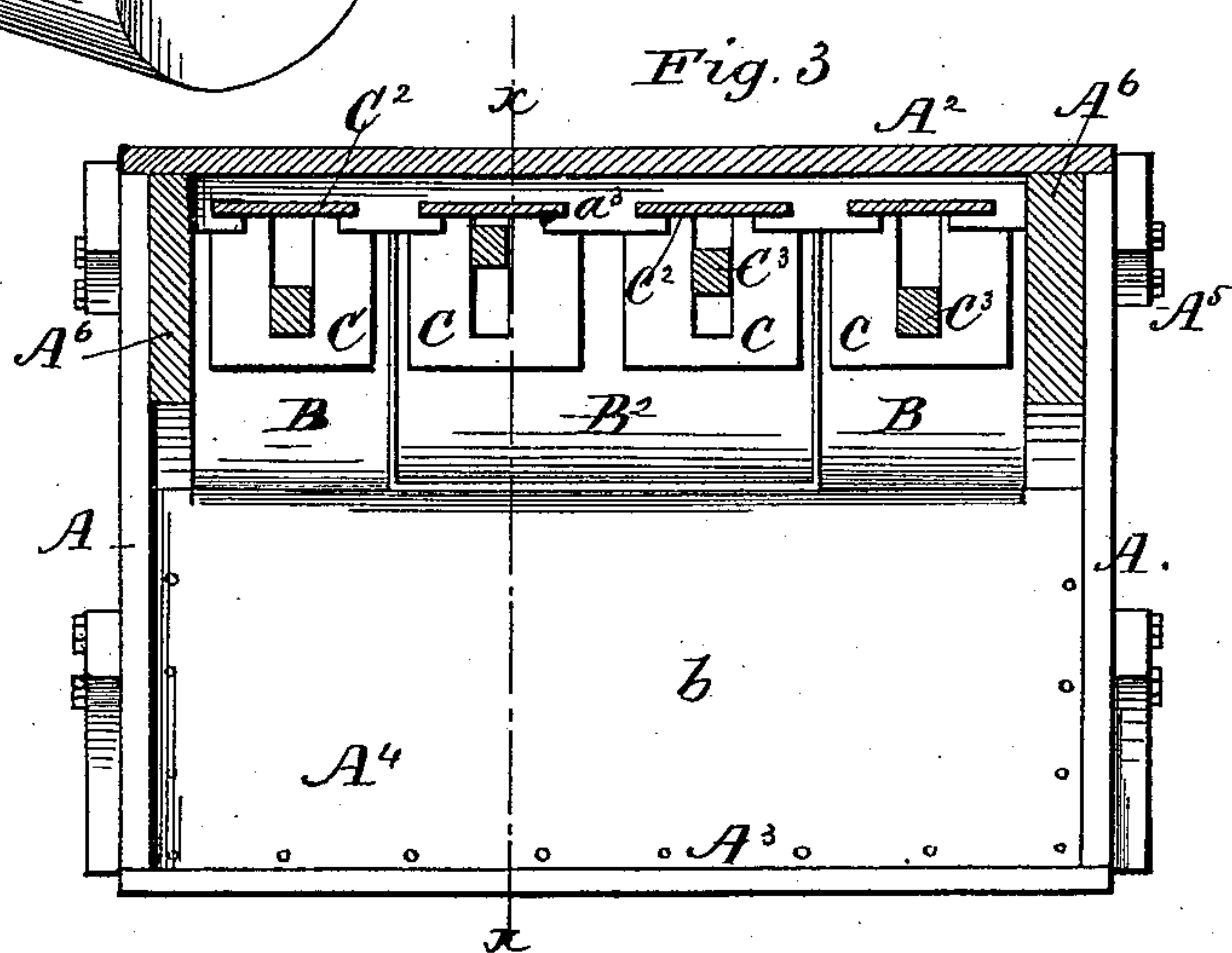
