

(No Model.)

2 Sheets—Sheet 1.

R. W. WELDON & S. T. STITES.
STARCHING MACHINE.

No. 545,753.

Patented Sept. 3, 1895.

Fig. 1.

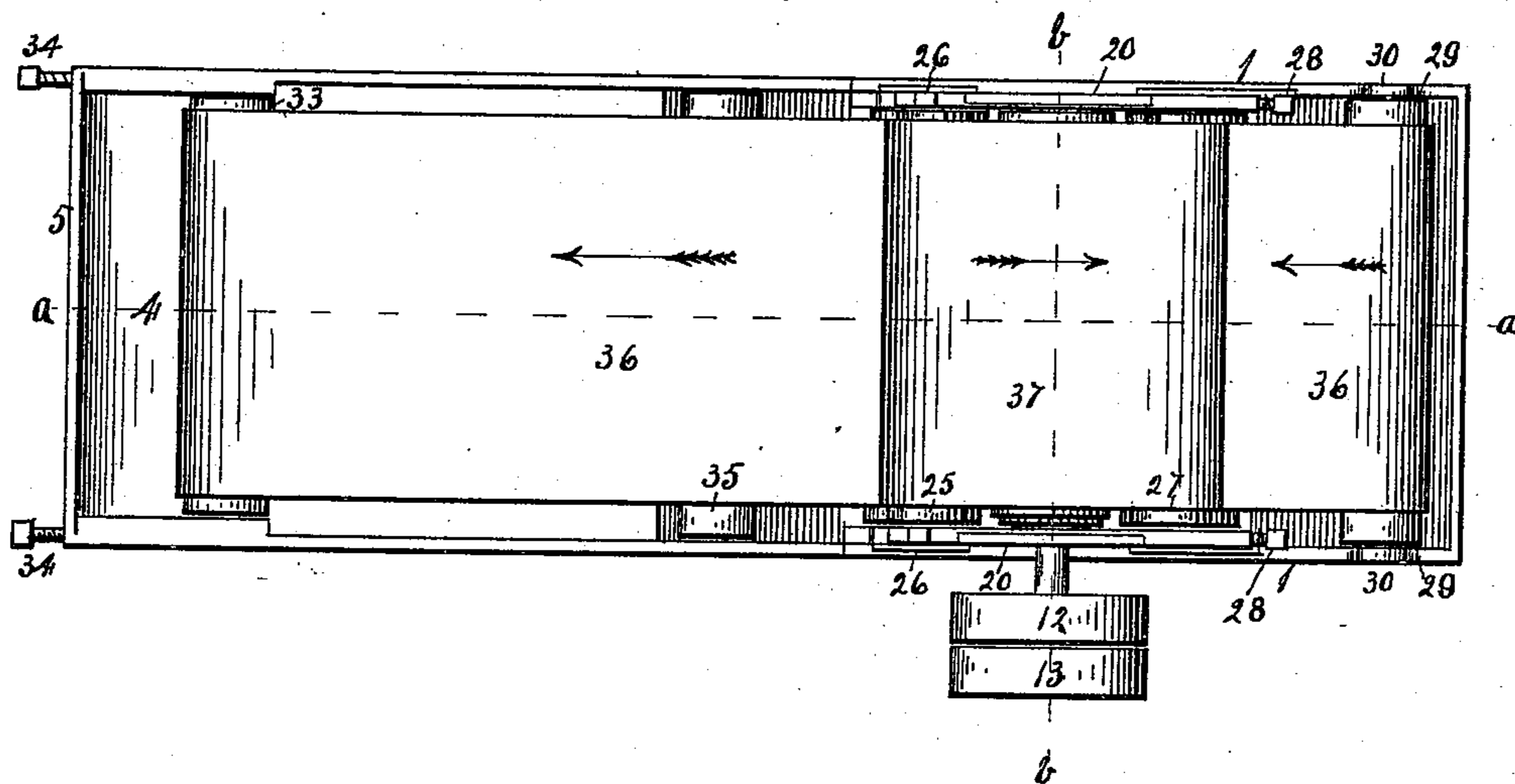
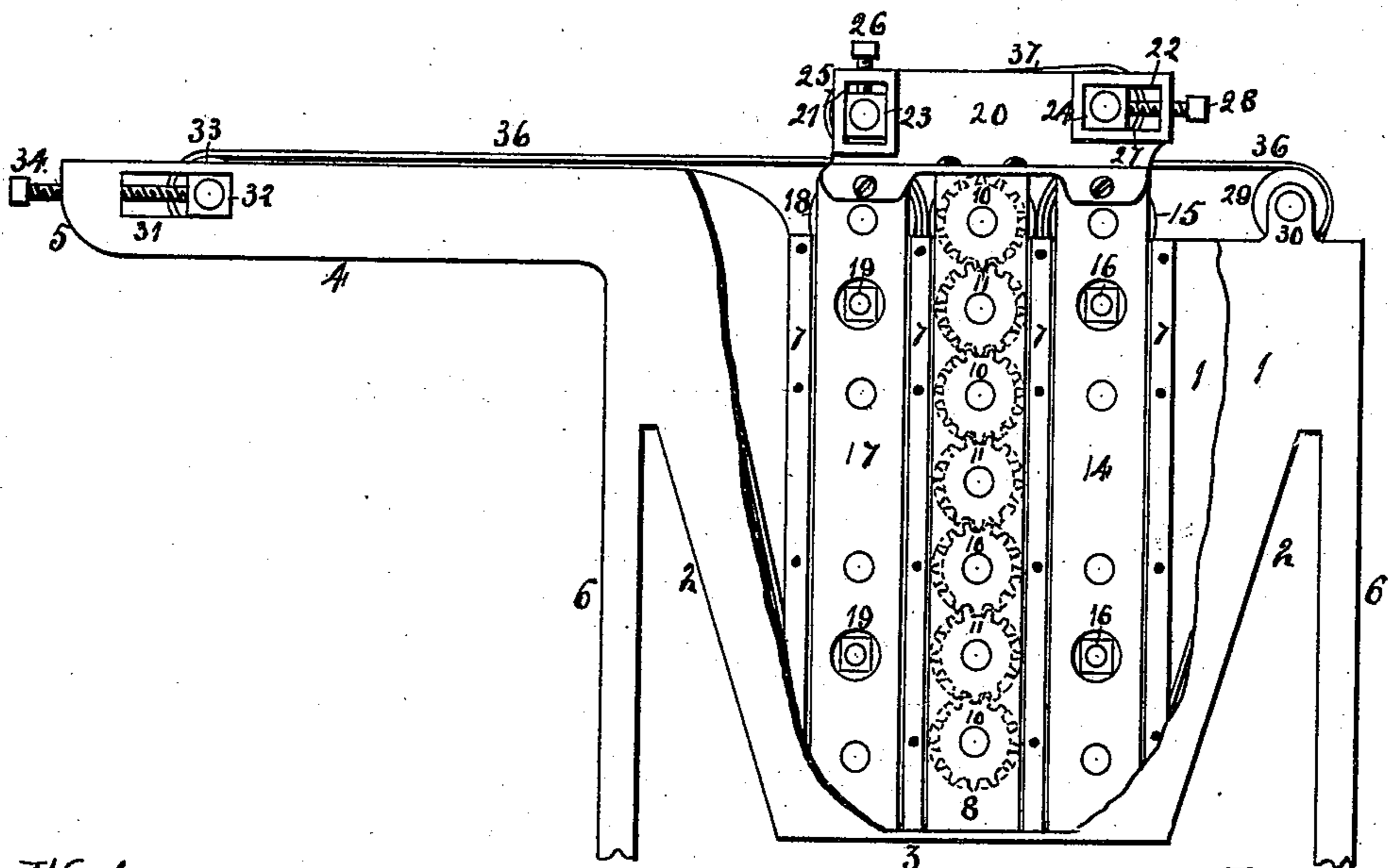


