

No. 734,845.

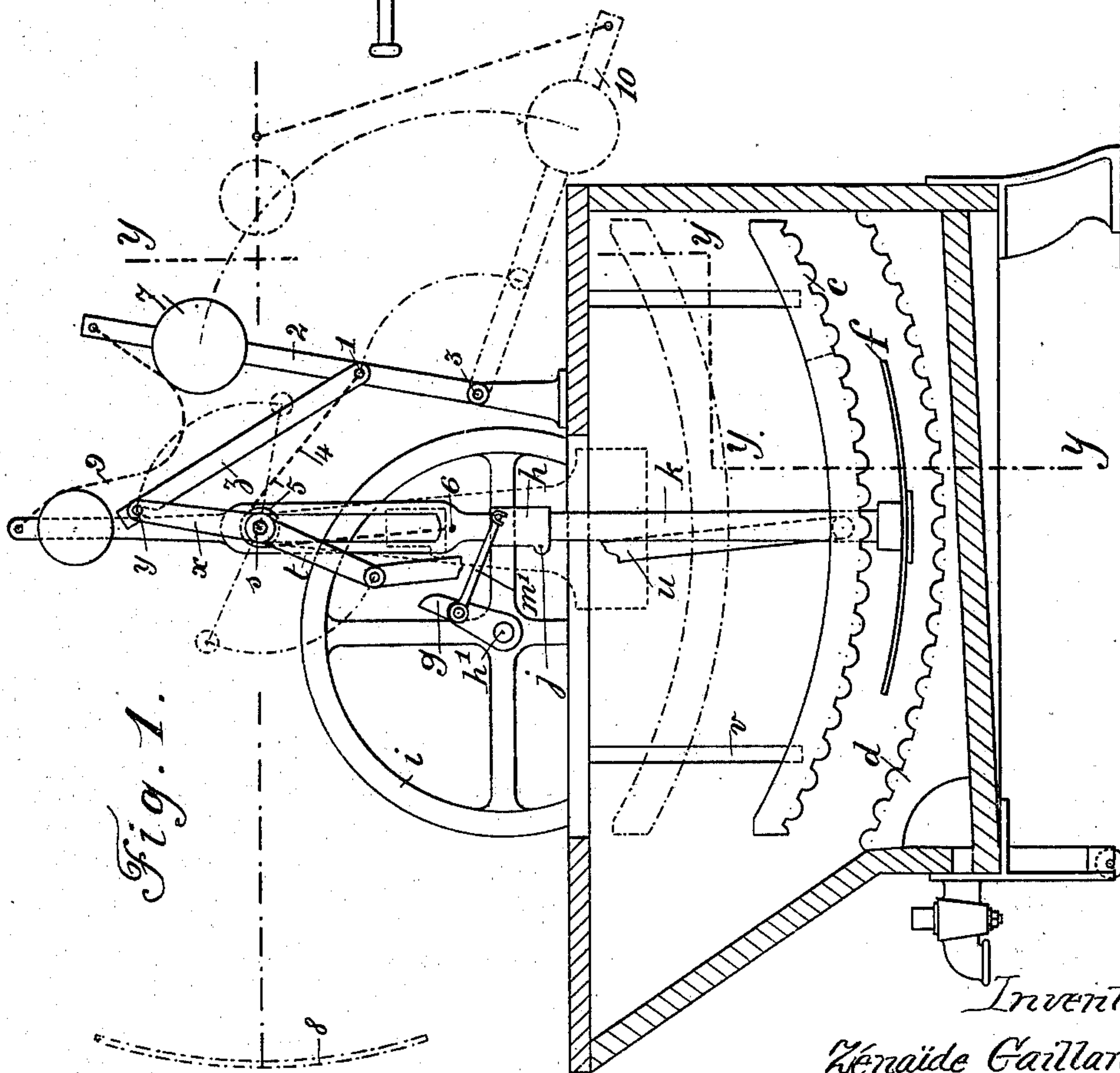