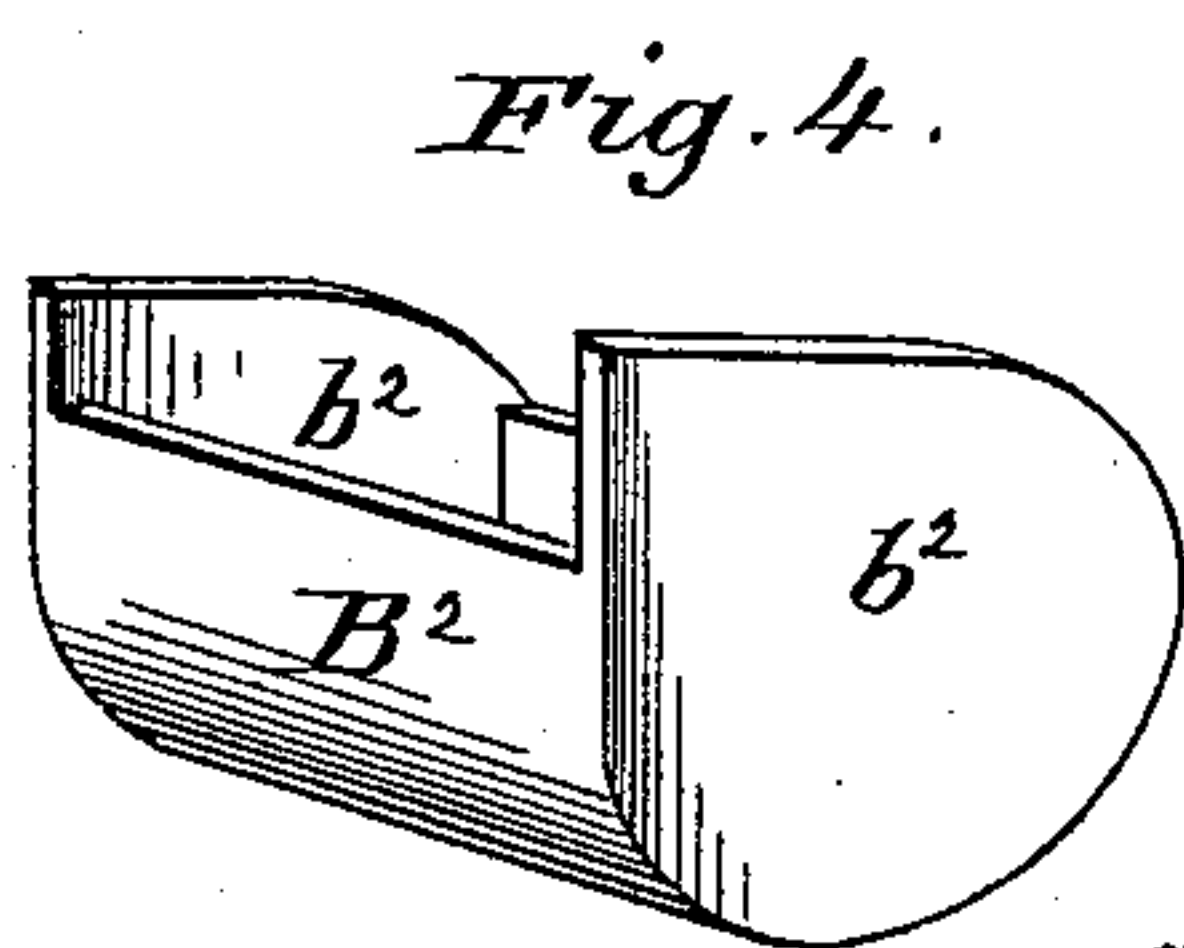
