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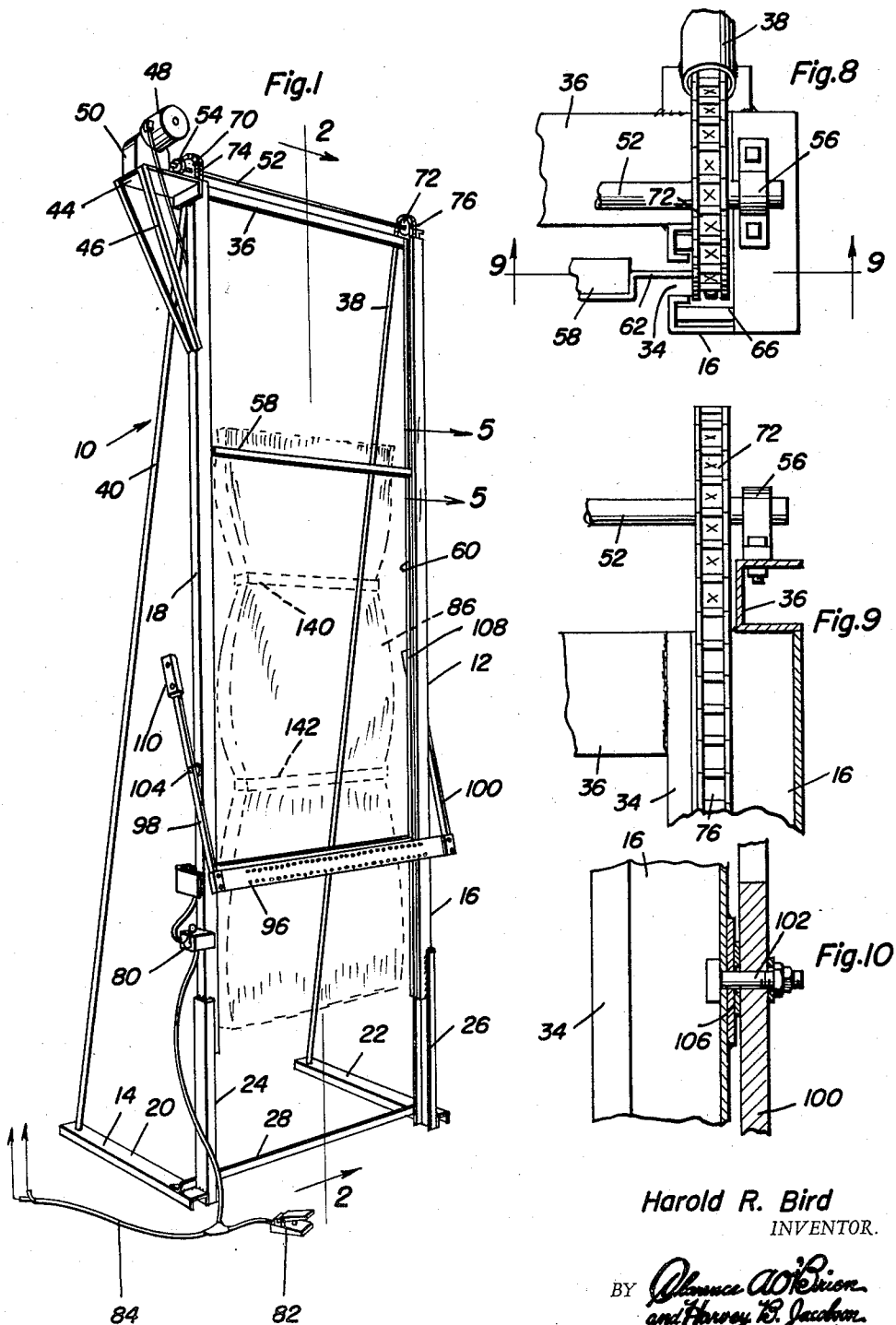
H. R. BIRD