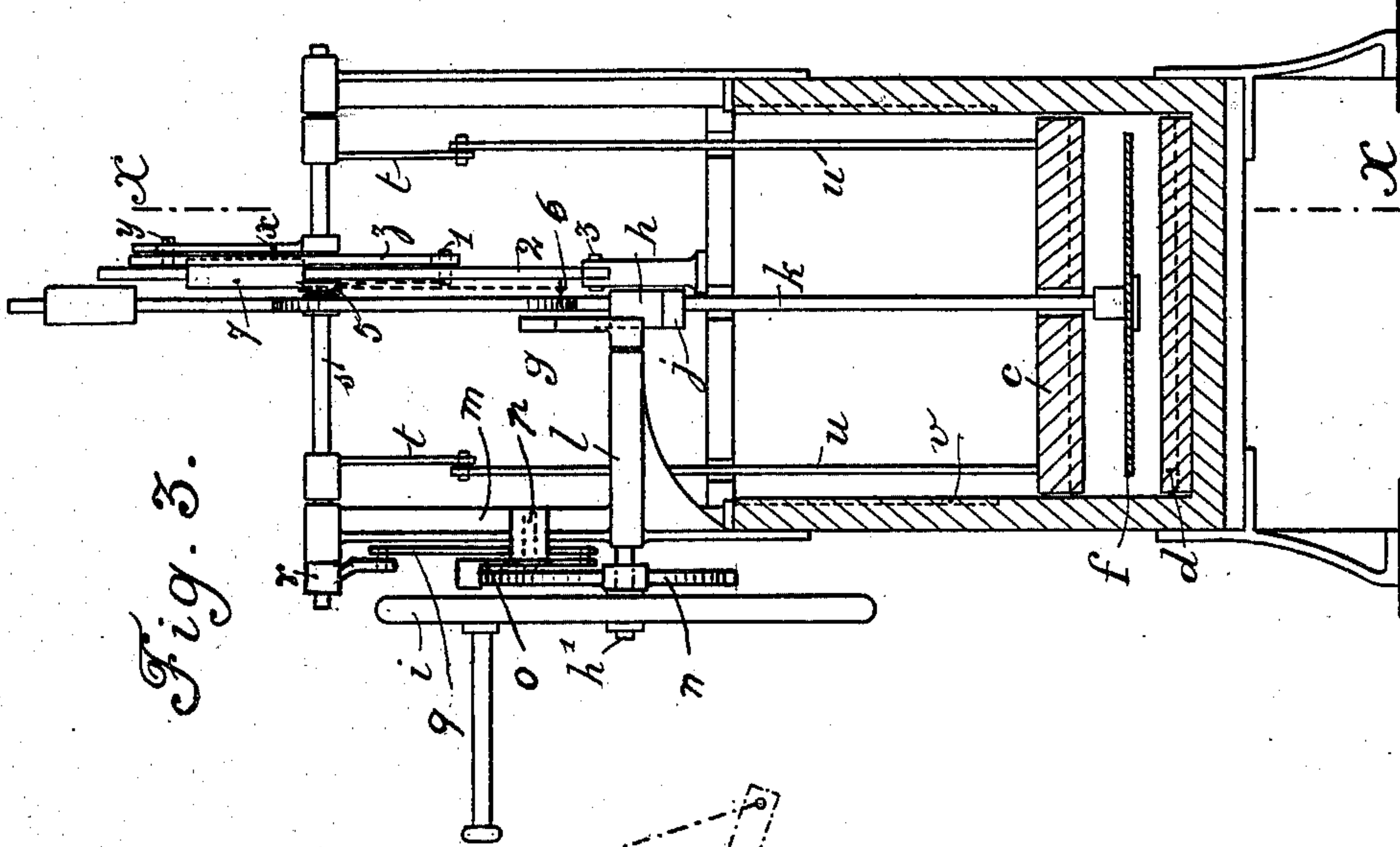
PATENTED JULY 28, 1903.

