

F. L. FURBUSH.

WOOL WASHER.

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954,728.

Patented Apr. 12, 1910.

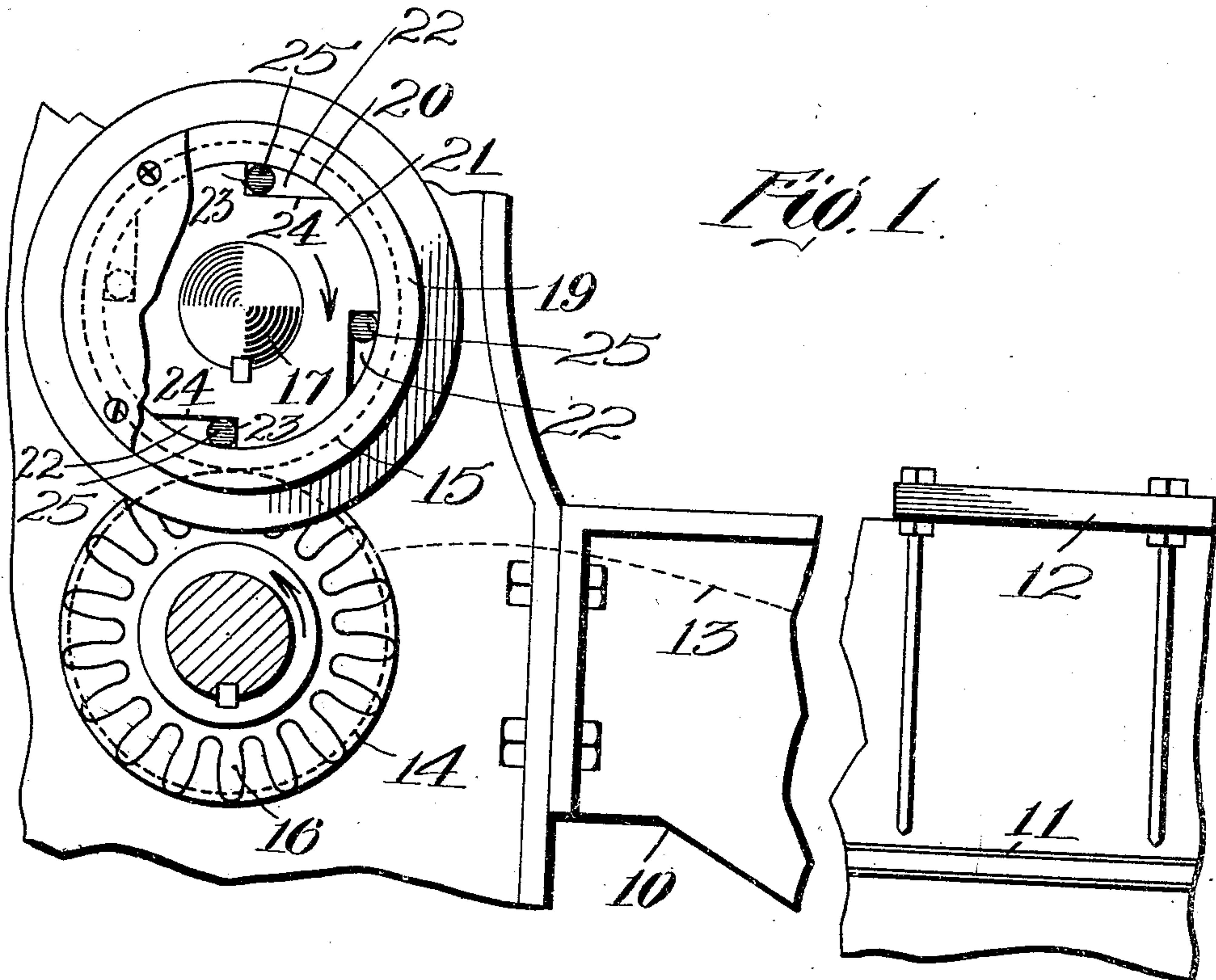


Fig. 1.

