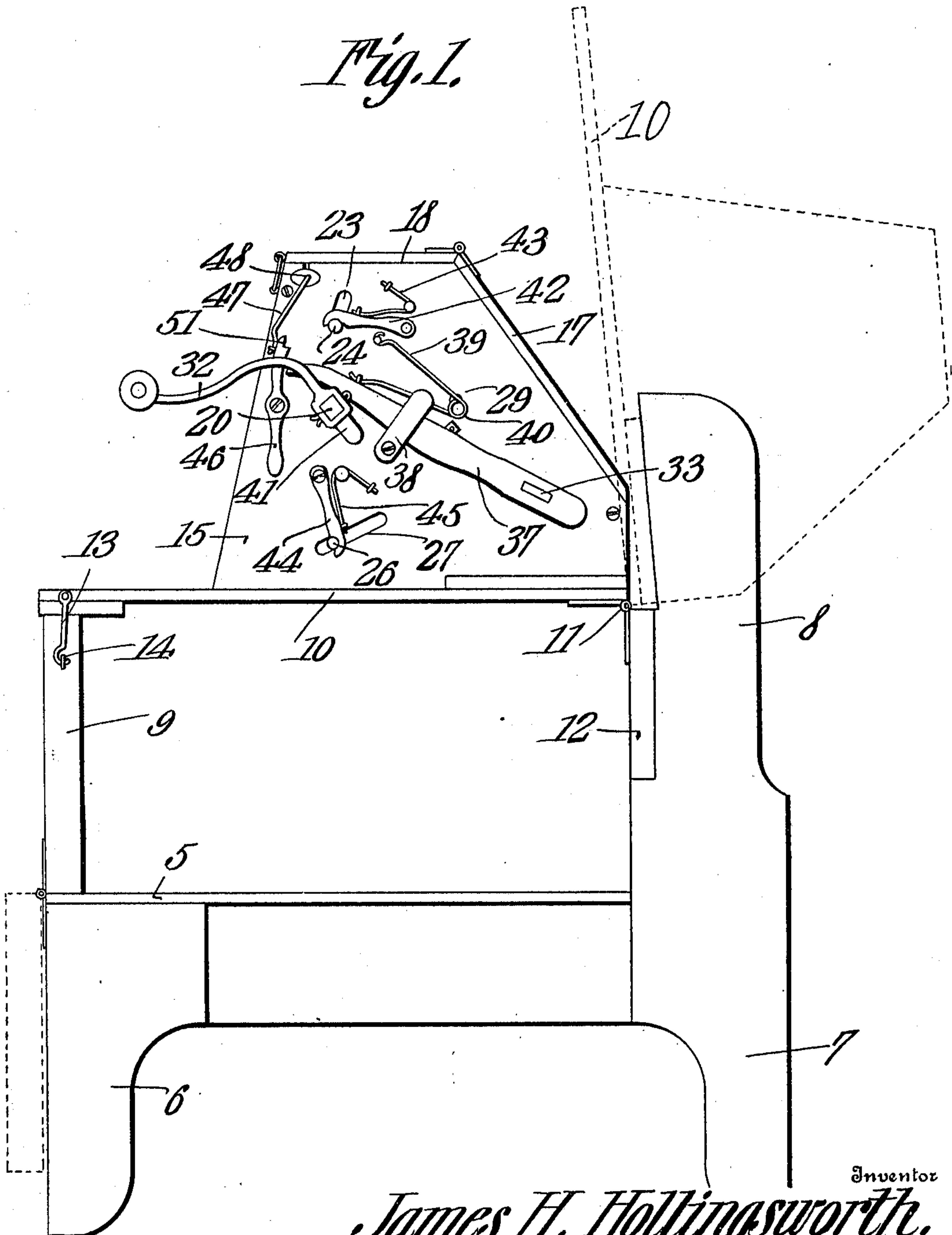


J. H. HOLLINGSWORTH.
 WASHING MACHINE.
 APPLICATION FILED MAY 21, 1909.

945,095.

Patented Jan. 4, 1910.
 2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

E. J. Smith
E. J. Smith

Inventor

James H. Hollingsworth.

