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SHEET FEEDING AND SPREADING APPARATUS

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2 Sheets-Sheet 2

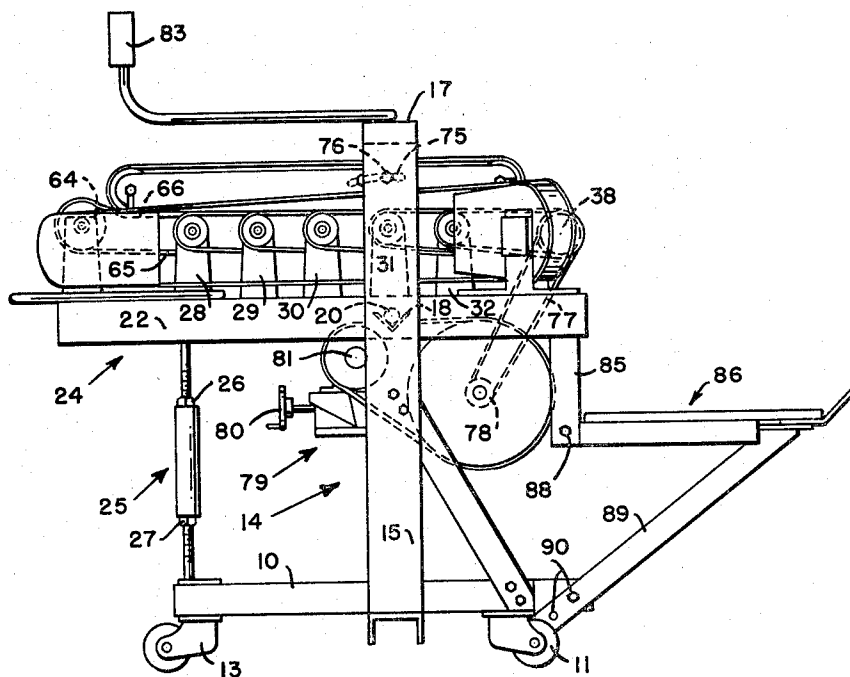


FIG. 3

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SHEET FEEDING AND SPREADING APPARATUS
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1 Claim. (Cl. 38—143)

The present invention relates to laundry machines, and particularly to a new and improved spreader for flat work prior to feeding the work to an ironer or the like.

The principal object of the invention is to provide a portable spreader for flat work that is capable of being moved to different locations with great facility.

Another object of the invention is to provide such a spreader in which a frame is rigidly attached to an A-shaped base member for supporting the various components of the spreader.

Still another object of the invention is to provide such a spreader in which the speed of feeding the work may be varied to suit the particular material of the work.

Another object of the invention is to provide such a spreader in which the feeding and spreading components are pivotally mounted to facilitate leveling of the frame, raising and lowering the feeding as well as the delivering end of the apparatus.

Still another object of the invention is to provide such a spreader in which the receiving box for the work has the capability of adjustment to compensate for adjustments to the feed end of the spreader.

Another object of the invention is to provide such a spreader in which the work is caused to make positive contact with the feed belt means as the work is fed into the machine.

Still another object of the invention is to provide such a spreader in which the spreading belts are driven positively through quiet operating bevel gearing.

Another object of the invention is to provide such a spreader in which the angle between angularly arranged spreading belts is bisected by a feeding belt arrangement having the capability of positively engaging the work as it is fed into the machine.

In one aspect of the invention, a horizontal, generally A-shaped base member may include at the apex thereof a single caster-like roller and another such roller at the end of each leg opposite said apex. An arch-shaped frame extending vertically from the A-shaped base may be rigidly attached thereto intermediate the roller arrangements.

In another aspect of the invention, a frame member of generally triangular shape may be trunnioned within the vertical arch-shaped frame for pivotal movement, and a threaded connector may extend between said frame and the A-shaped base for providing limited pivotal movement of the triangularly shaped frame member.

In another aspect of the invention, the pivotally mounted frame member may support a plurality of pairs of axially aligned pulleys arranged in stepped relation along the sides of the triangular, pivotally mounted frame member and at substantially the same elevation. A driving pulley, common to all the other pulleys, may be supported along the base side of the triangular shaped frame member, and endless belts may connect each pulley to the common driver.

In still another aspect of the invention, the triangular, pivotally mounted frame may support pulleys in a manner to drive belts along the sides of said member opposite the triangular base, and those pulleys adjacent the common driving pulley may be driven through suitable bevel gearing from the shaft that drives the common drive pulley. These side belts may be at a slightly higher elevation than those of the endless belts on the steppedly arranged pulleys.

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In still another aspect of the invention, the pivotally mounted frame member may be provided with feed pulley means at the apex of its triangular form for supporting endless belt means that also is driven by the common drive pulley. The top reach of the feed pulley means is slightly higher than the top reach of the angularly disposed side belts.

In another aspect of the invention, the vertical, arched frame may adjustably support an endless belt arrangement that overlies, is parallel to, and in frictional driving engagement with, the endless feed belt means.

In still another aspect of the invention, a variable speed transmission may be mounted within the frame means for driving the common drive pulley means at a speed best suited for the material passing through the apparatus.

In still another aspect of the invention, the material-receiving table at the delivering end of the apparatus may be adjustable to compensate for adjustments of the pivotally mounted, triangularly shaped frame member that supports the material feeding and spreading belt means.

The above, other objects and novel features of the invention will become apparent from the following specification and accompanying drawings which are merely exemplary.