Fig. 2.



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Atty.

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Fig. 3.

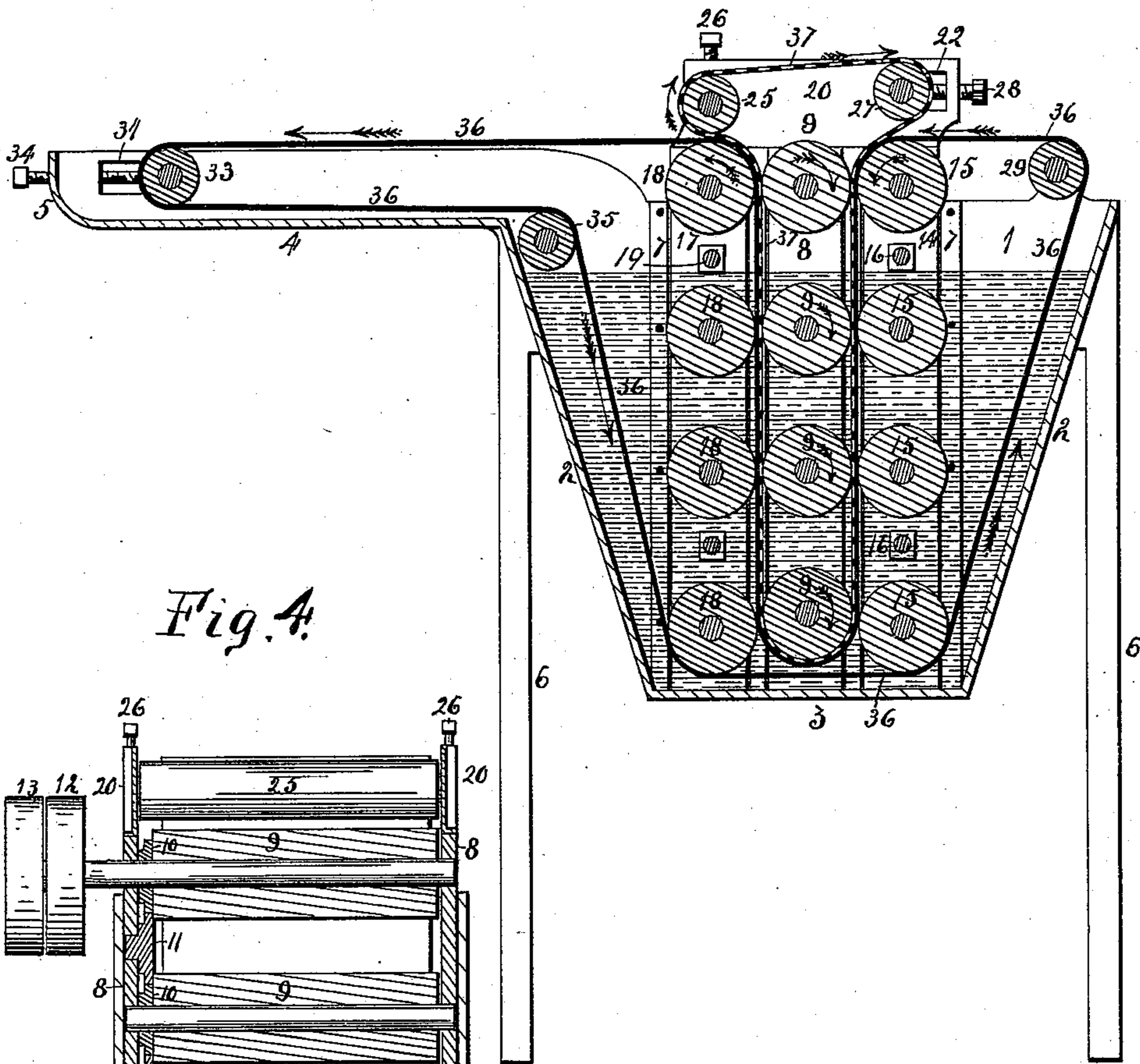
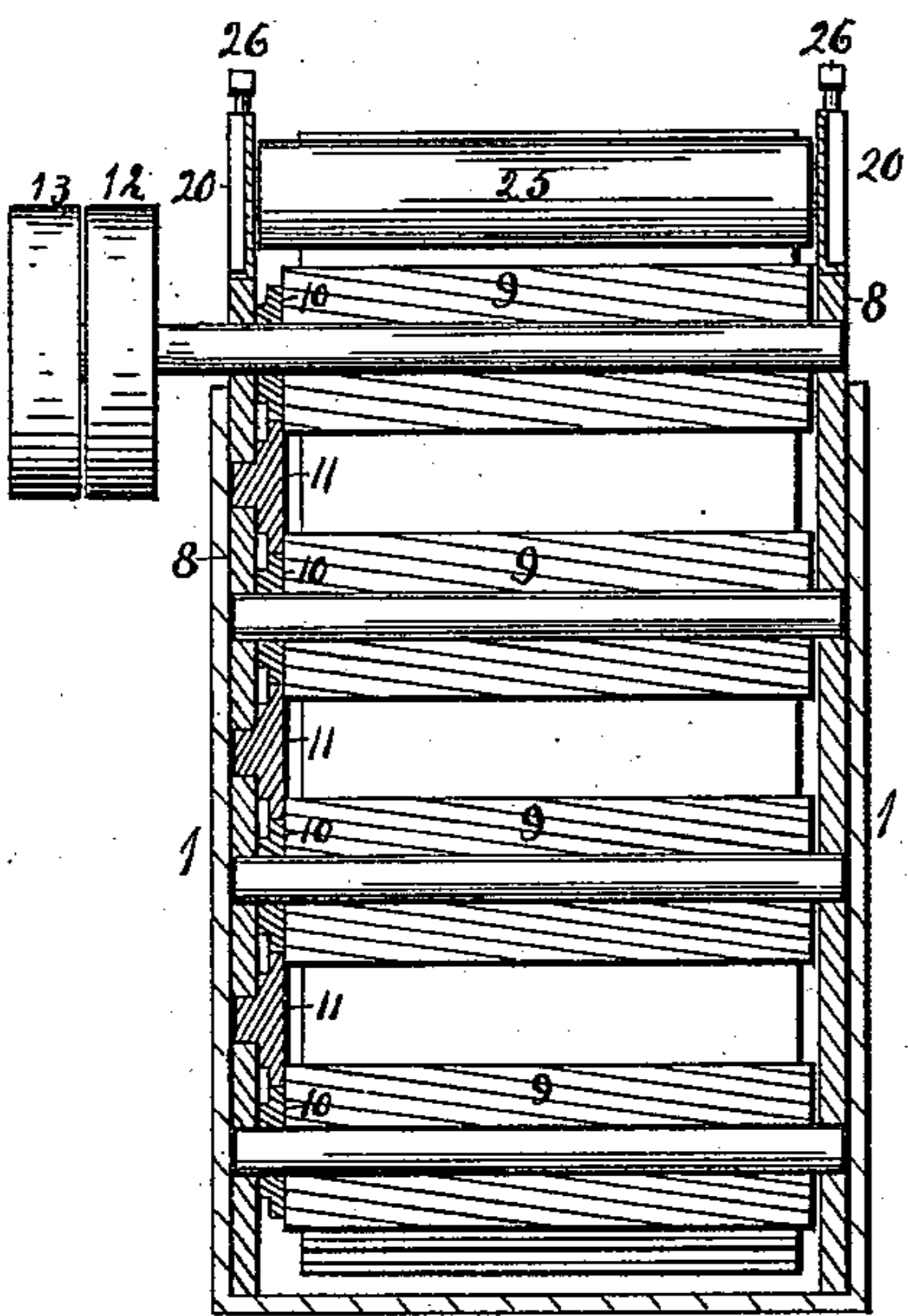