By *C. A. Snow & Co.*
 Attorneys

J. H. HOLLINGSWORTH.
WASHING MACHINE.
APPLICATION FILED MAY 21, 1909.

945,095.

Patented Jan. 4, 1910.

2 SHEETS—SHEET 2.

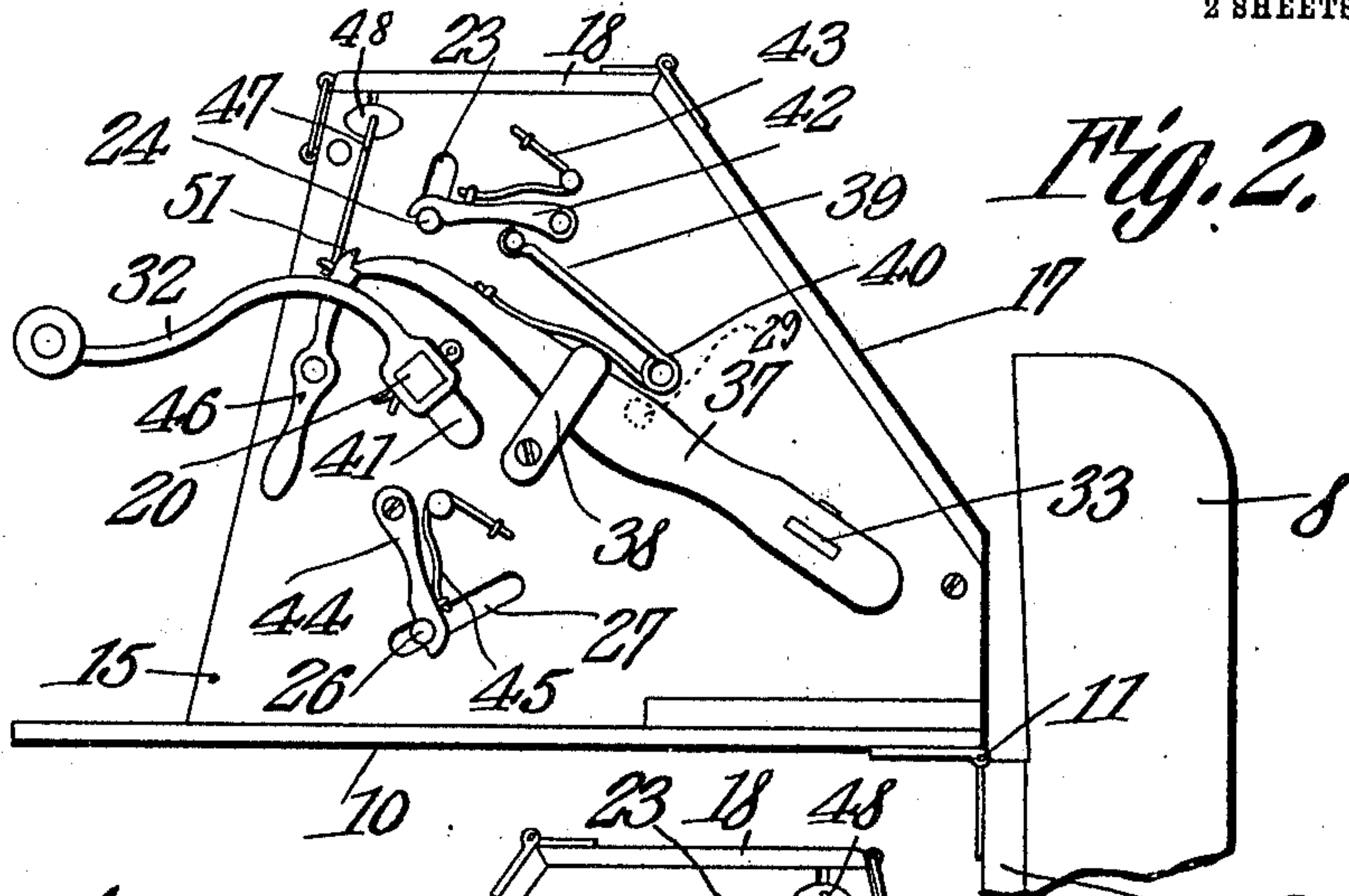


Fig. 3.

