

(No Model.)

2 Sheets—Sheet 1.

J. F. PHILOW.
WASHING MACHINE.

No. 512,842.

Patented Jan. 16, 1894.

Fig. 1.

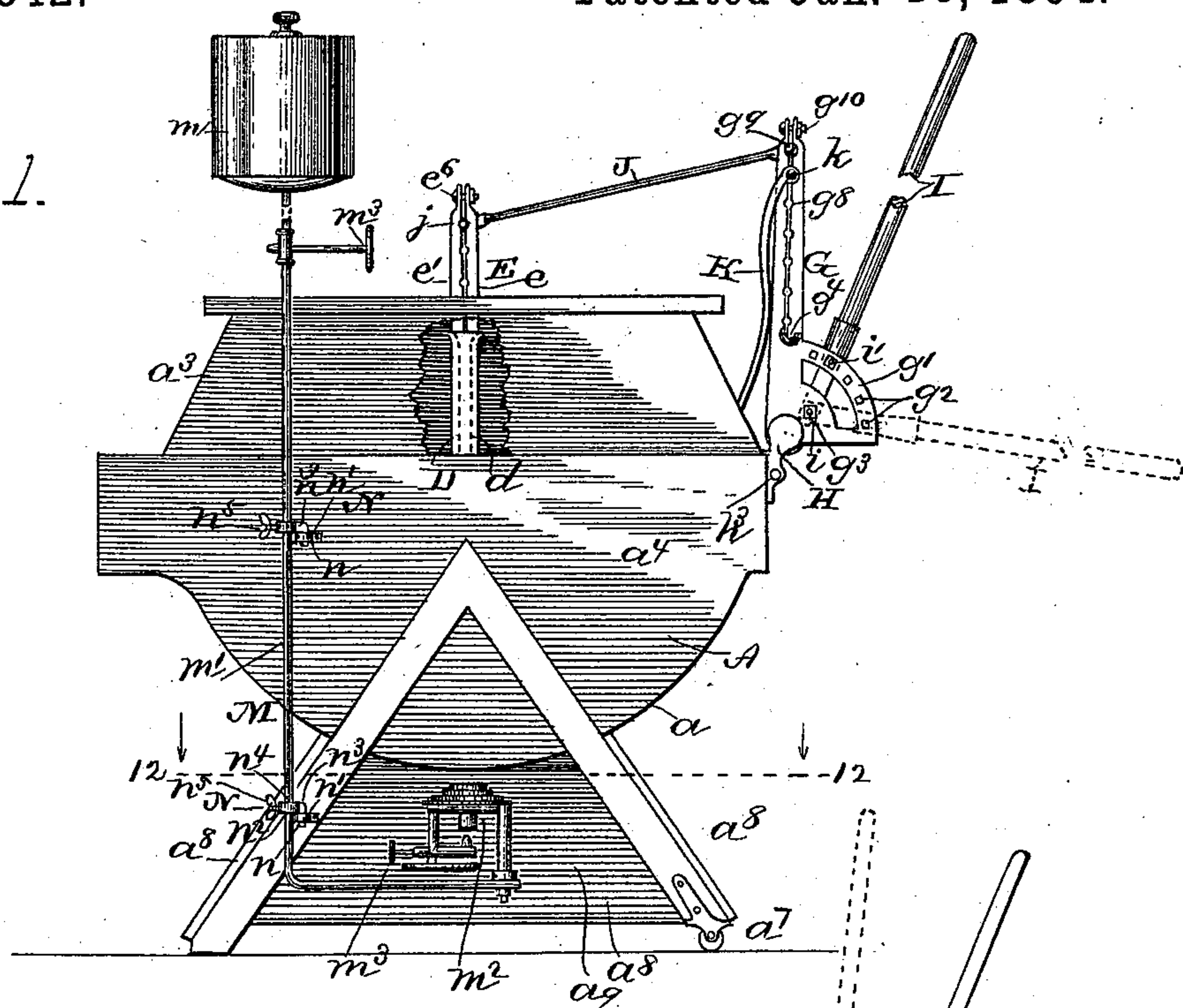
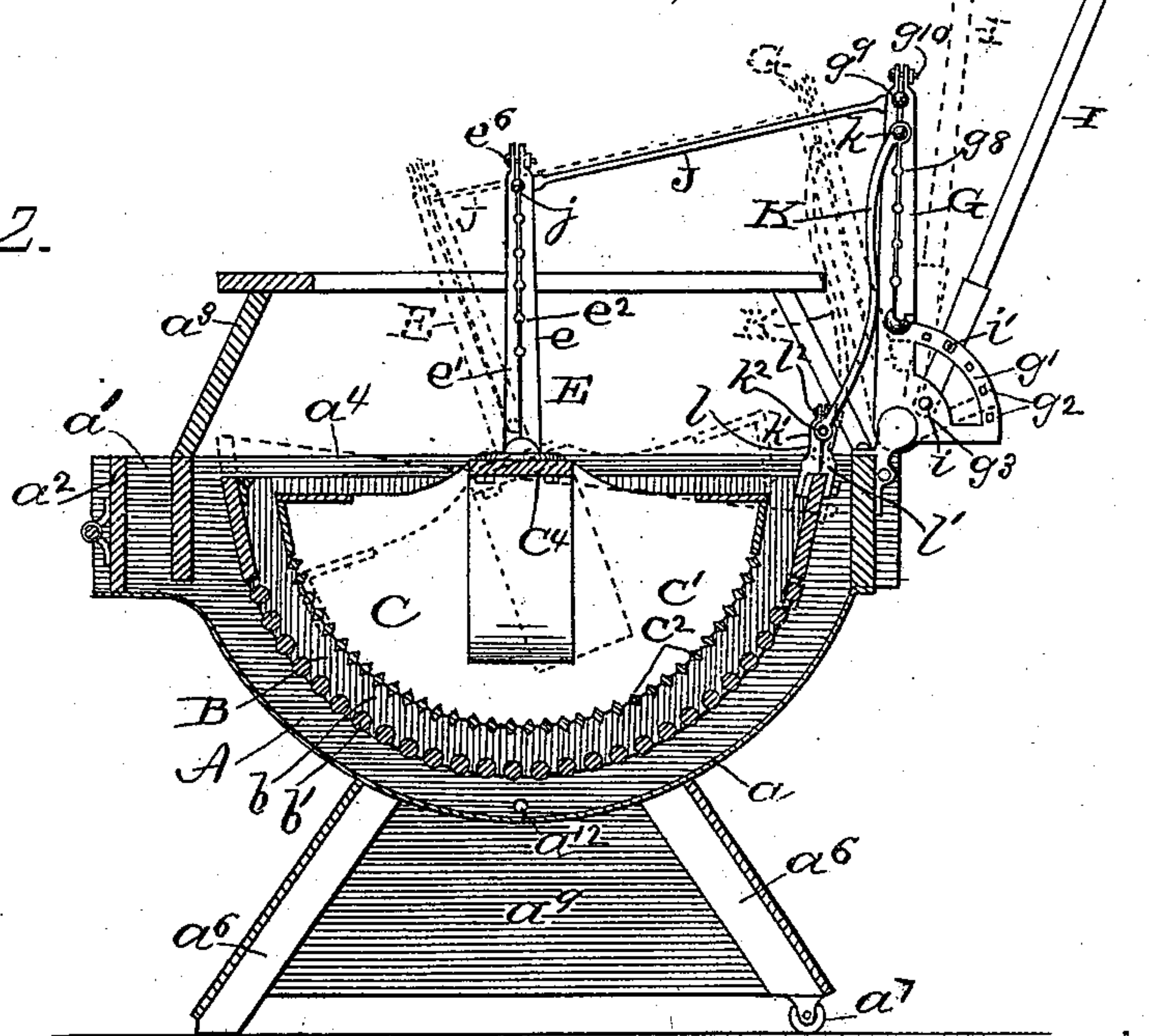


Fig. 2.