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DRAPERY PLEATING MACHINE

Filed Sept. 18, 1958

3 Sheets-Sheet 1



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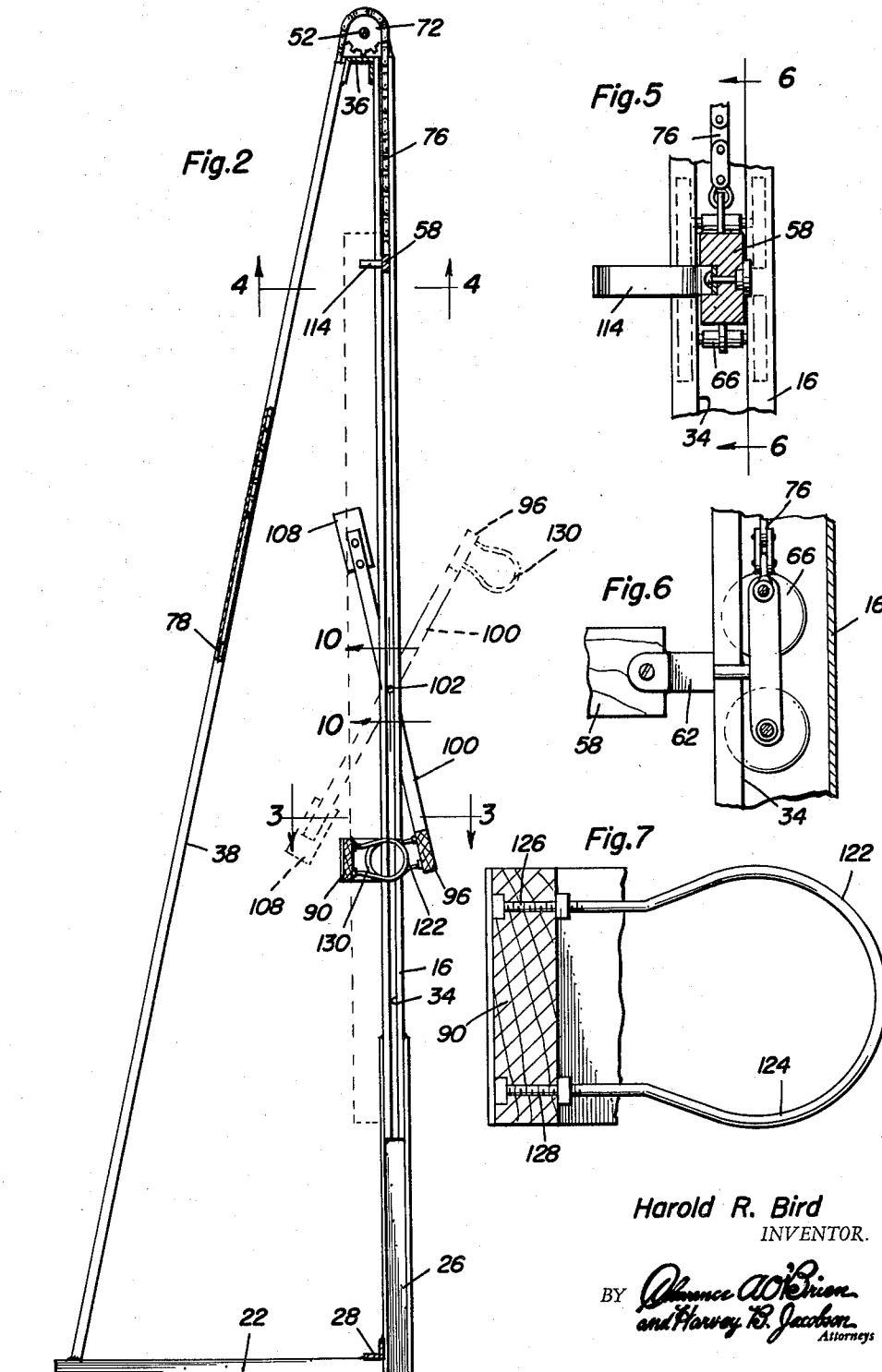
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3 Sheets-Sheet 3

