

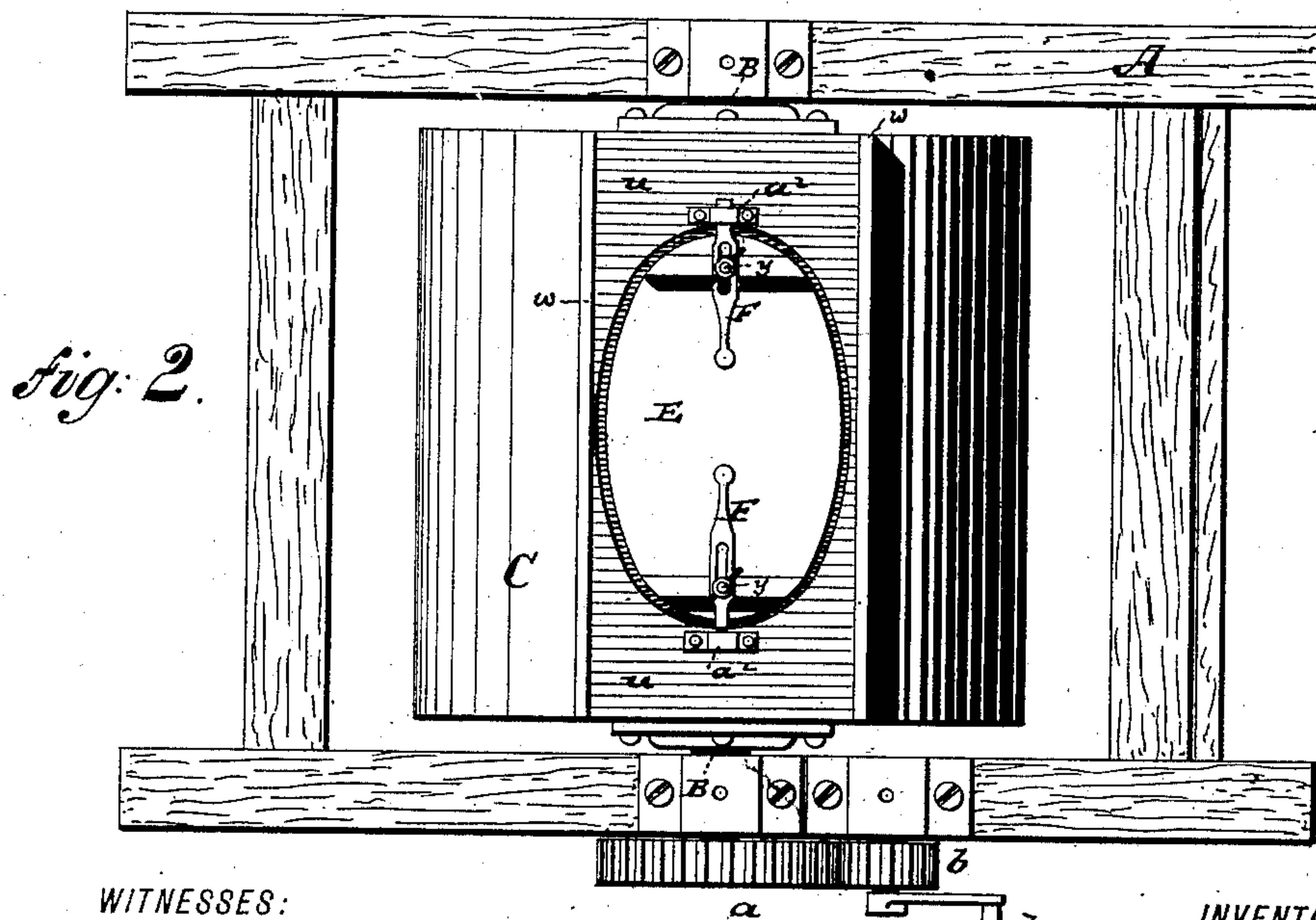
