

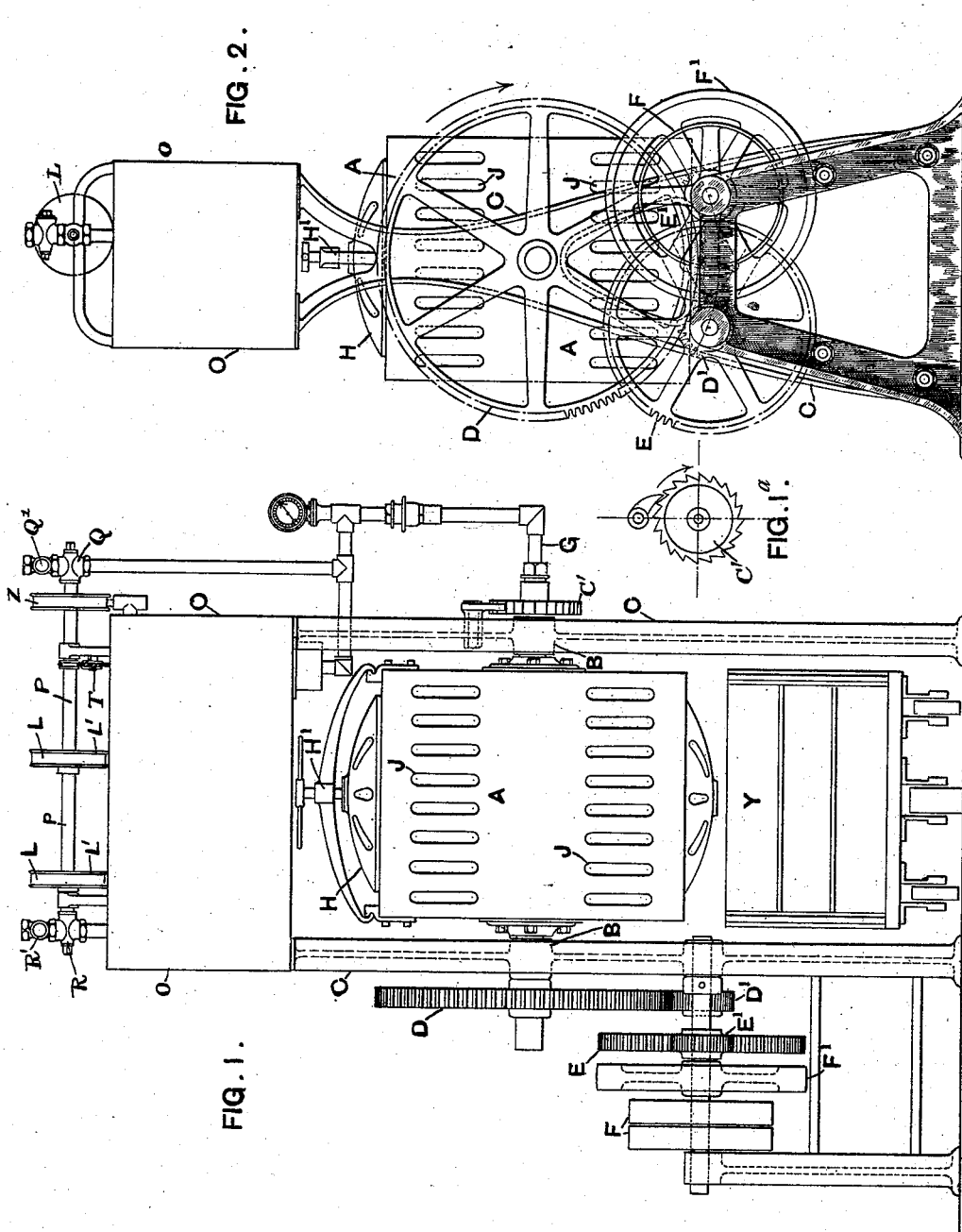
(No Model.)

3 Sheets—Sheet 1.

J. HESELWOOD.
WASHING MACHINE.

No. 524,205.

Patented Aug. 7, 1894.



WITNESSES.
P. L. Clark,
Gales P. Moore,

INVENTOR
James Heselwood
By Geo. D. Whitney
att.