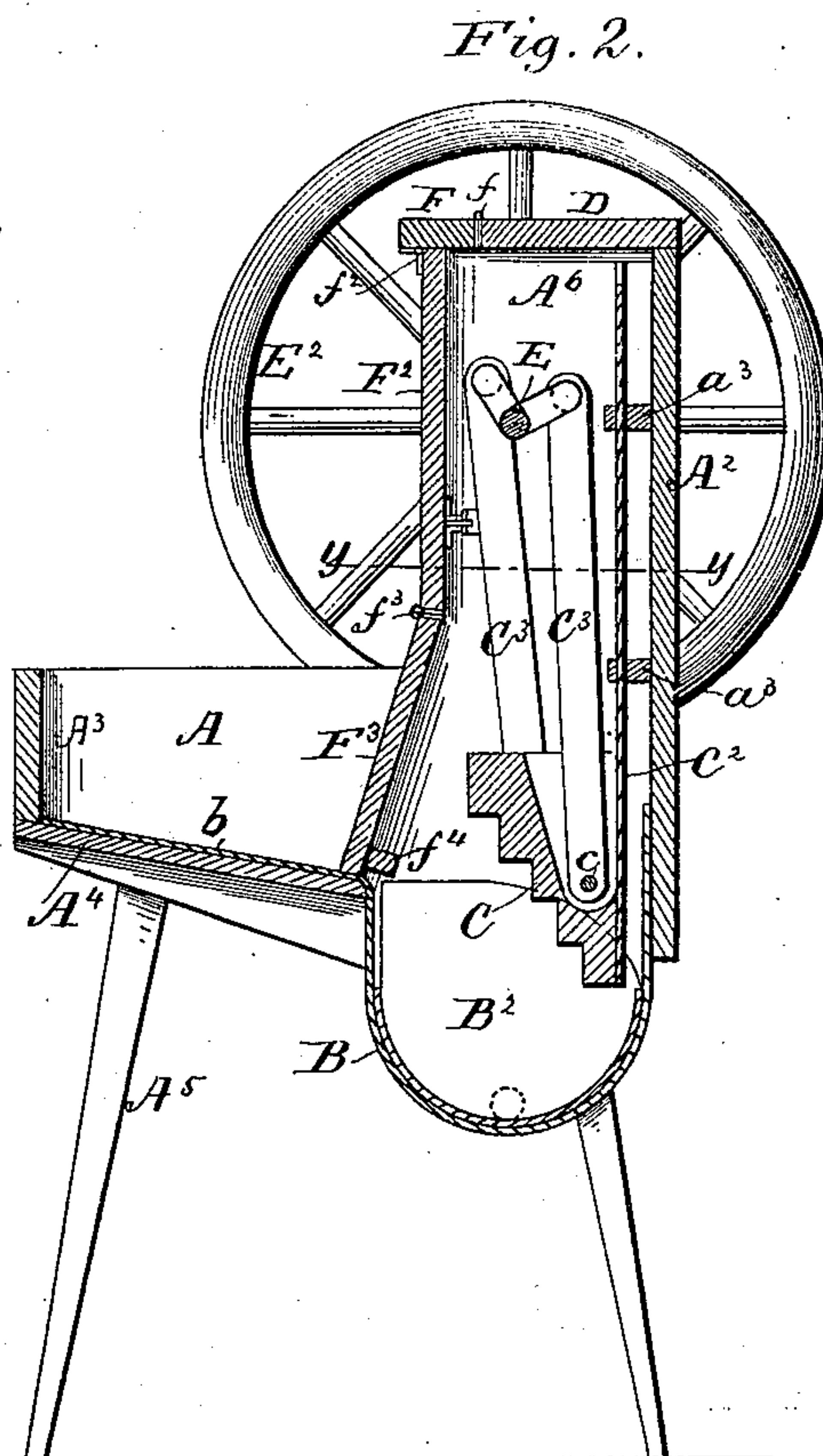
