

(No Model.)

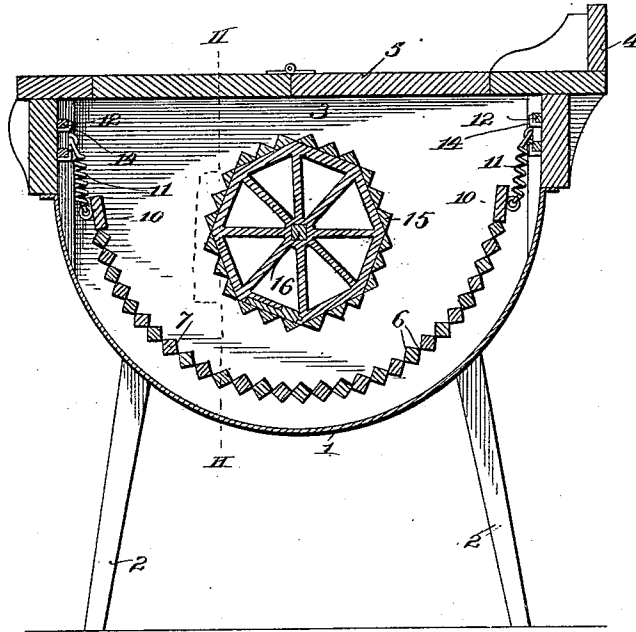
2 Sheets—Sheet 1.

E. KING.  
WASHING MACHINE.

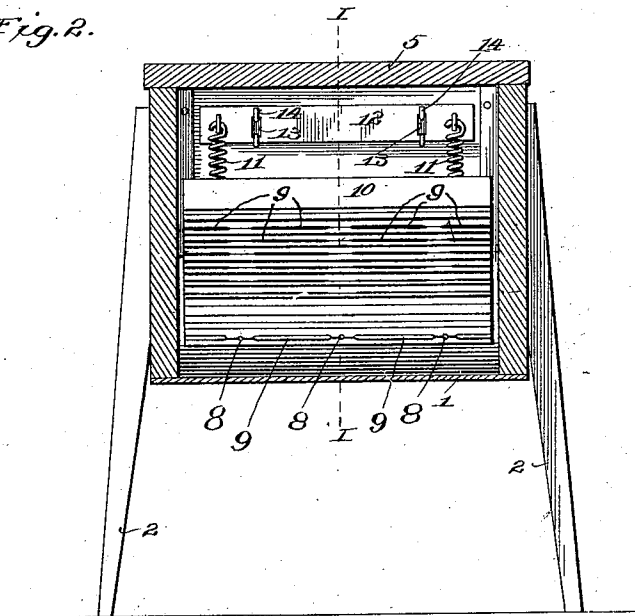
No. 513,020.

Patented Jan. 16, 1894.

*Fig. 1.*



*Fig. 2.*



*witnesses:*

*Harry S. Roberts*  
*Walter E. Allen*

*Inventor:*

*Elias King.*  
*By Knight*  
*Atty's*

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

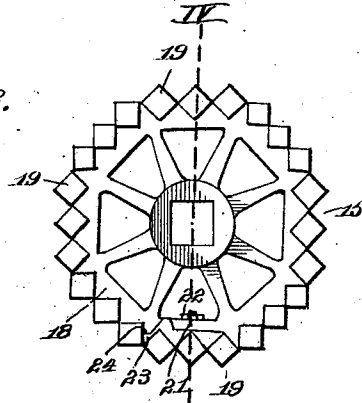


Fig. 4.

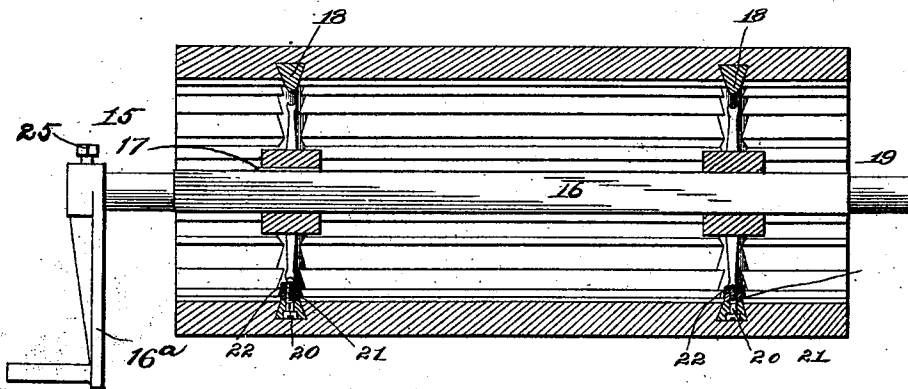


Fig. 5.

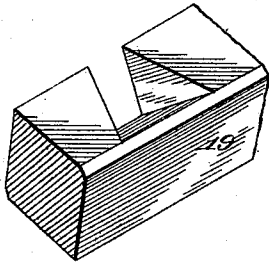
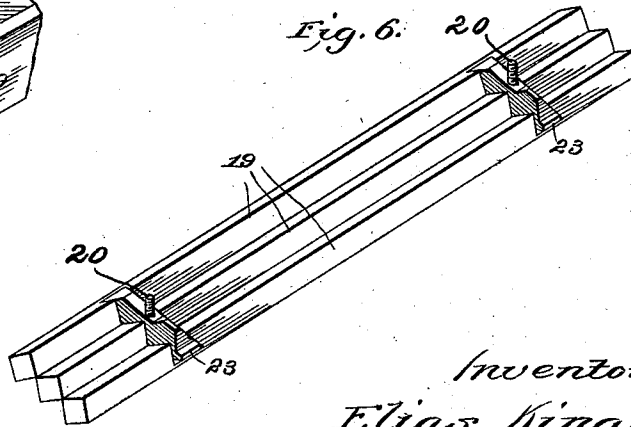


Fig. 6.