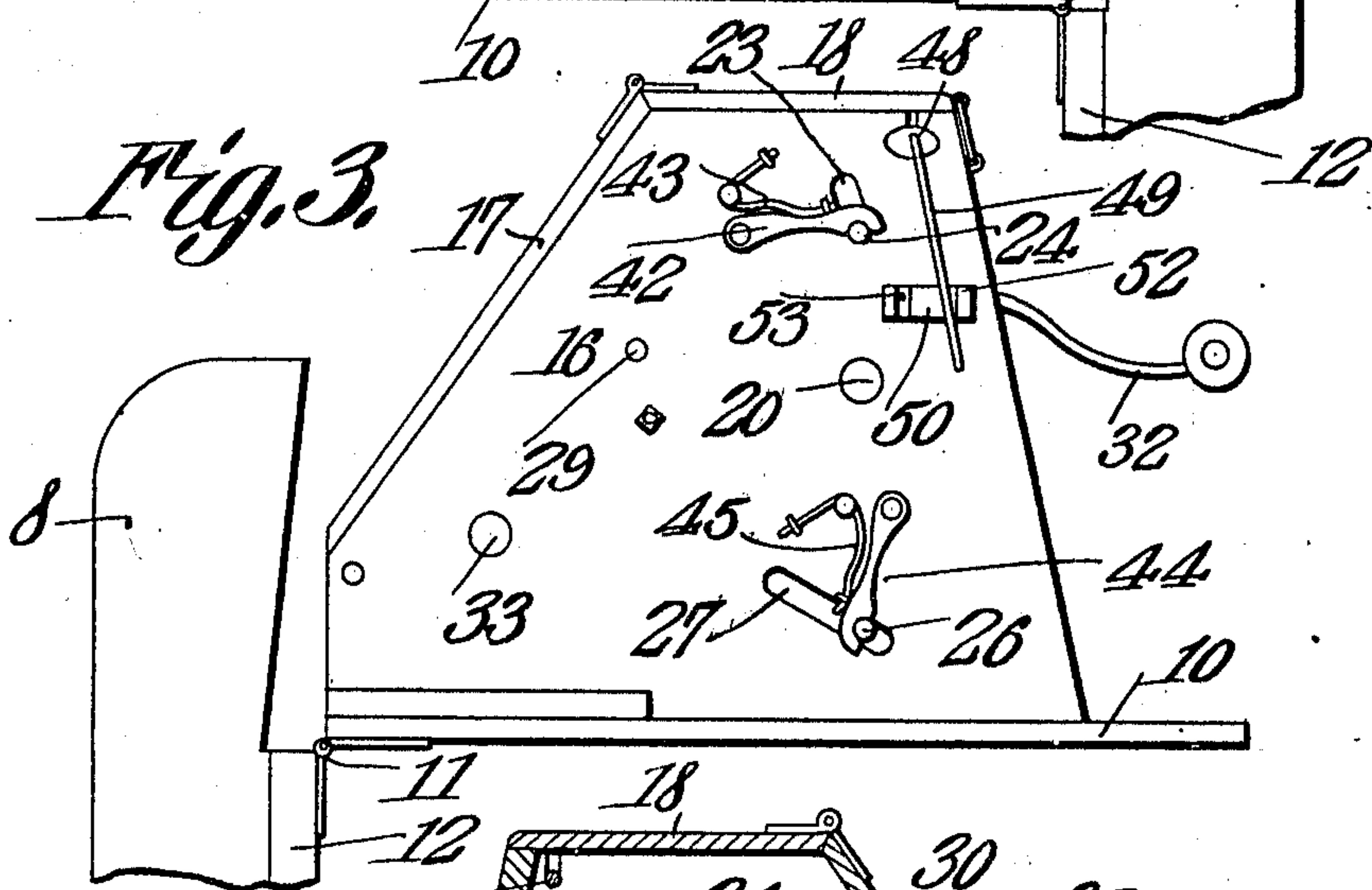
