

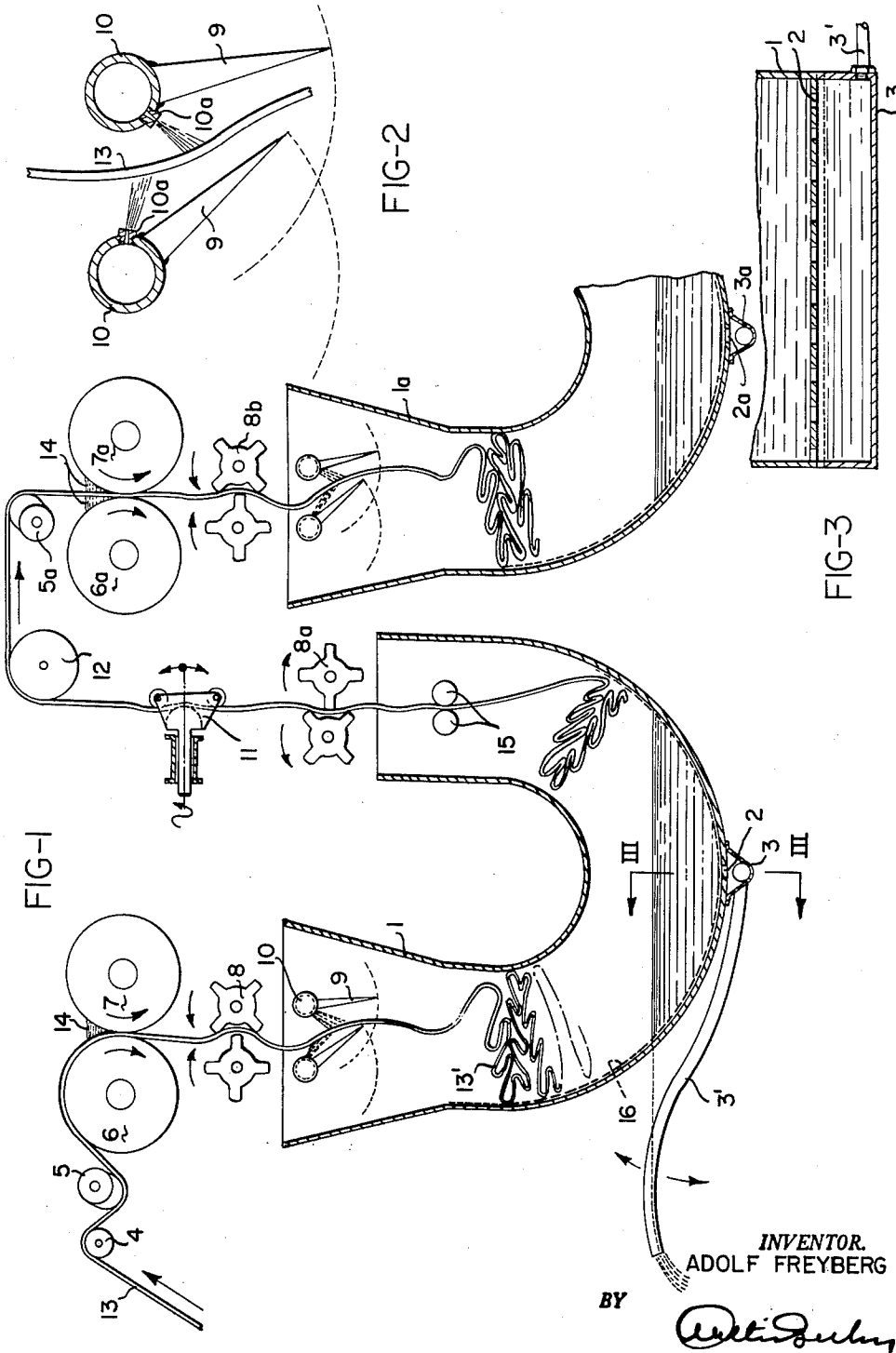
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A. FREYBERG

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WASHING MACHINE FOR WASHING GOODS IN FULL WIDTH

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## WASHING MACHINE FOR WASHING GOODS IN FULL WIDTH

Adolf Freyberg, St. Tonis, near Krefeld, Germany, assignor to Joh. Kleinewefers Sohne, Krefeld, Germany

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The present invention relates to a machine for washing full widths with one or more serially arranged J-boxes through which the goods are passed in folds. Various types of washing machines of this general character are known.

It is an object of this invention to provide an improved simplified washing machine of the above mentioned general character.

It is also an object of this invention to provide a washing machine of the type set forth in the preceding paragraph, which is relatively simple in construction and highly efficient in operation.

These and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawing, in which:

FIG. 1 diagrammatically and partly in section shows a washing machine according to the present invention.

FIG. 2 illustrates on a somewhat larger scale than FIG. 1, nozzle means and folding means for use in connection with the present invention, said nozzle and folding means appearing in FIG. 1 in the upper left arm portion of the J-boxes.

FIG. 3 is a section taken along the line III—III of FIG. 1.

The washing machine of the present invention is characterized primarily by the following features. At the entrance portion of the respective J-box through which the goods are to be passed there is arranged a laying or folding device for placing the goods in the J-box in superimposed folds. Furthermore, the feeding means for fresh water is connected to the folding device. For instance, the tilting shafts or pivots of the folding arms may be designed as feeding pipes with nozzles for the fresh water.

