

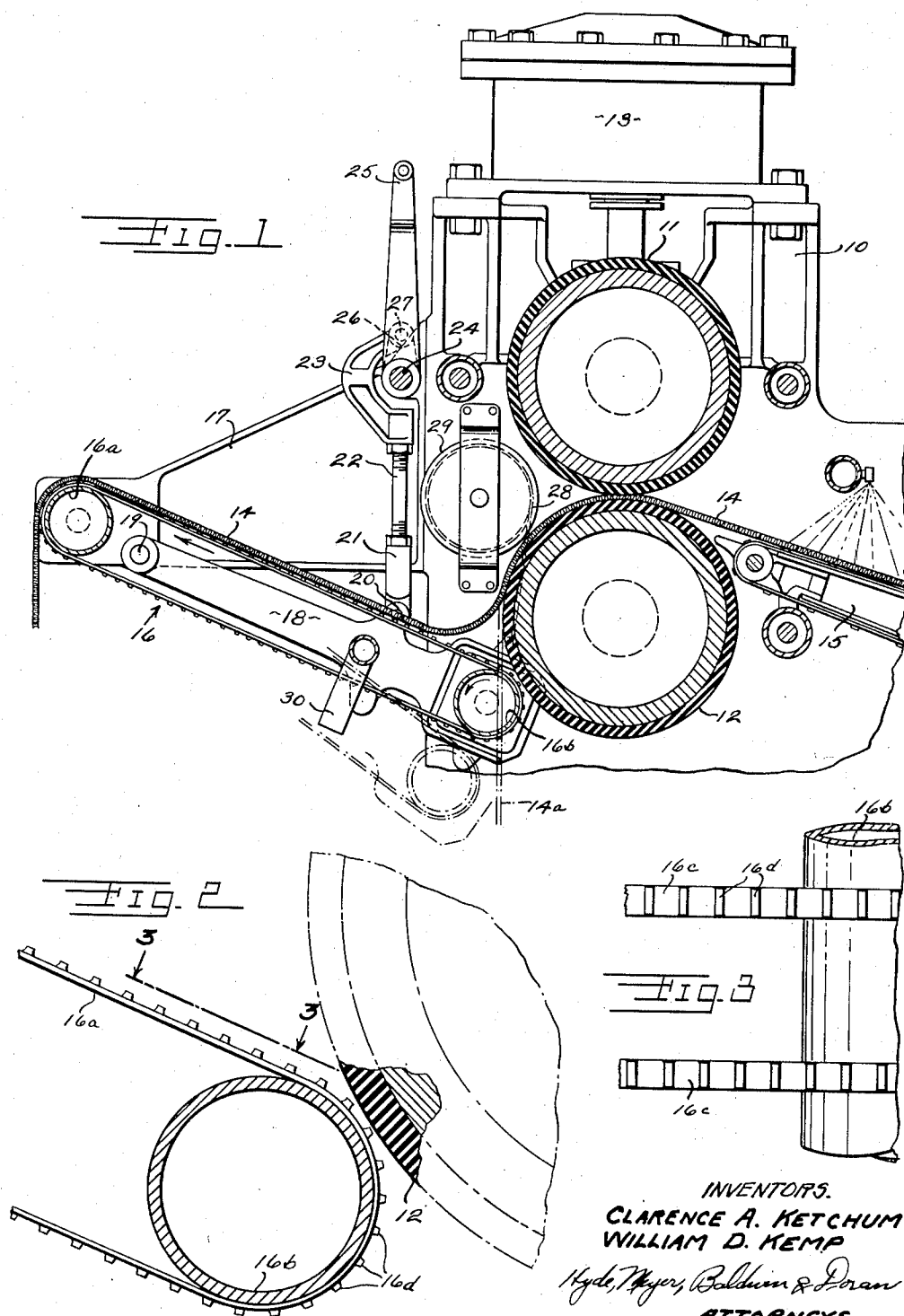
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RUG CLEANING MACHINE

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1

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## RUG CLEANING MACHINE

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3 Claims. (Cl. 68—263)

This invention relates to improvements in a combined stripper and conveyor means for use in connection with removing a piece of material, such as a rug, from clinging engagement with a rotatable roll, such as occurs in a rug wringing unit ordinarily used in connection with a rug scrubbing machine.