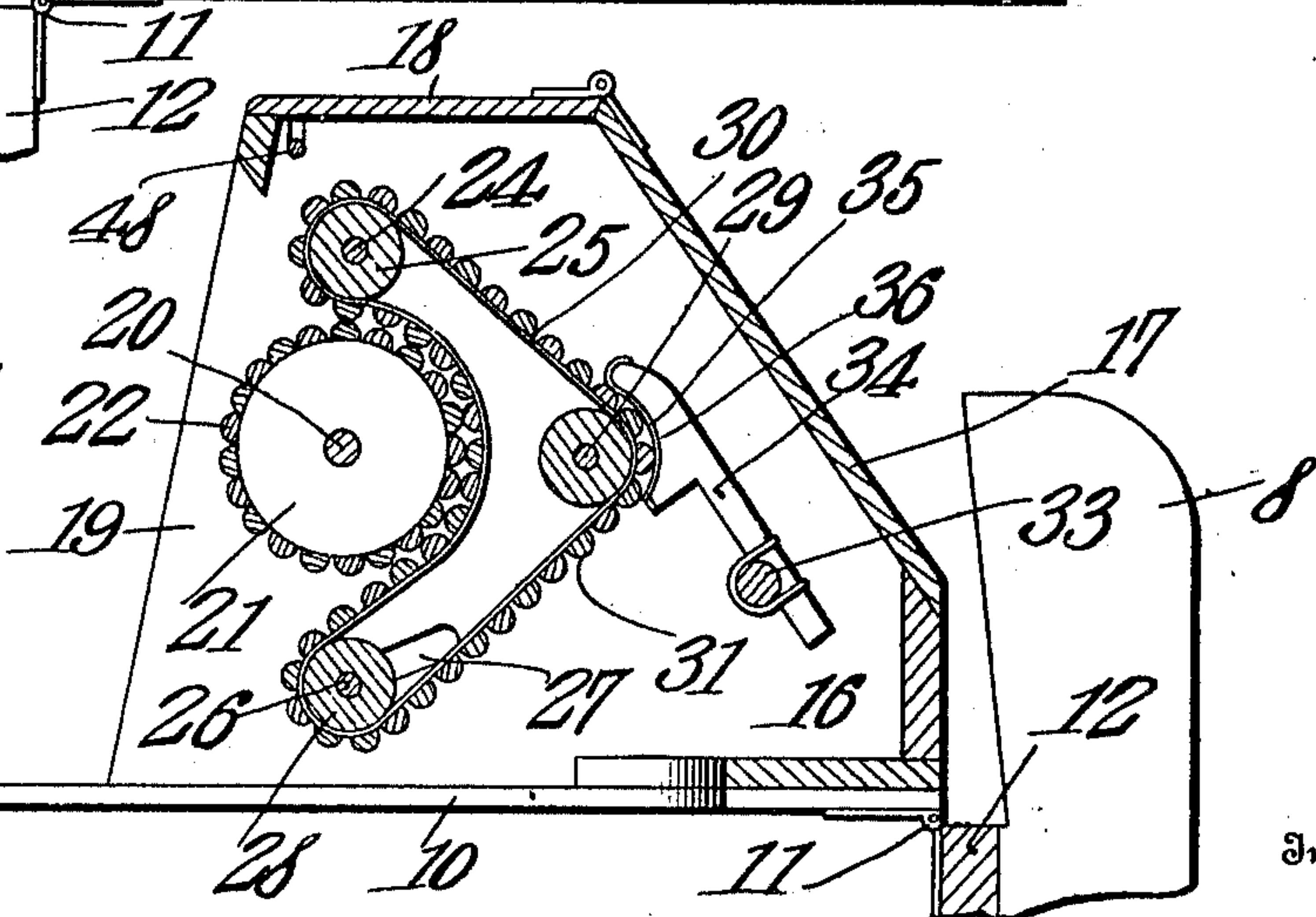


