

(No Model.)

E. P. SNYDER.  
WASHING MACHINE.

No. 414,262.

Patented Nov. 5, 1889.

Fig. 1.

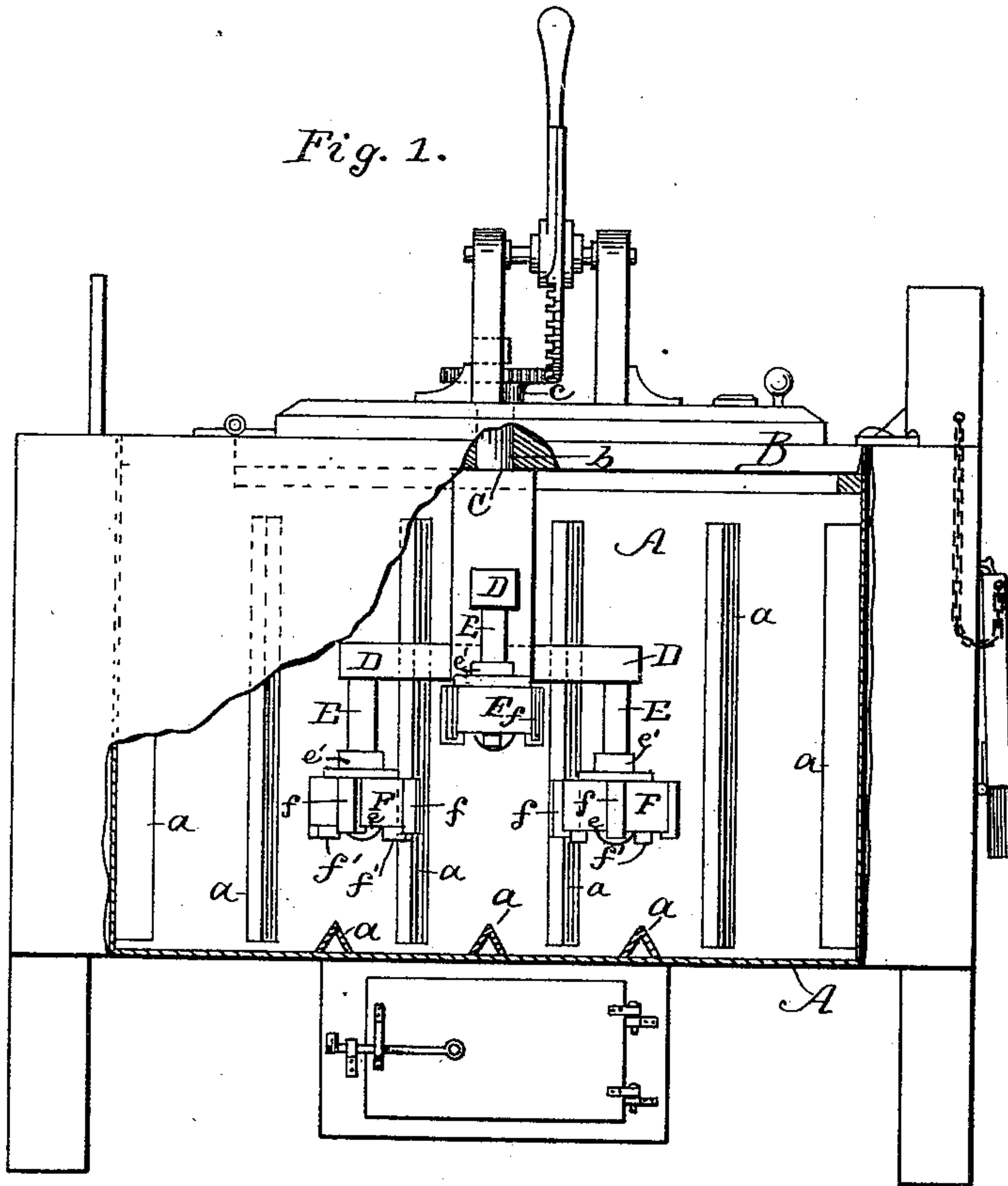


Fig. 4.

