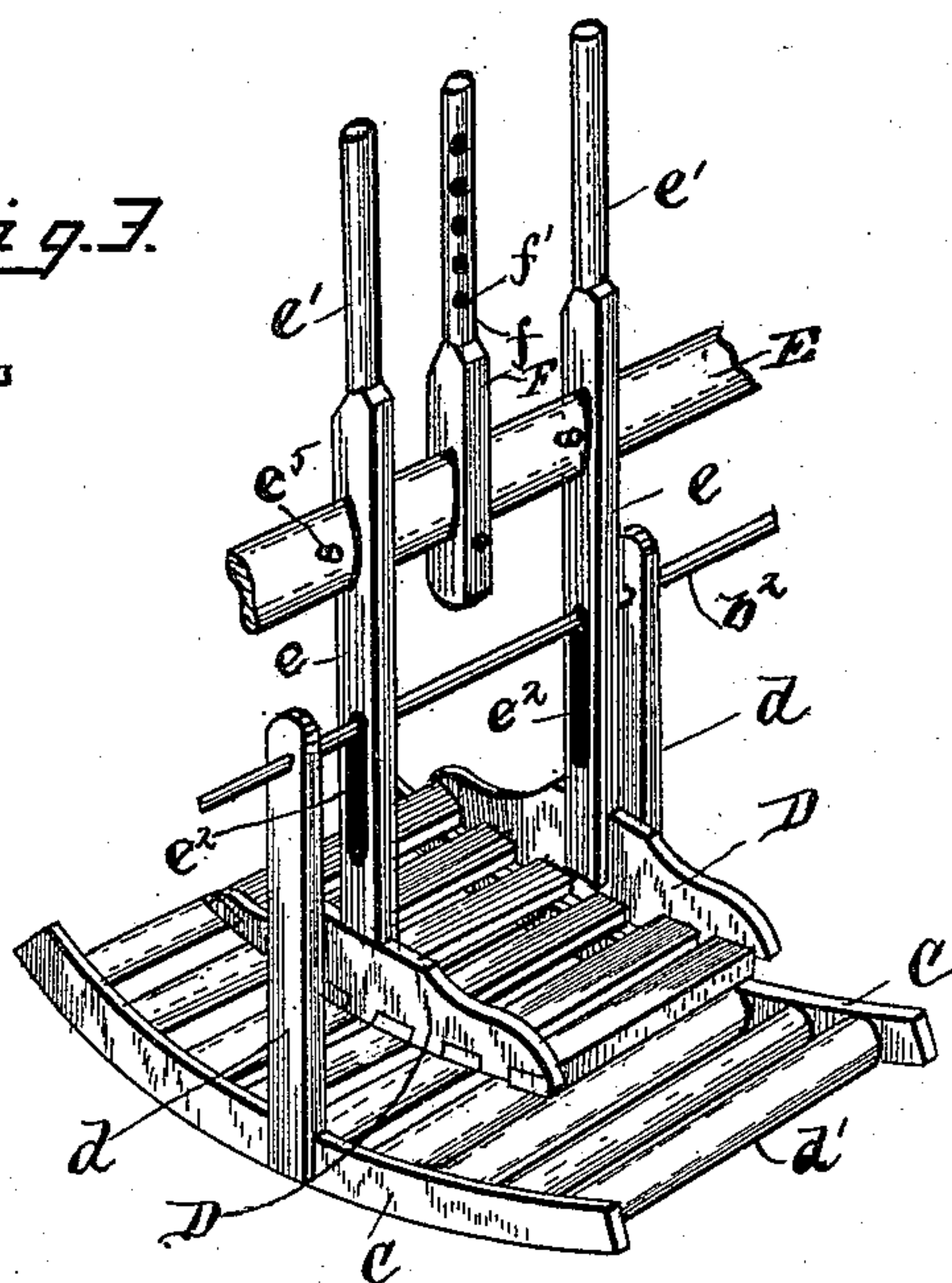
