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1,459,444

T. DOMOTO

WASH WRINGER

Filed June 29, 1921

Fig. 1.

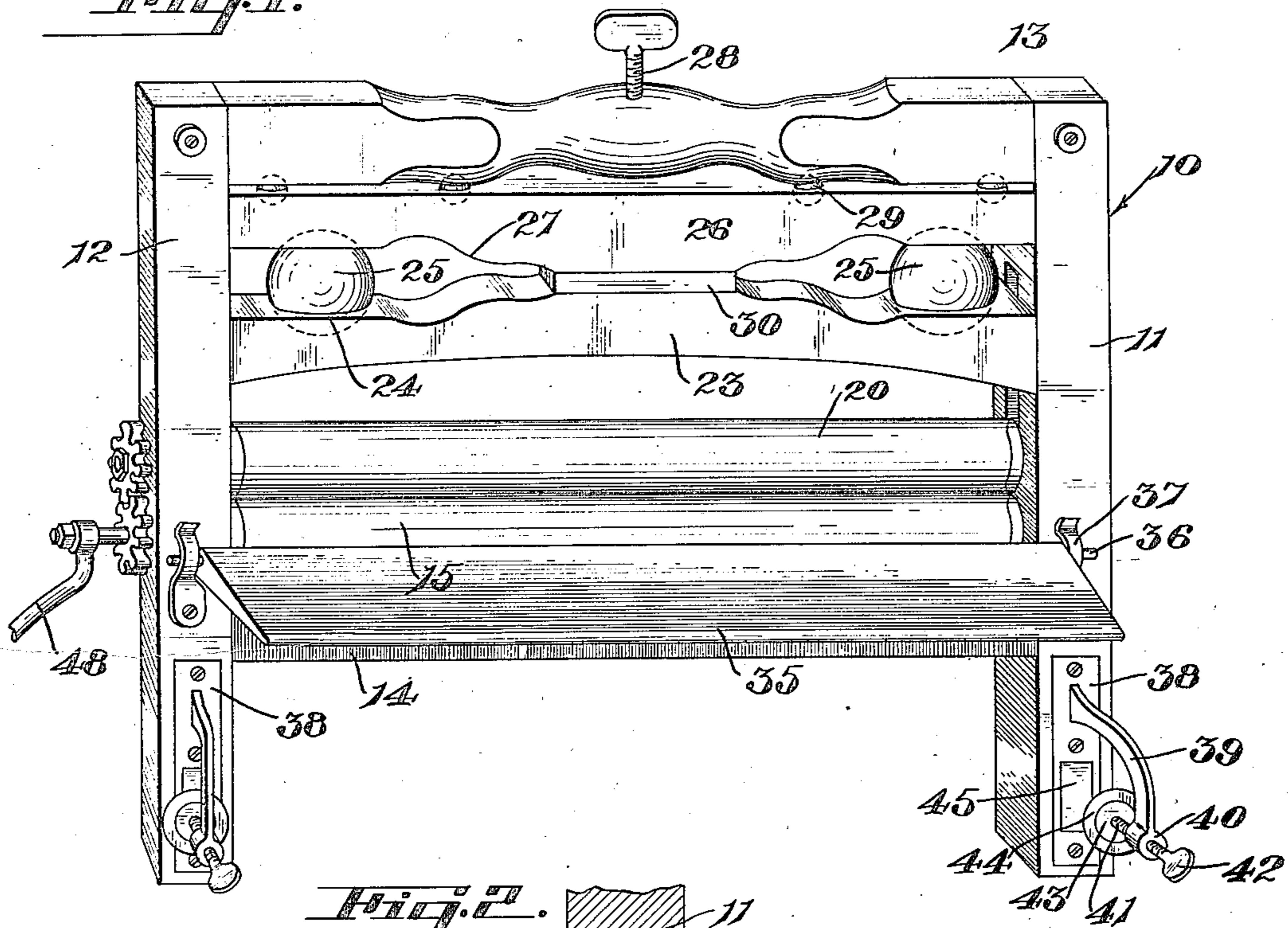


Fig. 2.