One of the objects of the present invention is to provide means for stripping and conveying a piece of material from clinging engagement with a rotatable roll, wherein an endless conveyor is arranged with the axes of its end pulleys substantially parallel to the axis of the roll from which the material is to be stripped, with the conveyor having connected fingers spaced along it and extending outwardly beyond the conveyor where it passes around the said one of said end pulleys, the pulley being held in a position nearly tangent to the roll surface so that the fingers there approach the roll surface nearer than the thickness of the material to be stripped away, and the upper run of the conveyor travels away from this point of near tangency so that the fingers strip the material from the roll and start it along the upper run of the conveyor.

Other objects of the invention include means for adjusting the position of the conveyor so as to accurately control the stripping action of the fingers, together with quickly adjustable means for holding the conveyor either close to the roll from which the material is stripped or clear of that roll to permit the material to fall vertically downwardly away from the roll.

Other objects and advantages of the present invention will appear from the accompanying description and drawings and the essential features thereof will be set forth in the appended claims.

In the drawings,

Fig. 1 is a central sectional view through the rug wringing unit ordinarily used in conjunction with a rug scrubbing machine;

Fig. 2 is an enlarged fragmental sectional view taken near the bottom of Fig. 1 where one of the end pulleys of a conveyor is closely tangent to the lower wringer roll; while

Fig. 3 is a fragmental top plan view taken from the position of the line 3—3 of Fig. 2.

Prior machines of this character, known to us, provided arrangements where the leading edge of a rug contacted the edge of a delivery plate, or series of stationary fingers, which stripped the rug from the roll, after which it slid across the plate or series of fingers. Such an arrangement is illustrated in United States Patent No. 2,304,592, granted December 8, 1942, to Robert C. Pauly. While the present invention may be applied to various types of machines, we have chosen to illustrate the same in a rug wringing unit ordinarily used in conjunction with a rug scrubbing machine such as that shown in the above mentioned Pauly patent or a later type shown in our copending application Serial No. 454,001, filed September 3, 1954, now Patent No. 2,787,153 granted April 2, 1957.

The present machine has a frame which includes two

2

generally parallel side frame members as shown in the above mentioned Pauly patent and one of which is shown here at 10. Two large rubber covered pressure rolls 11 and 12 are rotatably mounted in the side frames 10, the roll 12 being fixed in position, the roll 11 being movably mounted for vertical movement in the end frames 10 and urged downwardly by a large air cylinder and piston motor 13 located outside of each of the side frames 10 and pressing downwardly upon the trunnion of the roller 12.

A rug 14 is delivered into the bite of these pressure rolls usually by a conveyor means such as that shown at 15 which may be the conveyor means of either the above mentioned Pauly patent or of our above mentioned copending patent application. As the rug travels around the lower roll 12 beyond the point where the rug is squeezed, our novel means is provided for stripping the rug as it clings to the roll 12 and for conveying it away from the roll.

An endless conveyor 16 has one end pulley 16a rotatably mounted in fixed brackets 17 which are connected to the main frame 10. The other end pulley 16b of the conveyor is rotatably mounted at each end in one of two parallel arms 18, each pivotally mounted at 19 on one of the end frames 10 and on opposite sides of the rug 14 so that arms 18 do not interfere with the passage of the rug. Each arm 18 is pivotally connected at 20 with a clevis 21 which in turn is connected by an adjustable link 22 to a connecting member 23 which is curved to clear a cross shaft 24 which serves as a pivotal mounting for a handle 25. A crank arm 26 is secured for movement with the handle 25 about the pivot point 24. The connecting member 23 is pivotally connected with arm 26 at the point 27.