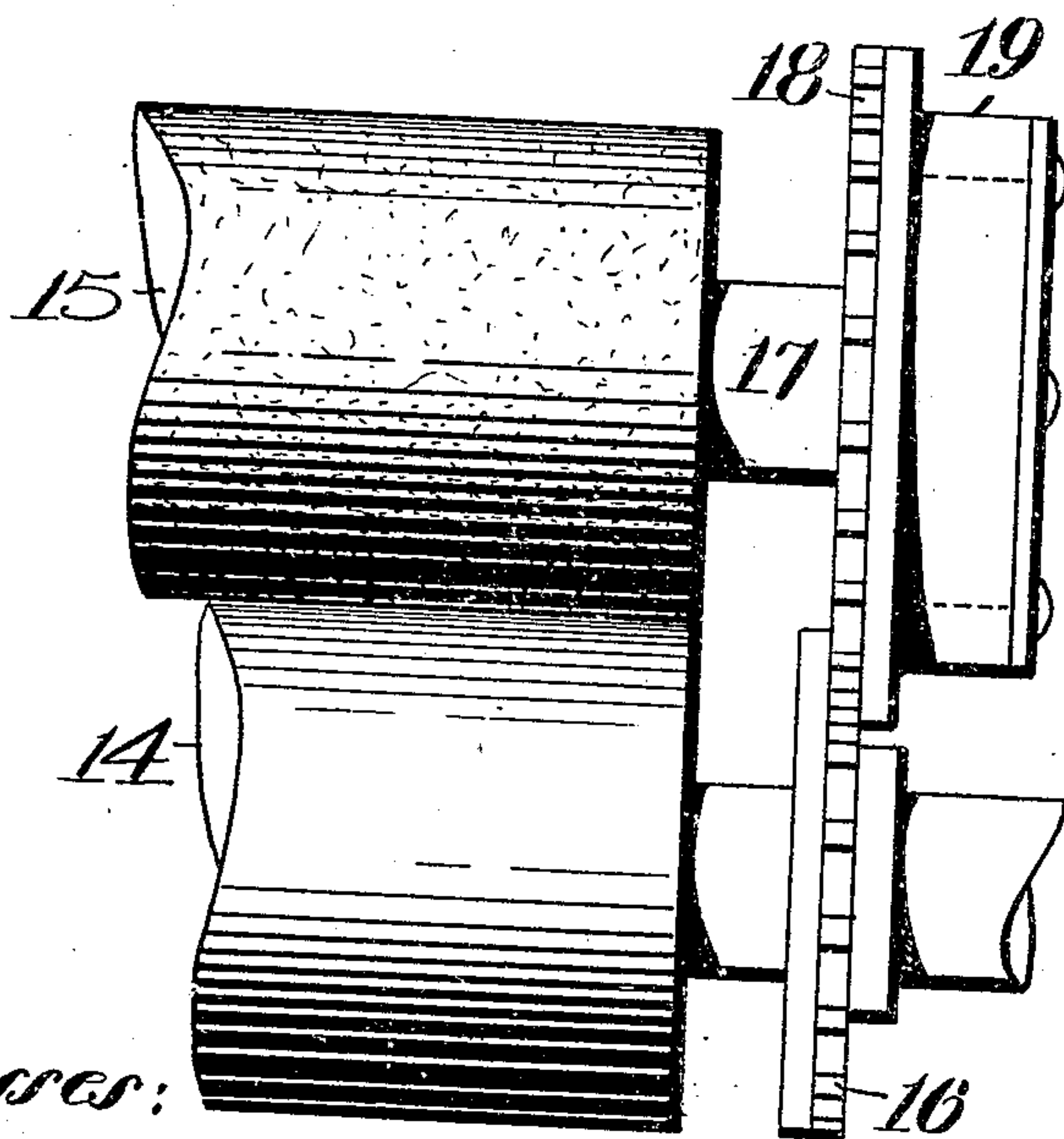


Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

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WOOL-WASHER.

954,728.

Specification of Letters Patent.

Patented Apr. 12, 1910.

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To all whom it may concern:

Be it known that I, FRANK L. FURBUSH, a citizen of the United States, residing at Westford, in the county of Middlesex and State of Massachusetts, have invented a new and useful Wool-Washer, of which the following is a specification.

This invention relates to a washing machine, and is shown as particularly adapted for a wool washer. As is well understood the top press roll of a machine of this character is formed of rubber or other yielding material which wears away and is of variable diameter, and is driven by surface contact with the bottom press roll which is of metal. Sometimes the top press roll will stop on account of lack of sufficient friction between the surface of the roll or a clog in the bite of the same. Certain mechanisms have been provided for positively driving the top roll at such times.

The principal objects of this invention are to provide a simpler and surer means for positively driving the top press roll whenever it stops; and to provide a device for this purpose which will operate accurately and will have very few parts to wear and get out of order.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a fragmentary side view of a portion of a wool washing machine showing a preferred form of this invention applied thereto; and Fig. 2 is a front view of the same.