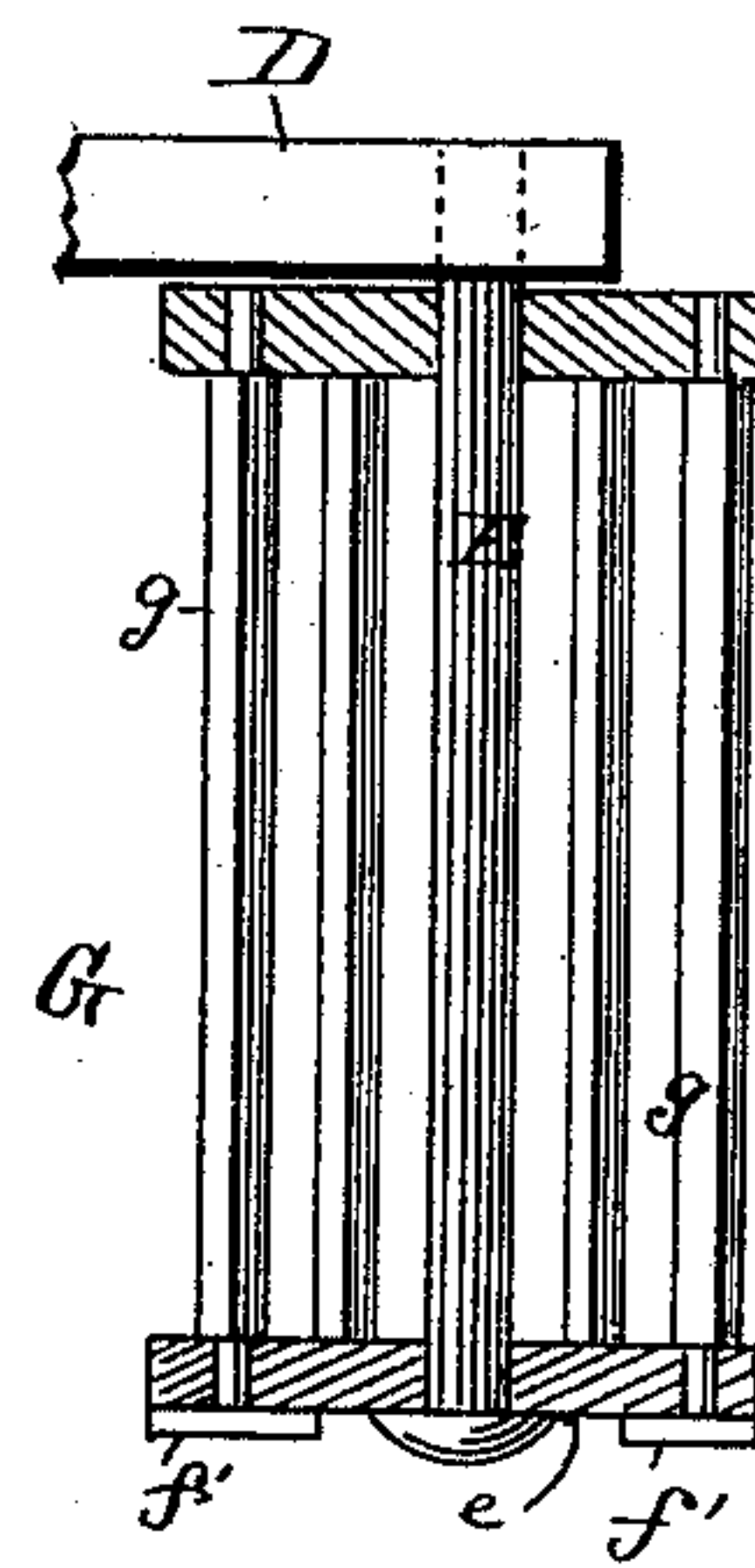


Fig. 3.