Fig. 4.



Inventor

James H. Hollingsworth.

By

Ca Snow & Co.

Attorneys

Witnesses

E. H. Smith
L. J. Smith

UNITED STATES PATENT OFFICE.

JAMES HOLLIS HOLLINGSWORTH, OF MOUNT PLEASANT, TEXAS.

WASHING-MACHINE.

945,095.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed May 21, 1909. Serial No. 497,386.

To all whom it may concern:

Be it known that I, JAMES H. HOLLINGSWORTH, a citizen of the United States, residing at Mount Pleasant, in the county of Titus and State of Texas, have invented a new and useful Washing-Machine, of which the following is a specification.

It is the object of the present invention to provide an improved construction of clothes washing machine, and the invention relates more specifically to that class of such machines which embody coöperating rubbers, in the present instance, a rotary rubber and an endless rubber arranged for travel about the rotary rubber, and one aim of the invention is to provide for intermittent travel of the endless rubber about the rotary rubber, or in other words for intermittent retardation of the movement of the endless rubber whereby the clothes passing between the two rubbers will be intermittently subjected to a rubbing action of such nature as to thoroughly cleanse them. Ordinarily, in machines of this class, the clothes are merely fed between the two rubbers and are carried therebetween, or in other words, around the rotary rubber, but such constructions obviously are not efficient in the operation inasmuch as the clothes are not subjected to a rubbing action but are merely pressed or wrung.

As stated above, the invention aims to provide for intermittent travel of the endless rubber of the machine and resides in the means provided for accomplishing such movement of the said endless rubber.

The invention further aims to provide means whereby the intermittent motion-imparting means may be rendered inoperative so that, should it merely be desired to have the clothes passed between the rubbers, whereby for example to wring from them the water in the presence of which they have been subjected to the scrubbing operation, the intermittent motion may be stopped.

The invention further aims to provide a novel construction of support for a tub which is to be disposed beneath the washing apparatus and to so arrange and construct this support as to permit of ready placing and removal of the tub or other receptacle without danger of spilling the water therein.

In the accompanying drawings, Figure 1 is a view in side elevation of the washing machine embodying the present invention, showing also the support therefor and illus-

trating in full lines the position of the parts of the machine when ready for use, and in dotted lines the position which they assume when the tub is to be disposed or removed beneath or from beneath the washing machine. Fig. 2 is a view similar to Fig. 1 but with the support omitted and showing the positions assumed by the several parts when the means for imparting intermittent motion to the endless rubber retarding means is rendered inoperative. Fig. 3 is a view similar to Fig. 2 but of the opposite side of the machine, and Fig. 4 is a vertical longitudinal sectional view therethrough and medially thereof.

In the drawings, the support or stand for the washing mechanism and the casing inclosing the same is illustrated as comprised in part of a base 5 supported by forward legs 6 and rear legs 7 which latter project to a considerable degree above the said base 5 whereby to afford standards 8. Similar standards 9 are hinged at the forward end of the base 5 in such manner that they may be swung downwardly to the position shown in dotted lines in Fig. 1 of the drawings or upwardly to extend above the base 5 as shown in full lines in the said figure of the drawings, in which latter position they are in position to support the forward end of a supplemental base which is indicated by the numeral 10 and upon which the casing inclosing the washing mechanism is mounted. The supplemental base 10 above referred to is hinged at its rear end as at 11 to a cross piece 12 which connects the standards 8, and at its forward end this supplemental base is provided with hooks or other suitable devices 13 engageable with eyes 14 upon the forward standards 9 whereby the base 10 and standards 9 will be held securely connected in the position shown in full lines in Fig. 1 of the drawings. As illustrated in dotted lines in the said Fig. 1 of the drawings, the supplemental base 10 together with the casing which incloses the washing mechanism, may be swung back out of the way of a tub disposed upon the main base 5 and to be lifted therefrom or placed thereon, the forward standards 9 being swung down as before described.

The casing inclosing the washing mechanism, above referred to, comprises a side 15, a side 16, an inclined back 17, a hinged top 18, and an open front which is indicated by the numeral 19; and journaled for rota-

