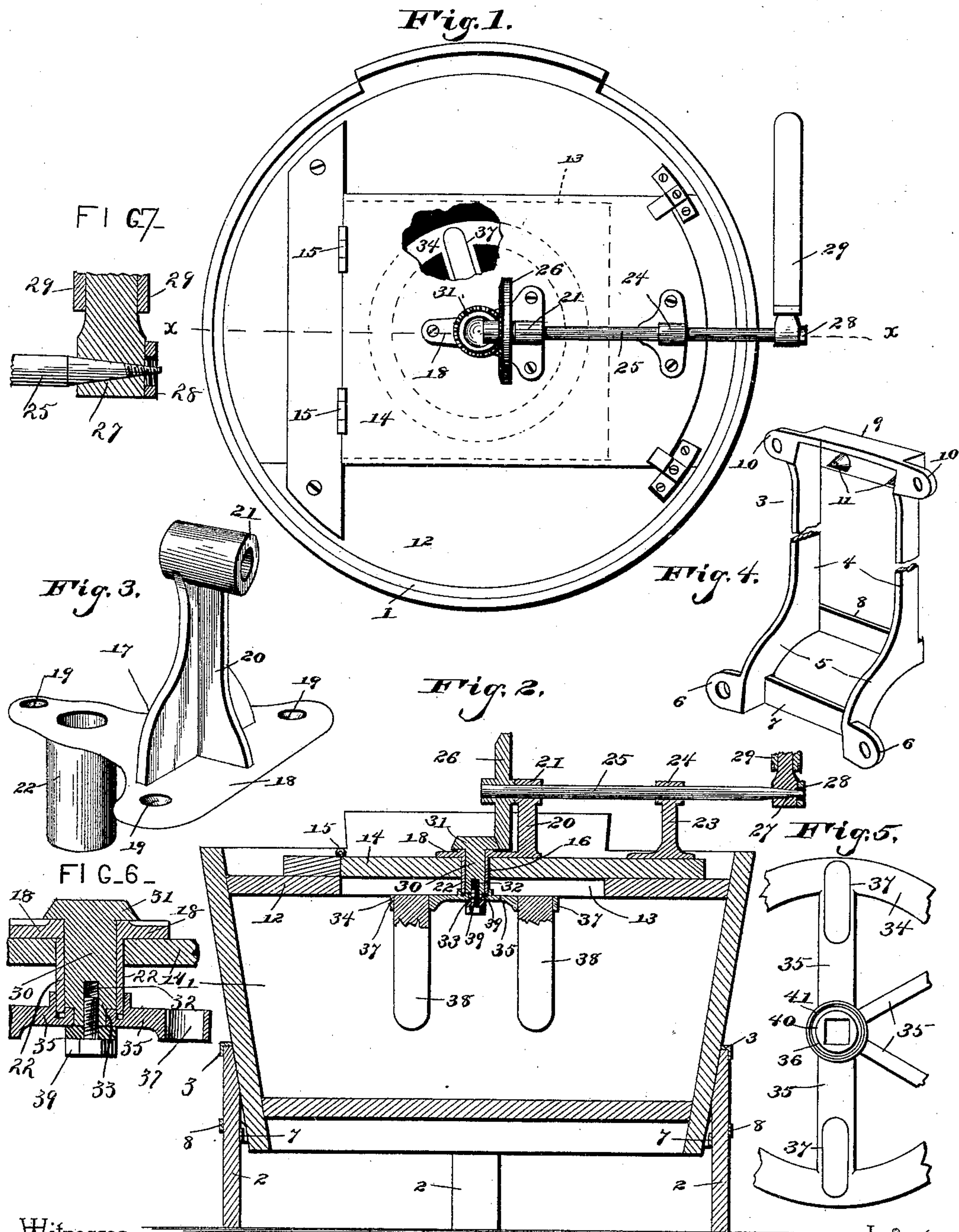


(No Model.)

E. E. UNANGST.  
WASHING MACHINE.

No. 446,800.

Patented Feb. 17, 1891.



Witnesses

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# UNITED STATES PATENT OFFICE.

EDWARD E. UNANGST, OF NAZARETH, PENNSYLVANIA.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 446,800, dated February 17, 1891.

