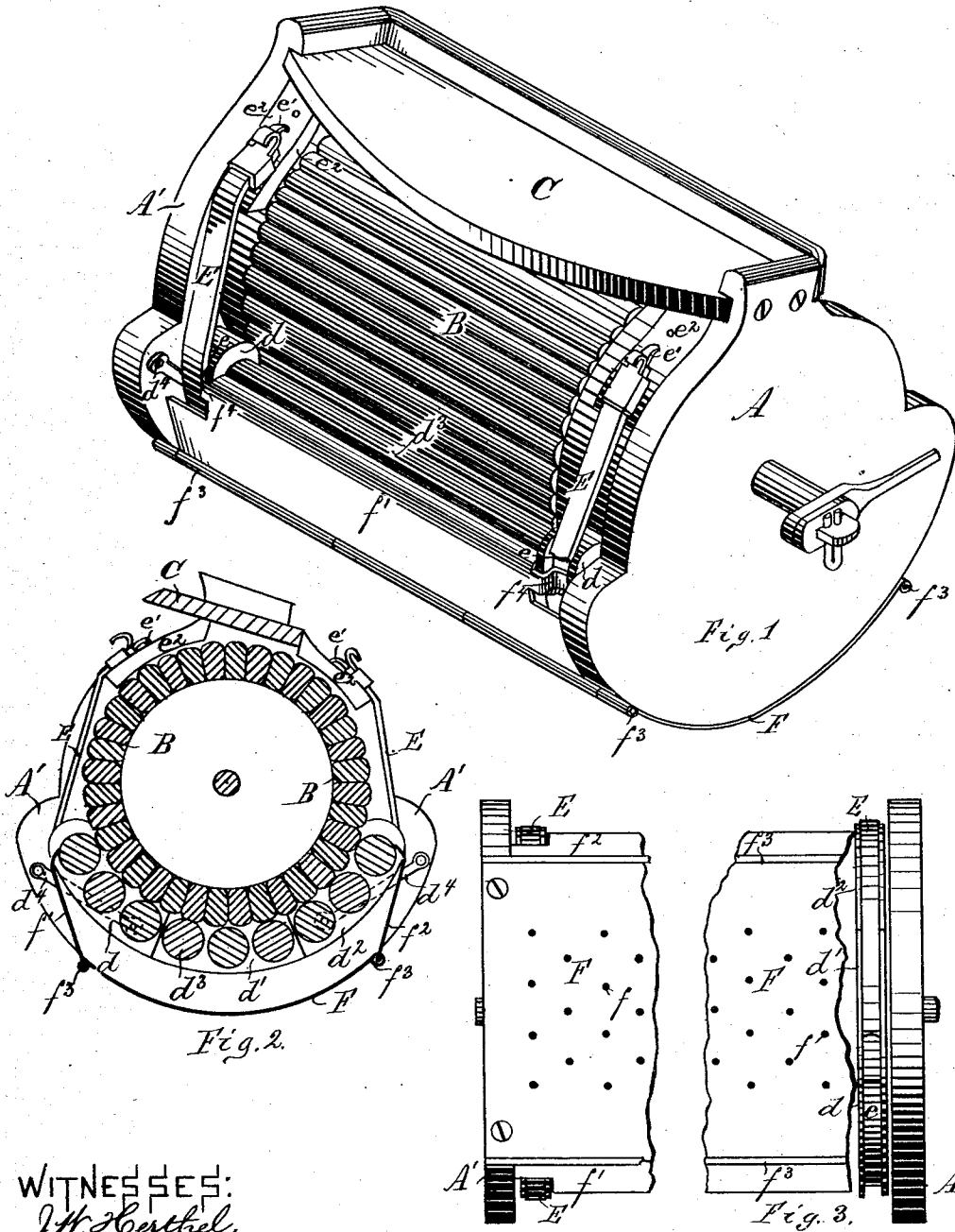


H. NIERMANN & F. SCHLEETER.

Washing-Machines.

No. 158,969.

Patented Jan. 19, 1875.



WITNESSES:

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J. H. Hertel.
Chas. F. Meiner.

INVENTORS:

per. Henry Hermann & Fred K Schleiter
Fertel & Co
Attys.

UNITED STATES PATENT OFFICE.

HENRY NIERMANN AND FREDERICK SCHLEETER, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **158,969**, dated January 19, 1875; application filed September 5, 1874.

To all whom it may concern:

Be it known that we, HENRY NIERMANN and FREDERICK SCHLEETER, both of St. Louis, in the county of St. Louis and State of Missouri, have invented an Improved Washing-Machine, of which the following is a specification:

This invention consists mainly, first, in the combination, with sectional frames carrying rollers, of an elastic supporting-strap; and, second, in the combination of the hinged guard-plates with other parts of the machine. It further consists in certain details of construction, which, in connection with the foregoing, will be fully described hereinafter.

Of the drawing, Figure 1 is a perspective view or front elevation of our improved machine. Fig. 2 is a central sectional elevation. Fig. 3 is a plan view of the bottom plate, parts broken away to show detail features.