tion at its ends in the sides 15 and 16 of the casing, is a shaft 20 upon which are supported hubs 21 which are circular and have secured continuously about their peripheries the ends of rubber slats 22; these slats and the heads 21 of the shaft 20 comprising the rotary rubber heretofore referred to. At a point above the plane of the shaft 20, the sides 15 and 16 of the casing for the washing mechanism are formed with correspondingly inclined slots 23 through which project the ends of a shaft 24 carrying a roller 25, and a similar shaft 26 has its ends received in similarly formed slots 27 located below the plane of the shaft 20 and supports a roller 28. A third roller carrying a shaft 29 is journaled for rotation directly rearwardly of the shaft 20 in substantially the same horizontal plane therewith; and about the rollers of the three shafts 24, 26 and 29 there is trained the endless rubber of the washing mechanism. This endless rubber is comprised of endless strips 30 to which are secured, at their ends, rubber slats 31 similar in form to the slats 22 and coöperating therewith throughout the forward stretch of the endless rubber as is clearly illustrated in Fig. 4 of the drawings showing a longitudinal vertical sectional view of the machine. A crank handle 32 is secured upon the shaft 20 at one end thereof and as shown in the drawings directly outwardly of the side 15 of the casing and it is through the medium of this crank handle 32 that rotary motion is imparted to the shaft and to the rotary rubber mounted thereon, the frictional contact of the slats of this rubber with the slats of the endless rubber serving to impart travel to the latter as will be readily understood; the rollers of the shafts 24, 26 and 29 being idle rollers or in other words being free to rotate and free of gear connection with the shaft 20.

Journaled for oscillatory movement at its ends in the sides 15 and 16 of the casing for the washing mechanism, at a point adjacent the rear end of the said casing is a shaft 33 upon which are fixed arms 34 projecting upwardly forwardly therefrom and having at their upper ends friction shoes 35 which may be in the nature of enlargements of the arms at the said ends faced with leather strips 36, as here shown, or of any other suitable form; and that side of each shoe which opposes the shaft 29 is concaved so as to engage with the rubber slats passing about the roller upon the said shaft 29, this coöperation of the friction shoes with the endless rubber being clearly shown in Fig. 4 of the drawings. At its end which projects through the side 15 of the casing, the shaft 33 has secured thereon an arm 37 which projects upwardly forwardly above the shaft 20 and is received between the said side 15 of the casing and a bracket 38 fixed upon the said side. A

spring 39 is secured at one end to the casing, bowed intermediate of its ends as at 40, and secured at its other end to the arm 37 and exerts a downward pressure upon the said arm whereby to tend normally to rock the shaft 33 in a direction to hold the friction shoes in contact with the endless rubber. As a matter of fact, the pressure exerted by the spring 39 upon the arm 37 is of such degree as to so firmly hold the friction shoes in contact with the endless rubber as to prevent or retard motion of the same due to the rotation of the rotary rubber; although it will be readily understood that should the shoes 35 be moved out of frictional contact with the endless rubber, the same will be permitted to travel, due to the motion imparted thereto through the medium of the rotary rubber 22; and in order that the endless rubber may be released intermittently for rotation as stated, mechanism is provided which will now be described.

Upon the shaft 20, there is fixed or formed a cam 41 which is so proportioned as to engage and sweep along the under edge of the arm 37 once in each cycle of movement of the said crank arm; and further; this cam is arranged, at each engagement with the said arm 37, to rock the arm in an upward direction against the tension of the spring 39 and thereby impart oscillatory movement, in a corresponding direction, to the rock shaft 33 whereby to move the friction shoes 35 out of contact with the endless rubber. Such movement, as heretofore stated, will permit of travel of the endless rubber and consequently it will be understood that movement is imparted to the endless rubber for a certain period throughout each cycle of movement of the rotary rubber. In other words, while the rotary rubber is being constantly rotated, the endless rubber travels only intermittently, and when it is at rest, there will be a rubbing action exerted against its slats or against a piece of clothing between its slats and the slats of the rotary rubber, travel of the endless rubber serving to feed the piece of clothing for a certain distance between it and the rotary rubber. In other words, a piece of clothing inserted beneath the roller 25 and between the same and the rotary rubber 22, will be fed for a portion of its length between the forward stretch of the endless rubber and the rear side of the rotary rubber; and after it has been fed to a predetermined degree, the shoes 35 will be brought into frictional engagement with the endless rubber whereby its motion will be either retarded to a considerable degree or it will be held stationary, and at such time and during such period, the portion of the clothing so fed between the two rubbers will be subjected to rubbing action on the part of the rotary rubber. Upon release of the shoes 35 from contact with the endless rubber, as be-

fore described, the piece of clothing will be further fed between the two rubbers and this last mentioned portion or length thereof will be subjected to rubbing action on the part of the rotary rubber in the manner above stated, such operation being continued until the entire or all portions of the piece of clothing have been so subjected, the piece of clothing being then discharged from between the two rubbers at a point above the roller 28 as will be readily understood.