Witnesses:
G. R. Richards,
Chas. M. Hultgren

Inventor:
J. F. Philow,
By G. R. Richards,
Att'y.

(No Model.)

2 Sheets—Sheet 2.

J. F. PHILOW.
WASHING MACHINE.

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Fig. 3.

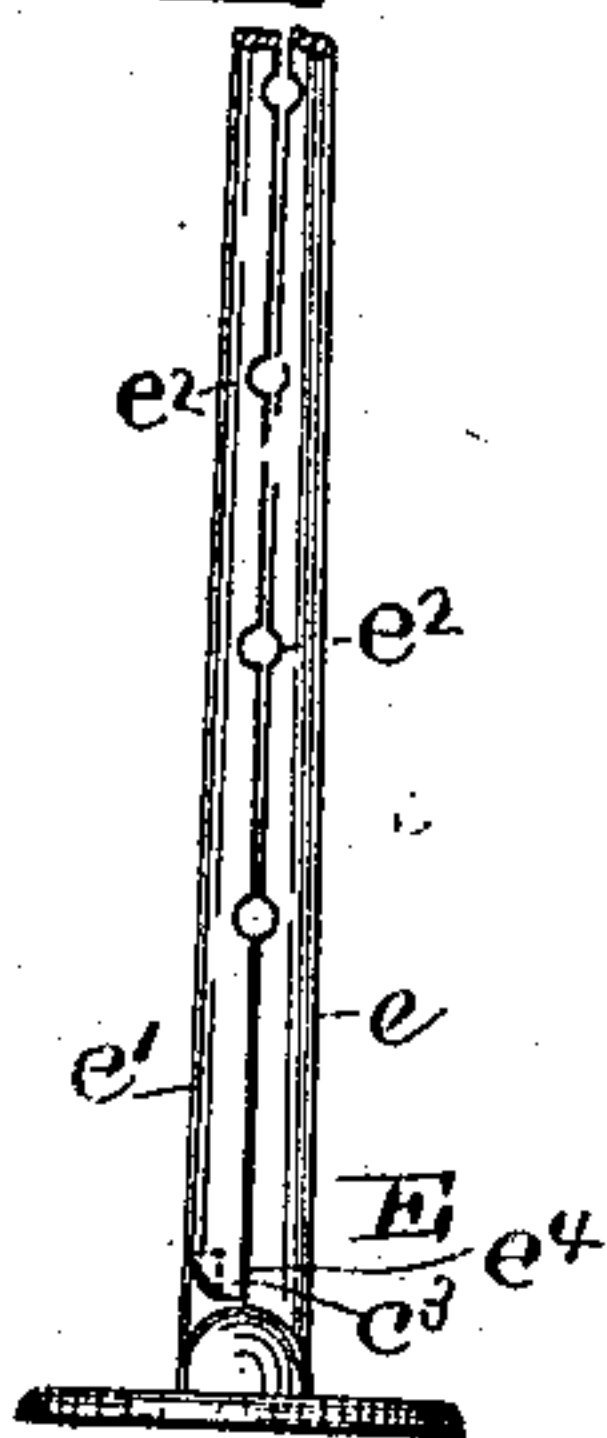


Fig. 4.

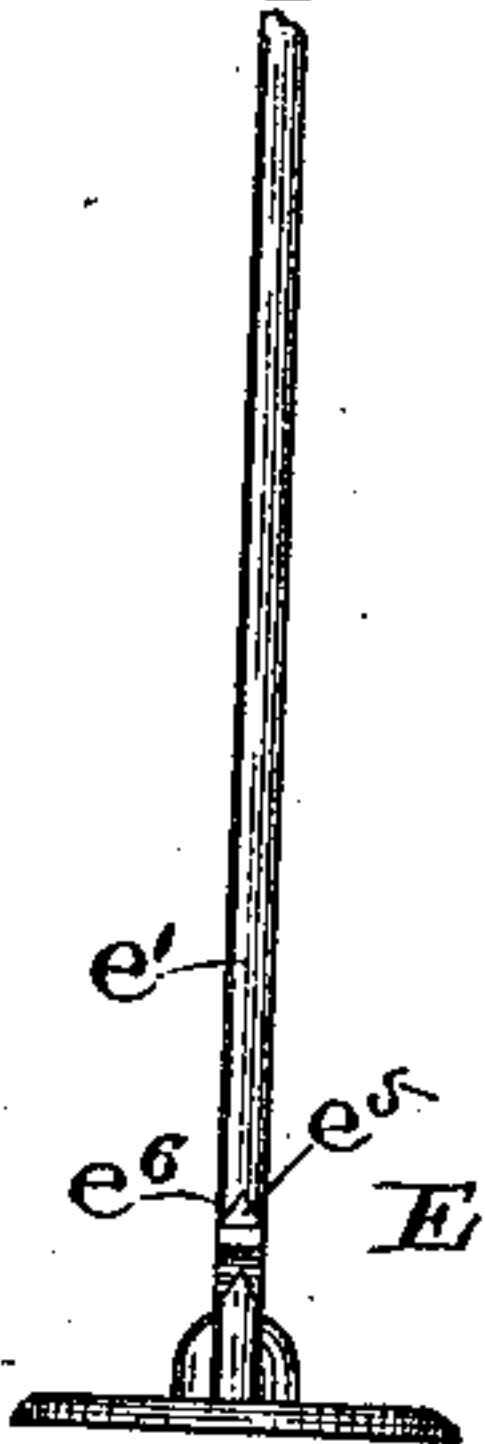


Fig. 5.