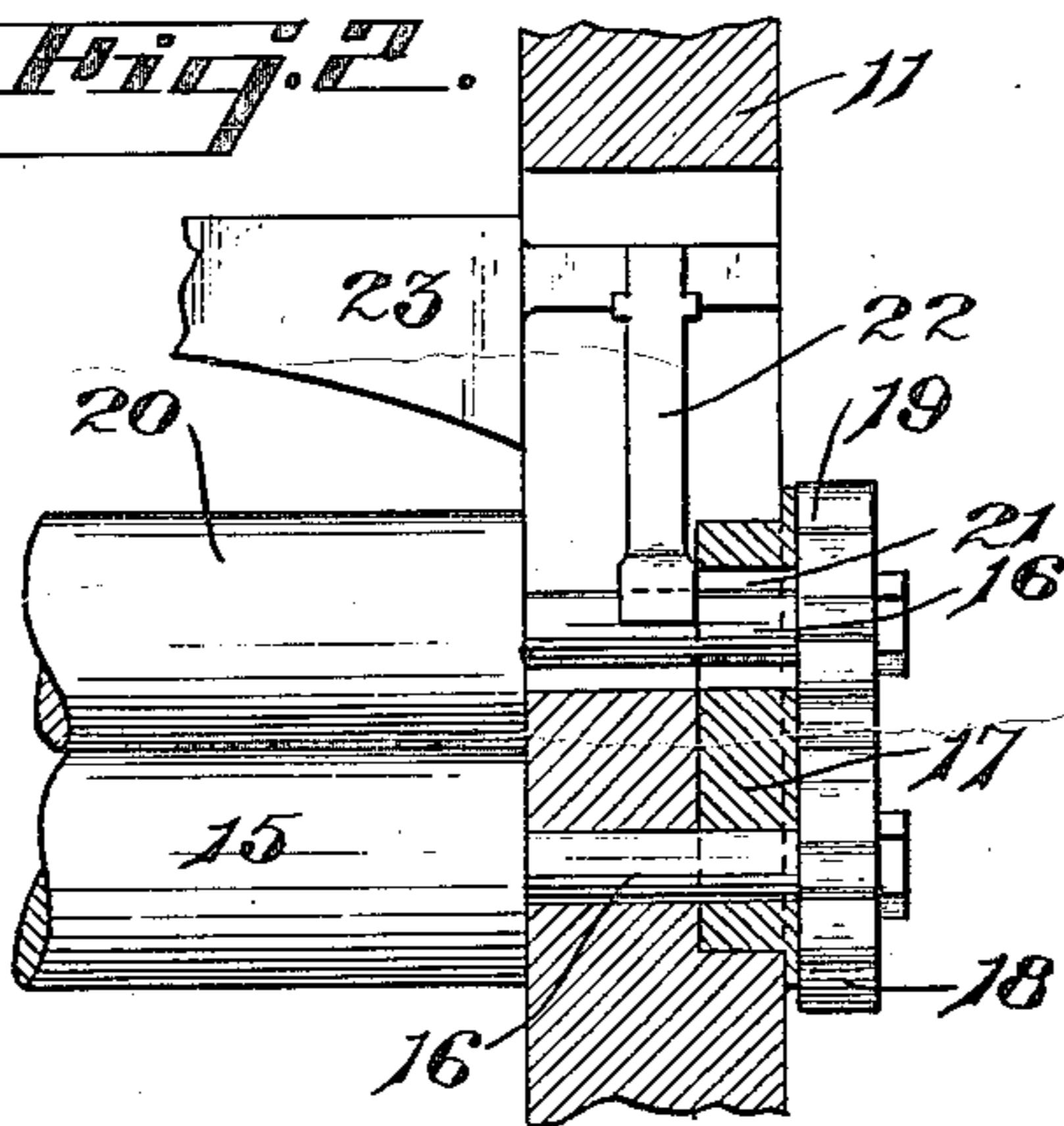


Fig. 3.