As heretofore stated the ends of the shafts 24 and 26 are journaled respectively in the slots 23 and 27 and are designed to have movement in these slots, but are held normally at the lower ends of the slots through the medium, in the instance of the shaft 24, of arms 42 which are pivoted upon the sides of the casing for the washing mechanism and against which bear springs 43 the tension of which springs serves normally to hold the arms firmly against the ends of the shaft 24 and thereby hold the said shaft in position with its ends at the lower ends of the slots 23, it being understood however that upon the insertion of a piece of clothing between the rotary rubber 22 and the slats of the endless rubber which are passing around the roller 25, the shaft 24 will yield upwardly against the tension of the spring 43 to a degree depending upon the thickness of the piece of clothing, and that nevertheless there will be a firm pressure exerted by the said roller 25 against the clothing whereby it will be positively engaged by both the endless and rotary rubbers. In the case of the shaft 26, there are provided arms 44 which are pivoted upon the sides of the casing for the washing mechanism, and bear at their lower ends against the ends of the shaft 26 and against these arms bear springs 45 which tend normally to hold the ends of the shaft 26 in the lower ends of the slots 27, these slots being inclined downwardly forwardly as clearly shown in Fig. 2 of the drawings.

It will be understood that should the piece of clothing passing between the rotary and endless rubbers be considerably bulky, the forward stretch of the said endless rubber will be forced rearwardly owing to the bulk of such piece of clothing, and that the shaft 26 will therefore move upwardly rearwardly in the slots 27 against the tension of the springs 45.

Inasmuch as it may be, at times, desirable to utilize the washing mechanism as a means for wringing the clothes which have been washed, and when so used it is not necessary that the clothing should be subjected to a rubbing action, there is provided means for holding the arm 37 out of position for cooperation with the cam 41 and this means will now be described. Pivoted upon the side 15 of the casing for the washing mechanism is a detent finger 46 which lies sub-

stantially in a vertical plane and to the upper end of which is connected the lower end of one arm 47 formed at the end of a rod 48 which is mounted for rocking movement in the sides 15 and 16 of the casing, the rod being provided at its other end with a depending arm 49 which is engageable in notches formed in a block 50 secured upon the side 16 of the casing. The upper end of the detent finger is notched or shouldered as at 51 for the engagement therewith of the free extremity of the arm 37 as will be presently described. One of the notches in the block 50 is indicated by the numeral 52 and the other by the numeral 53 and when the arm 49 is engaged in the notch 52, the arm 47 will be in such position as to hold the detent finger 46 with its upper end out of position for engagement by the free extremity of the arm 37; but, on the other hand, when the arm 49 is engaged in the notch 53 in the block 50 the arm 47 will be in position to hold the detent finger 46 with its end in the path of movement of the said extremity of the arm 37 so that the arm will engage at its extremity with the seat or shoulder 51 at the upper end of the detent finger, and will be held raised out of position for engagement by the cam 41 upon the shaft 20. When in this latter position, the friction shoes 35 will be held out of position for engagement with the endless rubber of the washing mechanism as will be readily understood; and as a consequence, the endless rubber will be free to travel continuously due to the rotation of the rotary rubber 22, a piece of clothing inserted between these rubbers being merely fed therebetween and freed of surplus water by being pressed or squeezed between the two rubbers.

What is claimed is:—

1. In a washing machine, a rotary rubber, an endless rubber arranged for travel about the rotary rubber, means for imparting motion to the rotary rubber, and means actuated by said motion imparting means for holding said endless rubber against travel intermittently.

2. In a washing machine, a rotary rubber, an endless rubber arranged for travel about the rotary rubber, means for imparting motion to the rotary rubber, oscillatory means tending normally to hold said endless rubber against travel, and means actuated intermittently by the motion imparting means for oscillating said last mentioned means whereby to permit of intermittent travel of said endless rubber.

3. In a washing machine, a rotary rubber, an endless rubber arranged for travel about the rotary rubber, and means for automatically intermittently retarding the travel of the said endless rubber.