A A' are suitable side frames. Within the frame parts A A' we provide a revolving ribbed cylinder, B, operated by hand-crank, as usual. C is the soap-board.

Our improvement relates to an improved formation and operation of the smaller rollers and their frame parts. In machines of this nature, in which the clothes or material are passed between smaller rollers and a large roller, the former are usually pivoted in a hinged frame. This hinged frame is further rendered adjustable by spring or rubber connections. This manner of adjustably hinging this frame is inadequate to accomplish the chief and essential purpose of giving a proper pressure action to the material as it passes between said rollers. Thus, whenever the material, clothing, and the like gathers more at one point between the rollers, the entire remaining rollers are caused to spread away from contact with main roller. Whatever clothing is therefore between the smaller series of rollers, it frequently arises from this cause, is not subjected to the pressure and rubbing action required for a thorough cleansing.

Our object is to avoid the imperfect washing thus incurred, and to achieve a positive and decided pressure action of the series of rollers that are not acted upon by the undue gathering or crowding of the material, as aforesaid. We therefore form the wash-

board (consisting of the lower frame and its series of rollers) in sections $d d^1 d^2$, and of which sections there can be any additional number, as may be deemed practical. (See Figs. 2, 3.) In each of the sectional frames we journal small rollers, d^3 . (See Fig. 2.) The outer sectional frames, $d d^2$, we secure by a pivoted bar, d^4 , to the inner side of the side frames, A A', as indicated in Figs. 1, 2. Thus secured, these outer or end sections readily permit the passage of the material, cloth, &c., between the roller parts, exerting a pressure action, and at same time the crank or pivotal bar d^4 prevents said sections from oscillating in an upward direction, which consequently prevents any possibility of self-disengagement of the intermediate or remaining sectional frames. The intermediate sectional frames d^1 are simply placed between the outer sections, $d d^2$. All the frames $d d^1 d^2$, with rollers d^3 , thus placed between the frame parts A A', are further secured and held in place for operation by a rubber or flexible strap, E. We pass this strap E in the groove e , fitted for it in each of the sectional roller-frames $d d^1 d^2$, and as shown in Fig. 3. The outer ends of the flexible strap we provide with hooks e^1 , by means whereof it can be secured in any of the series of holes in the holder e^2 , which is secured to the sides at top of the frames A A'. (See Figs. 1 and 2.) The lower sectional frames and rollers are therefore supported adjustably by means of the strap E, and firmly held in place by same, as well as by the side frames A A'. All undue or irregular pressure action on part of the suspended wash-board is thus avoided, as each of the various sections thereof, with its rollers, is rendered capable of exerting its required pressure upon the material to be washed, no matter how any particular section may be acted upon. To prevent the clothing &c., from coiling about any of the rollers d^3 , producing clogging and ineffective operation of the machine, we provide the bottom thereof with a bottom protector-plate, F. (See Figs. 1, 3.) The plate F has perforations f , for the water to pass through, and is secured to the bottom of the side frames, A A'. Further, we provide the plate F with additional plates or guards, $f^1 f^2$, hinged at f^3 . (See Figs. 1, 2, 3.) The guards $f^1 f^2$ have projections at f^4 , seated

under the strap E, in the groove *e* of the outer section, (see Fig. 1;) and, further, the upper faces of said guards fit snugly against the outer small rollers, as indicated in Figs. 1 and 2. The material is thus prevented passing under the wash-board, or its rollers *d*³. The hinged guards *f*¹ *f*² being secured at *f*⁴ to the end sections, *d* *d*², they are therefore capable of being moved to and from the ribbed cylinder B, in accordance with the movements of said sections.

We do not claim, broadly, a frame carrying rollers dependent from an elastic support; but

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with the sectional frames *d* *d*¹ *d*², carrying rollers *d*³, an elastic supporting-strap, E, extended beneath the sections, as described, and adapted to yield below any one of them without sensibly affecting the others, as set forth.

2. The combination of the elastic strap E, having hooks *e*¹, with the fixed board *e*², having the series of holes described, and the sectional frames *d* *d*¹ *d*², whereby the strap is made adjustable, as described.

3. The combination of the fixed bottom-plate, F, the hinged guard-plates *f*¹ *f*², and the adjustable roller-frames, as described.

4. The combination of the guard-plate *f*¹, having projection *f*⁴, with the adjustable grooved frames *d* *d*² and the elastic strap E, as described, the strap being adapted to hold the projection securely in the groove, and thus give the guard-plate movement in harmony with that of the sectional frame, as set forth.

5. The combination of the outer sectional frames, *d* *d*², the pivoted bars *d*⁴, and the side frames, A A', the bar being adapted to unite the sectional frames to the side frames, and retain them in position without interfering with their adjustability, as set forth.

In testimony of said invention we have hereunto set our hands.

HENRY NIERMANN.
FREDERICK SCHLEETER.

Witnesses:

WILLIAM W. HERTHEL,
CHAS. F. MEISNER.