

(No Model.)

2 Sheets—Sheet 1.

A. G. CHRISTMAN.
WASHING MACHINE.

No. 444,421.

Patented Jan. 13, 1891.

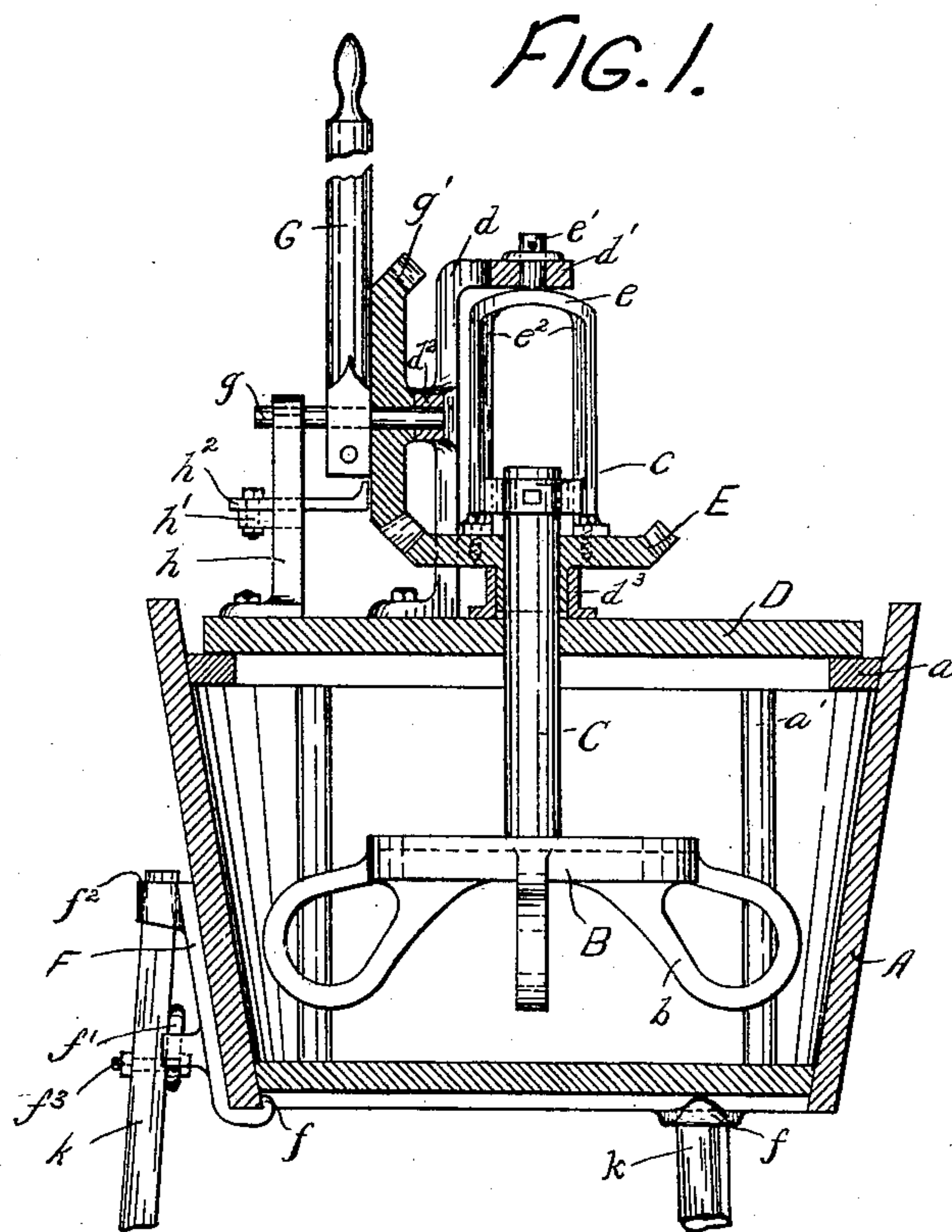
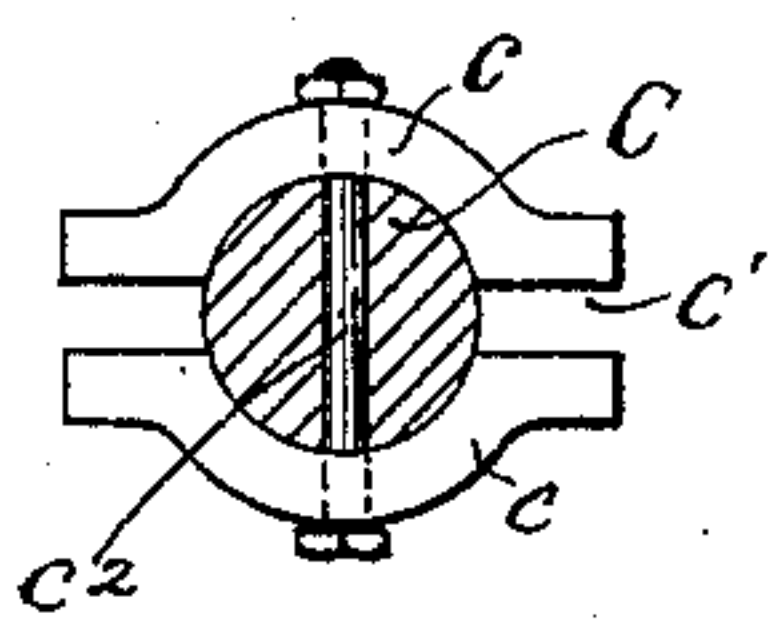


