W. W. SHERWOOD.

PAINTING, VARNISHING, OR COATING MACHINE.

APPLICATION FILED MAR. 21, 1916.

1,251,701. Patented Jan. 1, 1918.

4 SHEETS—SHEET 1.

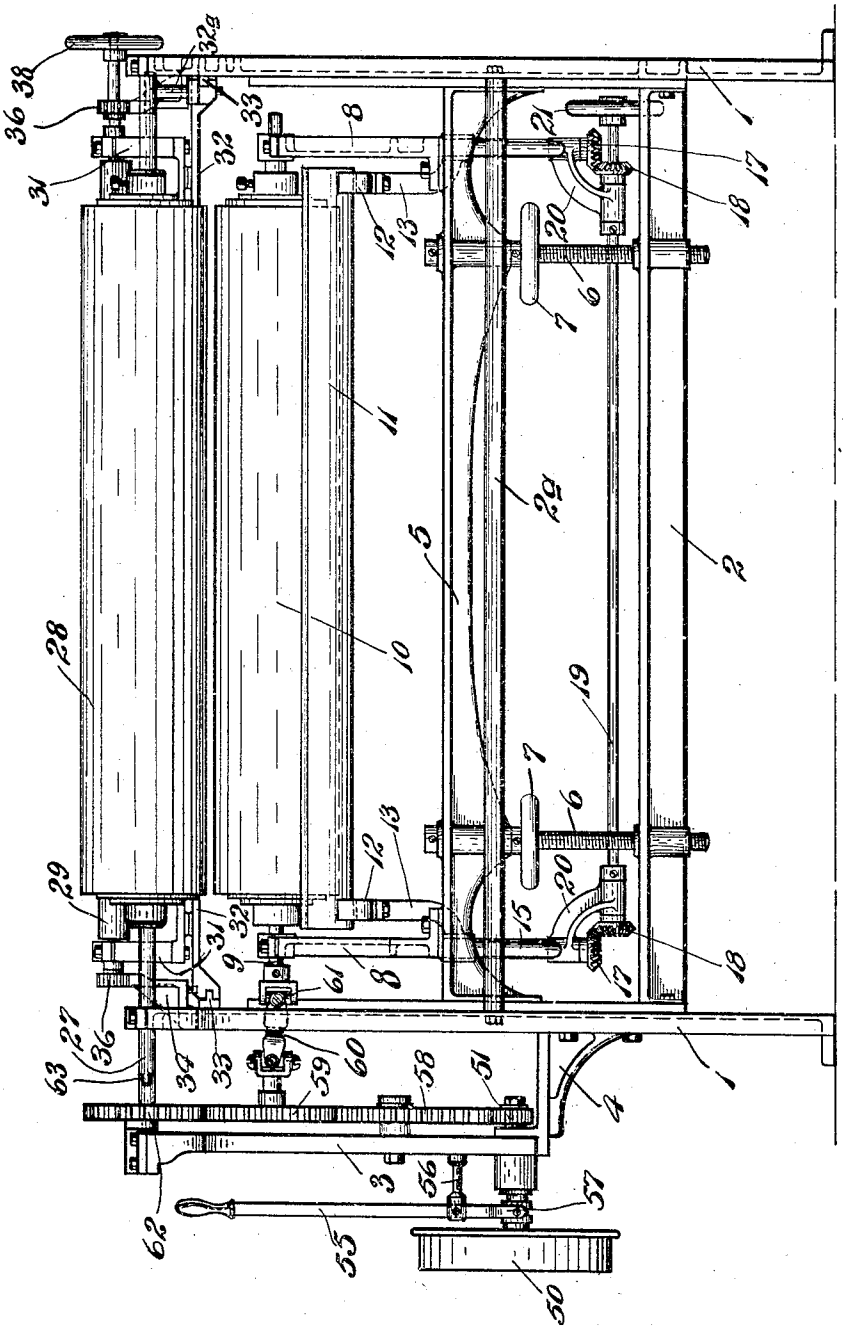


Fig. 1.