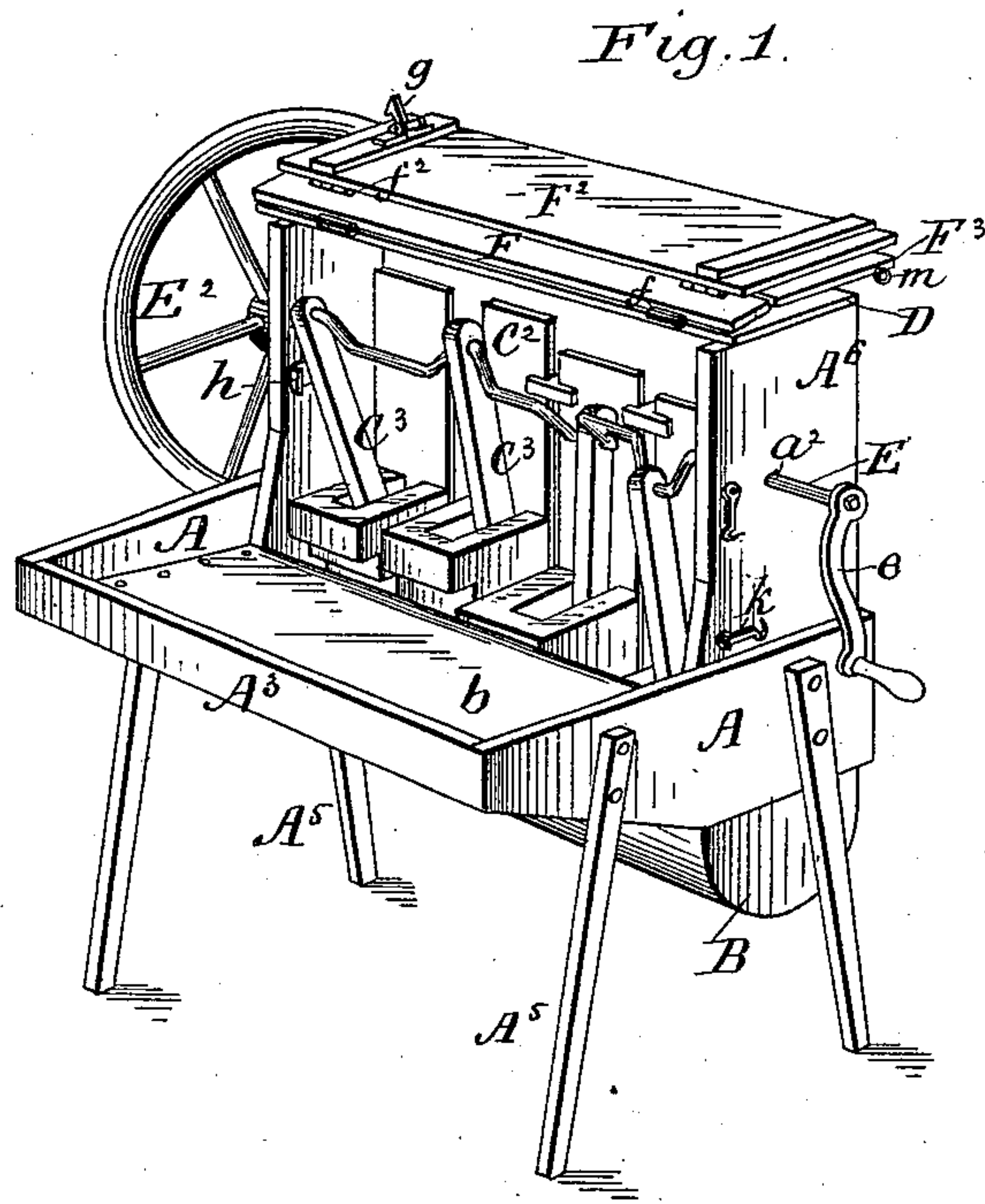


