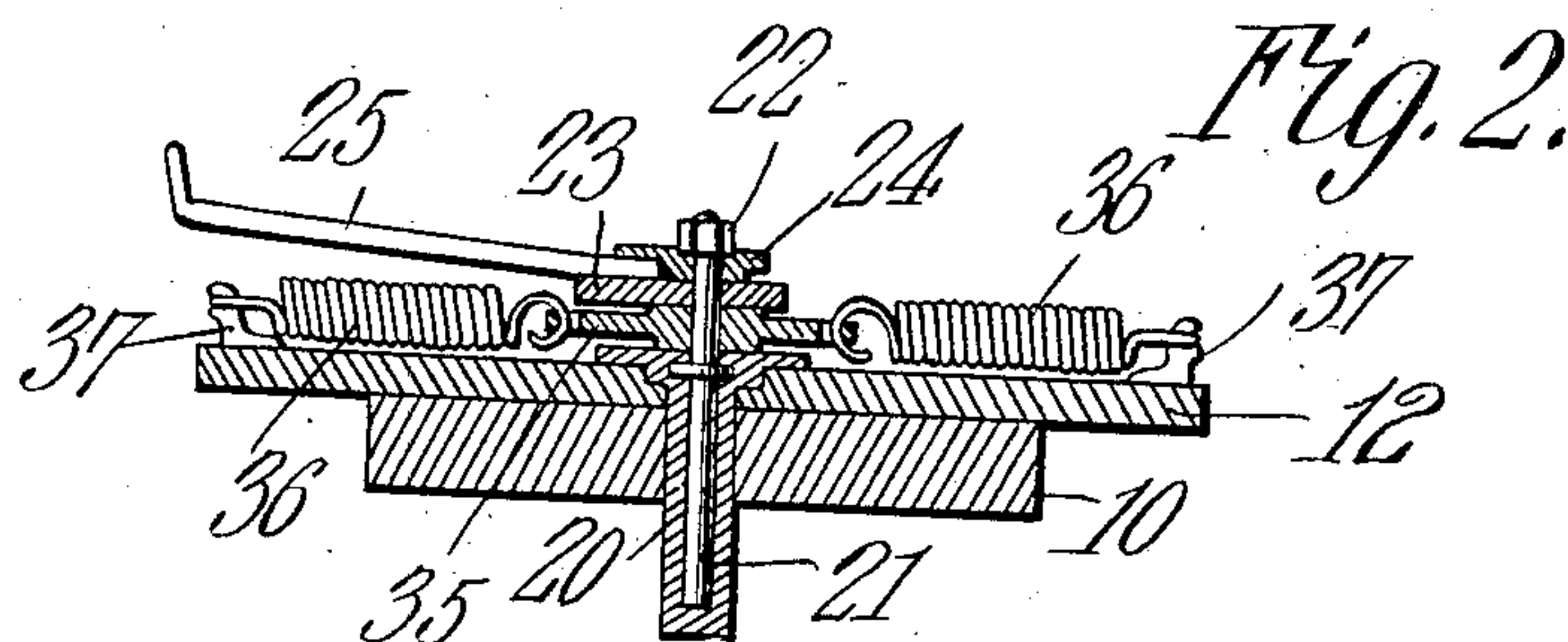