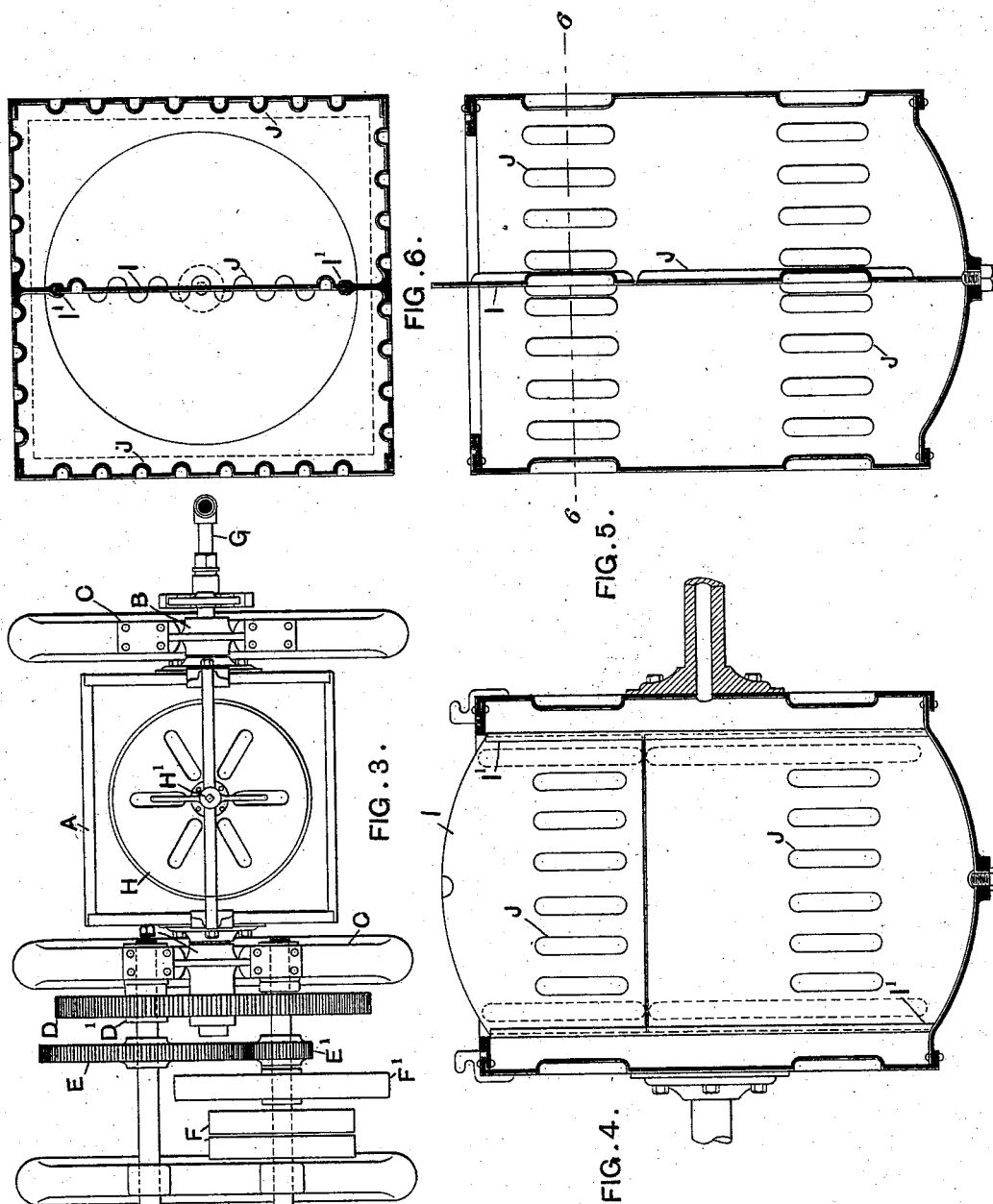
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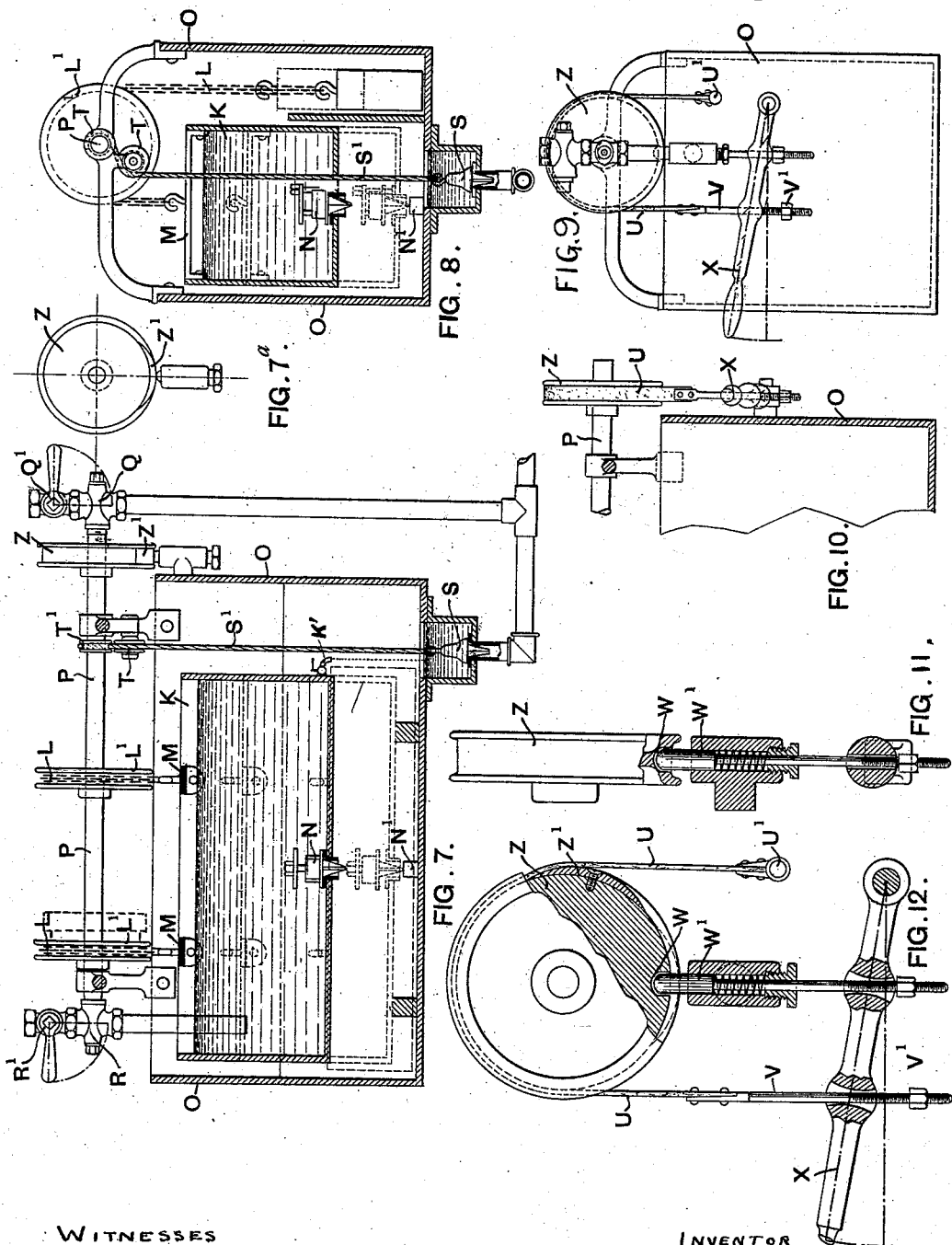
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J. HESELWOOD.
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WITNESSES