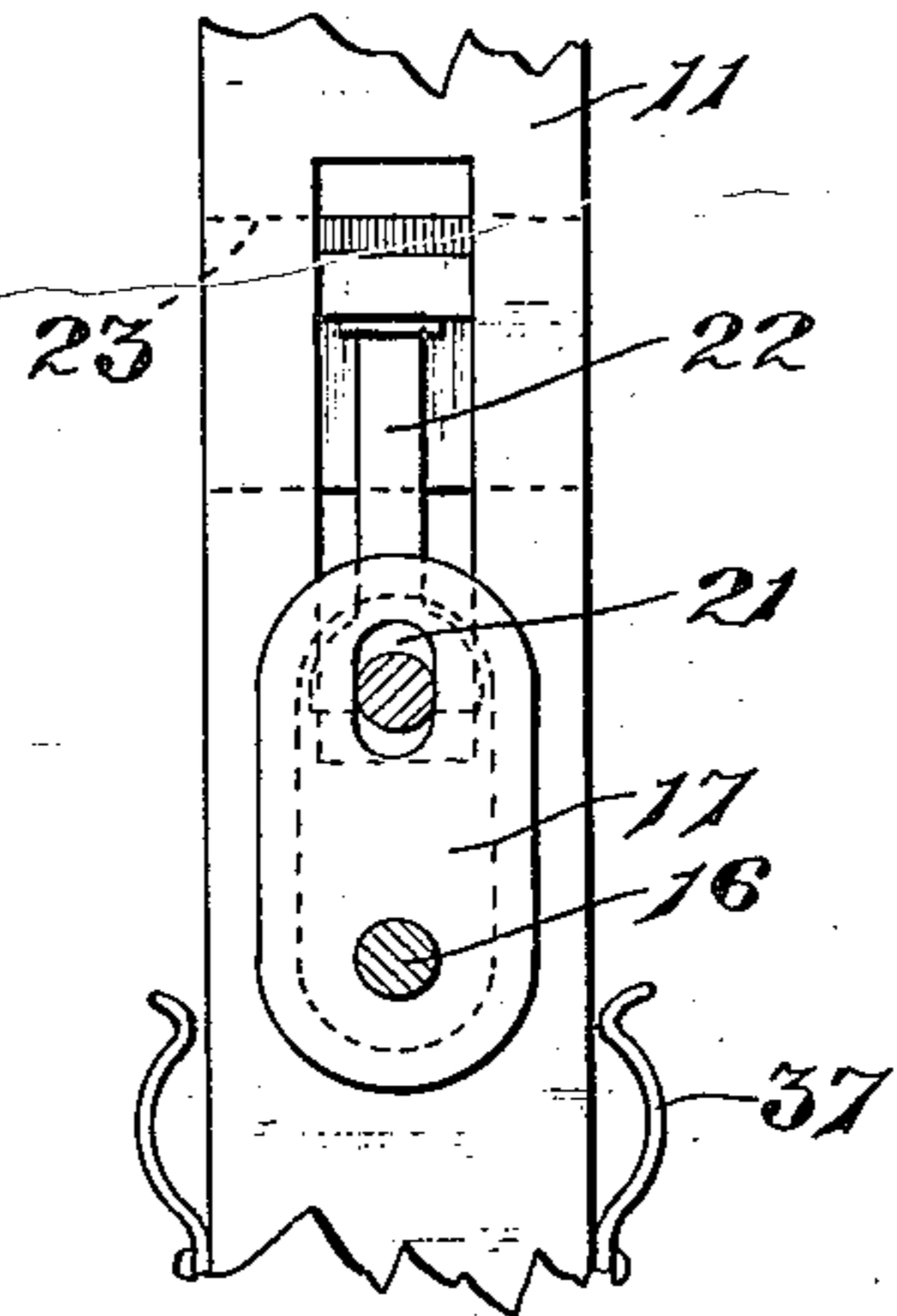