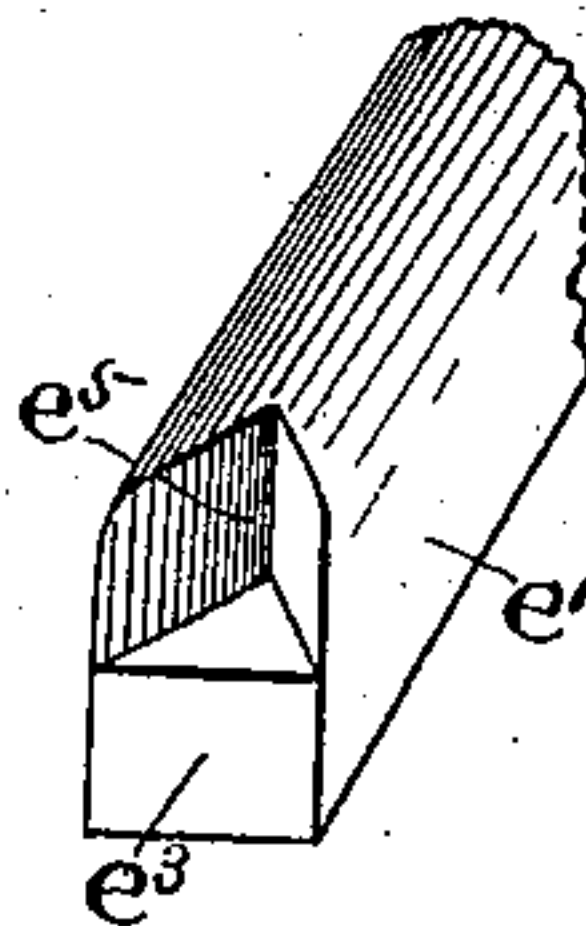


Fig. 6.

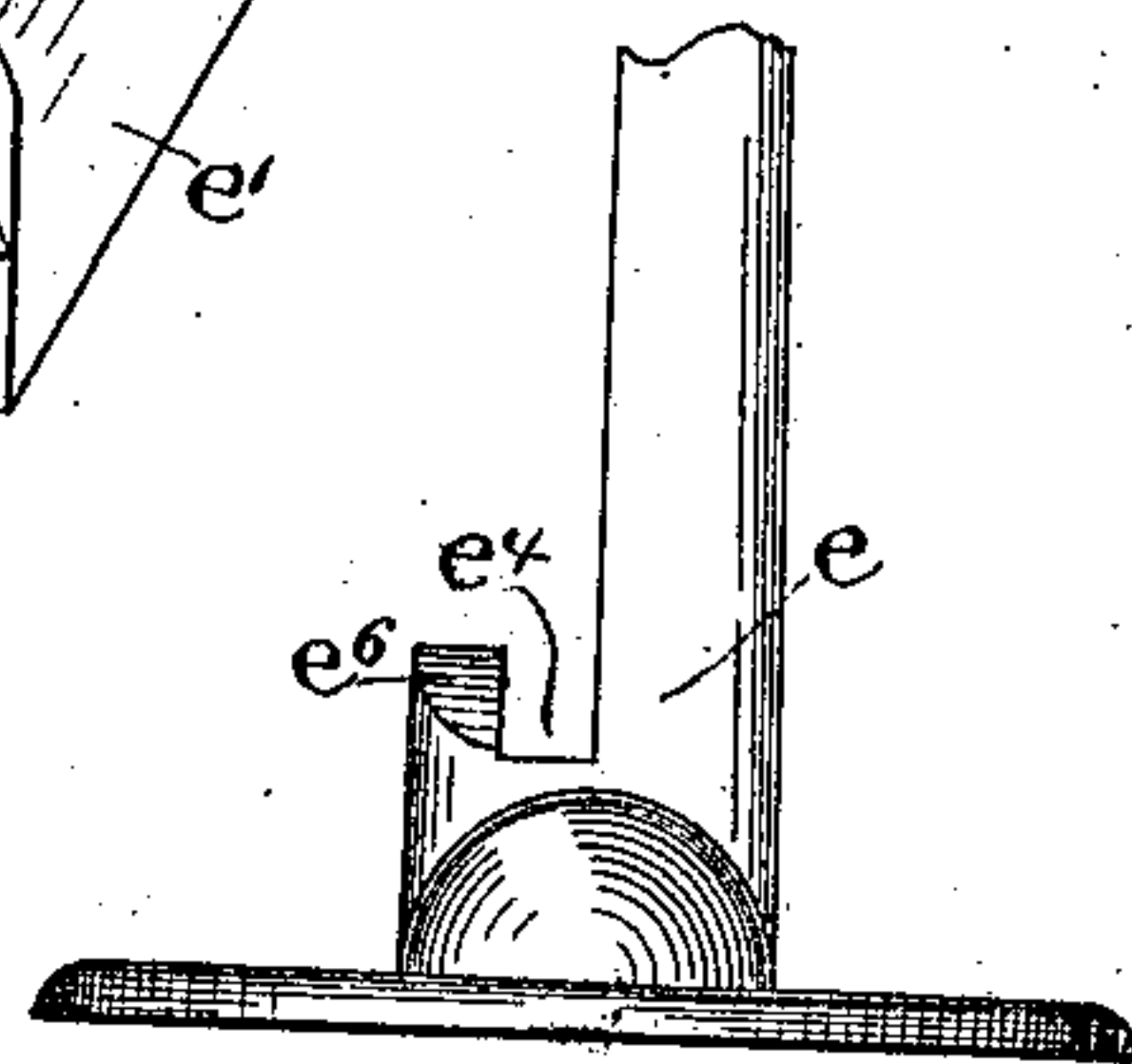


Fig. 7.