Application filed October 17, 1890. Serial No. 368,394. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD E. UNANGST, a citizen of the United States, residing at Nazareth, in the county of Northampton and State of Pennsylvania, have invented a new and useful Washing-Machine, of which the following is a specification.

This invention has relation to washing-machines known as "vibrating;" and the objects of the invention are to reduce the number of parts and simplify the construction thereof, to increase the durability, and to facilitate the general assemblage of the elements going to make up the completed machine.

Various other objects and advantages of the invention will hereinafter appear; and the invention consists in certain novel features and combination of parts, hereinafter described, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a plan of a washing-machine constructed in accordance with my invention. Fig. 2 is a vertical longitudinal section on the line *xx* of Fig. 1. Fig. 3 is a detail in perspective of the gear-supporting standard. Fig. 4 is a similar view of the leg-connecting frame or bracket-fastening. Fig. 5 is a detail in plan of a portion of the rubbing-head. Fig. 6 is an enlarged detail in transverse section of the connection between the rubber and the operating mechanism. Fig. 7 is a similar view of the operating-crank and its shaft.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates the usual suds-box, in this instance cylindrical in shape and supported above the ground or floor by the legs 2, located at suitable intervals.

3 designates the leg-supporting frame, cast of malleable iron and comprising opposite vertical side bars 4, the lower ends of which are inwardly curved, as at 5, and terminate in laterally-disposed perforated securing-lugs 6. The bars 4 are connected at their lower ends by the transverse keeper-bar 7, at the upper ends of the curved portions by the transverse keeper-bar 8, which, as will be seen, is out of vertical alignment with the lower bar 7, and at their upper ends are connected

by a transverse socket 9, at each end of which are located transverse perforated securing lugs or ears 10, similar to the lugs or ears 6, and within the socket is located a pair of inwardly-disposed spurs 11. As thus described, the frame is formed integral or of a single casting, and by means of screws passed through the perforated lugs or ears 6 and 10 said castings are secured to the sides of the suds-box or tub. Previous to such securing the lugs 2 are inserted between the keepers 7 and 8, so that their upper ends rest in the sockets 9, and by a few taps of the hammer or other tool the spurs 11 are driven into the legs near their upper ends, so that after the castings are secured in position the legs are retained therein. By reason of the curving of the lower ends of the bars 4 and a beveling of the upper ends of the legs upon their inner faces said legs are vertically maintained, although, as shown, the sides of the suds-box or tub are inclined.

The suds-box is provided with the usual cover 12, having a central opening 13, to one edge of which is hinged, as at 15, the lid 14, the opposite end of the lid overlapping the cover and provided opposite the center of the opening 13 with a perforation or opening 16.

17 designates the gear-supporting casting, (best shown in Fig. 3,) and the same consists of a triangular base-plate 18, provided at its angles with screw-receiving openings 19, and at its widest portion with a vertical standard 20, terminating at its upper end in a transverse bearing-boss 21. At its opposite end the casting is provided with a depending hollow stud 22, which, when the casting is secured in position upon the lid by means of screws or bolts passed through the openings 19 of its base and the lid, depends through below and snugly fits the opening 16 of the lid. In rear of the casting 17, and in transverse alignment with the bearing 21 of its vertical standard, there is secured to the lid a standard 23, which at its upper end is provided with a bearing-boss 24, in alignment with the bearing-boss 21, just mentioned. A shaft 25 is journaled in the two bearings 21 and 24 and has its ends extending beyond the same, and at its inner end has mounted



rigidly thereon a beveled gear 26. The opposite or outer end of the shaft is beveled or cut away at diametrically-opposite sides, as at 27, and its extremity is threaded to receive  
5 a nut 28.

29 designates the operating-handle, and the same is provided at its inner end with a V-shaped rectangular opening adapted to fit the beveled end of the shaft 25 and be held in  
10 position thereupon by the nut 28. The handle is adapted for oscillation or vibration, and for a purpose hereinafter apparent the shaft 25 may be given a half-rotation to apply the handle in two opposite positions thereupon.

30 designates a stub-shaft mounted for rotation in the depending hollow stud 22. The upper end of the shaft is provided with an integrally-formed small beveled pinion 31, engaged and driven by the gear 26, and at its  
20 lower end is provided with a threaded opening 32. The lower end of the shaft 30 is provided with a reduced bearing tenon or stud 33.