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UNITED STATES PATENT OFFICE.

JAMES HESELWOOD, OF LEEDS, ENGLAND.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 524,205, dated August 7, 1894.

Application filed July 10, 1893. Serial No. 480,081. (No model.) Patented in England July 7, 1892, No. 12,537.

To all whom it may concern:

Be it known that I, JAMES HESELWOOD, a subject of the Queen of Great Britain and Ireland, residing at Leeds, in the county of York, England, have invented certain new and useful Improvements in Steam Washing-Machines, (patented in England July 7, 1892, No. 12,537,) of which the following is a specification.

This invention relates to steam washing machines of the type described in the specification of British Letters Patent granted to me, No. 13,819, dated the 28th day of October, 1886, and these improvements consist in a new construction and arrangement of the washing cylinder or steaming box, a modified construction and arrangement of the measuring cistern and steam and water services, and certain improvements in details.

I will describe my present invention with reference to the accompanying drawings in each of the figures of which the similar parts appearing are denoted by similar letters.

Figure 1 represents a front view, Fig. 2 an end view, and Fig. 3 a plan of a machine constructed to embody these improvements. Fig. 1^a is a face view of the pawl and ratchet wheel on the right hand trunnion of the steaming box in Fig. 1. Fig. 4, is a longitudinal section of the steaming box on a plane passing through the axis of the trunnions. Fig. 5, is a longitudinal section of the steaming box on a plane at right angles to the axis of the trunnions. Fig. 6, is a cross section of the steaming box, on the line 6—6, Fig. 5. Fig. 7, is a vertical longitudinal section of the containing cistern and the measuring cistern, with the steam and water regulating devices, on a larger scale than Fig. 1. Fig. 7^a, is a face view of the brake disk and spring stop. Fig. 8, is a vertical transverse section of the containing cistern and the measuring cistern with the steam and water regulating devices, on the same scale as Fig. 7. Fig. 9, is an end view of the same, showing the brake mechanism. Fig. 10, is a front view of said brake mechanism. Fig. 11, is an edge view of the brake disk and the spring stop of said brake mechanism, on an enlarged scale and partly in section. Fig. 12, is a side view of the same partly in section.

The washing cylinder A is mounted on suitable bearings B, arranged on the framing C. On one of the trunnions there is fixed a spur wheel D driven by the pinion D', fixed upon the same shaft with the spur wheel E which gears with the pinion E' fixed upon the first motion shaft which also carries the fast and loose pulleys F. There is also mounted on the first motion shaft a fly wheel F' to steady the driving. The other trunnion is hollow, and is fitted, as in steam drying cylinders and other apparatus, of a like nature, with a pipe G for the admission of water and steam.

The cylinder A or as it is hereinafter more properly called the "steaming box" may be circular in cross section as in my former machine, but I prefer a cubical or prismatic form. As shown in the drawings it is rectangular which I find to be the more convenient form for general use. At one of its ends the steaming box is provided with a manhole and cover H secured thereon by a bow and screw H' so that the cover may be readily and quickly adjusted and removed.

The steaming box is more fully illustrated by Figs. 4, 5, and 6, which are drawn to an enlarged scale and of which Fig. 4 is a longitudinal vertical section; Fig. 5 a vertical cross section; and Fig. 6 a horizontal section. In the larger sizes of the apparatus as shown by these figures, the steaming box is divided vertically by a wholly or partially removable partition I, the function of which is to prevent the fabrics rolling or balling together. This partition is in or parallel with a plane passing through the axis of rotation, and the removable part of it is preferably guided in suitable grooves I'. It will be found generally advantageous to form ridges, projections or corrugations J both upon the sides of the partition and upon the inner faces of the vertical walls of the steaming box.

The measuring cistern K and the water and steam services are arranged in and upon a box or containing cistern O arranged above the steaming box.

In combination with the measuring cistern described in my former specification, I employed a single chain or cord suspending the counter-weight, but I now employ two such chains or cords L L which pass over the pul-

leys L' L' and are connected at their inner ends to the cross bars M M fixed upon the top of the measuring cistern. In other respects the measuring cistern is constructed as before, and is operated in substantially the same manner. The cistern which receives the required quantity of water for each batch of clothes to be washed, is suspended by the chains or cords so that when empty it is in the position shown by the full lines Figs. 7 and 8. When the required quantity of water has been admitted, its weight exceeds that of the counterweight and the cistern consequently descends. At the bottom of the cistern there is a lifting valve N, which is lifted on the descent of the cistern, by the projection N' from the bottom of the box whereupon the water rushes out of the cistern into the containing box.

The pulleys L' L' are fixed upon the shaft P which consequently rotates therewith, and the ends of this shaft are secured respectively to the cocks of the steam pipe Q and the water pipe R in such a manner that these cocks are opened and closed by the motion of the shaft. In addition to these automatically controlled cocks, the steam and water pipes are respectively provided with the additional cocks Q' R' by means of which the maximum rate of flow may be regulated by hand. When the cistern K is at the bottom of its stroke, the cocks Q and R are closed, and when at the top they are open. When it is at the top of its stroke, water enters the cistern K, and steam passes down through the pipe G into the steaming box, both at a rate determined by the amount of opening given to the cocks or valves Q' R'. As soon as the regulated amount of water has entered the cistern it descends as before described and closes the steam and water supply. The duration of time occupied by the flow of the required amount of water into the cistern is regulated by and is equal to the time required for steaming the clothes in the steaming box, and is as already described controlled by the cock R'.

At the bottom of the containing box O there is a plug valve S capable of being lifted by the chain or cord S' which passes over the guide pulley T and round the shaft pulley T' in such a direction that upon the descent of the cistern K the valve S is lifted by the motion of the shaft. Hence, as soon as the steam is cut off from the steaming box the water from the containing box enters the steaming box by the same pipe and trunnion as that by which the steam before entered. The valve S is contained in a cavity or recess below the bottom of the box O, so that water slowly running from the small cock K' may accumulate and surround the valve at all times when the steam is turned on, and thus prevent the entry of steam into the box O.