FIG. 2.



WITNESSES

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Augustus G. Christman

INVENTOR

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Attorney

(No Model.)

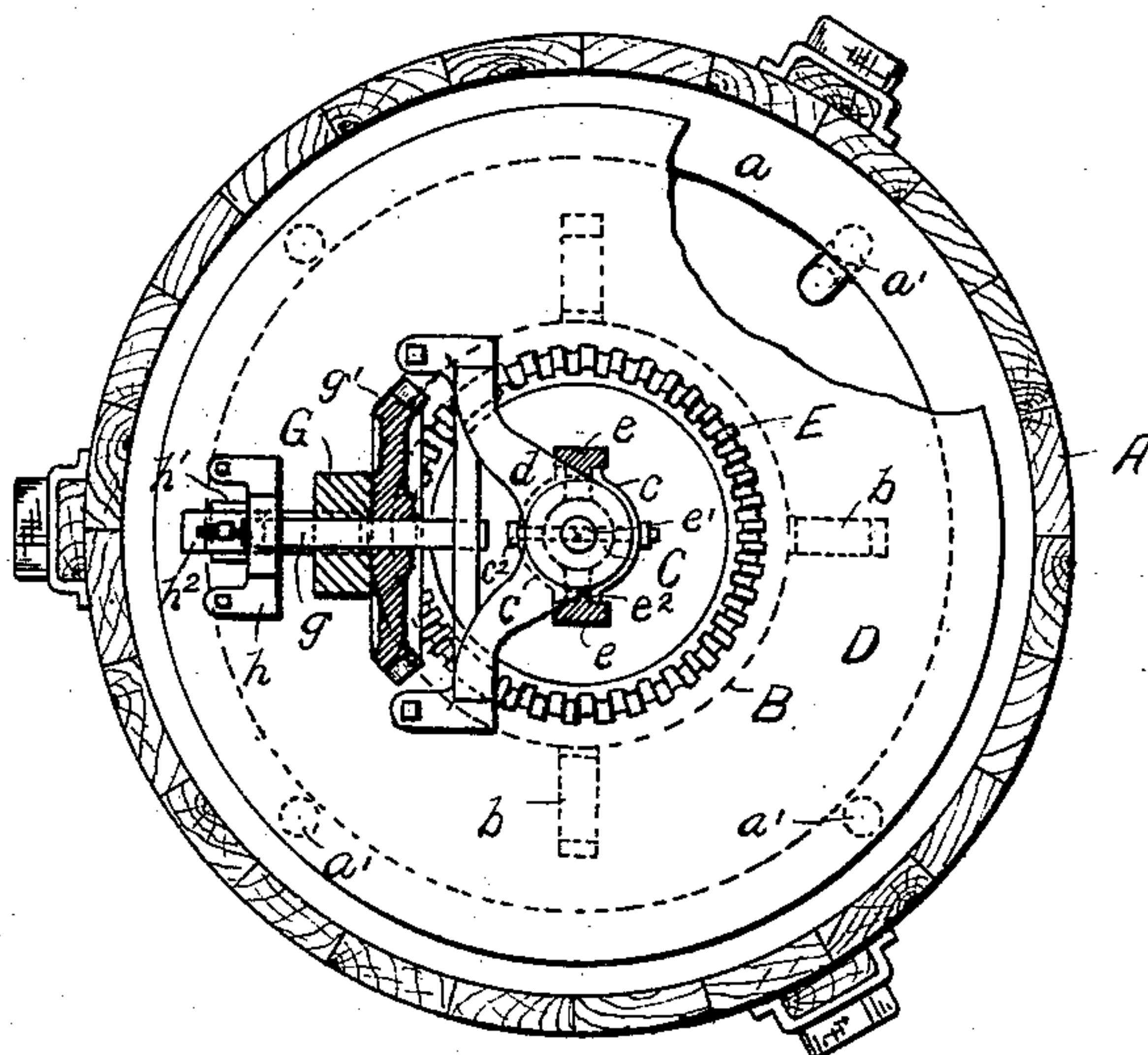
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FIG. 3.