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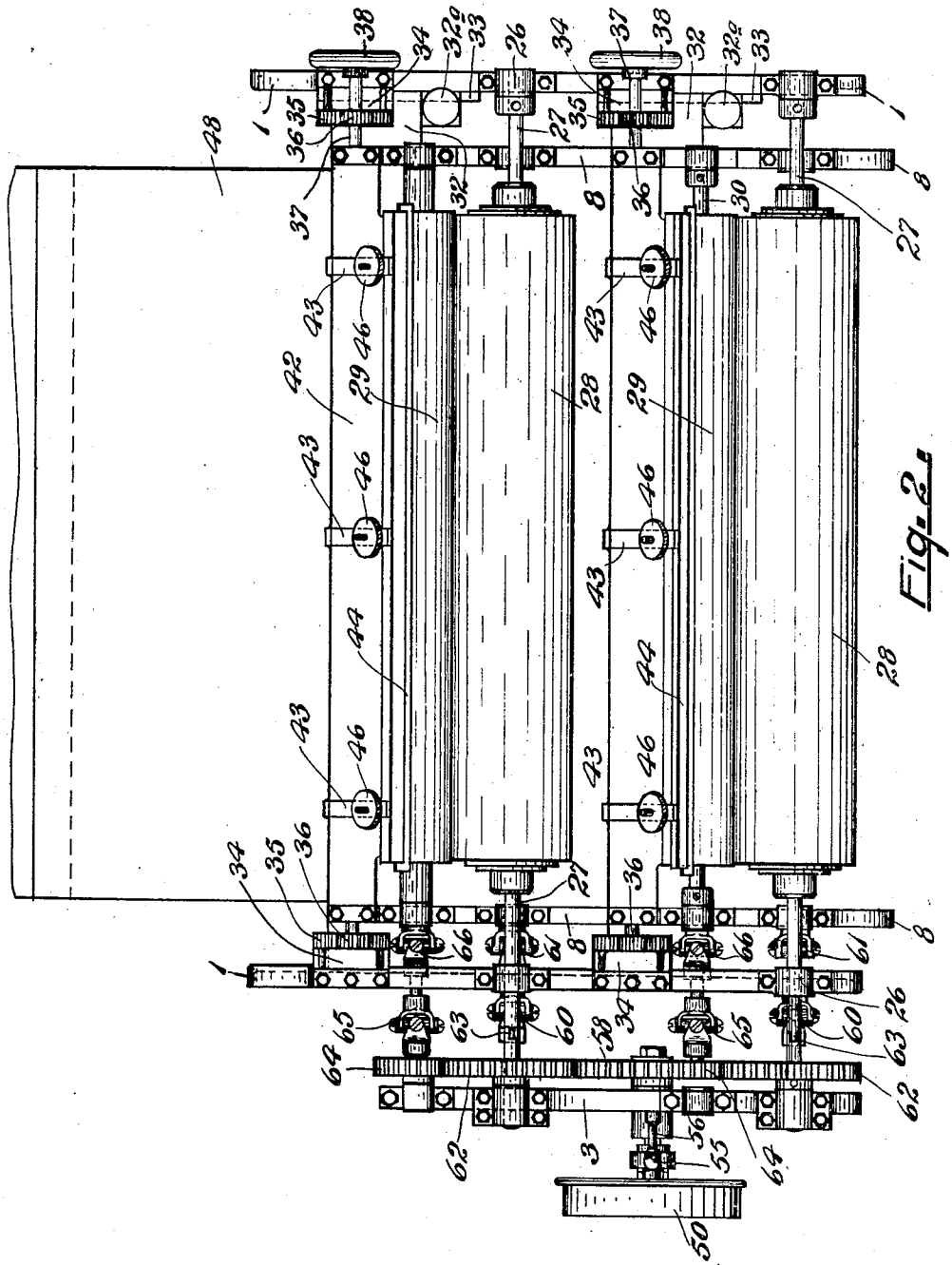


Fig. 2.