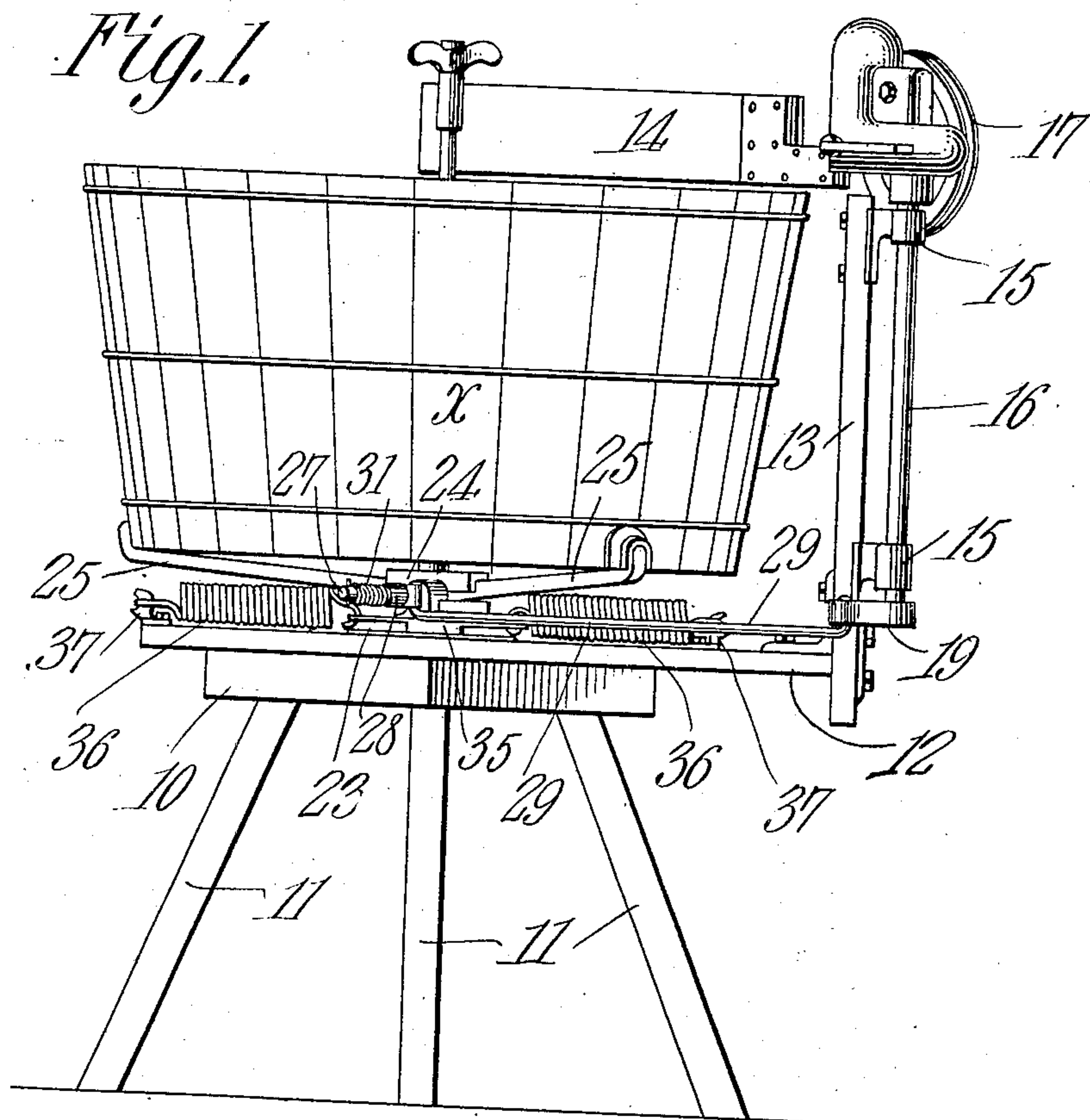