Fig. 2.

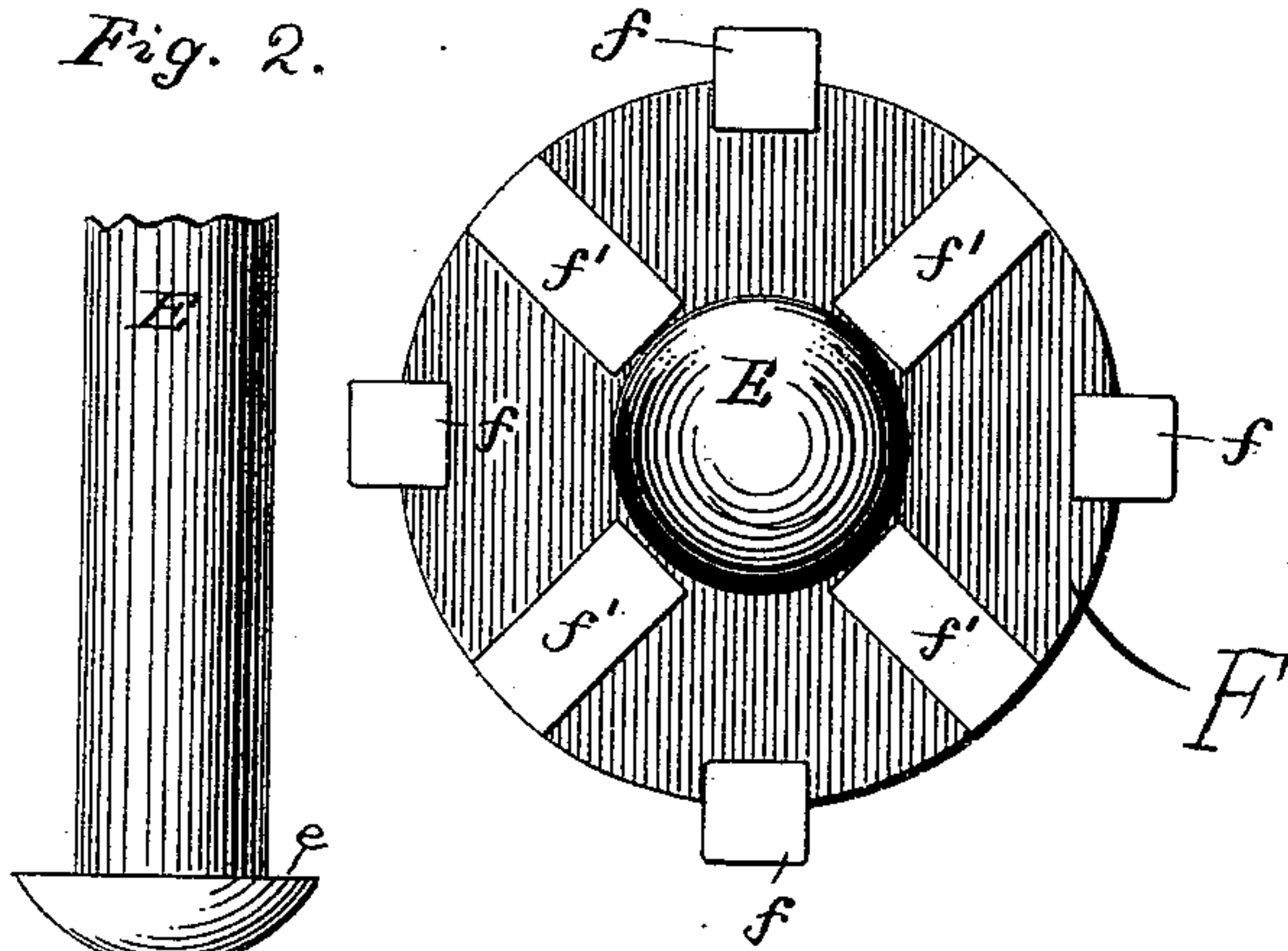
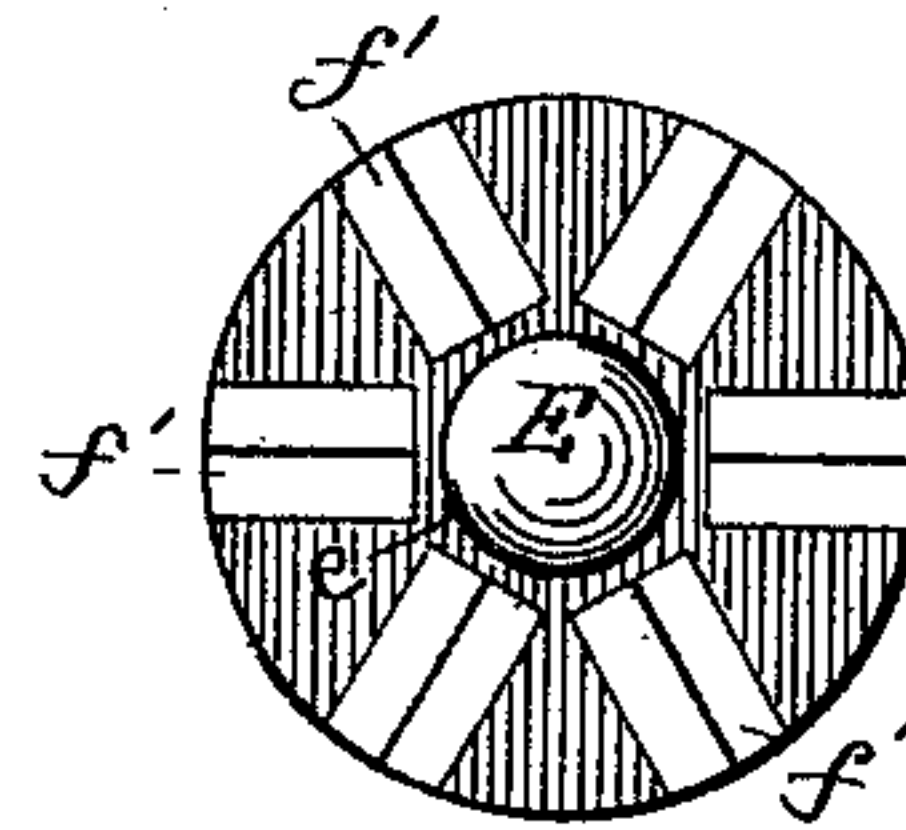