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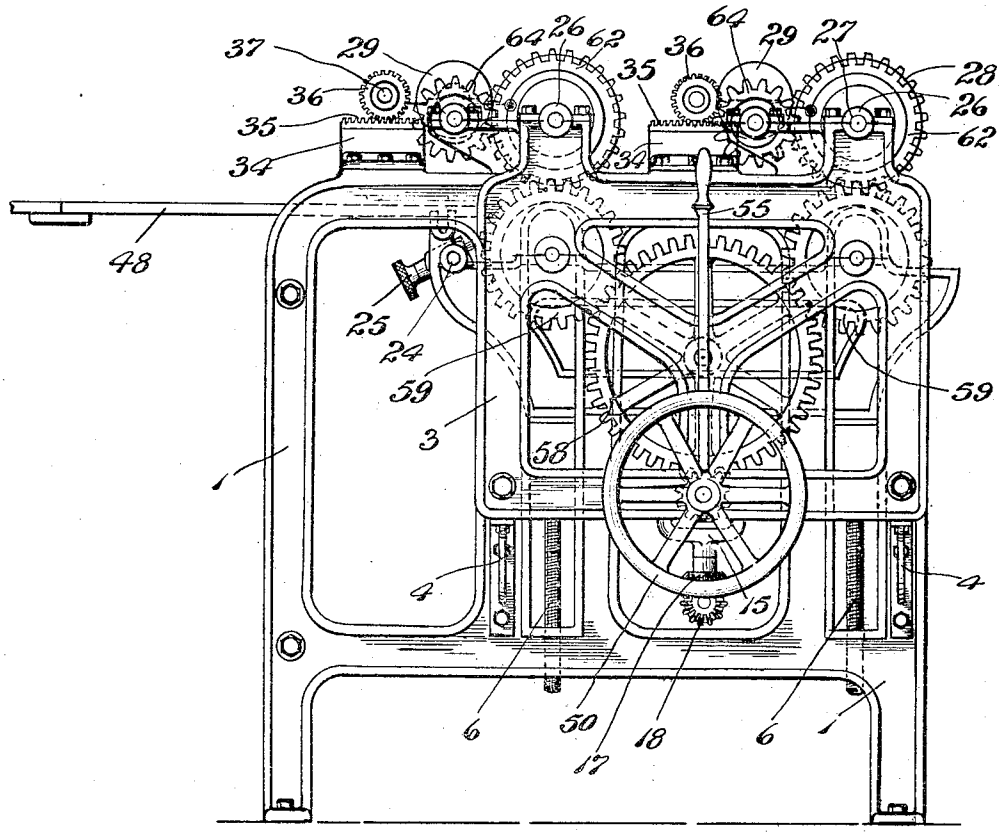


Fig. 3.

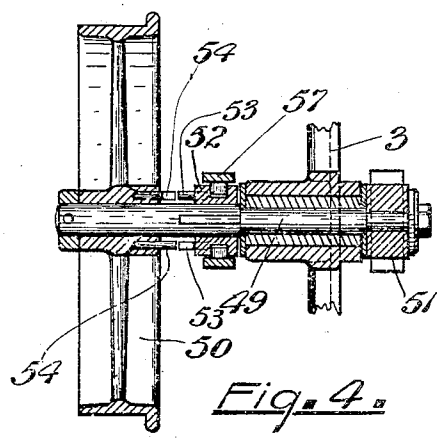


Fig. 4.