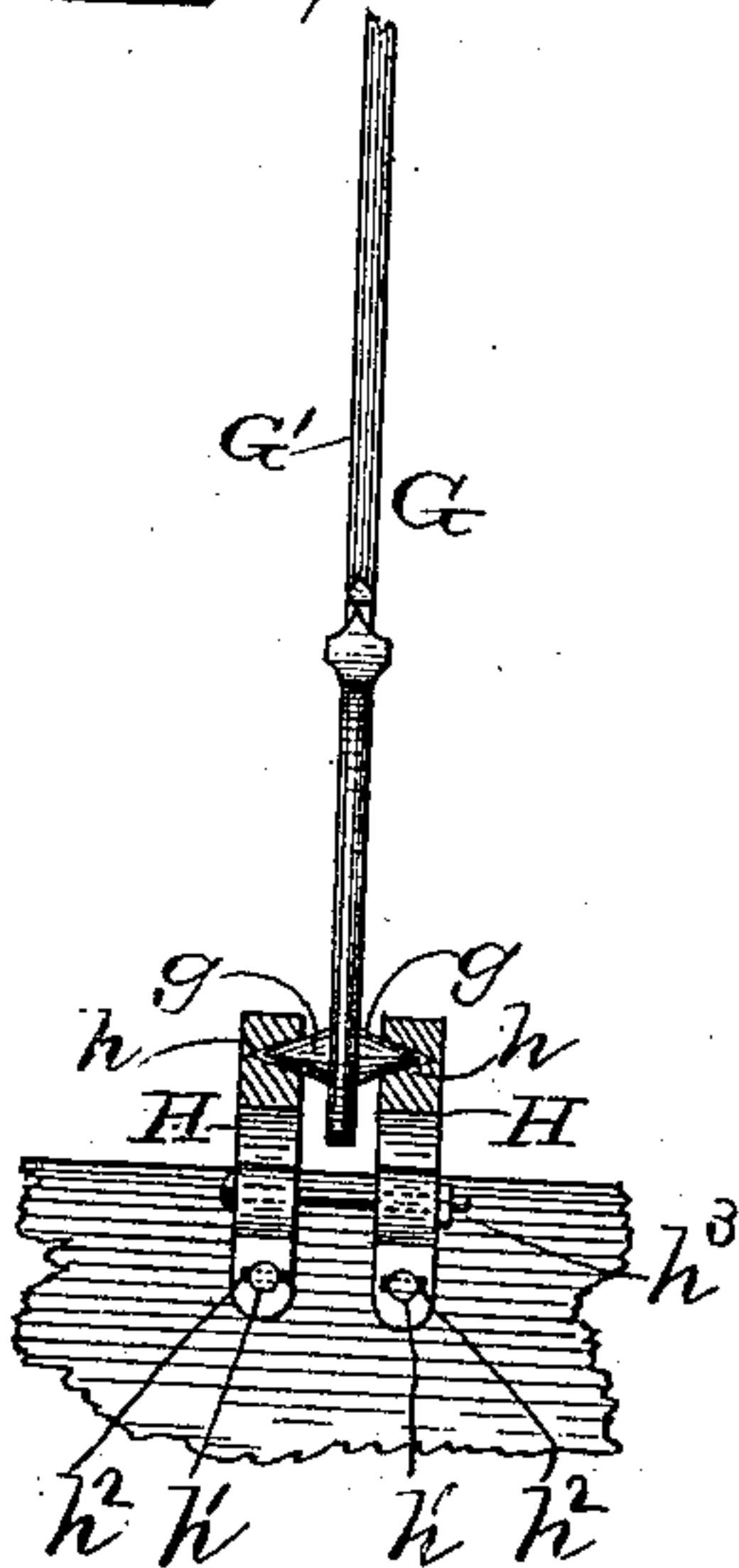


Fig. 8.

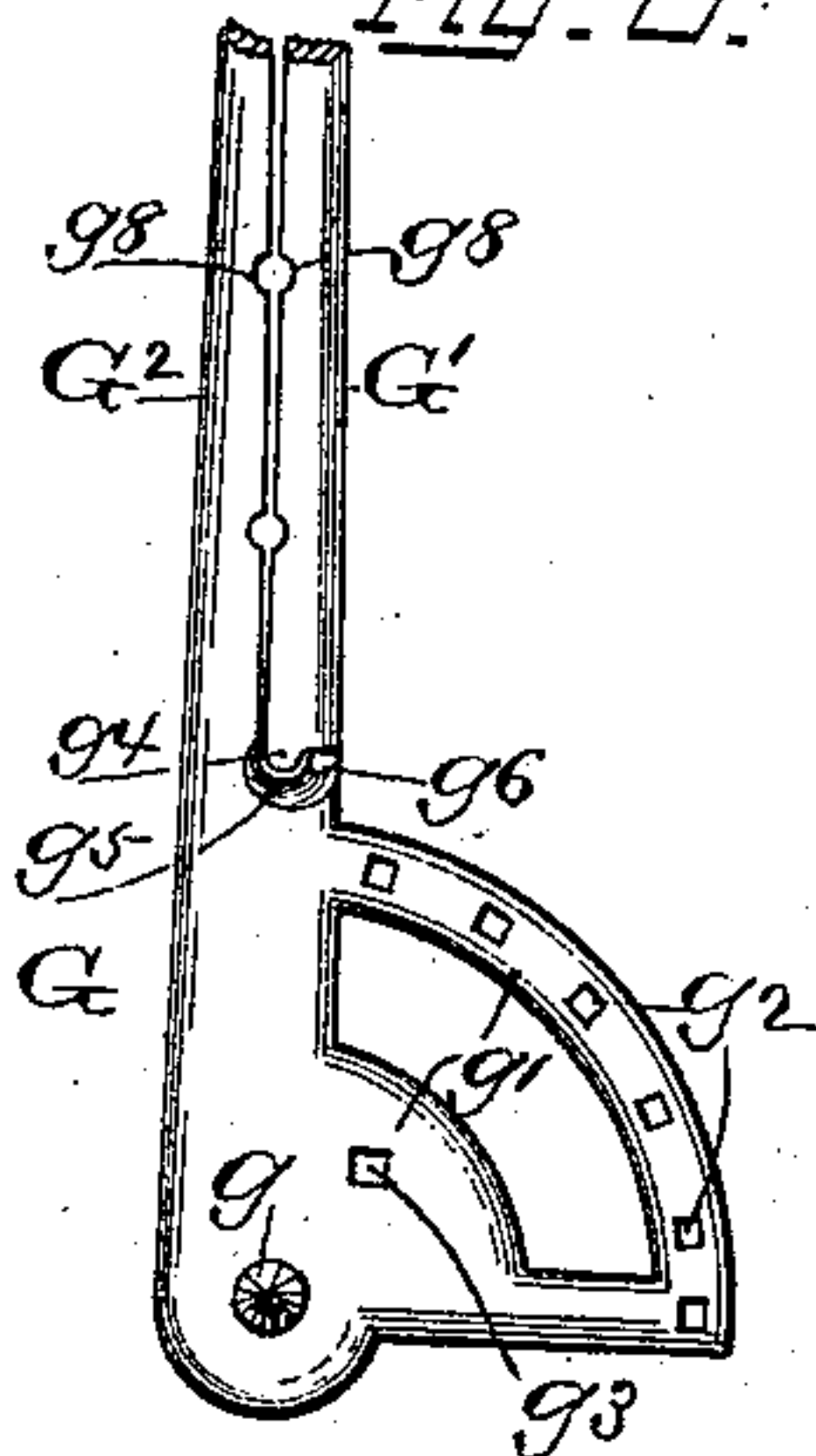


Fig. 12.