Fig. 5.



Witnesses

Phos Houghton.  
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Inventor  
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Chas. F. Benjamin



# UNITED STATES PATENT OFFICE.

EDWIN P. SNYDER, OF STROUDSBURG, PENNSYLVANIA.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 414,262, dated November 5, 1889.

Application filed July 3, 1889. Serial No. 316,430. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN P. SNYDER, a citizen of the United States, residing at Stroudsburg, in the county of Monroe 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 to tank washing-machines having agitators operated by a reciprocating motion, and its object is to obtain an improved action of the agitating apparatus upon the fabrics to be washed.

In the accompanying drawings, wherein like letters represent like parts, Figure 1 is a side elevation of a tank washing-machine, partly in section and with one of its sides broken away, showing the construction and arrangement of my improvements. Fig. 2 is a detached perspective of one of the vertical axes shown in elevation in the preceding figure. Fig. 3 is a detached bottom plan of one of the rubbers shown in elevation in the first figure. Fig. 4 is an alternative construction and arrangement of said rubbers, and Fig. 5 is a bottom plan of said alternative device.

A is the tank, which I prefer to make of sheet metal, in order that a coal, wood, oil, or other suitable furnace may be connected therewith to keep the water within the tank hot or boiling when the machine is in operation. This tank is cased in wood or other suitable material, and is supported by corner-posts or otherwise, to hold the tank and furnace a proper distance above the ground or floor.