No. 891,788.

PATENTED JUNE 23, 1908.

T. J. WINANS.  
WASHING MACHINE.  
APPLICATION FILED JULY 2, 1907.

2 SHEETS—SHEET 1.



WITNESSES:

*E. J. Stewart*  
*Wm. C. Parker*

*Thomas J. Winans,*  
INVENTOR.

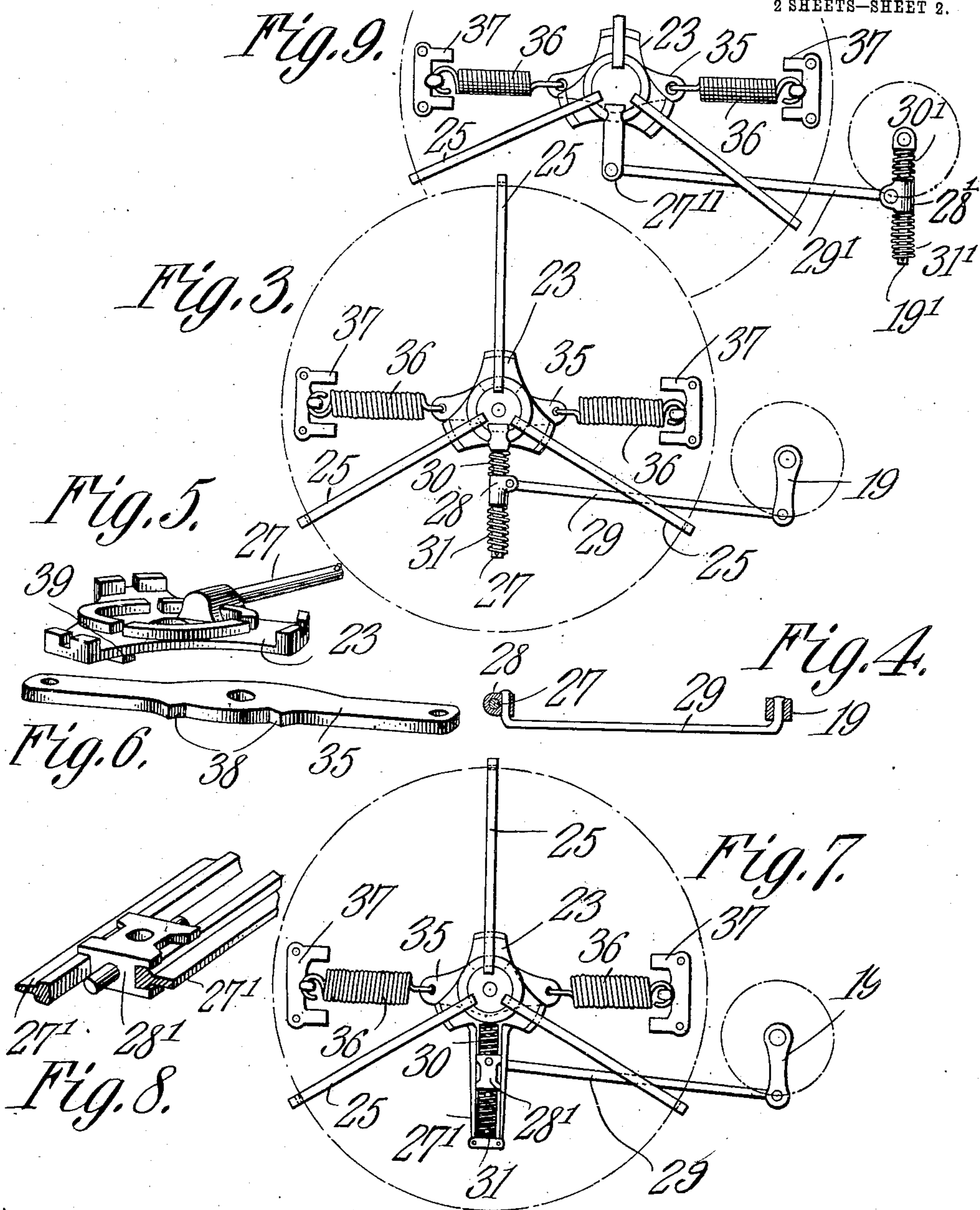
By *C. A. Snow & Co.*  
ATTORNEYS

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Thomas J. Winans,

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# UNITED STATES PATENT OFFICE.

THOMAS JEFFERSON WINANS, OF BINGHAMTON, NEW YORK, ASSIGNOR TO THE "1900"  
WASHER COMPANY, OF BINGHAMTON, NEW YORK.

## WASHING-MACHINE.

No. 891,788.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed July 2, 1907. Serial No. 381,843.

*To all whom it may concern:*

Be it known that I, THOMAS J. WINANS, a citizen of the United States, residing at Binghamton, in the county of Broome and State of New York, have invented a new and useful Washing-Machine, of which the following is a specification.

This invention relates to washing machines of that class in which a continuously revoluble shaft is employed for driving purposes, and is so connected to the tub or movable member of the washer as to impart oscillatory movement thereto.

In washing machines of this class it is found necessary to employ some yieldable or cushioning means in the connections in order to compensate for the indeterminate arc of oscillation of the tub. The tub when filled with water and clothes to be washed is quite heavy and as the movement is comparatively rapid it is impracticable to employ fixed stops for limiting the arc of oscillation. It has been found by experiment that better results are obtained by allowing the tub to control its own range of movement within certain limits, and the extent of this movement depends on the weight of the tub and its contents and the velocity.

In carrying out the present invention, the principal object is to provide a yieldable connection in the power transmitting means, the connection being of such nature as not to interfere with the continuous uniform rotative movement of the shaft and to render the load on the motor element uniform through all periods of its movement.