Z. GAILLARD.
WASHING MACHINE.

APPLICATION FILED FEB. 4, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses.
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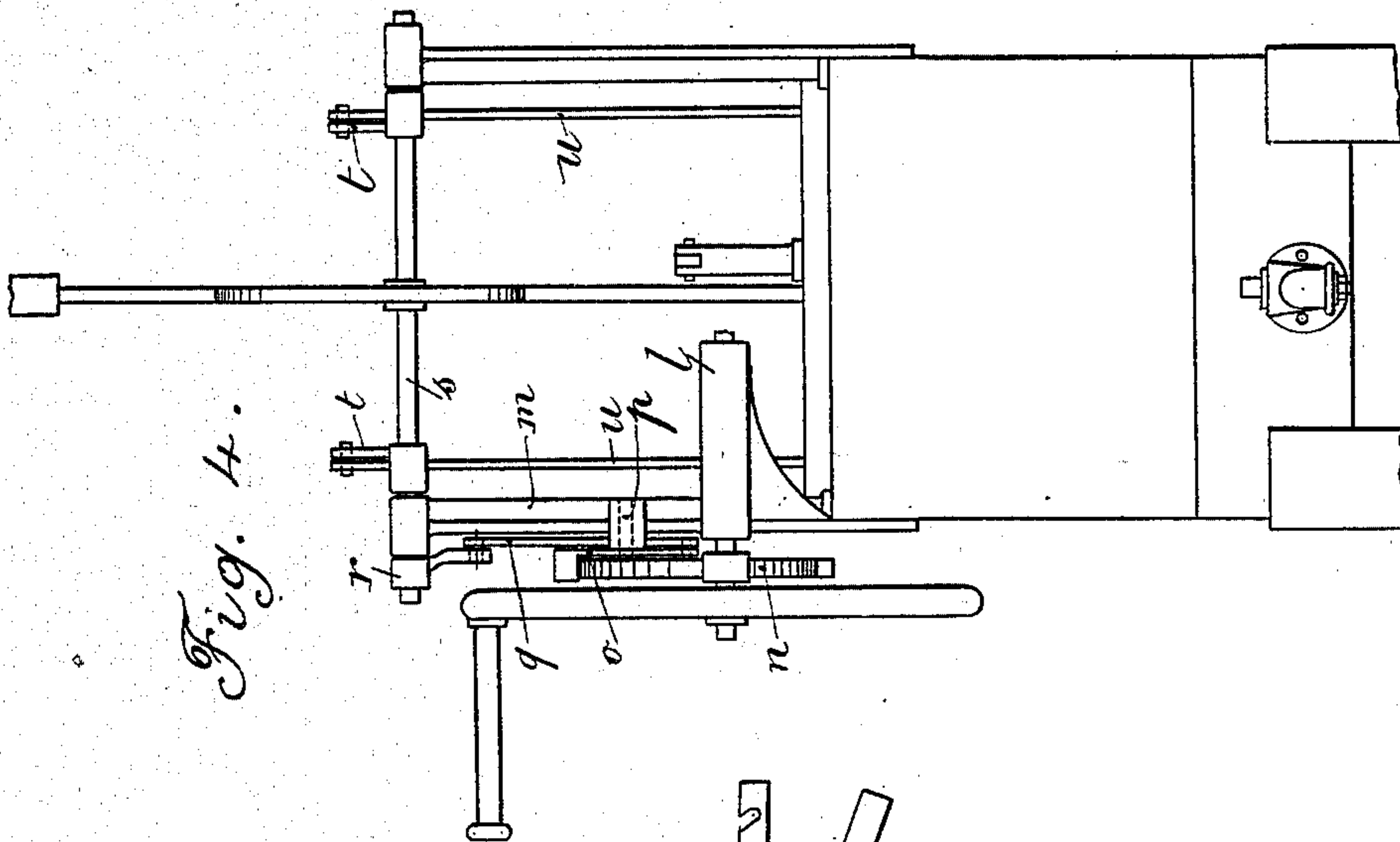


Fig. 4.