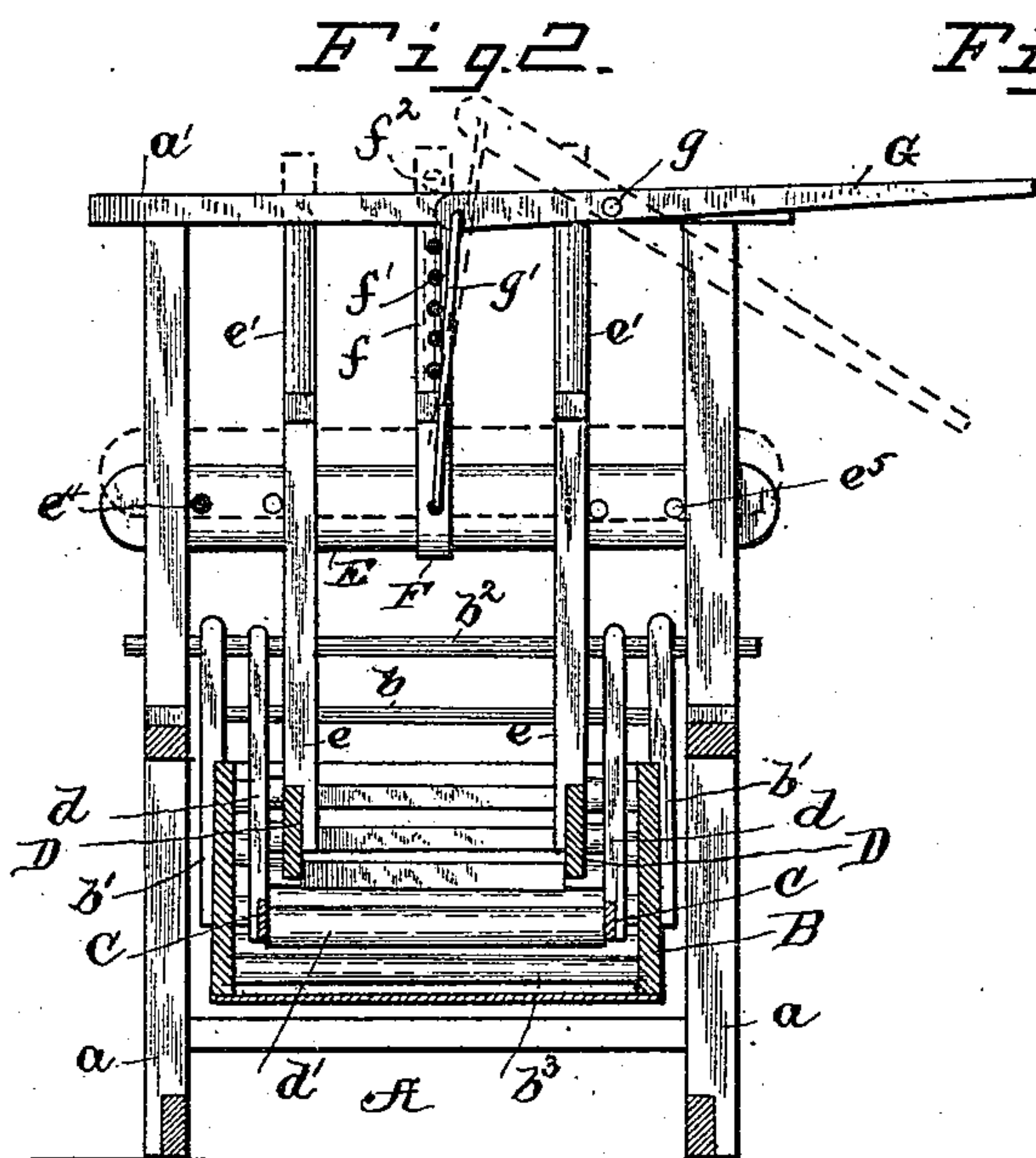