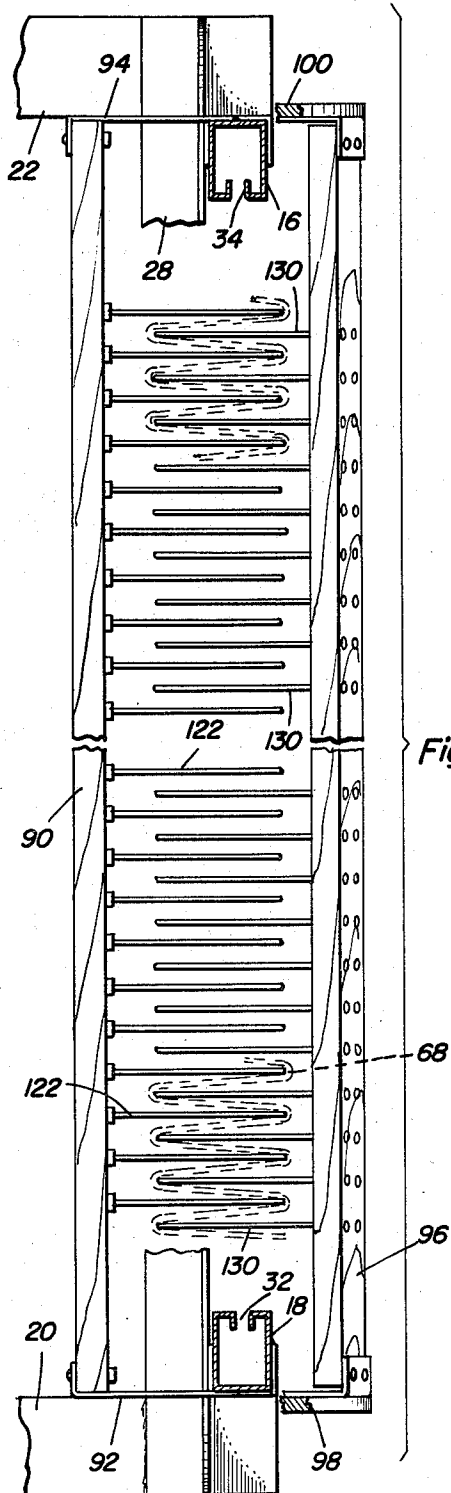


Fig. 3

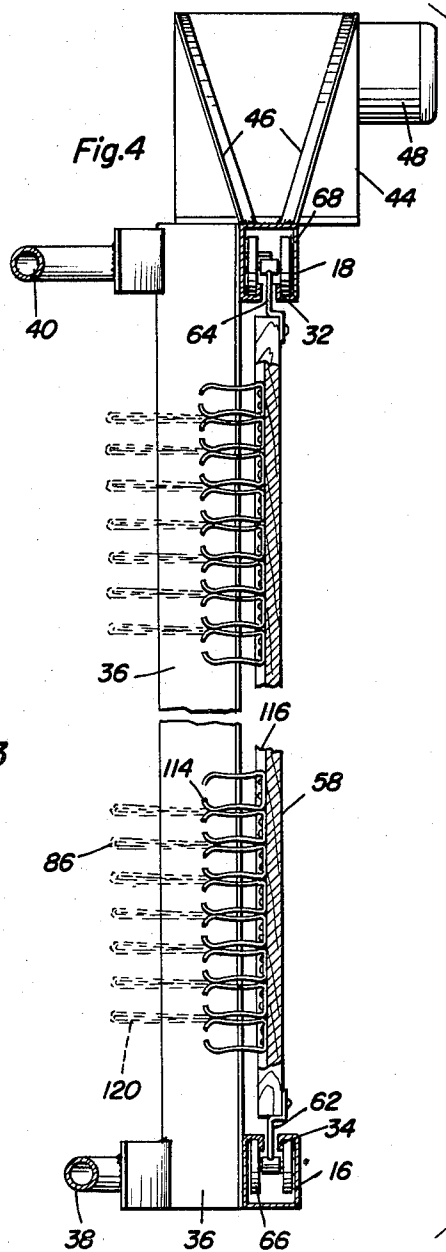


Fig. 4

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DRAPERY PLEATING MACHINE

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9 Claims. (Cl. 223—30)

This invention relates to laundry and dry cleaning plant equipment and more particularly to a drapery pleating machine.

An object of the invention is to provide a machine for facilitating the pleating of draperies by rapidly pressing pleats into the drapery.

A machine constructed in accordance with the invention retains a drapery in such a way that the stitched or otherwise retained pleats are supported properly, and the drapery throughout its length is formed with these pleats so that the pleats are very neat and accurately done.