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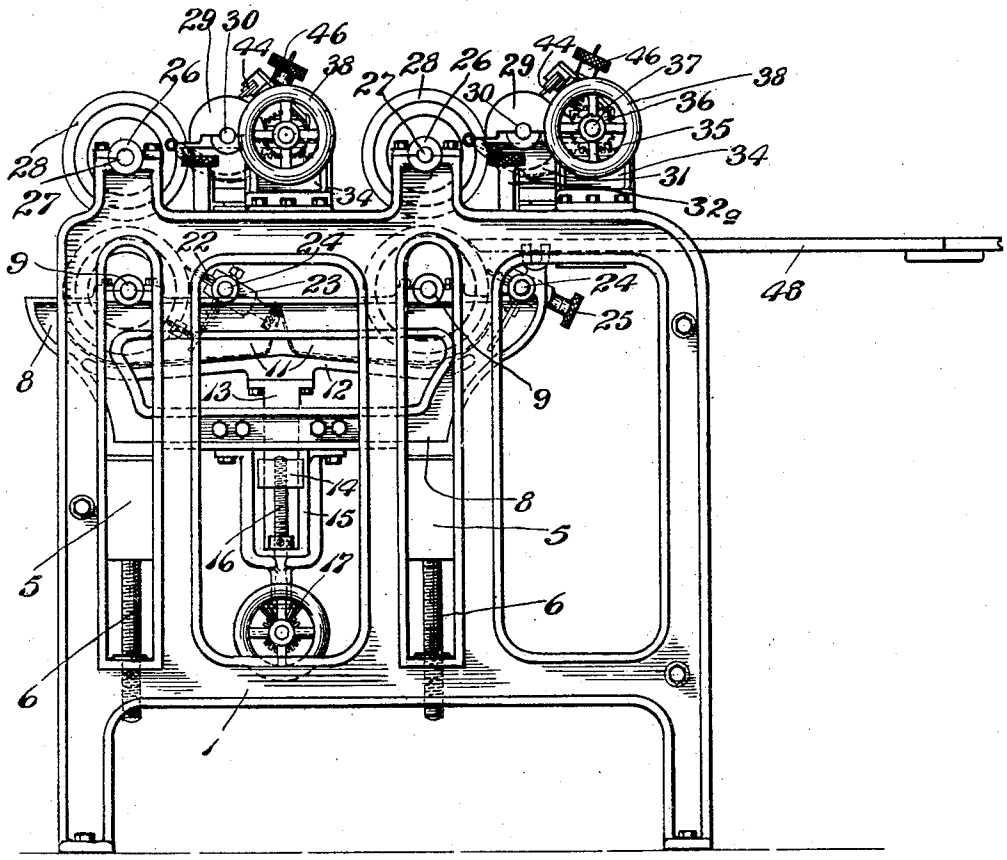


Fig. 5.

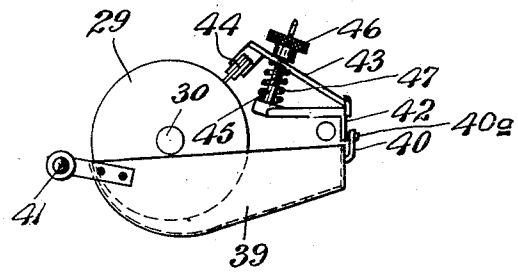


Fig. 6.

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UNITED STATES PATENT OFFICE.

WILLIAM WALLACE SHERWOOD, OF GRAND RAPIDS, MICHIGAN.

PAINTING, VARNISHING, OR COATING MACHINE.

1,251,701. Specification of Letters Patent. Patented Jan. 1, 1918.

Application filed March 21, 1916. Serial No. 85,604.

To all whom it may concern:

Be it known that I, WILLIAM WALLACE SHERWOOD, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Painting, Varnishing, or Coating Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a painting, coating or varnishing machine by means of which paint, varnish or other coating material may be transferred from receptacles which hold the coating material to an article which is to receive the coating. It is an object and purpose of my invention to feed flat material to the machine and apply the coating or varnishing liquid to this material on both sides thereof. A further object of the invention consists in the provision of upper and lower rolls to transfer the coating fluid to the material, said lower rolls being adjustable with respect to a supporting frame which carries all of the rolls so that the machine may be used for various thicknesses of material. Further objects and purposes of the invention consist in the provision of many novel and useful features of construction and operation which will more fully appear upon understanding of the construction of the machine which embodies the invention disclosed in the accompanying drawings, in which:

Figure 1 is a front elevation of the machine.

Fig. 2 is a plan view thereof.