Instead of the locking device described in my former specification I employ the construc-

tion illustrated in Figs. 7, 7^a, 9, 10, 11 and 12. Figs. 11 and 12 are drawn to an enlarged scale and in Figs. 7 and 7^a the brake is omitted for the sake of greater clearness.

A brake disk Z is fixed upon the shaft P, or may alternately be attached as shown in dotted lines to either of the pulleys L' L' and over it there is passed the brake strap U fixed at one end to the stud U' and having connected to it at the other end the screw threaded rod V and the adjustable nut V'. In the periphery of the disk there is a recess W into which the adjustable spring stop W' is capable of engaging when the cistern K is at the bottom of its stroke. There is also formed upon the periphery of the disk a swell Z' in such a position that it comes into contact with the spring stop when the cistern is at the top of its stroke, as shown by Fig. 7^a. A handle X is employed for controlling the brake and locking device. Through this handle two holes are formed for the passage of the screw threaded end of the brake strap rod and of the lower end of the spring stop, which is similarly provided with an adjustable nut below the handle.

When the cistern K is at the top of its stroke, the pressure of contact between the spring stop and the swell Z' (Fig. 7^a) prevents the premature descent of the cistern, but as soon as the friction resulting from this contact is overcome the cistern descends and when it reaches the bottom of its stroke, the spring stop enters the hole W and the apparatus becomes locked so that the empty cistern cannot be again raised by its counterweight until the lock is released by means of the handle X.

The adjustable nut V' on the brake strap rod is regulated at such a distance below the handle that the handle comes into contact with it immediately the spring stud leaves the hole W. In the act of setting the apparatus to work again, the attendant depresses the lever handle X which first comes into contact with the spring stop nut and releases the spring stop. At the instant of this release, the handle comes into contact with the brake adjustable nut V' and thus brings the brake stop into action, and prevents the too energetic ascent of the cistern K by the operation of the counterweight.

The steaming box is arranged at such a height above the floor that a truck Y (Fig. 1) may be run below it to receive the clothes when the operation of washing has been completed, when the manhole cover is removed, and the box is inverted so that the clothes may drop into the truck.

To prevent the rotary motion of the steaming box in a backward direction while it is being charged with a fresh supply of clothes, I may fix upon the trunnion a ratchet wheel C' into which gears a pawl secured upon a pin fixed in the frame C.

Having now particularly described and as-

certained the nature of my invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a washing machine, a steaming box 5 mounted on trunnions, said trunnions being on the side of the box, a removable cover at one end of the box, and a longitudinal partition, having that portion of it next the cover removable, substantially as described.
2. In a washing machine, the combination 10 with a steaming box, of a steam pipe communicating therewith, a valve controlling said pipe, a measuring cistern located above the steaming box and communicating with 15 the steam pipe below the valve, a valve controlling the admission of water from said cistern into the pipe, said valve being located in a cavity in the bottom of the cistern to serve as a water seal, and means for simul- 20 taneously operating said valves so as to admit steam and water alternately to the said common pipe, substantially as described.
3. The combination and arrangement in a washing machine of the steaming box, the 25 containing-box connected therewith, the vertically moving cistern K inclosed in the containing box and provided with a drip cock, a plug N in the bottom of the cistern, a projection fixed below the plug, a spindle P con- 30 trolling the motion of the cocks of the steam and water services respectively, two pulleys

on the spindle P, cords or chains passing over the pulleys and connected at one end with the cistern and at the other end to a counterweight, a brake disk on the spindle P and a 35 stop engaging therewith, and a plug valve S suspended by a chain or cord connected with and passing around a third pulley on the spindle P, substantially as set forth.

4. The combination and arrangement in a 40 washing machine, of a steaming box, a containing box connected therewith, a rising and falling cistern inclosed in the containing box, of a brake disk rotated by the motion of the cistern, a brake strap terminated with a 45 screwed part and adjustable nut, a recess in the brake disk, a spring stop fitting into the recess, a screwed part on the spring stop carrying an adjacent nut, and a lever through 50 which the screwed parts of the brake and spring stop pass and which when moved downward operates the spring stop and brake successively by contact with the adjustable 55 nuts, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 22d day of June, 1893.

JAMES HESELWOOD.

Witnesses:

JOHN WILLIAM BRAMHAUL,
WILLIAM DIMBLEBY.