Witnesses:

Harry D. Rohrer.  
Walter E. Allen.

Inventor:

Elias King.  
By Knights Bar  
Attys

# UNITED STATES PATENT OFFICE.

ELIAS KING, OF SIDNEY, OHIO.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 513,020, dated January 16, 1894.

Application filed June 22, 1893. Serial No. 478,458. (No model.)

*To all whom it may concern:*

Be it known that I, ELIAS KING, a citizen of the United States, residing at Sidney, in the county of Shelby and State of Ohio, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

My invention relates to washing machines which employ a flexible washing apron secured within a washing body, and a rotary scrubbing cylinder which is journaled in the washing body directly over the apron; and my invention consists broadly of a flexible washing apron yieldingly and adjustably mounted within the washing body, tub or receptacle and a rotary scrubbing cylinder having transverse slats which are detachably secured to the polygonal end pieces in sections by means of dove-tail joints.

My invention further relates to the manner of securing the last section of slats to the end pieces of the cylinder, and other novel features of construction, all of which will be hereinafter fully described with reference to the accompanying drawings and specifically pointed out in the claims.

In the said drawings:—Fig. 1 is a longitudinal section of my washing machine taken on the line I—I Fig. 2. Fig. 2 is a transverse section of the same taken on the line II—II Fig. 1. Fig. 3 is an end view of the scrubbing cylinder. Fig. 4 is a longitudinal section of the same taken on the line IV—IV Fig. 3. Fig. 5 is an enlarged detail view showing the dove-tailed groove formed in the slats, by which they are detachably secured to the end pieces of the cylinder, and Fig. 6 is a detail perspective of the detachable section of the scrubbing cylinder.

Referring to the drawings, 1 represents the semi-cylindrical washing tub or receptacle, which is supported on the legs or supports 2, provided with the opening 3 through which the clothes are inserted, and with the wringer board 4. The opening 3 is closed by the cover 5 formed of two sections which are hinged together at their adjacent edges.

6 represents the washing apron which is curved to conform to the washing tub, and it is composed of the transverse slats 7 which are secured together edge to edge by means of wires 8. The slats 7 have their adjacent

edges cut away to form the spaces 9 which allow the water to circulate freely through the apron.

Secured to the end slats 10 of the apron are coiled springs 11, and secured to the other ends of the springs 11 are the cross-pieces 12.

13 are slots or openings in the cross-pieces 12, and 14 are hooks secured to the washing tub, which pass through said openings in the cross-pieces 12 to support the apron in the washing body. These hooks allow of the apron being adjusted within the washing tub with relation to the rubbing cylinder 15, when more or less pressure is desired to thoroughly wash the clothes; the springs 11 allow the apron 6 to yield to the varying thicknesses of the clothes as they are passed under the rubbing cylinder, and thus preventing the clothes from being torn.

The rubbing cylinder 15 is detachably mounted upon its axis 16, which has its journals in the sides of the washing tub. The cylinder is rotated in the washing tub by means of a crank handle 16<sup>a</sup> which is held on the axis 16 by means of a pin 25. The cylinder is held from lateral movement on the said axis by means of the key 17.

The rubbing cylinder 15 is composed of the heads or end pieces 18 (the rims of which are polygonal) and in cross-section, flaring or dove-tail; and the slats 19 which are rectangular in cross-section. The slats 19 are secured to the end pieces by means of the dove-tail cross-slots as seen in Fig. 5 which engage with the dove-tail or triangular peripheries of the end pieces. The slats are put onto the end pieces in sections of three slats each. The last or detachable section of three slats is secured to a portion of the periphery, which

is provided with the screw threaded projections 20 which fit into the laterally extending lugs 21 on the end pieces, and it the said section is held thereto by means of the nuts 22.

This last section is also provided with a tongue 23 which fits in a short groove 24 formed in the end pieces, to aid in holding the said last section in place. By this construction it will

be seen that whenever a slat is broken at any point on the rubbing cylinder it can be easily and readily replaced by another by simply removing the detachable section from the cylinder, (which has previously been removed

from the washing tub or receptacle,) and slipping the slats off the end pieces until the broken one is reached which is also removed and a new one replaced. The remainder of the sections of slats are then slipped onto the end pieces and the remaining section secured in place.

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

1. In a washing machine, the combination of a suitable tub or receptacle, a washing apron supported therein, and a rubbing cylinder journaled within the tub or receptacle above the apron and composed of suitable heads having rims of flaring or dove-tail cross-section, and slats formed with transverse dove-tail grooves or notches in which the rims of the heads or end pieces engage; said slats being rectangular in cross-section, and the transverse dove-tail grooves or notches cutting one

of the angular edges and the adjacent faces of each slat, whereby the opposite angular edge will be presented to the clothes being washed, substantially as set forth. 25

2. In a washing machine, the combination of a suitable tub or receptacle, a washing apron supported in said receptacle, and a rubbing cylinder journaled in said receptacle and composed of suitable heads, and slats detachably secured to the heads; said heads having parts or sections of their peripheries removably secured in place by means of suitable bolts which pass through suitable perforated lugs and are held in place with the slats attached thereto, by means of nuts, substantially as set forth. 30 35

ELIAS KING.

Witnesses:

W. D. DAVIS,  
MAUD FORD.