A further object of the invention is to provide a machine for not only accelerating the task of pleating the drapery but also for making the pleats accurately.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of a machine for pleating draperies.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view showing the stationary pleater bar and the swinging pleater bar as viewed along the line 3—3 of Figure 2.

Figure 4 is a sectional view taken on the line 4—4 of Figure 2 and showing the hoist bar.

Figure 5 is an enlarged sectional view taken on the line 5—5 of Figure 1 and showing the manner of attachment between the hoist bar and the means for raising and lowering the hoist bar.

Figure 6 is a sectional view taken on the line 6—6 of Figure 5.

Figure 7 is a sectional view of the stationary pleater bar.

Figure 8 is an enlarged top view of the upper corner of the machine.

Figure 9 is a sectional view taken on the line 9—9 of Figure 8.

Figure 10 is an enlarged sectional view taken on the line 10—10 of Figure 2 and showing how the swinging pleater bar is connected with one of the side rails of the machine.

In the accompanying drawings there is a machine 10 for pleating drapery. The machine has its principal application in connection with laundry or dry cleaning plants where draperies must be pleated on a commercial scale, although it is understood that this is not the sole field of utility for the pleating machine. Machine 10 has a frame constructed of a base 14 and two vertical rails 16 and 18. The base simply supports the vertical rails 16 and 18 and may have any configuration, for instance two inverted channels 20 and 22 welded to upright channels 24 and 26 and supported by brace 28

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that extends across the inverted channels 22 and 24. Rails 16 and 18 are welded or otherwise secured to the upright channels 26 and 24. The section of each rail is seen in Figure 4. Each rail is constructed of a box beam with longitudinal slots 32 and 34 in the confronting walls of each. There is a header brace 36 extending across the top of the rails and rigidly secured to them. Hollow diagonal braces 38 and 40 are attached to the header brace 36 and are attached to the inverted channels 22 and 20 of base 14. A platform 44 is secured to the upper part of rail 18 and is reinforced by braces 46. The purpose of the platform 24 is to support reversible electric motor 48 and reduction gear box 50 which drives shaft 52 through coupling 54. The shaft 52 is mounted for rotation in self-aligning bearings 56 that are secured to the upper end of the frame 12.

There is a hoist bar 58 which extends transversely across the frame and which is capable of vertical sliding movement within the opening 60 enclosed by the substantially rectangular frame. The hoist bar has brackets 62 and 64 at its ends to which wheeled carriages 66 and 68 are secured. Each carriage has eight wheels and is mounted within the confines of the rails 16 and 18. Brackets 62 and 64 attached to and constituting a part of hoist bar 58, pass through slots 32 and 34. Accordingly, the movement of the hoist bar 58 is constrained to vertical sliding movement, assuming that the frame 12 is set in a vertical position, which may vary.

There are means for raising and lowering the hoist bar, a portion of which has already been described. Two sprockets 70 and 72 are secured to shaft 58 and are located above the open upper ends of rails 16 and 18. Roller chains 74 and 76 are entrained over the sprockets 70 and 72 and are secured to carriages 66 and 68. These chains enter the hollow braces 38 and 40 (Fig. 2) and are secured at their ends to weights 78 that are located in the hollow braces. Therefore, the hoist bar is counterweighted.

Reversible motor 48 is operated from a source of electrical potential through reversing switch 80 and rheostat speed control 82. Cable 84 (Fig. 1) is adapted to attach to a source of electrical potential and is connected to rail 18 merely to route the cable to the motor 48. Switch 80 is an "on"—"off" switch and has a position for forward and reverse operation of motor 48. It is now apparent that the motor 48, when energized in one direction, will cause the hoist bar to be raised. When energized in the opposite direction will cause the hoist bar to be lowered, chains 74 and 76 being confined in the rails, constituting a push-pull structure for the hoist bar.

Stationary pleater bar 90 extends transversely across the opening 60 and has end mounting brackets 92 and 94. These mounting brackets are welded or otherwise secured to the rails 16 and 18 with the stationary pleater bar located on the rear of frame 12. Swinging pleater bar 96 has a pair of arms 98 and 100 attached to its ends and pivotally secured to the rails 16 and 18. Pivot pins 102 and 104 are passed through holes in the rails and through openings in the arms 98 and 100. There are spacers 106 (Fig. 10) between the rails and the arms to assure that the swinging pleater bar will oscillate freely. Further, counterweights 108 and 110 are at the ends of the arms 98 and 100 to facilitate swinging between the full line and the dotted line positions shown in Figure 2.

