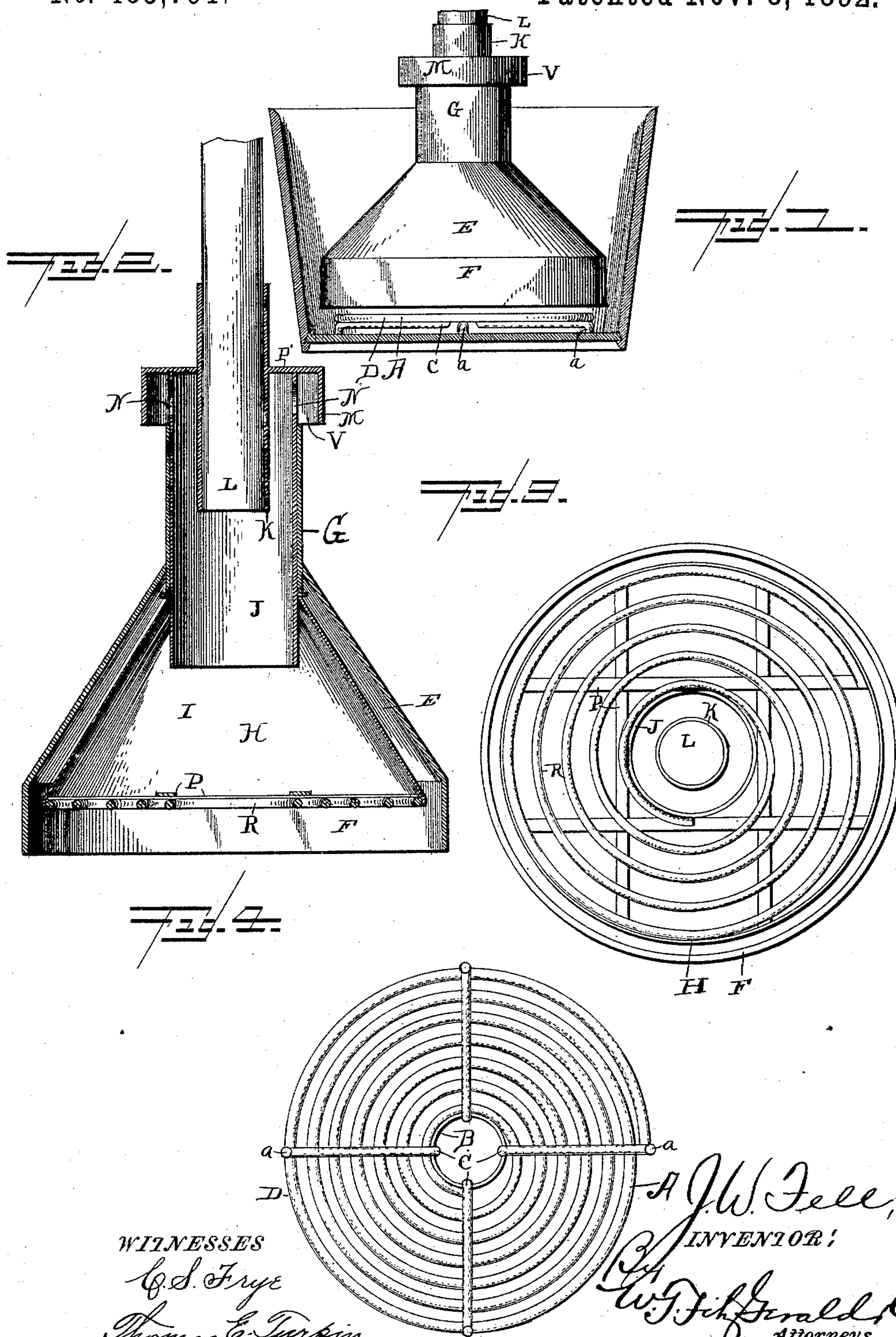


(No Model.)

J. W. FELL.  
WASHING MACHINE.

No. 485,791.

Patented Nov. 8, 1892.



WITNESSES

G. S. Frye  
Thomas C. Turpin

J. W. Fell,  
INVENTOR;

W. J. Fitzgerald & Co.  
Attorneys.



# UNITED STATES PATENT OFFICE.

JAMES W. FELL, OF CAMBRIDGE, ILLINOIS.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 485,791, dated November 8, 1892.

Application filed January 22, 1892. Serial No. 418,921. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES W. FELL, a citizen of the United States, residing at Cambridge, in the county of Henry and State of Illinois, have invented certain new and useful Improvements in 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.

My invention has relation to improvements in washing-machines of that class in which the clothes are placed in a receptacle with soap and water and cleansed by forcing air and water through them at the same time that they are being operated upon by a reciprocating plunger; and it consists in the peculiar construction, certain novel combinations, and the adaptation of parts hereinafter described, and particularly pointed out in the claims appended.