4. In a washing machine, a rotary rubber, an endless rubber arranged for travel about the rotary rubber, means for imparting mo-

tion to the rotary rubber, a rock shaft, means carried by the rock shaft and cooperating with the endless rubber whereby to retard the movement of the same, and means carried by the shaft and actuated through the medium of the motion imparting means to intermittently rock the shaft and permit of intermittent travel of the endless rubber.

5. In a washing machine, a rotary rubber, an endless rubber, said endless rubber being arranged for travel about the rotary rubber, means for imparting motion to the rotary rubber, a rock shaft, and retarding shoes carried by the said rock shaft and cooperating with the endless rubber whereby to retard the movement of the same, said motion imparting means being arranged to intermittently rock said shaft whereby to move said shoes intermittently out of position to cooperate with said endless rubber.

6. In a washing machine, a rotary rubber, an endless rubber arranged for travel about the rotary rubber, means for imparting movement to the rotary rubber, said motion imparting means embodying a cam, a rock shaft, means carried by the rock shaft and cooperating with the endless rubber whereby to retard the movement of the same, and an arm carried by the rock shaft and intermittently engaged by said cam whereby said retarding means will be intermittently moved out of position to cooperate with said endless rubber.

7. In a washing machine, a rotary rubber, an endless rubber arranged for travel about the rotary rubber, means for imparting motion to the rotary rubber, means actuated by said motion imparting means for holding said endless rubber against travel, intermittently, and means whereby said last mentioned means may be rendered inoperative.

8. In a washing machine, a rotary rubber, an endless rubber arranged for travel about the rotary rubber, means for imparting motion to the rotary rubber, an automatically acting retarding means for said endless rubber, and means whereby the said retarding means may be rendered inoperative.

9. In a washing machine, a rotary rubber, an endless rubber arranged for travel about the rotary rubber, means for imparting motion to the rotary rubber, automatic means for intermittently retarding the movement of the endless rubber, and means whereby said rubber retarding means may be rendered inoperative.

10. In a washing machine, a rotary rubber, an endless rubber arranged for travel about the rotary rubber, means for imparting motion to the rotary rubber, a rock shaft, means carried by the rock shaft and cooperating with the endless rubber whereby to intermittently retard the same in its movement,

an arm carried by the rock shaft and intermittently actuated through the medium of the motion imparting means, and means for cooperation with the said arm whereby to hold the same inoperative.

11. In a washing machine, a rotary rubber, an endless rubber arranged for travel about the rotary rubber, means for imparting motion to the rotary rubber, a rock shaft, friction shoes carried by the rock shaft and cooperating with the endless rubber whereby to retard the movement of the same, an arm carried by the rock shaft and cooperating with the motion imparting means whereby to impart intermittent oscillatory movement to the rock shaft, and means cooperating with the arm to hold the same out of position for cooperation with the motion imparting means.

12. In a washing machine, a rotary rubber, an endless rubber arranged for travel about the rotary rubber, means for imparting motion to the rotary rubber, a rock shaft, means carried by the rock shaft and cooperating with the endless rubber whereby to retard the movement of the same, an arm carried by the rock shaft and arranged for cooperation with the motion imparting means whereby intermittent oscillatory movement will be imparted to the said rock shaft, resilient means holding said arm in position for cooperation with the said motion imparting means; and means arranged for movement to position to hold the arm out of position for such cooperation against the tension of said resilient means.

13. In a washing machine, a rotary rubber, an endless rubber, arranged for travel about the rotary rubber, means for imparting motion to the rotary rubber, a rock shaft, means carried by the rock shaft and cooperating with the endless rubber whereby to retard the movement of the same, an arm carried by the rock shaft and arranged for cooperation with the motion imparting means whereby intermittent movement will be imparted to the rock shaft, a resilient means for holding said arm in position for such cooperation with the motion imparting means, a pivoted detent, means associated with the said detent and arranged to hold the same in or out of position to cooperate with said arm, said detent when in position for cooperation with said arm being arranged to hold the arm out of position for cooperation with the motion imparting means.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES HOLLIS HOLLINGSWORTH.

Witnesses:

FRANK SIMS,
CLAUDE SMITH.