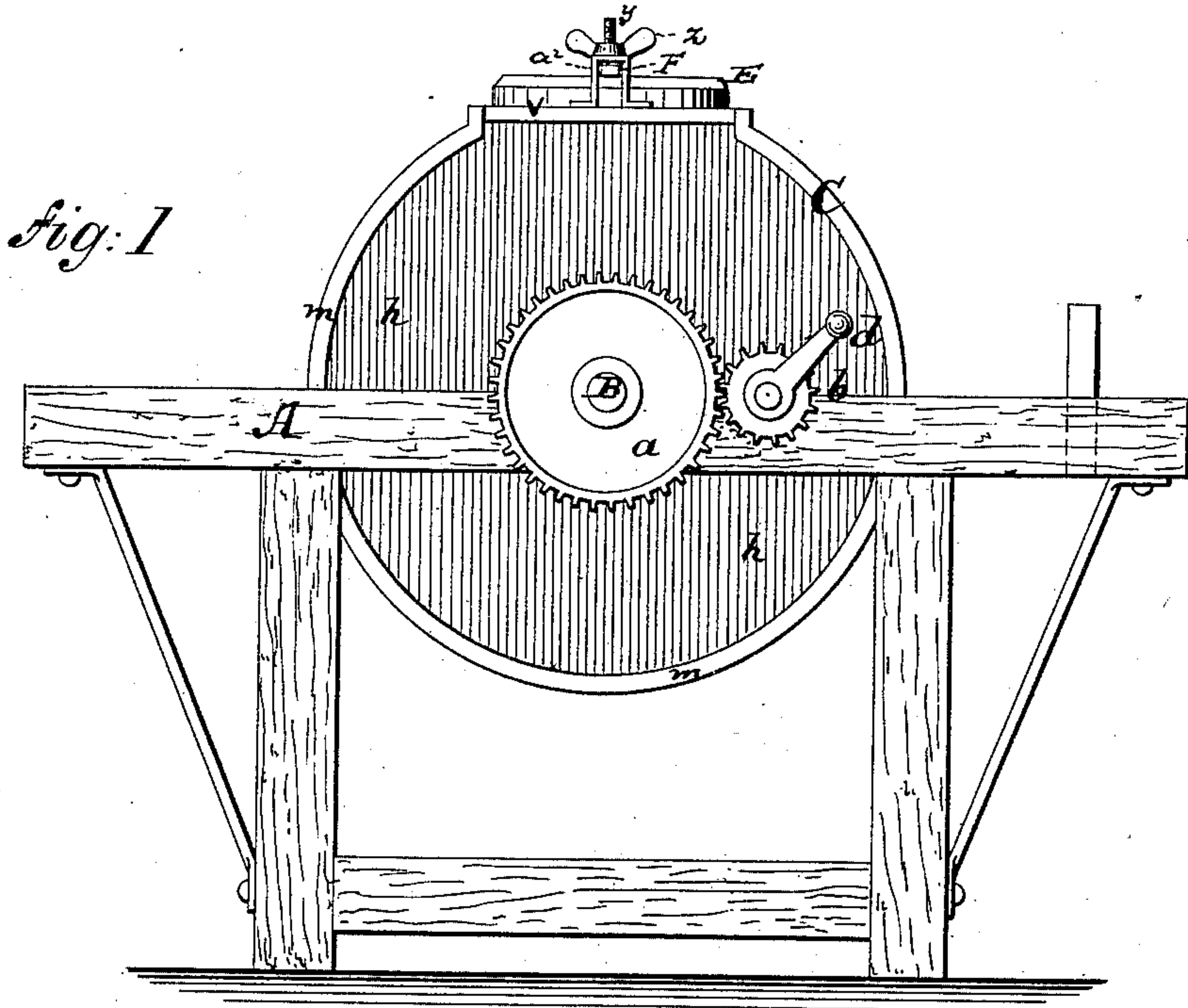
(Model.)