In the accompanying drawings, Figure 1 is an elevation of my improved machine in position within a tub, the side wall of which is broken away. Fig. 2 is a vertical diametrical section of the machine. Fig. 3 is an inverted plan view of the reciprocating plunger, and Fig. 4 is an inverted plan view of the base.

In the said drawings similar letters designate corresponding parts throughout the several views, referring to which—

A indicates the open-work base of my improved machine, which is designed in practice to rest upon the bottom of a tub or the like and hold clothes away from the same, so as to allow of a free passage of the air and water through the same when the plunger is forced downwardly.

B indicates the vertically-disposed center tube of the base, from which radiate the horizontal bars C, which are provided at their free ends with depending angular branches *a*, which serve to support and hold the base away from the bottom of the tub, as shown in Fig. 1 of the drawings.

Suitably connected to the center tube B of the base and at intervals in its length to the upper side of the radial bars C is a coiled

wire D, the whirls of which are arranged such a distance apart as to allow of a free passage of the air and water through them.

E indicates the stationary casing of my improved machine, which is preferably provided at its lower edge with a vertically-disposed circular flange F of sufficient diameter to cover the base A, as shown. This casing E, which is preferably of a truncated cone shape, as illustrated, is provided at its upper end with a vertically-disposed sleeve G, which is preferably of the proportional length and diameter illustrated, and is designed to receive and guide the vertical sleeve of the reciprocating plunger. The body H of the reciprocating plunger I is also preferably of a truncated cone shape, and it is provided with a central aperture, as illustrated, to receive the vertically-disposed sleeve J, which extends downwardly a slight distance into the same.

Suitably connected to the lower edge of the plunger-body H and extending across the same are a series of bars P, to which a coiled wire R is fixedly connected at intervals in its length.

The whirls of the coiled wire R are arranged such a distance apart as to allow of a free passage of the air and water, and said wire is designed in practice to press the clothes upon the base A, so as to thoroughly remove the dirt and dirty water therefrom.

The sleeve J of the plunger I extends a suitable distance above the same, and it merges at its upper end into a vertically-disposed tubular socket K, which is preferably of a reduced diameter, as shown, and is designed to seat the hand-grasp or handle L, through the medium of which the reciprocating plunger is manipulated.

Formed in the sleeve J adjacent to the upper end thereof is a series of laterally-disposed apertures N, through which air is admitted into the sleeve and body of the plunger at the beginning of each downward stroke of the same.

In order to prevent the water from flying laterally from the apertures N and splashing over the operator, I have provided the cap M, which comprises the flat top P' and the de-



pending circular flange V and serves to deflect the escaping water down the outside of the casing.

In operation the base A is placed upon the  
5 bottom of a tub in which a sufficient quantity of soapsuds or the like and the clothes are placed upon said base, after which the casing E is placed over the same. The plunger I is then reciprocated to force the water  
10 and air through the clothes, whereby it will be readily perceived that the cleansing of the same will be facilitated. At the beginning of each downward stroke of the plunger I air will take through the apertures N in the  
15 sleeve thereof, and as the plunger is pushed downward the said apertures will be closed by the sleeve of the casing and the air and water beneath the plunger will be forced through the clothes. Upon the upstroke of  
20 the plunger the water by reason of suction will take up into the sleeve of the plunger and out through the apertures therein back into the tub, the cap M serving to deflect the same down the sides of the casing.

25 By the provision of the coiled-wire base and the coiled wire at the lower end of the plunger-body it will be readily perceived that while a sufficient pressure may be exerted upon the clothes, the same will be subjected  
30 to little or no friction, and as no sharp points are presented by the base or plunger the danger of cutting or tearing the clothes is reduced to a minimum.

Although I have specifically described the  
35 construction and relative arrangement of the

several elements of my improved machine, yet I do not desire to be confined to the same, as such changes or modifications may be made as fairly fall within the scope of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a washing-machine, substantially as described, the combination, with the casing 45 comprising the body and the vertically-disposed sleeve, of the reciprocating plunger comprising the body and the sleeve arranged in the sleeve of the casing, the laterally-disposed apertures formed in the sleeve of the 50 plunger adjacent to the upper end thereof, and the cap comprising the flat top connected to the plunger-sleeve above the apertures therein and the depending flange surrounding said apertures, substantially as and for 55 the purpose set forth.

2. In a washing-machine, the combination, with the center tube and the coiled wire, the horizontal bars secured to said tube and spanning and inclosing said wires and termi- 60 nating at their outer ends with depending feet, substantially as and for the purposes specified.

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

JAMES W. FELL.

Witnesses:

JOHN V. STREED,  
C. M. TURNER.