Hoist bar 58 has a row of clamps 114 attached to the rear surface thereof. A slot 116 is in the body of the hoist bar so that the substantially U-shaped, spring metal clamps 114 have their bases inset in the body of the bar. The clamps are approximately U-shaped with curved outer extremities that function as cams when the perma-

nent pleats 120 of typical drapery 86 are inserted in the jaws of the clamps. Stationary pleater bar 90 has a row of pleater fingers 122 attached to its front surface. Each finger 122 is preferably made of a single wire with a loop 124 at its outer end and screw threads on the parallel sides 126 and 128 thereof. The parallel sides pass through openings in the body of the pleater bar 90 and are held firmly fixed by nuts on the threaded sides 126 and 128 and bearing against the front and rear surfaces of the pleater bar. Swinging pleater bar 96 has a row of fingers 130 attached to its body. The fingers 130 are the same as fingers 122, however, they are laterally offset from the fingers 122 so that when the swinging pleater bar 96 is in the pleat forming position, fingers 130 and fingers 122 become interdigitated with the drapery 68 between them. Permanent pleats 120 are held vertically spaced above the pleat pressing means which include, among other structure, the fingers 122 and 130.

The suggested use of the machine is as follows: hoist bar 58 is lowered and permanent pleats 120 are manually fitted into the jaws of clamps 114. Swinging pleater bar 96 is swung to the elevated position as shown in dotted lines in Figure 2. The drapery is inserted between fingers 122 of stationary pleater bar, and since hoist bar 58 and pleater bar 90 are reasonably close to each other, the pleats 120 are easily continued as the drapery material is inserted between the fingers 122. This so-called inserting of the drapery material is achieved automatically when the swinging pleater bar 96 is manually swung to the down position as shown in full lines in Figure 2.

Now the operator of the machine energizes motor 48 in a direction to raise the hoist bar 58. When the drapery is being lifted, the pleats are pressed into the drapery material automatically as the drapery material is pulled vertically through the spaces between interdigitated fingers 122 and 130. After passing there-through for a short distance, the operator may stop the hoist 58 and attach a paper band 140 around the drapery material. Then he may again energize the motor in the same direction and repeat the procedure and apply another paper tape 142 to the drapery material. When the drapery has been pulled completely through the fingers of the pleater bars, the drapery is pressed to the extent necessary for having the pleats neatly arranged. In other words, the drapery is now ready for the customer.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed. For instance the machine may operate in a generally vertical position (as shown), in a horizontal position or any angular position therebetween.

What is claimed as new is as follows:

1. A drapery pleating machine comprising the combination of a frame, a hoist bar movable with respect to said frame, clamps on said hoist bar into which the permanent pleats of a drapery are adapted to be fastened, a stationary pleater bar carried by said frame and spaced from said hoist bar, a movable pleating bar carried by said frame, and pleating fingers carried in fixed positions by said bars and interdigitated with each other when said movable bar is brought adjacent to said stationary pleater bar and with the drapery material between said interdigitated fingers.

2. A drapery pleating machine comprising the combination of an upstanding frame, a hoist bar, means movably mounting said bar on said frame, clamps on said hoist bar into which the permanent pleats of a drapery are adapted to be fastened, a stationary pleater bar carried by said frame and spaced from said hoist bar, a movable pleating bar carried by said frame and movable

laterally of said stationary pleating bar, pleating fingers carried by said bars and interdigitated with each other when said movable bar is brought adjacent to said stationary pleater bar and with the drapery material between said interdigitated fingers, and means for elevating said hoist bar after said fingers are interdigitated to thereby pull said drapery material through said interdigitated fingers and form pleats in the drapery.

3. A drapery pleating machine comprising the combination of a frame, a hoist bar, clamps on said hoist bar into which the permanent pleats of a drapery are adapted to be fastened, a stationary pleater bar carried by said frame and spaced from said hoist bar, a movable pleating bar carried by said frame, pleating fingers carried by said bars and interdigitated with each other when said movable bar is brought adjacent to said stationary pleater bar and with the drapery material between said interdigitated fingers, means for elevating said hoist bar after said fingers are interdigitated to thereby pull said drapery material through said interdigitated fingers and form pleats in the drapery, and said movable bar having a pair of arms pivoted to said frame and adapted to swing between positions at which said fingers of said respective bars are interdigitated and said fingers of said respective bars are separated from each other.