2 Sheets—Sheet 1.

H. HASSENPFUG.
WASHING MACHINE.

No. 360,688.

Patented Apr. 5, 1887.



WITNESSES:

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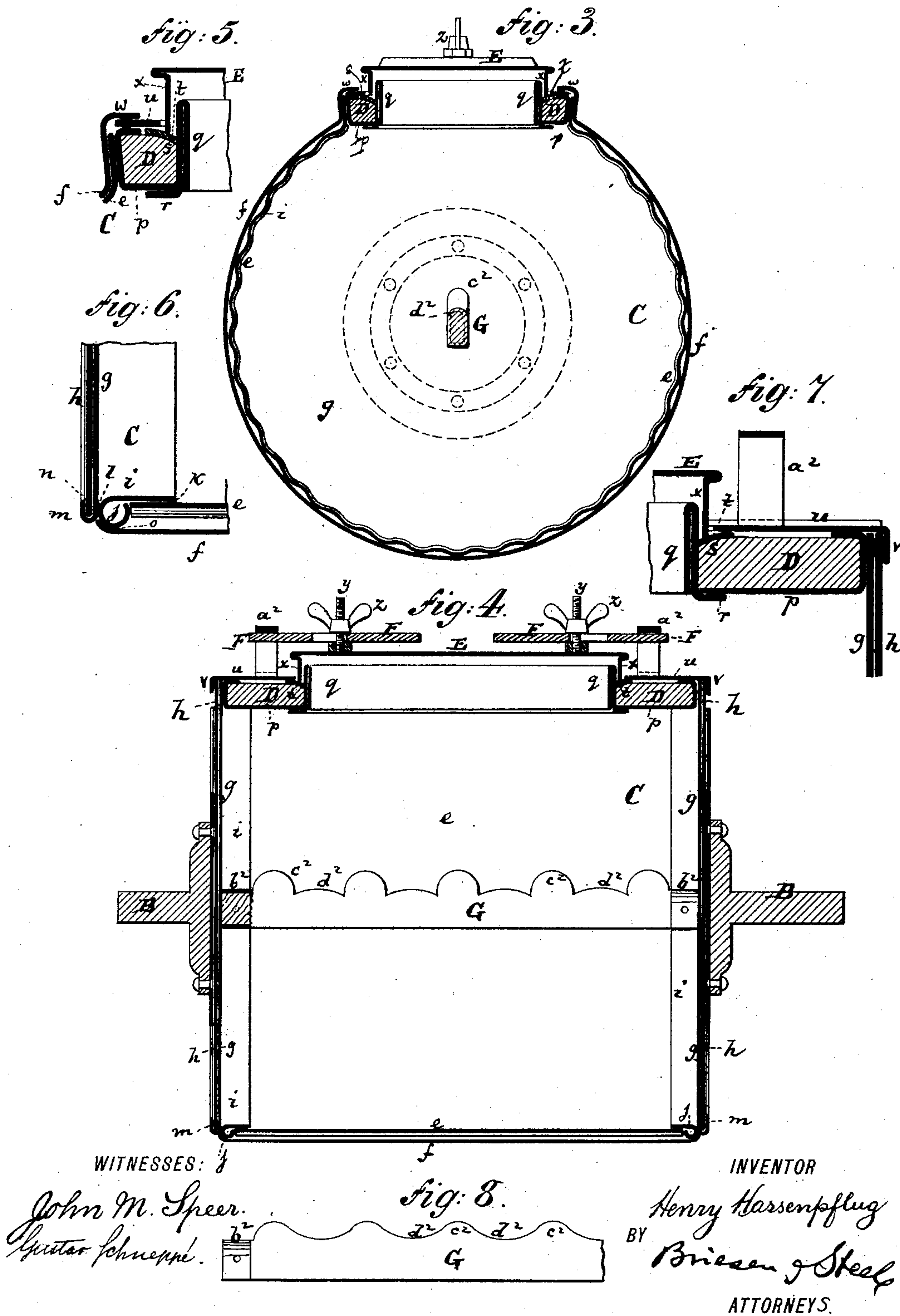
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UNITED STATES PATENT OFFICE.

HENRY HASSENPFUG, OF HUNTINGDON, PENNSYLVANIA.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 360,688, dated April 5, 1887.

Application filed September 15, 1886. Serial No. 213,553. (Model.)