Witnesses

E. A. Kelly,
Chas. L. Leas,

Augustus G. Christman Inventor

By his Attorney *R. H. Howard*

UNITED STATES PATENT OFFICE.

AUGUSTUS G. CHRISTMAN, OF READING, PENNSYLVANIA.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 444,421, dated January 13, 1891.

Application filed September 23, 1889. Serial No. 324,721. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS G. CHRISTMAN, a citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Washing-Machines; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates particularly to vertical washing-machines having rotary agitators.

The main feature consists in the peculiar operating mechanism employed, whereby the body of the agitator-shaft is adapted to readily slide up and down in the machine-cover to accommodate different quantities of clothing in the tub without at all interfering with the rotation of the agitator or producing undesirable clatter and lost motion. This and other features of the invention are fully described herein.

Figure 1 is a sectional elevation of a washing-machine embodying my invention. Fig. 2 is a sectional plan view of the cross-head end of the agitator-shaft. Fig. 3 is a plan view of the machine partly in section.

The tub A is preferably circular in form, and is provided with posts a' , extending from the bottom of the tub to the top flange a , on which the cover D rests. They are some distance away from the wall of the tub, yet arranged to clear the pear-shaped wings b of the agitator B, which wings extend below and outward from a central disk and have openings corresponding in shape with the general outline of the wings. The agitator, as well as its shaft C, is preferably constructed of wood, in order to avoid the use of metal in direct contact with the contents of the machine when in operation, and the shaft, which is preferably of uniform circular section throughout its length, passes upward through the cover D and a bevel wheel E, and has

clamped to its upper end, by means of bolts c^2 , which pass through the shaft, bars c , which thus form a cross-head on the end of the shaft, the slots c' of which engage guides e^2 , projecting inwardly from the vertical faces of a yoke e , which yoke forms a part of the wheel E and rotates with it. The hub of the wheel E is loose on the shaft C and is supported in a bearing d^3 , secured to the top of the cover D. The upper end of the yoke e is provided with a journal e' , which passes through a bearing d' of a standard d , secured to the cover. This same standard is also provided with a bearing d^2 , which supports one end of a right-angular shaft g , to which are secured the operating-lever G and bevel-wheel g' . The other end of this shaft passes through a separate standard h . In order to maintain the bevel-wheels in proper gear, a stop-piece h^2 is adjustably secured to a shelf h' of the standard h , and is used to set the wheel g' to its proper position. Heretofore stop-pieces have been provided for this purpose; but they have been secured to the wooden cover of the tub instead of to a special shelf provided on the standard. The advantage of my construction is that the stop-piece is when adjusted practically solid with the bearing for the shaft in which the wheel is supported, and is also more satisfactorily adjusted and firmly secured.

I am aware that it is not new to provide a rotary agitator which is capable of axial movement, and I do not broadly claim such a construction, though I do not, on the other hand, limit myself to the exact construction herein described, my invention being specifically set forth in the following claims.

What I claim is—

1. In a washing-machine, the combination, with the cover and the agitator-shaft provided with a cross-head c , of bevel-wheel E, having guide-yoke extension e , with top journal e' , standard d , with bearings d' and d^2 , bevel-wheel g' , and operating-lever on a shaft g and standard h , with adjustable stop h^2 , all substantially as set forth.

2. In a washing-machine, the vertically-movable rotary scrubber-shaft passing loosely

through the cover and through a gear-wheel
supported thereon and guided vertically by
and also rotated within an extension *e* of
said wheel, substantially as described, in
5 combination with a lever mechanism for ro-
tating said gear-wheel, and a top bearing for
said extension, all substantially as set forth.

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

AUGUSTUS G. CHRISTMAN.

Witnesses:

W. G. STEWART.

ED. A. KELLY.