4. A drapery pleating machine comprising the combination of a frame, a hoist bar, clamps on said hoist bar into which the permanent pleats of a drapery are adapted to be fastened, a stationary pleater bar carried by said frame and spaced from said hoist bar, a movable pleating bar carried by said frame, pleating fingers carried by said bars and interdigitated with each other when said movable bar is brought adjacent to said stationary pleater bar and with the drapery material between said interdigitated fingers, means for elevating said hoist bar after said fingers are interdigitated to thereby pull said drapery material through said interdigitated fingers and form pleats in the drapery, said means for lifting said hoist bar including a motor, a shaft driven by said motor and mounted for rotation on said frame, said frame having side rails, carriages held captive in said side rails and attached to said hoist bar, and flexible elongate means drivingly connected with said shaft and said carriages.

5. A pleating machine for finishing draperies which have pleats therein, said machine comprising a frame having side rails and a base to which said side rails are fastened, a hoist, means on said hoist and engaged with said rails for constraining the movement of said hoist, drapery material clamps carried by said hoist and into which the permanent pleats of the drapery are adapted to be fastened, and means carried by said frame for engaging the material of said drapery to fold the material of the drapery near the permanent pleats when said hoist and attached material are moved in one direction with the folds formed by said means in alignment with the permanent pleats as continuations thereof.

6. A pleating machine for finishing draperies which have pleats therein, said pleating machine comprising a frame having side rails and a base to which said side rails are fastened, a hoist, means on said hoist and engaged with said rails for constraining the movement of said hoist, drapery material clamps carried by said hoist and into which the permanent pleats of the drapery are adapted to be fastened, means carried by said frame for engaging the material of said drapery to fold the material of the drapery near the permanent pleats when said hoist is moved in one direction with the folds formed by said means in alignment with the permanent pleats as continuations thereof, said folding means comprising a stationary pleater bar carried by said frame, a movable pleating bar carried by said frame, and forming means attached to both of said bars and interdigitated when said movable bar is swung to an operative pleating position with respect to the stationary bar.

7. A pleating machine for finishing draperies which

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have pleats therein, said pleating machine comprising a frame having side rails and a base to which said side rails are fastened, a hoist, means on said hoist and engaged with said rails for constraining the movement of said hoist, drapery material clamps carried by said hoist and into which the permanent pleats of the drapery are adapted to be fastened, means carried by said frame for engaging the material of said drapery to fold the material of the drapery near the permanent pleats when said hoist is moved in one direction with the folds formed by said means in alignment with the permanent pleats as continuations thereof, said folding means comprising a stationary pleater bar carried by said frame, a movable pleating bar carried by said frame, and forming means attached to both of said bars and interdigitated when said movable bar is swung to an operative pleating position with respect to the stationary bar, after which said hoist is adapted to be moved away from said bars thereby pulling the drapery material through said forming means.

8. A pleating machine for finishing draperies which have pleats therein, said pleating machine comprising a frame having side rails and a base to which said side rails are fastened, a hoist, means on said hoist and engaged with said rails for constraining the movement of said hoist, drapery material clamps carried by said hoist and into which the permanent pleats of the drapery are

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adapted to be fastened, means carried by said frame for engaging the material of said drapery to fold the material of the drapery near the permanent pleats when said hoist is moved in one direction with the folds formed by said means in alignment with the permanent pleats as continuations thereof, said folding means comprising a stationary pleater bar carried by said frame, a movable pleating bar carried by said frame, forming means attached to both of said bars and interdigitated when said movable bar is swung to an operative pleating position with respect to the stationary bar, after which said hoist is adapted to be moved away from said bars thereby pulling the drapery material through said forming means, and said swinging bar having at least one counterweight to facilitate swinging between positions.

9. The drapery pleating machine of claim 1 and means connected with said frame for constraining the movement of said hoist bar, and means attached to said hoist bar to move said hoist bar and the material attached thereto.

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