Fig. 3 is a view from the left of the machine shown in Fig. 1.

Fig. 4 is a sectional detail view of the driving mechanism for the machine.

Fig. 5 is a view similar to Fig. 3 from the opposite end of the machine; and

Fig. 6 is a detail end elevation showing one of the transfer rolls and the means used to remove the excess of coating material thereon.

Like reference characters refer to like parts throughout the several views of the drawings.

In the construction as disclosed, spaced apart supporting frame members 1 are provided connected at the front and rear adjacent their lower ends by cross beams 2. A short distance above the cross beams rods 2^a are also interposed between the frame members 1 to strengthen and reinforce the frame. At one end a frame member 1 carries an auxiliary support 3 which is located in upright position parallel to the frame member 1 being supported at its lower end by spaced apart brackets 4 which are bolted to the member 1.

A distance above each cross beam 2 a horizontal member 5 is located and is adjustable toward and from the cross beam directly below it by means of screws 6 which are adapted to be manually operated by the hand wheel 7. Vertical supports 8 are secured to and lie between the members 5 adjacent the ends thereof and extend upwardly a distance to serve as supports for shafts 9, two of which are carried by the members 8 in suitable bearings, each shaft having thereon a roller 10, the outer surface of which is formed of any suitable composition material. Below each roller 10 is positioned a pan 11 which serves as a receptacle to retain paint, varnish or other suitable coating material, rollers 10 operating in and turning through this fluid. The pans 11 have adjacent edges coming together and are supported at their ends by the oppositely extending arms 12, one pair at each end being carried at the upper end of an upright 13, which at its lower end is formed integrally with a block 14 slidably mounted between guides 15 bolted to and suspended from the supports 8. A screw 16 is threaded into each block and extends downwardly carrying at its lower end a bevel pinion 17 which meshes with similar pinions 18 secured on a shaft 19, supported by brackets 20 cast integral with the guides 15 heretofore described. Shaft 19 may be operated by the hand wheel 21 and it is apparent that on operation of this wheel the pans 11 are raised or lowered with respect to the rolls 10 so that they may be removed at any time for any desired purpose such as cleaning and the like. It is also evident that the entire structure is movable with the bars 5 whenever such bars are raised and lowered as previously described. Each roller 10 has mounted adjacent its outer surface a scraper 22 which extends the full length of the roller being supported in blocks 3 pivotally mounted on shafts 24. These blocks are adjustable on the shafts and held in any desired position by the set screws 25. After a roller

has passed through the coating fluid, by properly locating the scrapers 22, as much of the fluid may be removed as desired so that a smooth and even coating without excess material may be retained by the rollers 10.

Directly above shafts 9 on each of the frame members 1 are bearings 26 in which are mounted shafts 27 carrying composition rolls 28 located directly above and spaced a short distance from the rolls 10 heretofore described. Each of the composition rolls 28 has a roller 29 mounted alongside it, these rollers being preferably of cast iron and either cast integral or secured to shafts 30 which are mounted at their ends on suitable uprights 31 which are secured to a plate 32 at its ends slidably mounted on guide ribs 33 connected to the end frame members 1. Adjacent each of the members 31 a bracket 34 is secured to and above each end frame member 1 being formed at its upper edge with a rack 35 with which meshes pinion 36 attached to a shaft 37 which is mounted in suitable bearings adjacent each end in the parts 31 heretofore described. A hand wheel 38 is attached to one end of the shaft and it is apparent that on manual operation of this wheel a roll 29 may be moved toward or from its associated roll 28 so as to contact therewith with any desired degree of pressure. Clamping devices 32^a are used to hold the roller 29 in any position to which it may be moved.