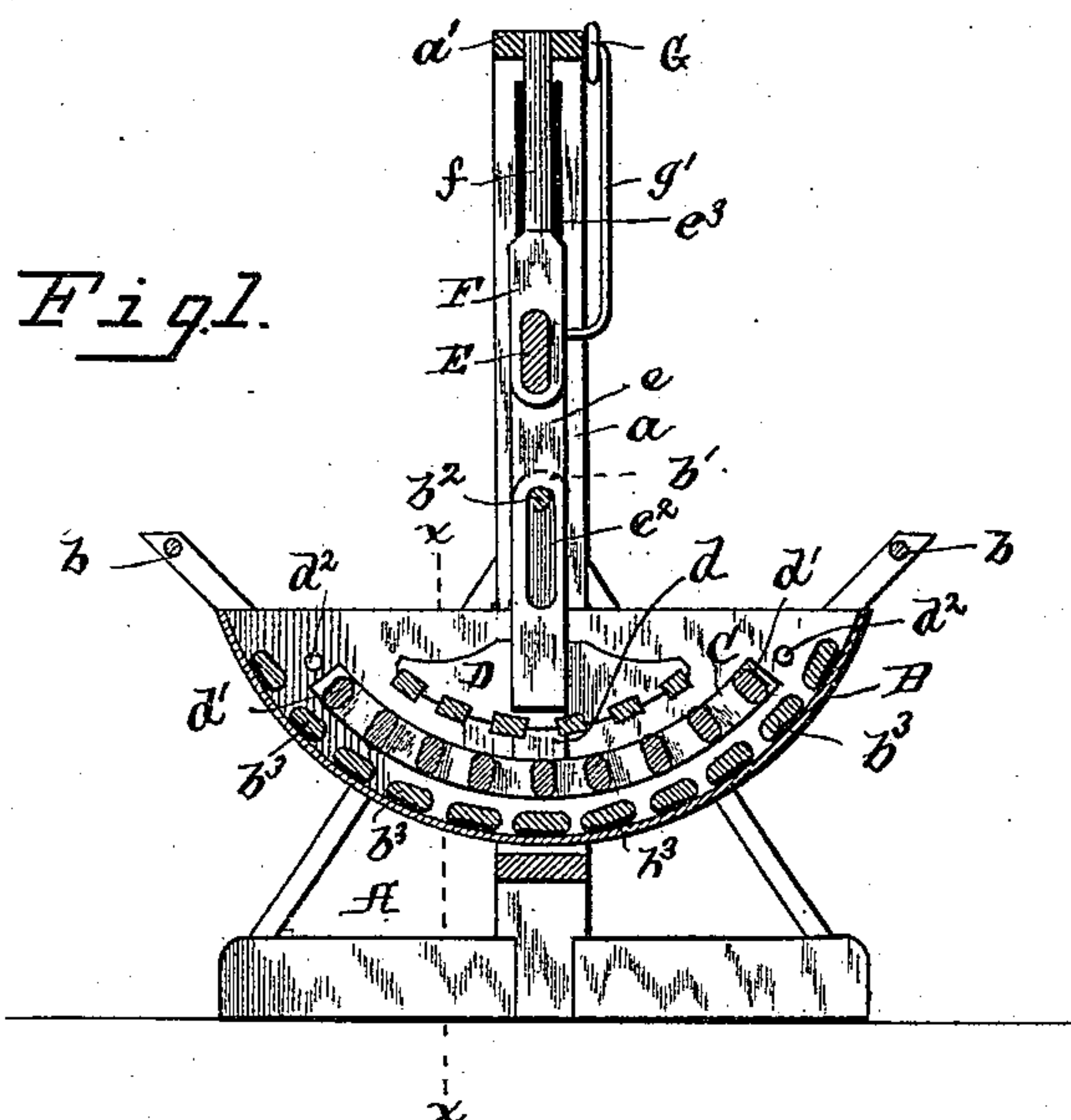