Fig. 4.



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UNITED STATES PATENT OFFICE.

RICHARD W. WELDON AND SAMUEL T. STITES, OF ROCKFORD, ILLINOIS.

STARCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 545,753, dated September 3, 1895.

Application filed February 18, 1895. Serial No. 538,307. (No model.)

To all whom it may concern:

Be it known that we, RICHARD W. WELDON and SAMUEL T. STITES, citizens of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Collar and Cuff Starching Machines, of which the following is a specification.

The object of this invention is to construct a starching-machine in which the collars and cuffs are carried between two endless aprons moving in a vertical direction into and up out of the starch contained in a suitable receptacle.

In the accompanying drawings, Figure 1 is a plan view of our improved starching-machine. Fig. 2 is a side elevation in which a portion of the side of the starch-receptacle is broken away to show the inner construction. Fig. 3 is a lengthwise vertical central section on dotted line *a*, Fig. 1. Fig. 4 is a transverse vertical section on dotted line *b*, Fig. 1.

The starch-receptacle is composed of the sides 1, ends 2, and bottom 3, in this instance made from sheet metal. An extension composed of a continuation of the sides 1 has a bottom 4 and an end 5. This receptacle is supported upon legs 6. Within this receptacle and to the sides are secured vertical strips 7, between which are located supports for the vertical series or rollers. The central supports 8 support the central or main series or rollers 9, which are connected by the gears 10 and intermediate gears 11, and the shaft of the upper roller of this series is extended beyond the side of the starch-receptacle and supports a tight pulley 12 and loose pulley 13, and through the tight pulley a rotary movement is imparted to the series of rollers in the direction indicated by the arrows shown thereon in Fig. 3, and the intermediate gears change the direction of movement, so that all the rollers in this series rotate in the same direction. The outside supports 14 support a series of rollers 15, and the supports are held separated by the cross-rods 16. The other outside supports 17 support a series of rollers 18. These supports are also held separated by the rods 19. The lower rollers in each of these outside series are somewhat lower than the lower roller of the center series, for a purpose to appear hereinafter.

To the upper ends of the supports on each side of the starch-receptacle is secured a bracket 20, and one end has a vertical slot 21, its other end having a lengthwise slot 22. Within these slots are located bearings 23 and 24, respectively.

The bearings 23 support a roller 25, which is located over the upper roller of the series 18 of rollers, and by means of the set-screws 26 more or less pressure may be applied thereto in a downward direction. The bearings 24 support a roller 27, and by means of the screws 28 it may be adjusted in the direction of the length of the slots 22.

To the end of the starch-receptacle, opposite the extension thereof, is located a roller 29, held in the bearings 30. The sides of the extension of the starch-receptacle are provided with an elongated opening 31, within which are located bearings 32, which support a roller 33, and by means of the screws 34 this roller may be adjusted in the lengthwise direction of the slots 31. A roller 35 is supported by the sides of the starch-receptacle, and is located between the roller 33 and the first vertical series of rollers. An endless apron 36 is placed around the rollers 29 and 33, after which the two outer series of rollers are placed in position by their supports being guided by the vertical strips 7. An endless apron 37 is placed around the center series of rollers and over the rollers 25 and 27, and this series of rollers is placed in position in the starch-receptacle, and in so placing them the apron 36 will be carried down, when the apron will appear as shown in the drawings. By means of the rollers 27 and 33 being made adjustable the proper tension may be given to the aprons. When the parts are in working position a double apron will be formed on each side of the center series of vertical rollers, and by having the lower rollers of the outer series lower than the lower roller of the center series the apron 36 will be carried free of the lower roller of the center series. By imparting a rotary motion to the center series of vertical rollers the apron 37 carried thereby will be moved in the direction indicated by the arrows, and the friction of the aprons will impart a movement to the apron 36 in the direction indicated by the arrows, and the movement of the apron 36 will rotate the two outer

series of rollers. The roller 27 is located some distance above the top roller of the series 15 of rollers, as shown at Fig. 3, in order that the collars and cuffs may readily enter between the aprons.

The collars and cuffs are placed upon the short horizontal section of the apron 36, and in the movement of the aprons they will be carried between the aprons down into the starch in the receptacle to near the bottom of the receptacle, and thence upward out of the starch, and then discharged upon the longer horizontal section of the apron, and in passing between the roller 25 and the upper roller of the series 18 of rollers sufficient pressure is brought to bear at this point to squeeze out the surplus of starch. While the collars and cuffs are passing through the starch sufficient starch will be forced into the article to give them the proper stiffness.

We claim as our invention—

1. In a collar and cuff starching machine, a starch receptacle, three series of vertically arranged rollers, each series held in guide ways in the receptacle, an endless apron carried by the center series, and an endless apron carried by the two outside series, each apron having a tightener therefor.

2. In a collar and cuff starching machine, a starch receptacle, three series of vertically arranged rollers, each series held in guide ways in the receptacle, an endless apron carried by the center series, and an endless apron carried by the two outside series having a horizontal section extending on either side of the center.

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