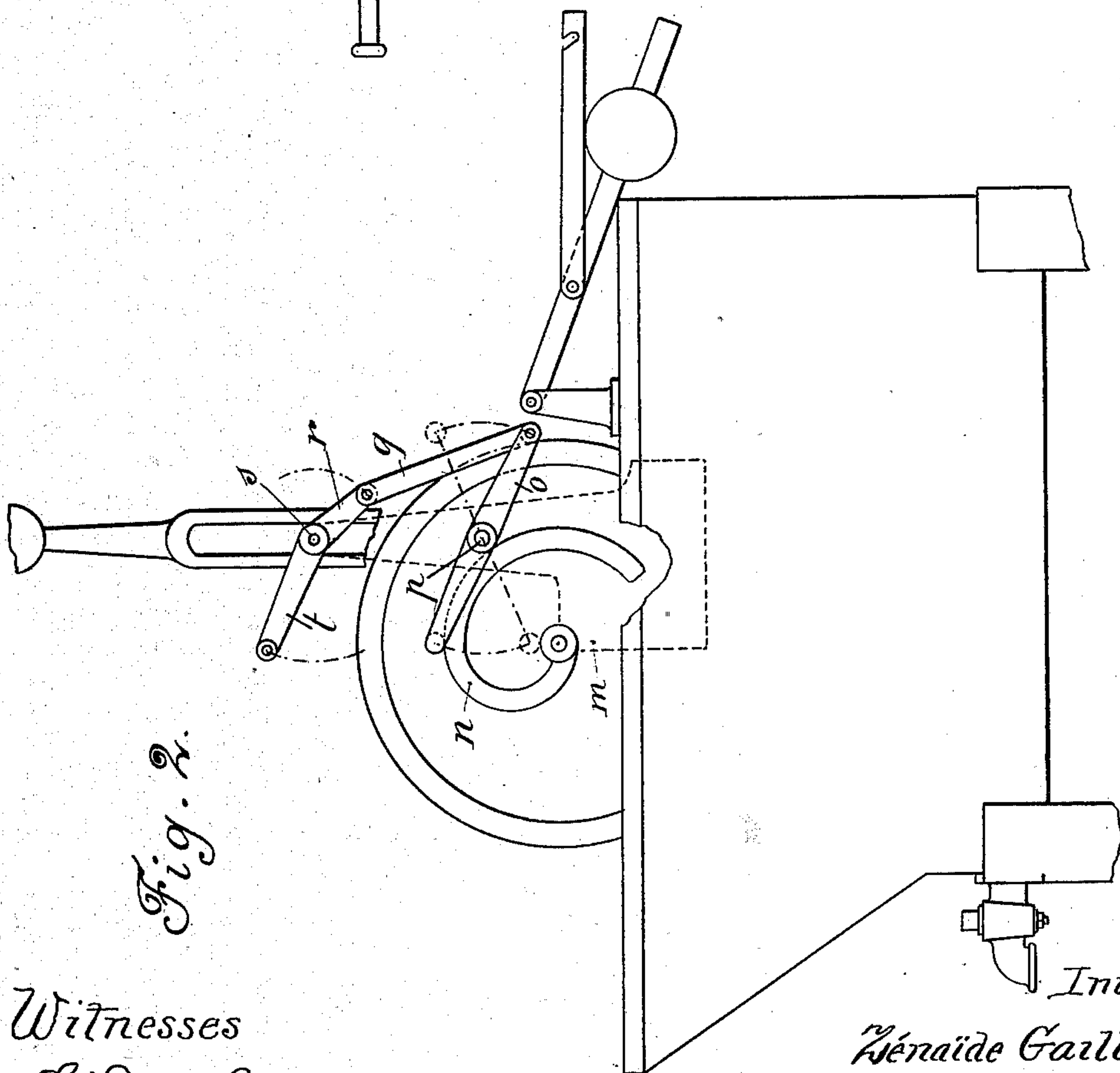


Fig. 2.