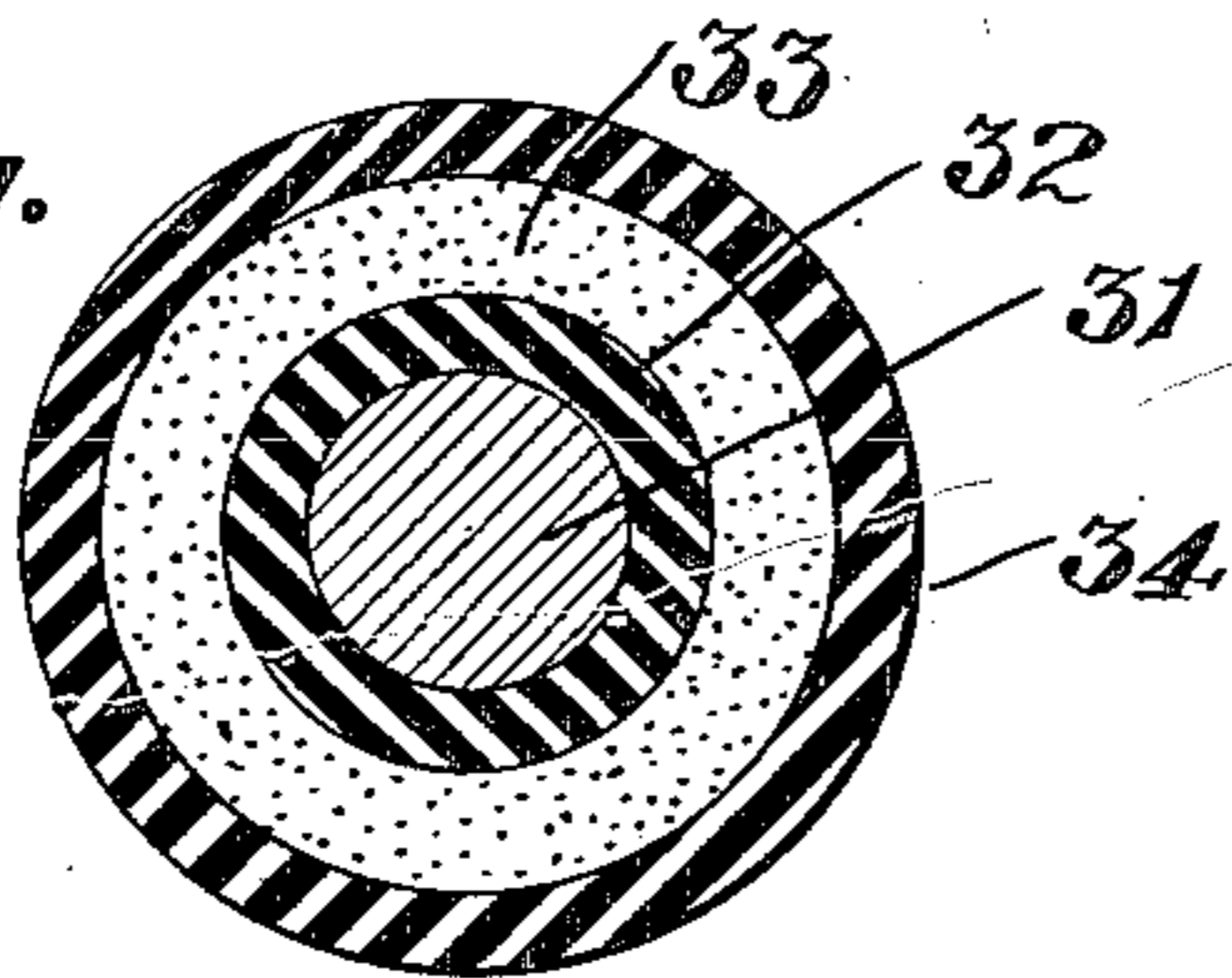