B is a tight-fitting lid hinged to the tank or casing in any ordinary and convenient way. The lid is provided with an orifice *b*, through which, from the inside to the outside of the tank, passes the vertical dependent shaft C of the agitating apparatus, to be secured to and supported by the lid by means of a rim or collar *c*, which collar may be provided with or formed into a horizontal toothed wheel, meshing with a crown-wheel set vertically, to supply the reciprocating motion to said shaft.

Upon the shaft C are four arms D, arranged, as shown, in two pairs, one pair above and at a right angle with the other pair. The arms of each pair project horizontally from the shaft, and form a practically straight line through it. From each of these arms depends a long vertical axle E, formed at the lower end into a flat seat or shoulder *e*, substantially of the form shown. Mounted and turning upon each axle is a cylindrical agitator or rubber F, having shoulders *f* upon the periphery thereof for the purpose of moving the fabrics about in the process of washing. These shoulders extend, as shown, below the lower plane of the rubber, and, in connection with the lugs *f'*, formed upon the bottom of the rubber, exert a carrying effect upon the fabrics below the plane of the rubbers. Each rubber is kept from sliding up its axle by a rim or collar *e'*, fixed upon the axle. The lugs *f'* may be rectangular in their cross-section, as indicated in Figs. 1 and 3, or triangular, as indicated in Fig. 5.

It is important to the most efficient working of the agitating apparatus that the lower plane of the upper pair of rubbers should be above the upper plane of the lower pair of rubbers, so as to give more space and freedom for the fabrics to spread and move about among and between the rubbers, and to the same end it is desirable that the shaft C should not extend below the plane of the lower pair of arms carried by it.

In place of the rubbers F, I may use an alternative form of rubber G, as shown in Fig. 4, the vertical posts of which *g* may be in any ordinary and familiar manner arranged to revolve upon their axes, or may be rigidly attached to the plates of the rubber; or the series of posts may be made revolving and fixed alternatively, the last-mentioned arrangement being preferable. These open-work rubbers G would also have the lugs *f'*, as included in Fig. 4.

To further increase the efficiency of my washing-machine, I provide the tank A with fixed rubbers *a* upon the floor and the inner sides and ends thereof. I prefer the arrangement of these rubbers shown in Fig. 1, wherein the floor-rubbers are fixed straight across the tank and the side rubbers vertically upon the walls thereof, with those on the long sides of



the tank alternating in position with the rubbers crossing the floor; but any other arrangement of the floor-rubbers not materially departing from the arrangement shown may be  
5 used. It is evident that the rubbers upon the reciprocating shaft will co-operate with the rubbers fixed to the interior of the tank in the detergent effects of the working of the machine. The fixed rubbers may be of triangular  
10 or substantially rectangular outline; but I prefer the former outline. The rubbers F must not be so close to the walls or floor of the tank as to impair the free movement of the currents formed in the water or of the fabrics,  
15 nor so distant as to fail to co-operate efficiently with the fixed rubbers attached to the tank; but no specific directions are required as to this point.

Having thus described my invention, what I  
20 claim to be new and useful, and desire to secure by Letters Patent, is the following:

1. In a washing-machine, an agitating apparatus consisting in a combination of the shaft C, having the collar *c*, the arms D, the axles E, having the shoulders *e* and the collars *e'*, and the rubbers F, having the shoulders *f* and the lugs *f'*, the whole constructed and arranged as hereinbefore described, for the purpose set forth.

2. In a washing-machine, the combination  
30 of the shaft C, having the collar *c*, the arms D, the axles E, having the shoulders *e* and the collars *e'*, the rubbers F, having the shoulders *f* and the lugs *f'*, and the rubbers *a*, the whole constructed and arranged as hereinbefore described, for the purposes set forth.  
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In testimony whereof I affix my signature in presence of two witnesses.

EDWIN P. SNYDER.

Witnesses:

CHARLES TROCH,  
JOHN E. SNYDER.