose mentioned.

JOHN H. HARNLY.
JACOB H. HARNLY.

Witnesses:
BENJ. D. DANNER,
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