Fig. 4.



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TAKANOSHIN DOMOTO, OF SAN FRANCISCO, CALIFORNIA.

WASH WRINGER.

Application filed June 29, 1921. Serial No. 481,256.

To all whom it may concern:

Be it known that I, TAKANOSHIN DOMOTO, a subject of the Emperor of Japan, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Wash Wringers, of which the following is a specification.

This invention relates to a wash wringer.

It is the principal object of the present invention to provide a wash wringer which is simple in construction, equipped with yieldable means for holding the wringer rolls in their operative positions, a special wringer construction, and other features which render the wringer positive in operation, simple as to construction and not liable to readily become broken, or otherwise require repair.

The present invention contemplates the use of a wringer having a pair of co-operating rolls, which are held in operative position by a pressure bar against which a plurality of solid resilient members act.

The invention is illustrated by way of example in the accompanying drawings, in which—

Fig. 1 is a view in perspective showing the wash wringer with which the present invention is concerned;

Fig. 2 is an enlarged fragmentary view in section in elevation showing the mounting for the wringer rolls;

Fig. 3 is a view in end elevation showing the roll mounting;

Fig. 4 is a view in transverse section through the wringer disclosing its composite construction.

Referring more particularly to the drawing, 10 indicates a frame comprising a pair of uprights 11 and 12 held in rigid spaced relation to each other by upper and lower cross bars 13 and 14 respectively. Extending between the uprights and rotatably supported thereby is a lower wringer roll 15. This roll is formed with a central mandrel 16 extending from the opposite ends of the roll and being rotatably mounted through the uprights, as more clearly shown in Fig. 2. A bearing plate 17 is fastened to the uprights and is fitted with a circular opening through which the trunnion portions of the mandrel 16 extend. Gears 18 are secured to the opposite ends of the mandrel and are in mesh with similar gears 19 carried by mandrel 16 of the upper movable wringer roll

20. The mandrel 16 of the upper roll extends through a slotted opening 21 which permits this roll to have the desired vertical movement toward and away from the lower roll. Pressure yokes 22 extend down over the uppermost portion of the mandrel 16 on the upper roll and tend to hold this mandrel down by a pre-determined pressure. The upper end of the pressure yokes are connected with a pressure beam 23. This beam extends transversely of the frame and may move vertically, as guided by the uprights 11 and 12. Formed in the upper face of the transverse beam 23 are sockets 24 adapted to receive resilient members 25. These members are spherical in shape and may be rubber balls formed of a rubber of a desired consistency to produce the resilient pressure action required. An adjustable pressure bar 26 is slidably mounted between the uprights and above the beam 23. This bar is also fitted with sockets 24 into which the balls 25 seat. It will be understood that in the course of time the members 25 will become distorted and will be somewhat reduced in size. For this reason the adjacent faces of the beams 23 and 26 are formed with a series of corrugations which converge toward each other, as indicated at 27. The adjacent recesses in the corrugations will form pockets of gradually reduced size into which the members 25 may be forced; and due to the fact that the corrugated faces gradually converge toward each other as they near the vertical center of the wringer, it is possible to force the members 25 into the tapered opening until they seat between desired corrugations. In their new positions they will perform the same function as previously described and will exert a yieldable pressure against the beam 23. The amount of compression under which the beam 23 operates is determined by central adjusting screw 28 which extends through a threaded opening in the upper cross bar 13 of the frame. This screw forces downwardly against the bar 26, which in turn delivers equal pressure to the members 25. The bar 26 is stabilized by a plurality of small rubber balls 29 which are mounted in pockets in the bar 26 and the cross bar 13. Thus, when an article is passed between the rolls near one end thereof, or is not properly distributed, the inequality in pressure will be resisted by the members 29, as well as the large members 25. A central

block of resilient material is interposed between the beam 23 and the bar 26, as indicated at 30. This block cooperates with the other resilient members in supplying a yield-
5 able pressure to the upper roll 20.

Reference being had to Fig. 4 of the drawing, it will be seen that the rolls 15 and 20 are formed with a central mandrel 31 around which a layer of substantially hard rubber 32 is placed. Over this, a layer of sponge rubber 33 is vulcanized, and the structure thus formed enclosed within an outer layer of substantially smooth hard rubber, as indicated at 34. The outer layer of rubber
15 will, of course, be somewhat pliable, as in the case of the present wringer rolls with the backing of sponge rubber it will be possible for the rollers to adapt themselves to minute irregularities and inequalities in the thick-
20 nesses of the articles passed between the rolls, and at the same time conform to them in such a way as to thoroughly exclude the water therefrom and to prevent the water from passing between the rolls with the
25 goods.

In order that the wringer may be used from either side of a tub, or to run clothes into or out of a tub, a reversible guide board 35 is provided. This guide board is fitted
30 with trunnions 36 at its ends, which trunnions are supported by spring clips 37. One pair of these spring clips is mounted upon the opposite faces of the uprights 11 and 12, thus making it possible to instantly remove
35 the drain board from one side of the wringer and install it upon the opposite side.