To all whom it may concern:

Be it known that I, HENRY HASSENPFUG, a resident of Huntingdon, in the county of Huntingdon and State of Pennsylvania, have
5 invented an Improved Washing-Machine, of which the following is a full, clear, and exact description, reference being made to the accompanying drawings, in which—

Figure 1 is a side view of my improved
10 washing-machine. Fig. 2 is a plan or top view of the same. Fig. 3 is a vertical transverse section of the drum thereof. Fig. 4 is a vertical longitudinal section of said drum. Fig. 5 is an enlarged transverse section showing the
15 connection between the drum and the cover thereof. Fig. 6 is an enlarged horizontal section showing the connection between the side and end walls of the washing-cylinder. Fig. 7 is an enlarged longitudinal vertical section
20 showing the connection between the ends of the washing-cylinder and the cover thereof. Fig. 8 is a face view of a modified form of bar in the washing-cylinder.

This invention has for its object to produce
25 a washing-machine the principal part of which consists of an oscillating cylinder, in which machine there shall be no possibility of bringing the suds in contact with iron, and which, moreover, shall be sufficiently strong to pre-
30 vent the pressure of steam within the cylinder from changing the shape or destroying the connections of the parts.

In washing-machines having double walls it has been customary to form the inner side of
35 the cylinder of corrugated tin, which furnishes the working-surface whereon the garments are rubbed. The ends of such a tin cylinder were usually embedded in the curved heads of the cylinder, which heads were made of wood or
40 other substance; but experience has satisfied me that the steam which is inclosed in the cylinder during its operation will force some of the suds past the ends of the corrugated tin into the space surrounding the same, and into
45 contact, therefore, with the protective outer shell of iron, and, through the more or less minute openings thus formed at the ends of the tin, suds would find their way afterward freely
50 and other impurities, which collect in the ma-

chine, to the great injury of the garments that are to be cleansed.

My invention consists, principally, in a novel manner of uniting the corrugated tin lining of the cylinder with the ends thereof and with
55 the surrounding shell.

It also consists in other details of improvement that are hereinafter more fully described.

In the drawings, the letter A represents the frame of the washing-machine, which frame
50 furnishes bearings for the gudgeons B of the washing-cylinder C. One of the gudgeons B may be provided with a toothed wheel, *a*, meshing into a pinion, *b*, which can be oscillated by a handle, *d*, for the purpose of imparting os-
65 cillating motion to the cylinder C; but other mechanism for oscillating the cylinder C may be substituted for that shown.

The cylinder C is provided with an inner lining, *e*, of corrugated tin (see Fig. 3) and
70 with an outer shell, *f*, of iron or analogous strong material. The ends or heads of the cylinder are each composed of an inner lining, *g*, of tin and of an outer wall, *h*, of iron or other strong material. Fig. 6 shows more
75 clearly how the parts *e f*, which constitute the periphery of the cylinder, are united to the parts *g h*, which constitute the end of the cylinder. For the purpose of establishing this connection I employ a ring, *i*, of tin, which
80 ring, on its outer side, has a bead or turned-out portion, *j*. I first solder the corrugated cylinder *e* at *k* to the outer circumference of the ring *i*, so that the end of the corrugated tin *e* will come close to the bead *j*. I then
85 solder the head *g* of tin to the outer edge of the ring *i*, as is indicated at *l* in Fig. 6, and I lap the projecting edge of the tin head *g* around the edge of the iron head *h*, as appears at *m*
90 in Fig. 6. I then unite the iron head *h* to this lapped part *m* of the tin head *g*, as appears at *n* in Fig. 6. Finally, I place the iron cylinder *f* in position against the bead *j* and unite it thereto by solder, as is shown at *o* in Fig. 6. By this construction I insure a complete inner
95 lining of tin or analogous non-corrosive substance for the cylinder and a complete outer protective shell of iron or other strong material, and yet prevent, by the interposition of the beaded ring *i*, any suds or steam from get-
100

ting between the tin and the iron from within the cylinder; hence the garments that are exposed to the action of the cylinder will not come in contact with any contaminating surface, and the iron protective shell and heads will serve to prevent the tin lining from becoming bulged or forced out of shape and from becoming injured by steam-pressure.