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UNITED STATES PATENT OFFICE.

ZÉNAÏDE GAILLARD, OF ST. GERVAIS LES BAINS, FRANCE.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 734,845, dated July 28, 1903.

Application filed February 4, 1901. Serial No. 45,966. (No model.)

To all whom it may concern:

Be it known that I, ZÉNAÏDE GAILLARD, a citizen of the French Republic, residing at St. Gervais les Bains, France, have invented certain new and useful Improvements in Linen-Washing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to washing-machines and has for its object to provide an improved washing-machine having for its principal features a fixed concave-curved lower plate, a vertically-adjustable convex-curved upper plate, and an intermediate curved plate for receiving the linen to be washed capable of oscillatory motion with and of vertical movement independent of the upper plate, suitable means being provided for operating the movable plates.

With this object in view the invention consists in the improved construction, arrangement, and combination of the parts of a washing-machine of the class indicated, as herein-after fully described and afterward specifically claimed.

In the accompanying drawings, which illustrate a washing-machine embodying my invention, Figure 1 represents a view of the machine in longitudinal section on the broken line *x x* of Fig. 3, the mechanism for effecting the upward movement of the upper movable plate being not shown. Fig. 2 represents a view in side elevation, showing the mechanism for effecting the upward movement of the upper movable plate. Fig. 3 represents a view in transverse vertical section on the broken line *y y y y* of Fig. 1, some of the parts being omitted. Fig. 4 represents a view in end elevation, some of the mechanism for effecting the upward movement of the intermediate curved plate being removed.

Like letters and numerals of reference mark the same parts wherever they appear in the various figures of the drawings.

Referring to the drawings by letters and numerals, *d* indicates the lower plate, which is preferably corrugated transversely and is fixed in a suitable vat, tub, or other vessel with its concave surface upward. Above the fixed concave plate *d* is a similarly-curved

plate *c* with its lower, preferably transversely-corrugated convex, surface facing the upper surface of plate *d*. Between the plates *d* and *c* is a smooth plate *f*, (curved similarly to said plates *d* and *c*,) upon which is placed the linen to be washed, both the plates *c* and *f* being capable of oscillatory and vertical movements by means of mechanism herein-after described. The plate *f* is submitted, besides the vertical motion, to an oscillatory motion successively or simultaneously, so as to cause the same to move parallel to the plates *c* and *d*.

During the oscillatory motion of the plate *f* the plate *c* remains at rest, but a proper motion is transmitted vertically to it, as such a motion is transmitted to the plate *f*.

The linen is attached to the plate *f* so as to cover it, which plate is rigidly secured to a central rod *k*, which receives its vertical motion from a hand-wheel *i* by means of a cam *g*, fixed on the shaft *h'*, the cam *g* acting against the projection *j* of a socket *h*, fixed on the rod *k*, Figs. 1 and 3.

In Fig. 1 the projection *j* is shown in full lines in its lower position and in dotted lines in its upper position. The shaft *h'* is supported within a bearing *l*, integral with the frame *m*, fixed to the side wall of the vat, Fig. 2 in dotted lines and Figs. 3 and 4.