The invention is shown as applied to a well known type of wool washer involving a tank 10, a screen 11, a rake 12 for moving the wool along the screen, and a guiding surface 13 for guiding the wool up from the rake to the press rolls. The lower press roll 14 is shown as made as usual of metal, and as driving the upper press roll 15 which is made of rubber or other soft material. As is usual, a gear 16 is mounted to turn with the lower press roll, and these two parts are positively driven by mechanism not illustrated herein. The top press roll is fixed on a shaft 17 on which is mounted to freely turn a gear 18 constantly meshing with the gear 16, and having a few more teeth, so that it can rotate a little slower than the gear 16.

The gear 18 is provided with a casing 19 either fixed thereto or integral therewith. This casing is provided with an internal cylindrical surface 20, and inside of it is located a clutch member 21 fixed to the shaft 17. This clutch member is provided with a plurality of notches 22, each formed by a substantially radial end surface 23 and a surface 24 extending from it substantially at right angles. Both of these surfaces of course extend to the circumference of the clutch member 21. Within each of the notches is mounted a roller 25 which preferably is either cylindrical or spherical. This roller is of a diameter a little less than the longest distance between the surfaces 20 and 24 so that while in position against the radial surface 23 it will not effectively engage the internal cylindrical surface 20, but when for any reason there is a motion between the clutch member 21 and the casing 19 in a direction opposite to the arrow shown in Fig. 1, (or in other words, the surface contact fails to drive the top roll faster than the top gear rotates,) the roller will move outwardly along the surface 24 and become wedged between this surface and the cylindrical surface, so as to prevent further loss of motion. It will be seen therefore that when the lower roll 14 drives the upper roll 15 in the direction of the arrow, the rolls 25 will be kept in inoperative position, and there may be a relative rotation between the member 21 and the casing 19 as indicated by the arrow in Fig. 1.

It will be observed that if the top roll should stop for any cause, the gears will continue to be driven in the same way, and then there will be a motion of the casing 19 in the direction of the arrow while the clutch member 21 remains substantially stationary or slows up. The result of this would be to roll the rollers 25 farther out and clutch the two parts together, so that the gear 18 will carry the roll 15 along with it at a regular uniform rate of speed. At the same time if for any reason the obstruction or any other cause of stoppage is removed, the bottom roll immediately releases the clutch and takes up the rotation of the top roll. In this way a very simple and effective construction is obtained which is not likely to get out of order in use, and which can be depended upon to work properly.

While I have illustrated and described a

preferred form of the invention, I am aware that many modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited to all the details of construction herein shown and described, but

What I do claim is:—

1. In a wool washer, the combination of a positively driven press-roll, a second press-roll in contact therewith and adapted to be driven by surface contact with the positively driven roll, a gear fixed to the positively driven roll, a casing rotatably mounted on the same axis as the second roll and having a gear thereon meshing with the first named gear, and means connected with the second roll and adapted to be engaged by said casing for rotating the second roll when the second roll tends to rotate slower than the casing.

2. In a wool washer, the combination of a positively driven bottom press-roll, a top press roll in contact therewith and adapted to be driven thereby, a gear on the bottom roll, a member rotatably mounted on the axis of the top roll and having a gear thereon meshing with the first named gear and driven thereby, said member having a cylindrical inner surface, a notched member rotatable within said inner surface and in contact therewith and fixed to the top press-roll, each notch thereof having an end surface, and a surface at an angle thereto, and a roller in each notch adapted to become wedged between the cylindrical inner sur-

face of the rotatably mounted member and the notched member when the latter rotates slower than the former whereby said members will be clutched together, said rollers being adapted to move back against said end surfaces out of effective contact with the inner cylindrical surface when the speed of the top roll again becomes normal.

3. In a washing machine, the combination of a positively driven press roll having a non-yielding surface of constant diameter, a second press roll frictionally driven by the first named press-roll and having a yielding surface of variable diameter, a gear fixed to the positively driven press-roll, a second gear mounted to turn on the axis of the frictionally driven press roll and meshing with the first named gear, the second gear having an internal cylindrical surface, a notched member mounted within said cylindrical surface and fixed to the frictionally driven press roll, each notch thereof having two surfaces, one substantially radial, and the other substantially perpendicular thereto, each extending to the circumference of the notched member, and rollers in said notches of a diameter a little less than the longest distance from said perpendicular surface to said internal cylindrical surface.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

FRANK L. FURBUSH.

Witnesses:

OSBORN H. CILLEY,
M. ALFARTH.