Another feature of the washing machine according to the present invention consists in that at the entrance to and exit from the respective J-box there are provided beater means for purposes of loosening the superimposed folds of the goods. Above the said beater means there are preferably arranged squeezer means. The washing machine according to the invention furthermore comprises a spreader for the goods, which spreader is preferably arranged above the beater means at the exit end of the respective J-box. A washing machine according to the invention for washing full width makes it possible to wash the goods in a minimum of time while, depending on the particular circumstances involved, one J-box or a plurality of serially arranged J-boxes may be provided. The water discharged from the respective J-box passes into a trough, channel or the like to which may be connected a tiltable discharge, a hose or the like which will make it possible to maintain a certain variable water level in the respective J-box.

Referring now to the drawing in detail, the goods 13 to be washed are passed over a deviating roller 4 and a roller 5 for holding the goods spread out in their entire width. From roller 5 the goods pass through a squeezer arrangement comprising the two rollers 6 and 7. In this squeezer, due to the pressing of the two rollers from opposite sides against the goods which are assumed to be soaked with water, there will form a water wedge 14 adapted freely to flow toward the sides of the rollers out

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of the range of the path of the goods after having passed said squeezer. From this squeezer, the goods pass to a beater system 8 which brings about a satisfactory withdrawal of the goods from the squeezer 6, 7 while preventing the goods from sticking to the squeezer rollers and winding themselves around said roller.

Below the beater system 8 there is arranged the entrance portion of the folding J-box 1. At this entrance portion a laying or folding device 9 is located which has such an oscillation frequency and such a tilting angle that the goods will be laid or folded in a plurality of folds 13' over the cross section of the J-box 1. In this way, too strong squeezing folds will be avoided and as much air as possible will be entrapped in the folded goods. This entrapment of the air and thereby of the oxygen of the air considerably speeds up and aids the dissolving out of dirt, chemicals and the like from the goods.

Water feeding means for supplying fresh water is combined with the folding mechanism 9. To this end, the tilting shafts or pivots 10 of the folding device are designed as pipes with nozzles 10a (FIG. 2) so that the fresh water will be sprayed onto the goods 13 in the direction of the movement of the goods.

At the exit end of the J-box 1 there are provided two guiding bars 15 through which the goods pass. A second beater system 8a is arranged above the exit end of the J-box 1 for purposes of loosening the folds of the goods which stick to each other. For the same purpose, there is also provided a spreader 11 for spreading the goods, which is adapted to rotate or oscillate back and forth and is arranged above the beater system 8a.

The goods then pass from the spreader 11 over a deviating roller 12 and a cut or arched holder 5a for holding the goods in spread-out condition. The goods then pass from holder 5a vertically downwardly into the next squeezer comprising the rollers 6a and 7a. From here the goods may be passed through another beater 8b into a further J-box 1a.

The water in the barrels will, due to its own weight, flow in downward direction and may be discharged through openings 2, 2a into a discharge trough, channel, or the like 3, 3a. From here the water may be discharged through a tiltable discharge or a hose 3' whose discharge opening can be lifted or lowered in conformity with the desired water level in the respective J-box.

The laying or folding device 9 and also the inner surfaces of the J-boxes may be coated with a synthetic coating 16 which may consist for instance of tetrafluoroethylene.

It is, of course, to be understood that the present invention is, by no means, limited to the particular arrangement shown in the drawing but also comprises any modifications within the scope of the appended claims.

What I claim is:

1. A washing machine for washing webs and similar textile goods in full width, which includes: at least one J-box adapted to receive washing liquid and having an entrance portion and an exit portion, squeezer means preceding said J-box for squeezing the goods to be introduced into the entrance portion of said J-box, first beater means interposed between said squeezer means and the entrance portion of said J-box for aiding in the withdrawal of said goods from said squeezer means, folding means including tiltable arms arranged at the entrance portion of said J-box for depositing the goods in said J-box in superimposed folds, tubular means provided with perforations and forming the pivot shafts for said tiltable arms and being adapted to be connected to a fresh water source thereby forming fresh water feeding means for spraying fresh water onto the goods adjacent said folding means, second beater

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means outside said J-box near the exit portion thereof for loosening the superimposed folds of the goods as they are being withdrawn from said J-box, and oscillatable spreader means arranged to receive the goods from said second beater means for spreading the goods to the full width thereof.

2. A washing machine for washing webs and similar textile goods in full width, which includes: at least one J-box adapted to receive washing liquid and having an entrance opening and an exit opening, means respectively arranged at said entrance opening and said exit opening for respectively feeding the goods to be washed into and withdrawing the washed goods from said J-box, and laying means arranged near said entrance opening for folding the goods fed into said J-box in a plurality of folds across the cross section of said J-box, said laying means including oscillatable tubular members connectable to a fresh water supply source and provided with openings for supplying water therethrough into said J-box, said laying means also including folding arms connected to said tubular members for oscillation therewith.

3. A washing machine according to claim 2, which includes nozzle means connected to the said tubular members for supplying fresh water therethrough.

4. A washing machine for washing webs and similar textile goods in full width, which includes: at least one J-box adapted to receive washing liquid and having an entrance opening and an exit opening, means respectively

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arranged at said entrance opening and said exit opening for respectively feeding the goods to be washed into and withdrawing the washed goods from said J-box, tubular means provided with perforations and arranged within said J-box and adapted to be connected with a fresh water supply source, laying means respectively mounted on said tubular means and oscillatable about the axes thereof to fold the goods fed into said J-box in a plurality of folds across the cross section of said J-box, said J-box being provided with channel means communicating with the interior of said J-box for collecting water therefrom, and tiltable discharge means having a discharge opening selectively movable to different heights for varying the liquid level to be maintained in said J-box.

5. A washing machine according to claim 4, in which said tiltable discharge means includes a flexible hose.

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