The cover of the cylinder is constructed of a board, D, of wood or other substance, which is adapted to fit an opening in the top of the cylinder, and which is provided with a central opening, through which the garments are inserted into and removed from the cylinder. The wooden part D of this cover is lined on the lower and outer sides with a lining, *p*, of tin or the like. (See Fig. 7.) After that the inner edge of the wood D is lined by a piece, *q*, of sheet metal, which piece is, at *r*, soldered to the lining *p*, and which is carried up and then down, as in Figs. 5 and 7, to furnish a strong metallic lining for the inner edge of the cover and a lining which shall extend some distance above the top of the wood D. Adjoining this lining *q* the top of the wood D is sloped, as at *s* in Figs. 5 and 7, and upon this sloped portion is placed a ring, *t*, of india-rubber. Finally, a top plate, *u*, of sheet metal is placed upon the cover D and around the inner lining, *q*, and is at the ends of the cylinder turned down, as at *v* in Fig. 7, while at the sides it is overlapped by a turned-in portion, *w*, of the iron shell *f*, as in Fig. 5. The plate *u* is soldered to the lining *p*, also to the head *h* and to the turned-in part *w* of the iron *f*, and is thus firmly held in position.

The lid E, which is to close the opening in the cover, has a downwardly-projecting flange, *x*, which is adapted to surround the lining *q* and to fit within an opening left by the top plate, *u*, and to press upon the rubber ring *t*. Thus, when this lid is in place and firmly screwed down, as hereinafter described, the cover will be tightly closed, so that no steam can escape from the cylinder. The lid E carries two upwardly-projecting screws, *y*, which are provided with thumb-nuts *z*, that are adapted to bear upon slotted bolts F F, that are held to the lid by the screws *y*. The outer end of each of these bolts is adapted to be pushed into a hasp-like projection, *a*², that extends upward from the top plate, *u*, of the cover, and when the two bolts, F, are pushed through these hasps *a*² the thumb-nuts *z* are turned until they force the lid tightly down upon the rubber ring, the bolts having their purchase against the hasps *a*². When afterward the cylinder is to be opened, it is only necessary to loosen the thumb-nuts *z* and then

slide the bolts F inward, so as to disengage them from the hasps *a*², after which there will be nothing to prevent the lifting of the lid and the opening of the cylinder.

Fig. 2 of the drawings shows one of the bolts F (the upper one) engaged with its hasp *a*², and the other (lower one) disengaged from its hasp *a*², illustrating very clearly how the slot of each bolt is utilized to get it into either the one or the other of these two positions. By this arrangement of bolts on the lid I am enabled to securely hold the lid in place and yet permit of its ready removal.

Within the cylinder C is a cross-bar, G, which is held stationarily in the center of the cylinder by having its ends fastened to the centers of the head-linings *g*. For this purpose I inclose the ends of the bar G with metal ferrules *b*², which can be readily soldered to the tin heads *g*. The object of the rod G is to assist in agitating the things to be washed.

I claim—

1. The combination of the tin lining *e* and tin head *g*, having lapped edge *m*, with the tin ring *i*, having bead *j*, and with the outer iron shell, *f*, and heads *h*, substantially as described.

2. The cover of the washing-cylinder, the same being constructed of a wooden portion, D, having slope *s*, in combination with the lower and outer metal lining, *p*, doubled and upwardly-projecting inner lining, *q*, rubber ring *t*, and upper metal covering, *u*, substantially as described.

3. The combination of the corrugated inner lining, *e*, and inner head-linings, *g*, with the iron outer covering, *f*, and iron heads *h*, and with the cover consisting of the wooden portion D, having slope *s*, lower and outer lining, *p*, inner lining, *q*, rubber ring *t*, and upper covering, *u*, all constructed substantially as herein shown and described.

4. The combination of the lid E, having downwardly-projecting flange *x*, with the cover having slope *s*, rubber ring *t* on said slope, inner doubled upwardly-projecting lining, *q*, and outer metal covering, *u*, as specified.

5. The combination of the removable lid E of a washing-machine with the immovable cover of said machine and with the slotted sliding bolts F F, screws *y*, nuts *z*, and stationary hasps *a*², substantially as herein shown and described.

HENRY HASSENPFUG.

Witnesses:

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