The means for clamping the wringer to a tub or other support consists of plates 38 which are screwed to the faces of the up-
40 rights 11 and 12. These plates are formed integral with arms 39 extending outwardly and downwardly. The ends of these arms are formed with threaded bosses 40 through which clamping screws 41 are fitted. The
45 outer ends of these screws are formed with wings 42 by which they may be rotated, while their inner ends are formed with circular pressure discs 43 over the face of which a pad of rubber 44 is secured. This rubber
50 pad co-operates with a pad of rubber 45 carried by the plates 38.

In the operation of the present invention the wringer is mounted upon a desired support and thereafter fixed in position by the
55 clamp screws 41. These screws, of course, simultaneously draw the clamping pads 45 against one side of the tub, or other support, while the pads 44 are pressed against the opposite side, thus firmly holding the frame
60 in a desired position. The adjusting screw 28 may then be forced down to create pressure upon the roll 20. When the crank 48 is operated the roll 15 will be rotated and the
65 goods may be forced between the rolls 15 and 20.

Due to the structure of the rolls, as disclosed in Fig. 4, the outer surfaces of the rollers will conform to the sectional contour of the material passing between the rolls and will force the moisture from the material. 70
At this time, the meeting surfaces of the rolls on each side of the material will be brought together, thus preventing the water from passing around the sides of the goods being fed through the wringer. In the event 75
that an excessively large piece of goods is fed through the wringer, or that the goods are not properly distributed over the base of the lower roll, the resilient members 25 and the small resilient members 29 will be
80 compressed to permit yielding of the upper roll in addition to the amount of compression produced along the rolls themselves.

The drain board 35 may, of course, be applied to the side of the wringer from 85
which the wet material is being fed. When the balls 25 become distorted, they may be forced along the opening between the bar 26 and the beam 23 until they are properly seated, within corrugations suitable for their
90 accommodation.

It will thus be seen that the invention here disclosed is decidedly simple in its construction, providing inexpensive and readily re-
95 placeable means for producing pressure and a desired resiliency of the wringer, and that the wringer rolls are so constructed as to insure that a maximum and even extraction of water will be made from the material passed therebetween, and to uniformly dry
100 the clothes and in some instances to uniformly distribute starch therethrough.

While I have shown the preferred form of my invention, it is to be understood that
105 various changes may be made by those skilled in the art without departing from the spirit of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Pat-
110 ent is:

1. A wash wringer comprising a frame; a relatively fixed wringer roll rotatably supported thereby; a movable wringer roll disposed above said fixed roll; a pressure beam acting against the trunnions of said
115 movable roll; a transversely extending bar parallel to said beam; resilient means interposed between the bar and beam; an adjustable pressure screw carried by the frame and acting against the center of said bar
120 to force it downwardly; said pressure beam and parallel bar being formed with recesses of different sizes along their adjacent faces for accommodating the resilient means.
2. A wash wringer comprising a frame; 125
a relatively fixed roller rotatably supported by said frame; a relatively movable roller rotatably supported by the frame; a pressure beam slidably supported by the frame
130 and extending parallel to the rollers; means

at the ends thereof for imparting pressure to the trunnions of the movable rollers; a pressure bar slidably supported by the frame and disposed above the beam, said bar and beam having adjacent converging faces extending from their ends and terminating near the centers thereof; a resilient block disposed between the center portions of the adjacent faces of said bar and beam; pairs of recesses being formed along the converging faces of said members, resilient balls, one disposed in any pair of recesses at each end of the beam and bar; a cross beam forming a part of the frame; and an adjusting screw carried at the center of said cross beam and adapted to exert pressure upon the bar.

3. A wash wringer comprising a frame; a relatively fixed roller rotatably supported by said frame; a relatively movable roller rotatably supported by the frame; a pressure beam slidably supported by the frame and extending parallel to the rollers; means

at the ends thereof for imparting pressure to the trunnions of the movable roller; a pressure bar slidably supported by the frame and disposed above the beam, said bar and beam having adjacent converging faces extending from their ends and terminating near the centers thereof; a resilient block disposed between the center portions of the adjacent faces of said bar and beam; pairs of recesses being formed along the converging faces of said members, resilient balls, one disposed in any pair of recesses at each end of the beam and bar; a cross beam forming a part of the frame; an adjusting screw carried at the center of said cross beam and adapted to exert pressure upon the bar; and a plurality of yieldable members interposed between the cross members of the frame and the bar for yieldably maintaining the same in position in the frame.

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