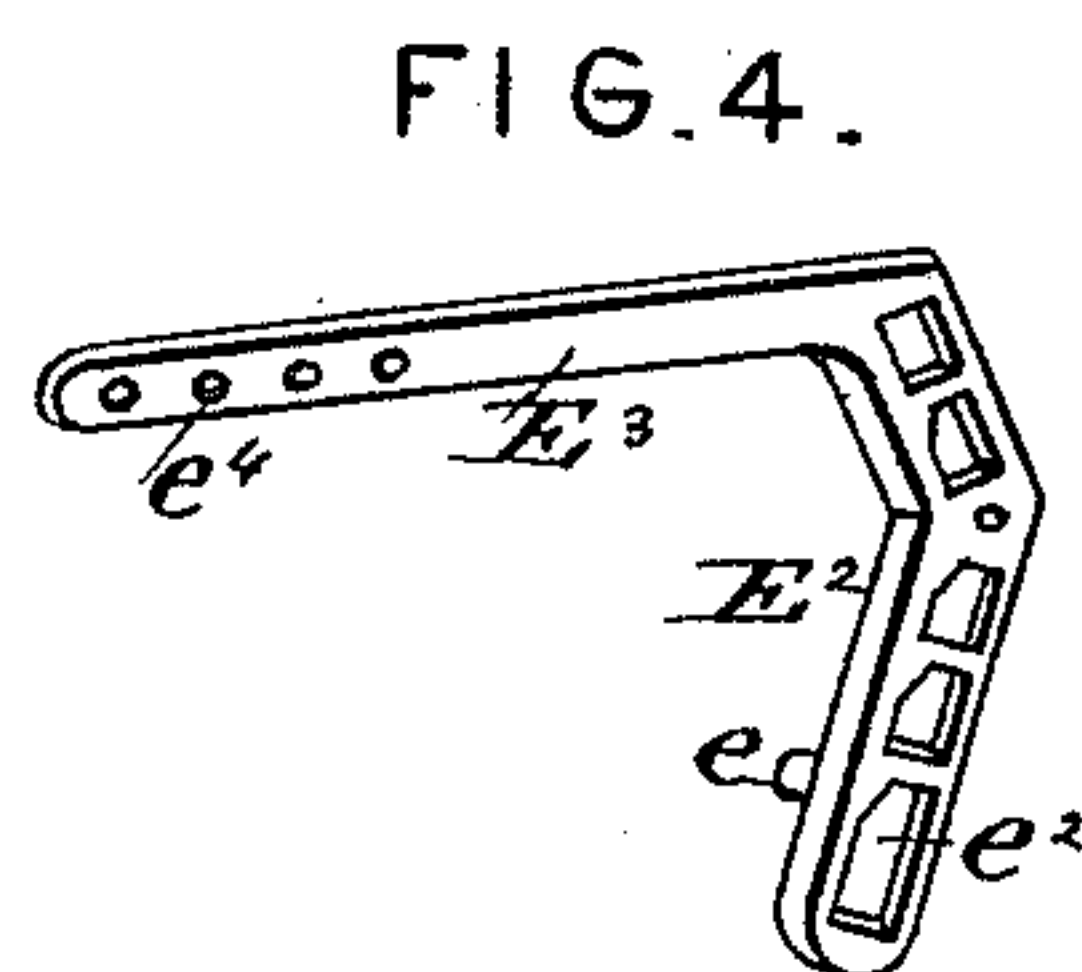