A further object of the invention is to provide a yieldable connection of such nature that it may in itself act to a limited extent in the checking of the oscillatory movement of the tub as the latter approaches the limit of its movement and assist in the starting of the return movement of the tub.

A still further object of the invention is to provide a device of this character in which an oscillatory element is provided with an arm extending radially therefrom, and which supports a slidable block to which a crank actuated pitman is connected, the block being mounted between opposing springs which will yield to permit movement of the block in the length of the arm to a degree corresponding to variation in the arc of oscillation.

With these and other objects in view, as

will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:— Figure 1 is an elevation of a washing machine provided with a power transmitting mechanism constructed in accordance with the invention. Fig. 2 is a transverse sectional elevation of a portion of the mechanism. Fig. 3 is a plan view of the mechanism with the tub and frame detached. Fig. 4 is a side elevation of the pitman showing the crank and slidable block in section. Fig. 5 is a perspective view of one of the spider carrying plates, detached. Fig. 6 is a similar view of the spring held easing or checking lever. Fig. 7 is a view corresponding to Fig. 3 illustrating a modification of the invention. Fig. 8 is a sectional perspective view on the arm shown in Fig. 7. Fig. 9 is a plan view illustrating a further modification of the invention.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The fixed frame of the machine comprises a platform 10 supported by legs 11 of any suitable construction and extending across the platform is a horizontal bar 12 to one end of which is secured a vertical bar 13, the latter serving in connection with another frame member for the support of an upper horizontal bar 14. The construction and arrangement of the frame may be modified in a variety of ways, that shown in the present instance being one of the most simple forms employed for the support of the tub, the wringer, and the operating mechanism.

Secured to one side of the frame are brackets 15 for the support of a vertical shaft 16 that is driven from a suitable motor mechanism of any character, the motor being preferably connected through a belt wheel 17 and suitable gearing to the shaft 16. At the lower end of the shaft 16 is secured a crank 19 from which oscillatory movement is imparted to the tub or clothes container.

Supported by the central portion of the



frame is a bearing 20 in which is stepped a shaft 21, the upper end of said shaft being threaded for the reception of a nut 22. Secured to the upper portion of the shaft are  
 5 two clamping plates 23 and 24 approximately triangular in form and provided with radial grooves for the reception of spider arms 25 that extend out to the periphery of the tub X and are suitably connected thereto.

10 Projecting from the lower plate 23 is a crank arm 27 that is disposed in a radial line from the center of the shaft 21, and on this arm is mounted a slidable block 28 that is connected to the crank 19 by a pitman 29 and  
 15 as the crank rotates, the arm 27 will be oscillated and this movement will be transmitted to the tub or oscillatory rubbing member.

As before pointed out, it has been found in  
 20 practice that the tub cannot have a fixed arc of oscillation and cannot be abruptly stopped at the end of one movement and immediately started on the return movement. The arc of movement of the tub varies with its weight,  
 25 and the weight of its contents and the velocity, so that while the stroke of the revoluble crank remains constant, the stroke of the oscillatory crank-arm 27 is variable, and it, therefore, becomes necessary for the block 28  
 30 to assume positions at varying distances from the axis of the shaft 21. To accommodate this the block 28 is free to slide on the arm 27 and the block is normally maintained in the position shown in Fig. 3 by means of two  
 35 springs 30 and 31 that surround the arm and bear against the opposite ends of the slidable block. As the stroke of the arm varies, one or other of the springs will be compressed and the greater the stroke the greater the degree  
 40 of compression. As the spring is compressed the energy thus stored is ready to be utilized when the tub comes to a full stop, and is expended in starting the tub on the return stroke.

45 While the springs 30 and 31 might alone be utilized in connection with relatively small machines it is not found advisable to depend wholly on this where the tub and its contents are of any considerable weight, such for in-  
 50 stance as one hundred and forty or one hundred and fifty pounds, and in machines of this type it is preferred to employ auxiliary checking and return springs.

Mounted loosely on the shaft 21 is an eas-  
 55 ing lever 35 having two diametrically opposed arms which are connected by springs 36 to small brackets 37 carried by the frame. The hub of the lever is provided with a pair of shoulders 38 which are alternately en-  
 60 gaged by a lug 39 projecting downward from the plate 23, and as the tub oscillates this lug engages first with one and then with the other of the shoulders, and partly rotates the lever 35, so that both springs 36 are placed  
 65 under tension and the tension is gradually

increased to such an extent as to overcome the momentum of the tub and bring the same to a stop, after which the energy stored by the springs is utilized in again starting the tub on the return stroke.