(No Model.)

L. GRONDAHL.
WASHING MACHINE.

No. 563,373.

Patented July 7, 1896.



WITNESSES

INVENTOR

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UNITED STATES PATENT OFFICE.

LARS GRONDAHL, OF RED WING, MINNESOTA, ASSIGNOR TO EINAR GRONDAHL, OF SAME PLACE.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 563,373, dated July 7, 1896.

Application filed April 19, 1894. Serial No. 508,182. (No model.)

To all whom it may concern:

Be it known that I, LARS GRONDAHL, a citizen of the United States, residing at Red Wing, in the county of Goodhue, State of Minnesota, 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.

My invention is designed to produce a neat and compact machine adapted to operate on large and also on small washings without undue wear on the clothes during the operation of washing.

The clothes-receiving tank being adapted to receive therein, and resting on its bottom, a tank of smaller size, is provided in front thereof, and integral with said outer tank, with a receptacle having a metallic bottom in which the clothes can be soaped before they are automatically operated upon by pounders.

In the accompanying drawings, Figure 1 is a perspective view of a washing-machine constructed in accordance with my invention, the front being shown open. Fig. 2 is a transverse vertical section of the same on line $x x$ of Fig. 3. Fig. 3 is a horizontal section on line $y y$ of Fig. 2, but with the front shutter or tank-cover removed. Fig. 4 is a perspective view of the supplementary tank of small size.

In said drawings, A represents the sides of a receptacle having its rear end A^2 extended higher than its front end A^3 . Said receptacle is provided with an inclined bottom A^4 , extended from its front end about half-way to its rear end. In the rear of said bottom is placed the tank B, pendent therefrom. The bottom of said tank is semicylindrical to permit the clothes placed therein to be easily revolved by the action of the pounders C, that are mounted vertically above it. The front portion b of the sheet metal, of which the tank B is made, is extended nearly horizontally and rests upon the inclined bottom A^4 , and thus a convenient receptacle and platform is obtained upon which the clothes can be soaped and the suds made to return into the tank B. The rear portion of said tank is secured to and supported by the lower portion of the rear end A^2 of the frame. Said frame carry-

ing the tank B is supported at a suitable height above the floor by four legs A^5 , secured to the sides A.

To the rear portion of the sides A are vertically secured two boards A^6 , in which bearings a^2 are placed or formed for the multiple-crank shaft E. The boards A^6 are also secured to the high rear end boards A^2 of the frame, and the upper ends of said boards are united together by the top board D. Each pounder is guided vertically by means of a rectangular stem C^2 , secured to its rear face and made to pass through grooves made in cleats a^3 , secured to the front face of the rear board A^2 of the frame. The crank-shaft E is provided at one end with a crank-handle e and at the opposite end with a fly-wheel E^2 , that may be used as a belt-wheel.

Each crank of the shaft E is united to a pounder by means of a connecting-rod C^3 , having one end received in a cavity of said pounder and pivoted thereto at c . The front face of each pounder is provided with horizontal serrations or inverted steps, which are to press upon and to rub the clothes placed with suds in the tank B, and partly revolve them under each pounding, the concave bottom of said tank facilitating said rotation.

To prevent splashing of the suds from the tank, and also to retain the warm vapors of said suds as much as possible in contact with the clothes, said tank and also the pounders and their connecting-rods and crank-shaft are covered over by means of folding shutters hinged to the top board D and to each other. For this purpose a board F is hinged at f to the front edge of said top board. A front shutter F^2 is hinged at f^2 to the board F, and a bottom shutter F^3 is hinged at f^3 to the lower edge of the shutter F^2 . The shutter F^2 is secured to one of the vertical sides A^6 by means of a hooked spring-dog g , attached to the inner side of said shutter, said dog being adapted to engage with an angular keeper h , secured to the inner face of the side A^6 of the frame. The shutter F^3 is secured in position to inclose the beaters C by means of a hook k , secured to the outer face of the side A^6 and adapted to come in engagement with a screw-eye m on one end of said shutter F^3 .

One of the advantages obtained from the front receptacle having the sheet metal b is that when a wringer is attached to one of the

sides A the water dripping from said wringer will fall back into said receptacle. To reduce the size of the tank or to permit clothes of different textures to be operated upon separately by two of the pounders, a secondary tank B² is placed within the tank B. Said tank B² is of such size and form as to have its front and rear sides and bottom fitting closely within the tank B, but is of shorter length, said length being only half, as shown in the drawings. To prevent any accidental displacement of the tank B², its ends b² have their front portion made to extend up to the level of the bottom b of the front receptacle and a narrow strip of wood f⁴, secured to the inner face of the shutter F³, is made to bear thereon.

Having now fully described my invention, I claim—

In a washing-machine the combination of vertically-operated pounders, a stationary tank B having a semicylindrical bottom under said pounders and in front of said tank a receptacle having vertical sides A, an inclined bottom, and upon said bottom a covering sheet of metal b constituting a part of the stationary tank, and a secondary tank B² within the tank B with hinged shutters F² and F³ the latter being provided with a wood strip f⁴ to retain the tank B² within the tank B substantially as described.

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

LARS GRONDAHL.

Witnesses:

C. A. RASMUSSEN,
JENS K. GRONDAHL.