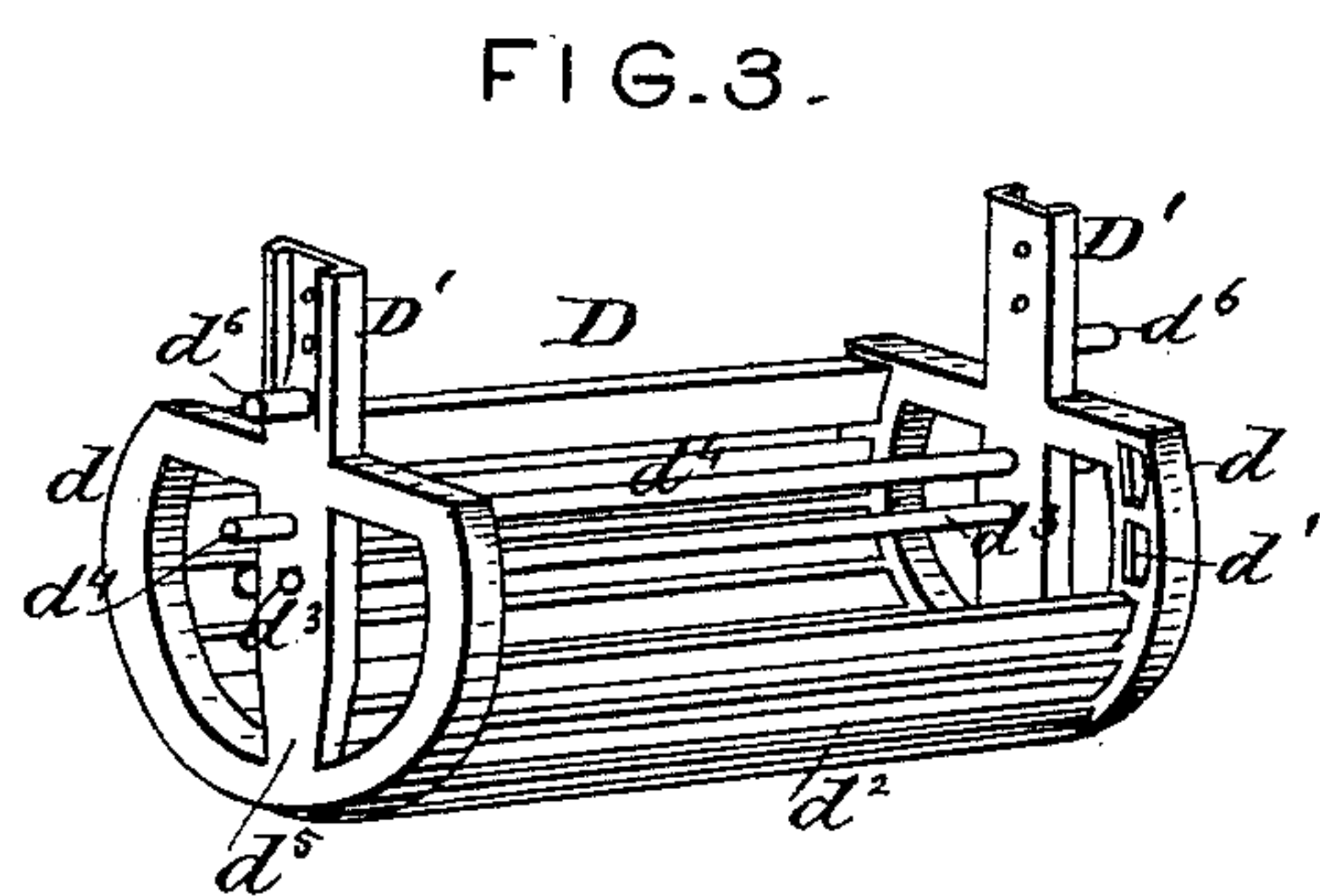