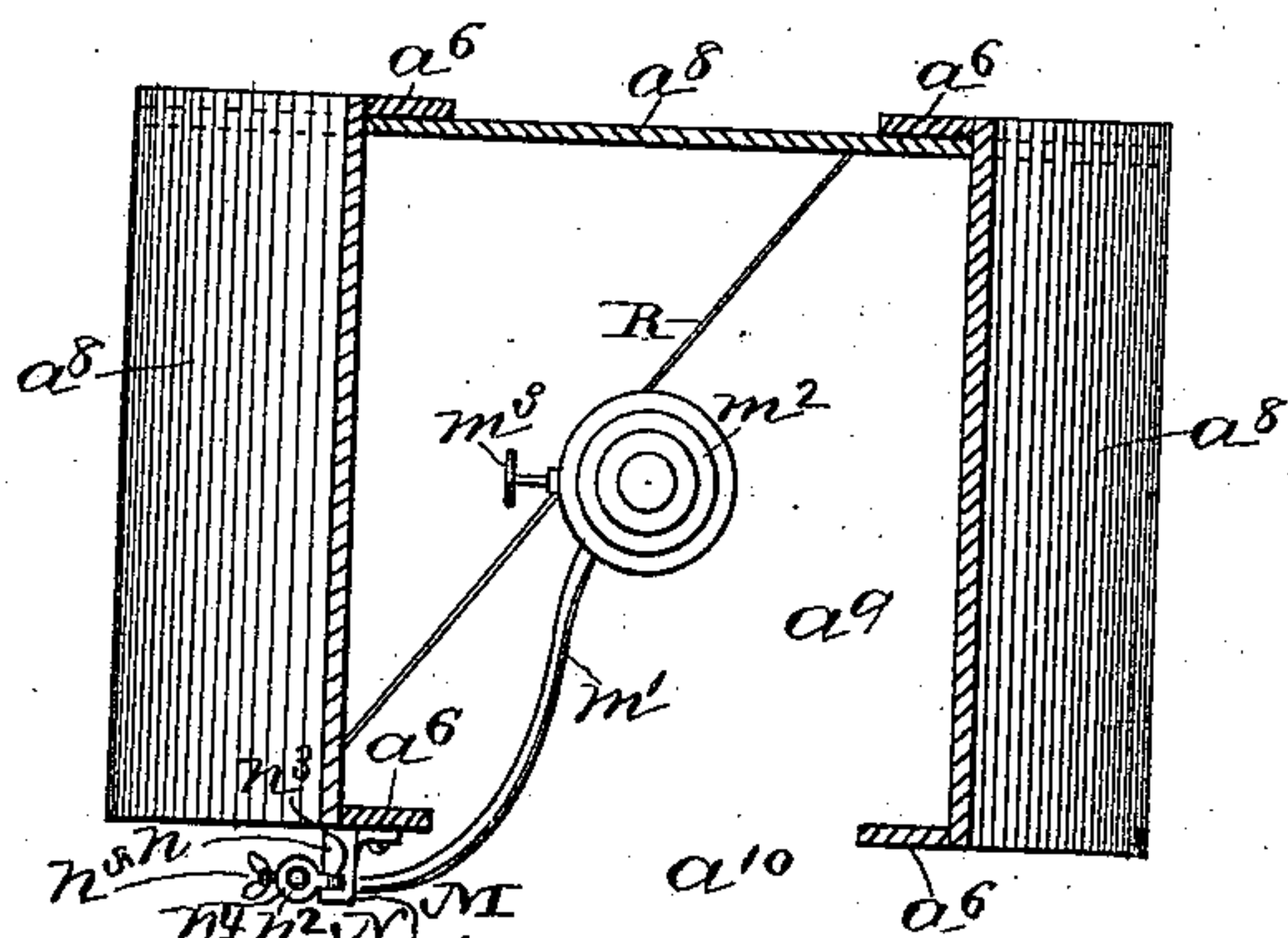


Fig. 13.

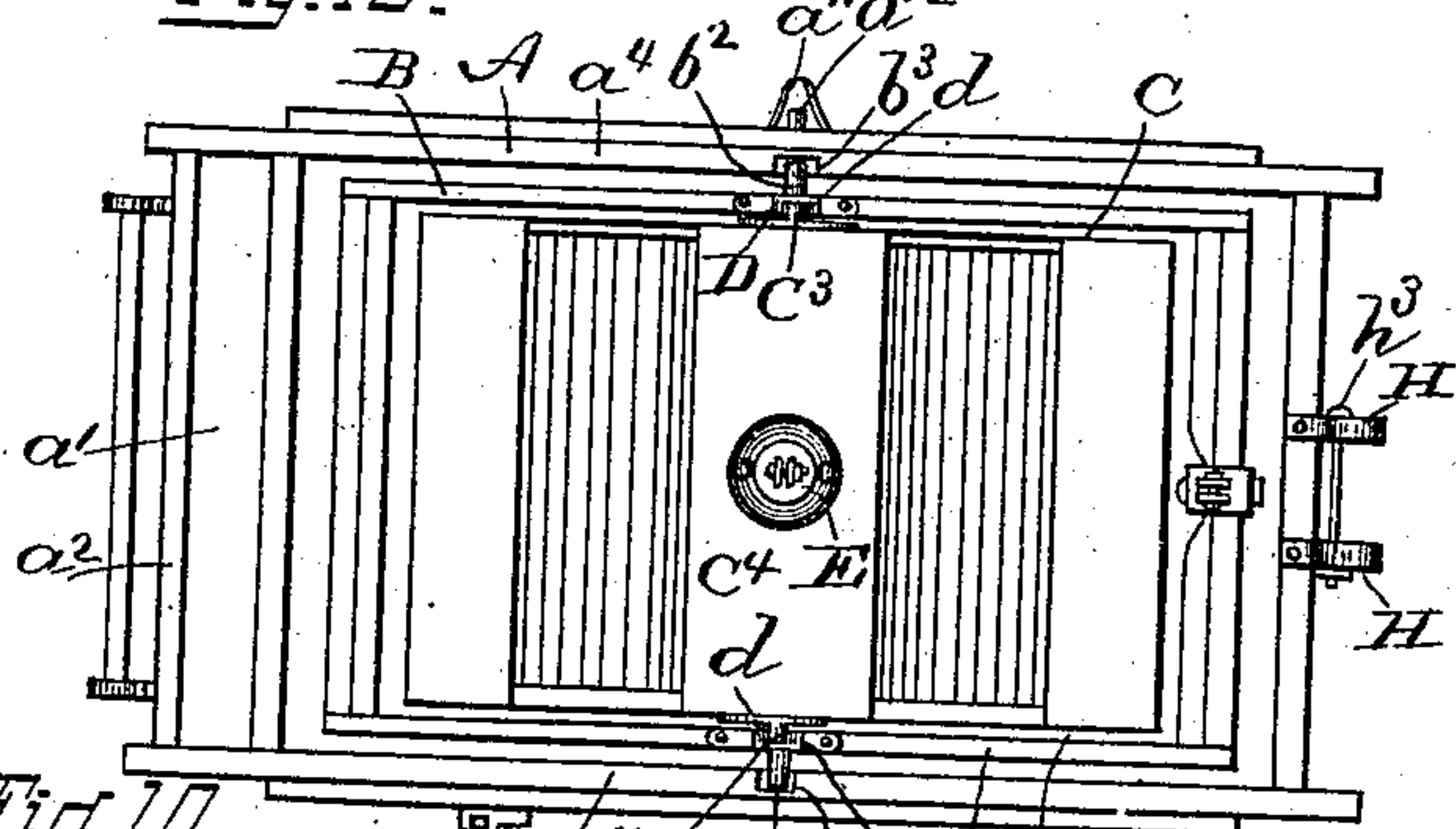


Fig. 9.