(No Model.)

J. A. HARRIS.
WASHING MACHINE.

No. 450,571.

Patented Apr. 14, 1891.



Witnesses
Am. S. Hodges
D. A. Milbrick

Inventor
James H. Harris
By *Patrick O'Farrell*
Attorney

UNITED STATES PATENT OFFICE.

JAMES A. HARRIS, OF NICKELSVILLE, VIRGINIA.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 450,571, dated April 14, 1891.

Application filed July 18, 1890. Serial No. 359,172. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. HARRIS, a citizen of the United States of America, residing at Nickelsville, in the county of Scott and State of Virginia, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to an improved washing-machine having for its object the provision of simple and highly-efficient means for securing a maximum rubbing process for the clothes with a minimum exertion or power.

15 The invention comprises the detail construction, combination, and arrangement of parts, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

20 In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of my improved washing-machine. Fig. 2 is a transverse sectional view on the line $x\ x$, Fig. 1. Fig. 3 is a detail view showing the rubbers.

25 Referring to the drawings, A designates the stand or frame having two vertical posts a , connected at their upper ends by a bar a' .

30 B is the tub or semi-cylindrical box, provided at its ends with handle-bars b and at its sides with opposite short arms b' , which are pivotally hung by a cross-rod b^2 , supported by posts a . Throughout the bottom of this tub is a series of stationary rubber-bars b^3 , spaced apart and located above the bottom, so as to leave a space for the easy outflow of suds, 35 soiled water, &c.

40 C is a rubber whose side arms d are also pivotally hung on rod b^2 . The lower portion of this rubber conforms in general outline to the inner surface of tub B, and is also provided with well-spaced-apart rubber-bars d' . This rubber C, which I term the "intermediate rubber," has only a limited movement by reason of stop-pins d^2 , projected from the inner surface of said box.

45 D is the main rubber, which does not vibrate, but is vertically movable. This rubber comprises two vertical arms e , having upper reduced ends e' , designed to project through apertures in cross-bar a' , which serves as a guide therefor. Opposite slots e^2 are formed in these arms for the passage of cross-

rod b^2 , and to permit of the elevation of rubber D. A cross-bar E is projected through slots or openings in arms e , and its ends are 55 extended into long slots e^3 in posts a . Apertures e^4 are formed in the cross-bar E for the insertion of pins e^5 to prevent lateral movement and also to guide the arms of the rubber D. A central arm F is secured at its 60 lower end to cross-bar E, and its reduced portion f is provided with a series of holes or apertures f' , and is extended up through a hole in connecting-bar a' .

G is a lever fulcrumed at g to bar a' and 65 connected by a rod g' to the lower end of arm F, and by means thereof the main rubber D can be moved upward the desired extent and be held elevated by a pin f^2 , inserted in any one of the holes f' above bar a' . 70

From the foregoing description it will be seen that by means of the lever the main rubber can be readily elevated and the clothes to be washed placed on top of the intermediate rubber, after which the main rubber is lowered 75 and the operator imparts a vibratory movement to the tub or box by grasping and pushing one end thereof. The intermediate rubber will be made to swing therewith, but its independent movement is limited by contact with the projections of the tub. The 80 clothes will fall to a greater or less extent between the spaced-apart bars of the intermediate rubber and are thus made to come in contact with the rubber-bars of the tub. In 85 this manner additional rubbing is secured, and this, in connection with that of the main rubber, results in the rapid and thorough cleansing of the clothes.

The suds and water can be readily removed 90 from the tub by swinging the same into an approximately vertical position.

I claim as my invention—

1. In a washing-machine, the combination, with a supporting-frame provided with guide- 95 ways, of a tub supported in the frame, and an oscillating rubbing-board provided with upwardly-projecting arms extending through the top bar of the frame, a cross-bar secured to the arms and having its ends working in 100 the guideways of the frame, and a link-connection between the lever and the cross-bar of the rubber-arms, as set forth.

2. The combination, with the supporting-

posts having slots and the apertured connect-
ing-bar, of the vibratory tub or box having
rubber-bars, the intermediate rubber located
therein and having a limited movement, the
5 pivotal rod for said tub or box, and inter-
mediate rubber having vertical arms extend-
ed through holes or apertures of said con-
necting-bar, the cross-bar projected through
said arms and having its ends extended into
10 slots of said posts and provided with aper-
tures, the guide-pins therefor, the arm se-

cured to said cross-bar between said arms and
having a series of holes or apertures, the pin
therefor, and the lever fulcrumed on said con-
necting-bar and connected to said central 15
arm, substantially as set forth.

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

JAMES A. HARRIS.

Witnesses:

GEO. A. EWING,
F. H. MORISON.