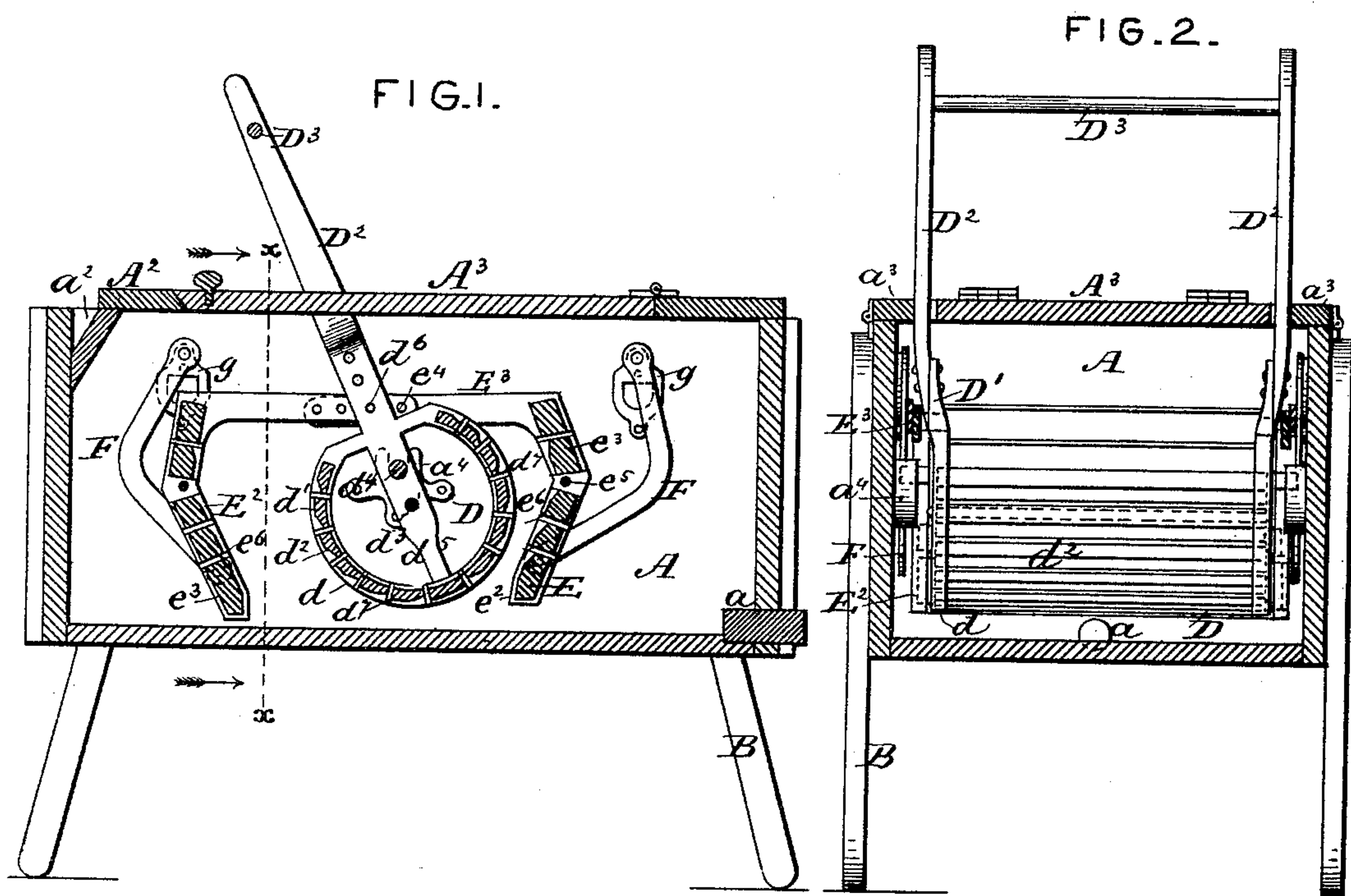