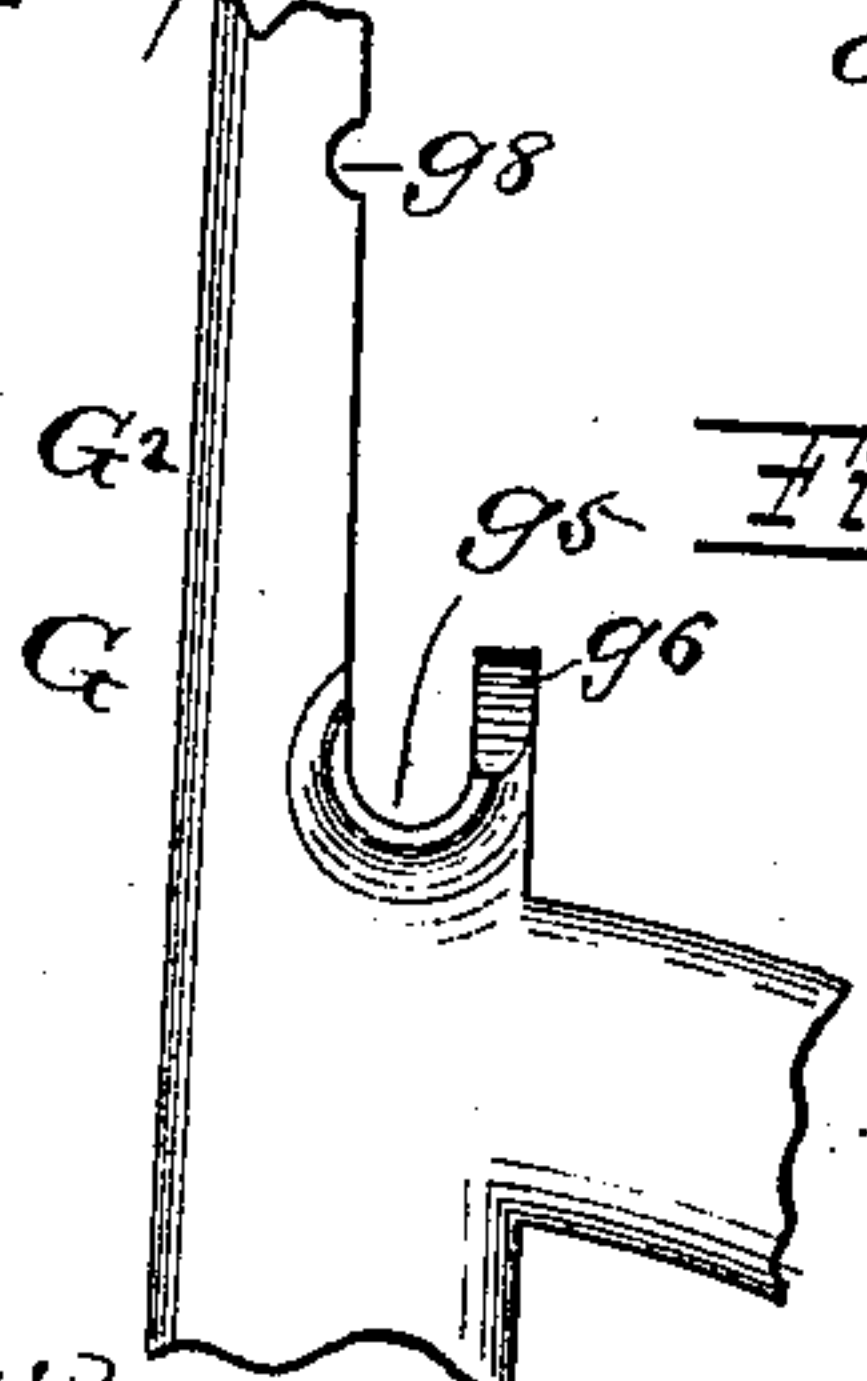


Fig. 10.

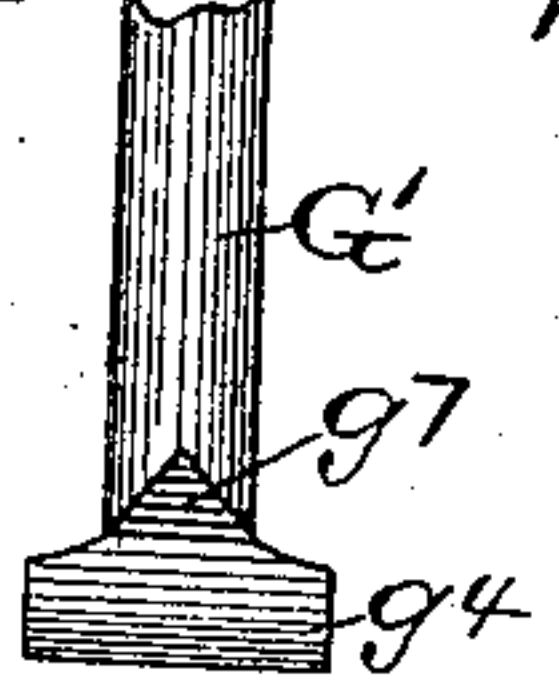
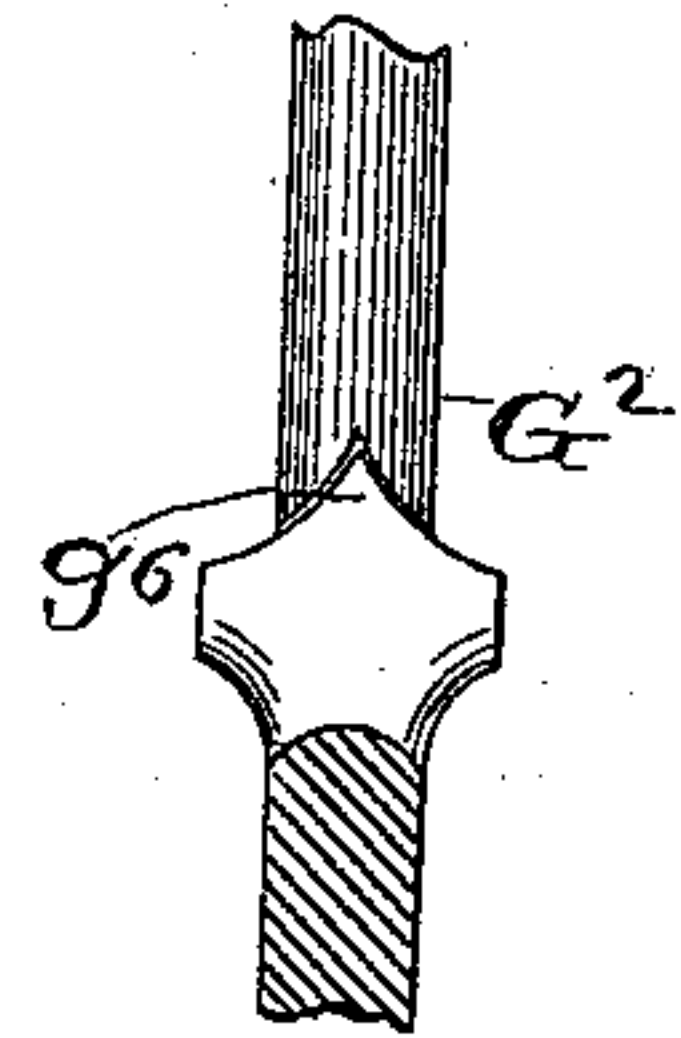


Fig. 11.