In the drawings:

FIG. 1 is a top plan view of a sheet or other flat material spreader to which the principles of the invention have been applied;

FIG. 2 is an end elevational view looking in the direction of the arrows along line 2—2 of FIG. 1; and

FIG. 3 is a side elevational view of the apparatus shown in FIGS. 1 and 2.

Referring to the drawings, the principles of the invention are shown as applied to a sheet or other flat material spreader comprising a horizontally disposed base 10 of generally A shape having a roller caster means 11 and 12 at the separated ends of the legs of base 10, and a single roller caster means 13 at the juncture of the legs forming the A-shaped base 10. Intermediate to the roller means 11, 12 and 13, a vertically disposed, arched frame means 14 may be rigidly attached to the legs of the A-shaped base 10. The frame 14 may include vertical legs 15, 16 joined by a horizontal member 17. Legs 15, 16 may include short aligned angle elements 18 and 19 for supporting trunnions 20 and 21 rigidly mounted in aligned relation on opposite sides 22, 23 of a triangularly shaped frame 24. An adjustable turnbuckle means 25 having lock nuts 26, 27 may extend between one end of frame 24 and base 10 for adjusting the height of the feeding end of the spreader.

The frame 24 may support along its side 22 separate brackets 28, 29, 30, 31 and 32 arranged in stepped relation and each journaling a pulley such that the axes of all pulleys are substantially parallel. The opposite side 23 of frame 24 may also support brackets 33, 34, 35, 36 and 37 arranged in stepped relation and journaling pulleys aligned, respectively, with the pulleys journaled on brackets 28 to 32, inclusive.

A long driving pulley 38 may be journaled in aligned bearings 39 and 40 at each end of the base side of the triangular frame 24, and belts 41 to 50 may extend between the common driving pulley and the pulleys on the brackets 28 to 37, respectively. The ends of the shaft supporting pulley 38 may also have fixed to them bevel gears 51 and 52 that mesh with mating bevel gears 53 and 54 fixed to shafts mounted at right angles to the sides 22 and 23 of frame 24. In order to improve wear characteristics and reduce noise, one of each set of bevel gears may be made of metal while the other may be made of plastic such as nylon.

Pulleys 55 and 56 are mounted on the shafts supporting bevel gears 53 and 54, and are driven by the shaft

that drives pulley 38. Brackets 57 and 58 on frame 24 may journal pulleys 59 and 60, and endless belts 61 and 62 may connect the pulleys 55, 59 and 56, 60, respectively. The top reaches of belts 61 and 62 preferably are slightly higher than the top reaches of the belts 41 to 50.

Between pulleys 59 and 60 a bracket 63 may journal a pulley 64, and an endless belt 65 may connect it to the driving pulley 38. The top reach 66 of belt 65 is located slightly above the elevation of the top reaches of belts 61 and 62 for a purpose to be described later. A depending bracket 67 may include plates 68 and 69 for supporting a frame including parallel side walls 70 and 71 at the ends of which are journaled pulleys 72 and 73, and about which an endless belt 74 is adapted to run. The walls 70 and 71 may include arcuate slots, only one being shown at 75 in FIG. 3. Pins 76 extending in aligned relation from each plate 68, 69 rest within their corresponding slot 75, and locking nut means may be threaded onto each pin 76 for locking the frame 70, 71 in adjusted position to provide a predetermined compressive action between belts 74 and 65. The construction and arrangement are such that the sheet material when fed to the apparatus makes positive contact with the upper reach of the belt 65 and, therefore, positive feeding of the sheet material is ensured since the top reach 66 of belt 65 is slightly above the top reaches of belts 61 and 62.

Referring to FIG. 3, the common driving pulley 38 is connected through a belt 77 to the output shaft 78 of a variable speed transmission 79 which may be of the expandible V-pulley type and may include a hand crank 80 for varying the ratio of speed between the input shaft 81 and the output shaft 78. The shaft 81 may be driven from an electric motor 82 having a control station 83 mounted on the cross member 17 of the frame 14.

Referring to FIGS. 2 and 3, spaced arms 84 and 85 may depend from the delivery end of the frame 24. A receiving table 86 may be connected to arms 84, 85 by hinge joints 87, 88. The end of table 86 farthest from the arms 84, 85 may be connected to a strut 89 that is provided with a plurality of holes 90 therein forming an adjustable connection to the base 10. The construction and arrangement of the parts are such that when frame 24 is adjusted by operating turnbuckle 25, table 86 can also be adjusted to compensate therefor and maintain it substantially horizontal.

Although the various features of the new and improved spreader have been shown and described in detail to fully disclose one embodiment of the invention, it will be evident that changes may be made in such details and certain features may be used without others without departing from the principles of the invention.

What is claimed is:

In a laundry machine, a horizontal base member; a vertically extending arched framework attached to said base member intermediate its ends; a frame member pivotally mounted within said arched framework; parallel spaced endless belt means supported by said pivotal frame member; angularly disposed endless belt means mounted on said pivotal frame member; sheet material feeding means mounted on said pivotal frame member, said feeding means comprising endless belt means extending substantially parallel to and at an elevation above said spaced belt means; and an additional endless belt sheet feeding means adjustably supported by said arched framework above and substantially parallel to said endless belt feeding means, both of said feeding belt means being arranged to engage a workpiece therebetween, the material engaging surfaces of both of said feeding belt means having the input ends thereof spaced forwardly of all of the material engaging surfaces of said spaced parallel belt means with the upper face of the first mentioned sheet feeding belt in sheet conveying contact with the lower face of the additional sheet feeding belt at said forward position whereby the workpiece will be engaged between said feeding belt means forwardly of all of said spaced belt means and will be carried thereby onto the forward input ends of said parallel spaced belt means.

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