(No Model.)

J. L. KNOLL.  
WASHING MACHINE.

No. 406,918.

Patented July 16, 1889.



ATTEST-  
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INVENTOR-  
Jonas L. Knoll,  
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atty.



# UNITED STATES PATENT OFFICE.

JONAS L. KNOLL, OF LEBANON, PENNSYLVANIA.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 406,918, dated July 16, 1889.

Application filed October 5, 1888. Serial No. 287,286. (No model.)

*To all whom it may concern:*

Be it known that I, JONAS L. KNOLL, a citizen of the United States of America, residing at Lebanon, in the county of Lebanon and State of Pennsylvania, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to that class of washing-machines wherein the cleansing of the clothes is effected by means of a vibrating slatted rubber and slatted end racks pivoted to the interior of the suds-box and connected to the rubber to receive therefrom a reciprocating motion to agitate and press the clothes placed between said rubber and racks to facilitate the removal of the dirt therefrom.

20 The object of my improvement is to permit light goods or small parcels to be operated, when desired, at the same time with large parcels, as blankets, &c.

25 The invention consists in details of construction hereinafter described, and specifically set forth in the claim.

30 In the accompanying drawings, Figure 1 is a longitudinal vertical section of a washing-machine constructed in accordance with my invention. Fig. 2 is a transverse vertical section of the same, taken on line  $x x$  of Fig. 1. Fig. 3 is a perspective view of the rubber with two of the slats removed. Fig. 4 is a perspective view of one of the side castings forming a part of the racks.

35 In said drawings, A represents the suds-box, supported upon legs B and provided with an outlet  $a$  for drawing off the water. The top of the box  $A^2$  has a soap-receptacle  $a^2$  formed therein at one end, a hinged cover  $A^3$ , and on the sides of said cover are strips  $a^3$ , hinged to the sides of the box to permit them to be swung outwardly when it is desired to take off the movable inner parts. To the inner surface of the box are secured the bearings  $a^4$  for the journals of the rubber D. Said rubber consists of two metallic disks or rings  $d$ , having a series of slots or pockets  $d'$  on their inner side to receive the ends of the slats  $d^2$ , extending from one ring to the other.

40 Said rings are united together by means of a rod  $d^3$  in the center thereof. They can also

be united by the rod  $d^4$ , the ends of which project from the sides of the diametrical arm  $d^5$  of the rings and constitute the journals thereof; but said journals may be simply pins projecting from said rings. An arm  $D'$  is projecting upward from each ring, and to said arms are secured the side pieces  $D^2$  of the handle  $D^3$ , said side pieces passing through slots between the cover  $A^3$  and the hinged strips  $a^3$  of the suds-box.

The racks E, operated in connection with the rubber, are suspended from the lower end of connecting-rods F, having their upper end pivoted in bearings  $g$ , secured to the inner side of the suds-box, said lower end of the connecting-rod having an eye to receive a pin  $e$ , projecting from the lower portion of the end castings  $E^2$  of the racks. Said castings are provided with slots or pockets  $e^2$  to receive the ends of the slats  $e^3$ , constituting one-half of the rubbing-surface of the machine. The castings  $E^2$  have arms  $E^3$ , provided with a series of perforations  $e^4$  at their outer end to receive a pin  $d^6$ , projecting laterally from the upper arm  $D'$  of the rubber. Said pins unite the rack-frames together and to said rubber, and permit the latter to transmit motion to the racks. The castings  $E^2$  are united in pairs, and the ends of the slats are retained in their pockets by means of rods  $e^5$ , extending from one casting to the other. The series of perforations  $e^4$  permit the racks to be adjustably connected to the rubber, so that while small parcels may be operated upon by one side of the rubber, large parcels, as blankets, may be operated upon by the opposite side.

The slats  $d^2$  of the rubber have their lower edge beveled inwardly to form a projecting shoulder  $d^7$  at the top edge of each slat to cause them to have a tendency to lift the clothes operated upon, while the slats  $e^3$  have their inner top edge beveled outwardly to provide a shoulder  $e^6$ , to prevent the clothes from being pressed up over the top edge of the racks. Said shoulders upon the rubber and upon the racks render their effect upon the clothes more positive in cleaning them.

Having now fully described my invention, I claim—

The combination of a suds-box, a rubber having a cylindrical rubbing-surface formed

of slats having their widest edge at the top  
and pivoted centrally in said box, arms D',  
projecting upward from the ends of said rub-  
ber and having outwardly-projecting pins  $d^6$ ,  
5 with racks having horizontal arms provided  
with a series of perforations for adjustable  
engagement with the pins  $d^6$ , and connecting-  
rods F, having one end pivoted to the lower  
end of the rack and their upper end pivoted

in bearings  $g$  to the suds-box, substantially as 10  
described.

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

JONAS L. KNOLL.

Witnesses:

JOHN H. UMBERGER,  
JOSEPH BRAUGH.