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UNITED STATES PATENT OFFICE.

JOSEPH F. PHILOW, OF MONMOUTH, ILLINOIS.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 512,842, dated January 16, 1894.

Application filed January 6, 1893. Serial No. 457,445. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH F. PHILOW, a citizen of the United States, residing at Monmouth, in the county of Warren and State of Illinois, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

This invention relates to washing machines, of that class in which two arc shaped rubbers are used, the lower one of which is suspended from the side of the suds box to swing concentric with the concave arc shaped bottom of the suds box, and the upper one of which is suspended within the lower rubber, from standards which project upwardly from the sides thereof to swing concentric with the lower rubber, and which rubbers are oscillated simultaneously by a single lever, which is geared with the rubbers in such manner as to swing them in opposite directions, at the same time, and which washing machines are provided with means for heating the suds within the suds box.

My invention has for its object to provide for use a washing machine of the class or type referred to, which shall be simple, strong, durable, easy to adjust and operate, and comparatively economic of manufacture.

To this end and object my invention may be said to consist in the novel structural features and combinations of parts and devices which will be found hereinafter more fully described, and that will be more specifically pointed out and defined in the claims of this specification.

Mechanism embodying the constructive forms of, and showing the mutual relationship and combination of the parts forming the subject matter of my improvements is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly broken away, of a washing machine embodying my improvements; Fig. 2, a sectional elevation; Fig. 3 an enlarged side elevation, its upper end part broken away, of the standard E seen from the same side of the machine as at Figs. 1 and 2; Fig. 4 an enlarged side elevation, its upper end part broken away, of the standard E seen from the right hand side of Figs. 1 and 2; Fig. 5 an enlarged perspective of the lower end part of the part *e'* of the standard E;

Fig. 6 an enlarged side elevation of the lower end part of the part *e* of the standard E; Fig. 7 an enlarged side elevation of the lower end part of the arm G and its journals, and of its bearing standards partly in section, and side elevation of an adjacent fragmentary part of the suds box, seen from the left hand side of the machine, as it is shown at Figs. 1 and 2; Fig. 8 an enlarged side elevation of the lower end part of the standard G seen from the same direction as at Figs. 1 and 2; Fig. 9 an enlarged side elevation of a part of the lower end part of the part *G*² of the standard G seen from the same direction as at Fig. 8; Fig. 10 an enlarged side elevation of the lower end part of the part *G'* of the standard G seen from the same direction as at Fig. 7; Fig. 11 an enlarged elevation partly in section of a part of the lower end of the part *G*² of the standard G seen from the same direction as at Fig. 7; Fig. 12, a sectional plan in line 12, 12, in Fig. 1; Fig. 13, a top plan of the machine, without its cover, and with the operating lever and its link connectors with the rubbers removed.

The same reference letter indicates the same part in the different figures of the drawings.

The suds box A is of ordinary construction, having a concave bottom *a*, or bottom curved in the arc of a circle, with a soap box *a'* at one side thereof, which soap box is formed also, as shown, so that a clothes wringer may be mounted on the bar or board *a*² when the cover *a*³ of the suds box is removed. The sides *a*⁴ of the suds box are preferably formed of wood, and the bottom *a* is of galvanized sheet iron or other suitable metal, beneath which heat can be applied. Legs *a*⁶ support the machine, and two of these are provided with casters *a*⁷ on which it can be moved when desired. Three sides *a*⁸ of the space below the suds box are inclosed by sheeting fixed to the legs *a*⁶ to form a chamber *a*⁹ with one open side *a*¹⁰, for purposes hereinafter described. A spout *a*¹¹ and plug *a*¹² furnish means for emptying the suds box.

A lower rubber B has a conformity of outline with the arc shaped bottom of the suds box, and is of an ordinary construction with semicircular sides *b*, to which are fixed rubbing rollers *b'* preferably of cylindrical forms

in their cross sections. The rubber B is suspended in an ordinary manner within the suds box, by means of pintles b^2 which project from its sides, and are journaled in grooves b^3 in the upper edges of the sides a^4 of the suds box, whereby the rubber B can be readily and quickly lifted out of or replaced in the suds box.

The upper rubber C has a conformity of outline with the arc shaped bottom of the rubber B, and is also of an ordinary construction, with semicircular sides c' , to which are fixed the rubbing slats c^2 , preferably square shaped in their cross sections. The rubber C is suspended in an ordinary manner within the rubber B by means of pintles c^3 which project laterally from the upper parts of its sides, and are journaled each in a vertical groove d in a standard D, one of which standards projects upwardly from each side of the rubber B. The grooves d permit lifting the rubber C out of the rubber B quickly and easily, and of replacing it readily therein, and also, in the ordinary manner, furnish bearings, at different heights, as may be required for the pintles c^3 when a greater or lesser quantity of material to be washed is placed between the rubbers B and C. A bar c^4 extends across the upper part or top of the rubber C, and a standard or arm E is fixed to the midlength part thereof, as hereinafter described.

The standard E is formed in two parts, e and e' , as shown in detail at Figs. 3, 4, 5 and 6, and each of these parts has a series of transverse grooves e^2 which, when the parts are near together, form bearings for a journal as hereinafter described. The part e' has a projecting end e^3 which seats in a recess e^4 at the lower end of the part e and forms a hinge to permit separating the parts e, e' , toward their upper parts or ends. A V-shaped recess e^5 in the lower end of the part e' fits over an inverted V-shaped projection e^6 on the part e , and thus holds the part e' from lateral displacement on the part e which is bolted to the bar c^4 . By means of a bolt and nut e^6 through the upper ends of the parts e, e' , they can be drawn toward each other to compensate for wear of the bearings e^2 , and the journal therein.