In Figs. 7 and 8 is illustrated a slight modification of the construction, wherein the arm 27' is in the form of a pair of parallel mem-  
 70 bers that are arranged for the reception of the grooved sides of a block 28'. The block is held in normal position by the springs 30—31 as before described, and the operation is in all respects the same as that of the construction shown in Fig. 3.

In the mechanism described, it will be ob-  
 80 served that during the greater portion of the operating stroke the transmission of power will be direct from the rod and block 28 to the arm 27 the springs being practically idle during the time the arm 27 and the rod 29  
 85 are at a right angle to each other. As this angle varies in either direction the springs come into play and become most effective as the arm and rod approach a common line.

While the member 19 has been shown and  
 90 described as a simple crank, this being the most practical form, it is obvious that other mechanical equivalents may be substituted therefor in the transmission of motion to the pitman 29, and the term crank is used in the  
 95 claims to include any means carried by or operated from the shaft for operating such pitman.

In Fig. 9 is illustrated a slight modification, wherein the crank arm 27'' that projects from  
 100 the spider is connected direct to the pitman 29', while the revoluble crank arm 19' is provided with a slidable block 28'' that is held in approximately central position by means  
 105 of two springs 30' and 31', the crank arms of the constructions previously described being reversed, but the operation remaining the same as that described, with the exception that the yielding occurs at the revoluble  
 110 crank arm rather than at the spider carried crank arm.

I claim:—

1. In a motor driven washing machine, an oscillatory member, an arm extending radially therefrom, a block slidably mounted  
 115 on said arm, a driving shaft, a crank on the shaft, a pitman connecting the crank to the slidable block, and springs tending to hold said block in an approximately central position on the arm.

2. In a motor driven washing machine, an oscillatory member having an indeterminate arc of oscillation, an arm projecting there-  
 120 from, a revoluble shaft, a crank on the shaft, and a pitman extending from the crank and having a slidable connection with said arm.

3. In a washing machine, an oscillatory member having an indeterminate arc of oscillation, an arm projecting therefrom, a block slidably mounted on the arm, a power  
 130



shaft, a crank thereon, a pitman connecting the crank to the block, and means for offering gradually increased resistance to the movement of the oscillatory member as it  
5 nears the limit of its swing in each direction and for starting said member on its return stroke after the movement in each direction is complete.

4. In a washing machine, a pitman, an oscillatory crank arm having an indeterminate arc of oscillation connected thereto, and a revoluble crank arm connected to said pitman, one of said crank arms having a throw that varies in accordance with the variation  
10 in the arc of oscillation.

5. In a washing machine, an oscillatory member having an indeterminate arc of oscillation, an arm projecting from said member, and an operating pitman for actuating  
20 said arm, the radial distance of the point of connection of the pitman with the arm from the center of movement of the oscillatory member varying as varies the arc of oscillation.

6. In a washing machine, a member mounted for oscillatory movement, an arm projecting radially therefrom, a slidable block on said arm, springs acting against both sides of the block and tending to maintain the  
30 same in an approximately central position, and an operating pitman connected to said block.

7. In a washing machine, a member mounted for oscillatory movement, an operating arm projecting therefrom, a block slidable on  
35 the arm, a pair of springs acting against the opposite sides of the block, a power shaft, a crank therefor, and a pitman connecting the block to the crank.

8. In a washing machine, a frame, a shaft  
40 mounted therein, a pair of clamping plates carried by the shaft, supporting spiders projecting from the plates, an arm projecting from one of the plates, a block slidable on the arm, springs mounted on said arm and bearing  
45 against the opposite sides of the block, a power shaft, a crank therefor, a pitman connecting the crank to the block, an easing lever mounted loosely on the shaft, a pair of springs extending from the opposite ends of  
50 the lever to fixed points on the frame, said lever having a pair of oppositely disposed shoulders, and there being a lug projecting from one of the clamping plates and arranged to alternately engage such shoulders.  
55

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

THOMAS JEFFERSON WINANS.

Witnesses:

R. F. BIEBER,  
W. G. TROWBRIDGE.