Conveyor 16 is preferably composed of a series of narrow belts 16c, although wider ones could be used. Those shown are of tough, resilient construction and comprise a surface of rubber-like material having cog-like projections or fingers 16d extending radially outwardly from the conveyor belt as it passes around the end pulley 16b. In the position of the parts shown in Figs. 1 and 2, the conveyor 16 is held so that its one end pulley 16b is nearly tangent to the wringer roll 12, the parts holding this position because the lever arm 26 is on dead center or slightly over dead center to maintain the position shown in Fig. 1. In this position, the ends of the fingers 16d approach the roll surface 12 nearer than the thickness of the material to be stripped such as the rug 14. Means, not shown, of commonly known character is provided for driving the conveyor so that its upper run travels in the direction of the arrows of Figs. 1 and 2. It results from this construction, that the fingers 16d strip the leading edge of the rug 14 from the surface of roll 12 and start it up the upper run of the conveyor 16 to be conveyed to a convenient discharge point.

Preferably, means is provided for moving the end pulley 16b away from roll 12 so as to permit the rug 14 to fall vertically downwardly as indicated at 14a in dot-dash lines. In the above mentioned Pauly patent, this arrangement is necessary to permit the rug to strike the plate 105 of that patent to travel along the conveyor 106 of that patent back to the starting position in the rug cleaning machine. A similar conveyor is shown in our above mentioned copending patent application. In the present disclosure, the handle 25 may be moved counterclockwise approximately 180 degrees from the position shown in Fig. 1 which will also move the arm 26 180 degrees from the position shown in Fig. 1 which will drop the lower end of the conveyor 16 to the dot-dash position indicated. In this position, the rug 14, as indicated at 14a, may fall clear of the conveyor as it drops vertically downward from a position tangent to the lower

3

roll on the side thereof toward the conveyor. Returning the handle 25 upwardly again to the position of Fig. 1 automatically positions the fingers 16d the desired distance from the surface of the roll 12. A fine adjustment of this distance may be obtained through the adjustable link 22 which has right and left hand thread connections respectively with the clevis 21 and the connecting member 23.

Counterbalancing means may be provided, if desired, for the weight of the conveyor 16 so as to aid the operator in moving it upwardly from the dot-dash position of Fig. 1 to the full line position there shown. We have shown for this purpose a cable 28 having one end connected to the free end of one of the arms 13, and having its other end wound around a drum 29 in which there is provided a spiral spring loaded to urge the drum 29 in a counter-clockwise direction as viewed in Fig. 1 so as to tend to wind up the cable 28 and aid in lifting the conveyor 16.

Fingers 30 are provided alongside of the belts 16c to maintain their lateral spacing.

We have thus provided a simple but positive stripping action by means of a series of fingers 16d striking the leading edge of a rug and then functioning as a traction means to convey the rug positively away from the wringer roll without the possibility of catching or wrinkling.

What we claim is:

1. In a rug cleaning machine having a frame and a pair of mutually engaging upper and lower wringer rolls rotatably mounted in said frame for removing moisture from a rug passing between them; the combination therewith of an endless belt conveyor having a mounting on said frame, said conveyor having end pulleys over which said belt passes, said conveyor mounting being holdable in one position holding one of said end pulleys in a position nearly tangent to the surface of the lower of said rolls at a zone spaced around the surface of said lower roll in the direction of rug travel beyond the zone of mutual engagement of said rolls and below the center of said lower roll, the upper run of said conveyor in said one position traveling away from said zone of near tangency whereby to strip a rug from said lower roll and

4

start it along said upper run of said conveyor, said conveyor mounting including arm means pivotally mounted on said frame, said one end pulley rotatably mounted in the free end of said arm means, and lever means operatively connecting said arm means with said frame and having two positions of rest in one of which said lever means holds said one end pulley in said one position nearly tangent to said lower roll, and in the other of which said lever means holds said one end pulley clear of a plane extending vertically downward from that side of said lower roll facing toward said conveyor.

2. The combination of claim 1 wherein said arm means comprises a plurality of arms said lever means includes a lever for each of said arms, each said lever having one end pivotally mounted on said frame and having its other end pivotally connected with an associated arm, and said positions of rest placing said lever in substantially vertically upward and vertically downward positions.

3. The combination of claim 1 wherein said lever means includes a crank arm having an axis for oscillation mounted on said frame, an operative connection including link means having at one end a pivotal connection with said arm means and at its other end a pivotal connection with said crank arm at a point thereon spaced from said axis, and said two pivotal connections being substantially in vertical alignment with said crank arm axis in said two positions of rest of said lever means.

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