The arm G has laterally projecting journals g at its lower end which are conical in shape, as shown at Fig. 7, and are seated in correspondingly shaped bearings h in bearing blocks H. A bolt h' passes through a slot h^2 in each bearing block H, and into the side of the suds box. A bolt h^3 passes transversely through the bearing blocks H, and has a head on one end, and a nut on its other end. The bearing blocks may be adjusted toward each other, and fixed after such adjustment by means of the bolts h' and slots h^2 and bolt and nut h^3 , in an evident manner, to compensate for wear of the journals g and their bearings. The arm G has integral therewith or fixed to its lower end a quadrant shaped plate

g' with a series of holes g^2 therethrough, and in a line concentric with a hole g^3 therethrough. The lever handle I is fixed at its lower end to the quadrant shaped plate g' by means of a bolt i which passes through the hole g^3 , and a bolt i' which passes through either of the holes g^2 . As shown by unbroken lines at Figs. 1 and 2, the handle I is adjusted in a nearly upright position, as some persons may prefer it, while in the broken lines at Fig. 1 it is shown adjusted in a substantially horizontal position as others may prefer it. It will be evident that by changing the bolt i' into the different holes g^2 the handle I may be adjusted at various angles to suit different persons. The upper end of the arm G has a separable side part G' shown particularly at Figs. 8, 9, 10 and 11. The lower end of the part G' has lateral extensions g^4 , and is rounded to fit in a recess g^5 in the other part G^2 of the arm G. The parts G', G^2 are held in alignment with each other laterally by means of a tapering part g^6 on the part G^2 seated in a V-shaped recess g^7 in the part G' . The parts G', G^2 , have confronting grooves g^8 which form bearings for a bolt g^9 by which one end of a link rod J is pivoted to the arm G, the other end of which link rod is pivotally connected with the arm E by a stud pin j which projects laterally from the link rod J, and can be easily and quickly removed or replaced in its bearings in the arm E. The parts G', G^2 , are connected at their upper ends by a bolt g^{10} by which they can be drawn toward each other to compensate for wear of the bolt k and its bearings g^8 . One end of a link rod K is pivotally connected with the arm G by a bolt k which passes through one of the bearings g^8 , and its other end (see Fig. 2) is pivotally connected with the lower rubber B by a bolt k' which is held in a bearing k^2 between two plates l, l' , that are bolted to the side of said rubber, and can be drawn toward each other by a bolt l^2 , to compensate for wear of the bolt k' and its bearings.

The gasoline heater M is of ordinary construction, having a supply reservoir m , a feed pipe m' , a burner m^2 and valves m^3 , all of ordinary construction. The vertical part of the pipe m' is hinged to the suds box by hinges N, each of which is formed of a part n with an eye n' , fixed to the suds box, and a part n^2 with a pintle n^3 , and an eye n^4 through which the vertical part of the pipe m' passes. The pipe m' can be adjusted in the hinge plates or parts n^2 , and held after such adjustment by a thumb screw n^5 . To attach the heater to the machine, the pintles n^3 are journaled in the eyes n' of the parts n , so that the burner m^2 can be swung through the open side a^{10} into the chamber a^9 , until it strikes a wire R which arrests its movement when centrally located beneath the suds box, as shown at Fig. 12. By simply lifting the entire heater, the pintles n^3 will be withdrawn from the parts n , and the heater can be removed from the washing machine. By adjusting the vertical part

of the pipe m' in the parts n^2 , as hereinbefore described, the burner m^2 can be adjusted closer to or farther from the bottom of the suds box, as may be preferred. It will thus be seen that the burner can be swung under the suds box, or from beneath it, can be adjusted in higher or lower positions, and can be readily and easily removed from the machine, all as hereinbefore described.

10 In operation, the suds box is supplied with soap suds in sufficient quantity. The rod J is removed from the standard E, and the rubber C is then lifted out of its bearings or high enough to permit placing the articles to be washed in the rubber B, so that they will be between the rubbers B and C, when the rubber C is replaced. The connection is then made between the rod J and standard E. The burner m^2 can be adjusted to keep the suds at the desired temperature. The machine is then operated as follows: The operator rocks or swings the handle I back and forth, and this oscillating or swinging motion of the handle I gives a corresponding motion to the arm G which is rigidly connected with said handle, and the oscillating movement of the bar G, through the instrumentality of the link rod J and arm E will impart an oscillating, swinging or rocking movement to the rubber C, while at the same time the oscillating movements of the bar G will, through the instrumentality of the link rod K, impart an oscillating, swinging or rocking movement to the rubber B. It will be seen also that while the rubber C is swinging toward the right hand side of the machine, the rubber B is swinging in an opposite direction, or toward the left hand side of the machine, as the machine is seen at Fig. 2, and as shown by broken lines at said figure; and that as the rubber C is swung in an opposite direction to that described, the rubber B will again be swung in an opposite direction thereto. The lid a^3 is then removed, and the clothes removed by a reverse proceeding from that of placing them in the machine. By adjustment of the link rod J in the different bearings in the arms E and G, in an evident manner, either rubber may be made to swing through a longer arc than the other rubber, and thereby cause the rubbers to move at different rates of speed, if preferred.

What I claim as new, and desire to secure by Letters Patent, is—

55 1. In a washing machine of the class hereinbefore described, in combination with the suds box A, having an arc shaped bottom, the rubbers B, C, having a conformity of outline with each other and with the arc-shaped bottom of the suds box, a standard, as E, fixed to the upper rubber, a standard G having the operating handle fixed thereto, a link rod, as J, adjustably secured to and pivotally connecting the standards or arms E and G, and

a link rod K, adjustably secured to and pivotally connecting the standard G and the lower rubber B, whereby the rubbers B and C are given simultaneous movements in opposite directions, substantially as described.

2. In a washing machine of the class hereinbefore described, in combination with the suds-box A having an arc shaped bottom, the rubbers B, C, having a conformity of outline with each other and with the arc-shaped bottom of the suds box, a standard, as E, fixed to the upper rubber C, and provided with a series of bearings e^2 , a standard G having a series of bearings g^2 , a connecting link rod J adjustable in the bearings e^2 and g^2 , and an adjustable operating handle I, substantially as described.

3. In a washing machine of the class hereinbefore described, in combination with the suds box having an arc shaped bottom, the rubbers B, C, having a conformity of outline with each other and with the arc shaped bottom of the suds box, a standard, as E, consisting of two parallel parts adjustably secured together and fixed to the rubber C and provided with a series of bearings e^2 , a standard G having a series of bearings g^2 , a connecting link rod J adjustable in the bearings e^2 and g^2 , an operating handle I, and a link rod K pivotally connecting the arm G and the rubber B, substantially as described.

4. In a washing machine of the class hereinbefore described, in combination with the suds box A having an arc-shaped bottom, the rubbers B, C, having a conformity of outline with each other and with the arc-shaped bottom of the suds box, a standard, as E, fixed to the upper rubber, a standard G, a link rod J pivotally connecting the arms E and G, a link rod K pivotally connecting the standard G and the rubber B, an operating handle I, adjustably fixed to the arm G by means of the quadrant shaped plate g' with a series of holes g^2 , and the hole g^3 and securing bolts, and adjustable bearings for the standard G substantially as described.

5. In a washing machine of the class hereinbefore described, in combination with a suds box A having an arc shaped bottom, the rubbers B, C, having a conformity of outline with each other and with the arc shaped bottom of the suds box, an arm, as E, fixed to the upper rubber C, an arm G, a link rod J connecting the arms E and G, link rod K connecting the arm G and rubber B, and adjustable plates H, with conical bearings h , for cone shaped journals g , on the arm G, substantially as described.

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

JOSEPH F. PHILOW.

Witnesses:

CHAS. HULTGREN,
H. M. RICHARDS.