The rubbing-head consists of a metal ring 34, from the center of which radiates a series  
25 of arms or spokes 35, which are connected at their inner ends by a circular-bored hub 36. The head is formed of cast metal and open, as shown, to secure lightness. At diametrically-opposite sides of the head the arms are  
30 provided with elongated openings 37, in which are secured the upper ends of depending rubbers 38. As before stated, the hub is centrally bored, and through the same, from the underside into the shaft 30, is passed the screw  
35 39. The reduced end of the shaft 30 passes through and slightly beyond the central perforation of the hub, and said hub is provided with a vertical flange 40, upon which rests and rides the lower end of the shaft. The  
40 hub is also provided with an annular flange 41, which embraces loosely the lower end of the depending hollow stud 22.

The operation of the machine will at once be apparent from the above description, and  
45 it simply requires that the handle 29 should be vibrated back and forth, so as to partially rotate the gear 26 and wholly rotate the small pinion 31, which is somewhat less than half the diameter of the gear 26. This causes a  
50 vibration of the rubbing-head, and the clothing within the tub or suds-box is thoroughly agitated and the dirt loosened and eradicated therefrom.

It will be observed that if the pinion 31 were  
55 not of the relative size stated with regard to the gear 26 one side of the shaft 30 and the hollow stud 22 would receive all or the major portion of the wear and soon become loose and worthless. By such relative proportion,  
60 however, the pinion wears evenly, both as regards its shaft, its teeth, and its bearing. By removing the handle 29 and giving the shaft 25 a half-rotation and reapplying said handle it will be observed that the opposite half  
65 of the series of teeth of the gear 26 are brought into engagement and operation with the pin-

ion, so that the teeth of the gear are evenly worn and the durability of the gear increased. It will be observed that the casting 17 and the casting 3, and also the rubbing-head casting, may all be conveniently and cheaply cast  
70 and the parts readily assembled without the necessity of any great amount of labor or the employment of a useless number of bolts, screws, &c., apt to become loosened by the  
75 workings of the machine. If desired, only two spokes or radiating arms 35 may connect the rim or ring of the rubbing-head with the hub thereof, such being employed for the purpose of forming a support for the depending rub-  
80 bers, though I prefer to employ a series of such arms.

In numerous cases where solid rubbing-heads are employed—by which I mean simply one or more radiating bars for supporting  
85 the rubbing-pegs or rubbers and unconnected at their outer ends—it has been found that the articles of clothing undergoing the operation of washing ride over the upper sides of the bars and get twisted and caught between  
90 the same and the lid, whereby they are torn and rendered useless. By the employment of the rim, however, I obviate such disadvantage and the ends of the arms cannot engage with the clothes. Such advantage is further  
95 increased by increasing the number of arms, as shown, which further prevents the possibility of the clothing rising or working up inside of the ring, although, as before stated, the ring has been found to answer the pur-  
100 pose.

Having described my invention, what I claim is—

1. In a washing-machine, the combination, with the side wall thereof, of the herein-described leg-casting, consisting of the opposite  
105 vertical side bars 4, the lower ends of which are inwardly curved, as at 5, the keeper-bars 7 and 8, arranged out of alignment and connecting the side bars at and above their lower  
110 ends, the socket 9, located at the upper end of the casting and having the upper and outer closed sides, the latter upon its inner surface having the spurs 11, the opposite pairs of perforated lugs 6 and 10, secured to the wall  
115 of the tub, and the legs inserted between the keepers and side bars and having their upper ends terminating in the socket and engaged by the spurs thereof, substantially as specified.

2. In a washing-machine, the combination, with the lid thereof having an opening, of a gear-supporting casting mounted therein and provided with a depending hollow stud, a master-gear, and means for operating the  
125 same supported above the base, a short shaft having a small pinion at its upper end engaged by said gear mounted in the stud and terminating immediately below the stud, at which point it is reduced to form a bored in-  
130 teriorly and exteriorly threaded tenon, a rubbing-head comprising radiating arms, a cen-

tral opening for the reception of the tenon,  
provided with an annular bearing-flange for  
the support of the shaft and outside of the  
same with an annular flange encircling the  
5 lower end of the stud of the casting, and a  
screw inserted through the tenon and having  
its head taking under the rubbing-head, sub-  
stantially as specified.

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

EDWARD E. UNANGST.

Witnesses:

J. H. SIGGERS,  
E. G. SIGGERS.