For effecting the oscillatory motion of the plate *f* a connecting-rod *m'* is attached to the socket *h* and to the cam *g*, which is thus transformed into a crank, the connecting-rod being of such length that when connected up therewith the cam does not engage the projection *j* of the socket *h*, so that during the oscillatory motion the cam does not effect the vertical movement. Yet both of these combined motions may be obtained through a device such as hereinafter described, in which the vertical motion of the plate *f* is not effected by the cam *g*. The motion of the plate *c* is obtained by means of a cam *n*, secured also on the shaft *h'*, and is of such shape that the upward motion of the plate *c* begins before that of the plate *f*, and the latter comes down before *c* has been disengaged. The cam *n* acts upon the end of a lever *o*, oscillating about a pivot *p*, Figs. 2 and 4, and the other end of which is connected with a crank *r* by means of a connecting-rod *q*,

which crank *r* is keyed on a shaft *s*, whereon are keyed two other cranks *t t*, which transmit their oscillatory motion to the rod *u u*, fixed at the side of the plate *c*, Figs. 1, 2, 3, 4.

5 The plate *c* being guided at the sides by projections in the grooves *v*, the oscillatory motion of the cranks *t* will thus cause the desired vertical motion of the plate to take place.

10 For the purpose of transmitting combined vertical and oscillatory motions to the plate *f*, as above described, a crank *x* is fixed on the shaft *s*, Figs. 1 and 3, at the end of which is a pin *y*, which is pulled down by a rod *z*,

15 pivoted at 1 to a bar 2, oscillating about a point 3. To this bar, for example, is fixed one end of a cord 4, passing around a loose pulley on the shaft *s*, the other end of this cord being attached at 6 to the rod *k*. Owing to the os-

20 cillatory rotation of the shaft *s*, the bar 2 also has an oscillatory motion about the point 3, the action of which will be transmitted to the rod *k*, while causing the same to move vertically as it receives the oscillatory motion from

25 the connecting-rod *m'*. In such case it will not be necessary to transmit a continuous rotary motion to the fly-wheel *i*, but it will be sufficient to transmit a rotary oscillating motion thereto. A weight 7 is provided to take up
30 the weight of the plate *f* and the rod *k*.

In order to be able to take the plate *f* out of the vat and to bring the same to the position shown in dotted lines 8, Fig. 1, the end of the bar 2 will be connected with the end of the rod

35 *k* by means of a cord 9, which will be loose enough only to become tight, caused by the pulling down of the bar 2, when the rod *k* shall have been brought to the highest position at the same time as the plate *c*. By fur-

40 ther pulling down the bar 2, as at 10, the rod *k* will slide in a middle groove provided in the plate *c*, and the plate *f* will resume the position indicated at 8.

45 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine of the class described, the combination of a lower fixed concave plate,

an upper movable convex plate, an inter-
mediate curved plate and means for moving 50
the upper plate and the intermediate plate
upward and downward, whereby the upper
plate starts its upward movement, the inter-
mediate plate completes its upward and down-
ward movements, and finally the upper plate 55
completes its movements, substantially as
described.

2. In a machine of the class described, the combination of a lower fixed concave plate, an upper convex plate, an intermediate curved 60
plate, means for vertically reciprocating the
upper plate and mechanism for effecting ver-
tical movement of the intermediate plate,
substantially as described.

3. In a machine of the class described, the 65
combination of a lower fixed concave plate,
an upper movable convex plate above it, an
intermediate curved plate, means for verti-
cally reciprocating the upper plate and mech-
anism whereby an oscillatory movement of the 70
intermediate plate is effected, substantially
as described.

4. In a machine of the class described the combination of a lower fixed curved plate, an upper movable curved plate, an intermediate 75
correspondingly-curved plate, means for im-
parting a vertical movement to the upper
plate, and means for imparting a vertical and
oscillatory movement to the intermediate
plate, substantially as described. 80

5. In a machine of the class described, the combination with a lower fixed plate, an upper movable plate and an intermediate movable 85
plate, of a slotted rod supporting the inter-
mediate plate, a weighted lever pivoted to the
frame, a cord connecting the lever and rod, a
shaft passing through the lever-slot, and a
pulley on said shaft over which the cord
passes, substantially as described.

In testimony whereof I affix my signature 90
in presence of two witnesses.

ZÉNAÏDE GAILLARD.

Witnesses:

EMILE GRIMONT,
FELIX HALVUA.