Underneath each roller 29 a pan 39 is located having adjacent one edge a plurality of hooks 40 adapted to engage with pins 40^a projecting from a relatively stationary transverse member 42. Adjacent its opposite edge each pan is provided with a pin 41 which may be set in any suitable socket to hold this side of the pan in place. The pan is filled with any suitable coating liquid and roller 9 passes therethrough. A plurality of spring fingers 43 are attached at one end to the cross bar 42 and at their opposite ends have blocks connected to their under faces in which is seated a scraper 44 extending the entire length of a bearing against the roller 29. Pins 45, one for each member 43 project from the bar 42 and pass through said members 43 receiving at their free ends nuts 46. Between the bar 42 and each member 43 a compression spring 47 is located around each pin 45, it being evident from this construction that the scraper 44 may be pressed against its roller 29 with as great or little pressure as desired so as to remove any excess of coating material collected thereon and as the roller 29 bears against an adjacent roller 28 what coating material is not scraped from it by scraper 44 is transferred to the roller 28. A platform 48 is positioned between the frame members 1 at the front end of the machine having its upper surface a distance below the lower edges of the rollers 28. Material which is to be coated is laid on this platform and fed between the rollers 10 and 28, and it will be evident that coating or varnishing material will be transferred from these rollers to the material fed into the machine and what part is not coated by the first pair of rollers 10 and 28 will be completed by the second pair.

The mechanism for driving the rollers will now be described. Adjacent the lower edge of the bracket 3 a bearing is formed which carries a short shaft 49 on the outer end of which is loosely mounted a drive wheel 50 while its inner end has a pinion 51 fastened thereto. Between the drive wheel 50 and the frame member 3, a clutch member 52 is splined to shaft 49 having diametrically opposed pins 53 projecting therefrom toward the drive wheel 50. Similarly opposed pins 54 project from the drive wheel toward the clutch member 52. A lever 55 is pivotally mounted between its ends on a bracket 56 and at its lower ends is forked at 57, the member of the fork passing to either side of the clutch member 52 and engaging therewith. By operating lever 55 the clutch member may be moved toward the drive wheel so that pins 53 and 54 engage in this manner causing shaft 49 to revolve with the drive wheel 50 which may be propelled by means of a belt from any suitable motor, power, shafting or the like. The pinion 51 meshes with a large gear 58 mounted on the short shaft on a frame member 3, this gear in turn driving front and rear gears 59, each of which has connection by two universal joints 60 and 61 with one of the shafts 9 heretofore described. Directly above gears 59 are gears 62 which mesh therewith being suitably mounted on short shafts on the frame member 3. Each gear 62 has a short shaft projecting therefrom and connecting at its ends as illustrated at 63 with the end of a shaft 27 heretofore described. Each gear 62 also meshes with a smaller gear 64 mounted immediately in front, each of these gears having connection through the two universal joint connections 65 and 66 with a shaft 30 previously described. The various universal joint connections shown and described permit the adjustment of the rollers 10 and 29 with respect to the rollers 28 without interfering with the continuous driving thereof no matter in which position they are left.

From the foregoing it will be apparent that I have provided a machine which can be used to paint or varnish or otherwise coat material with great rapidity both sides thereof being coated at the same time. This is of especial value in varnishing or coating panels which may be of metal or wood or fiber or other like material. Of course it is

apparent that one side only of a panel may be coated if desired by merely leaving the coating material out of either pans 11 or 39. Many changes in detail of structure may be resorted to without departing from my invention which is defined in the appended claims. Accordingly I do not wish to be limited to the exact disclosure of the invention but consider myself entitled to all modifications of structure falling within the scope of the claims which define the invention.

I claim:—

1. In combination, spaced apart supports, a vertical member positioned adjacent each support, means for raising and lowering said members, a pair of spaced apart rolls carried by and between said members, a roll mounted above each of the first mentioned rolls and carried by said spaced apart supports, and a pan partially inclosing the lower part of each of said first mentioned rolls, said pans being supported by and movable with said vertical members.

2. In combination, spaced apart supports, a vertical member located adjacent and on the inner side of each support, means for raising and lowering said members, a pair of spaced apart rollers carried by and between said members, a pan being carried by and movable with the roll supports, and means for independently moving said pans with respect to the rolls.

3. In combination, spaced apart supports, vertical members located one adjacent each support and mounted for vertical movements thereon, a pair of rolls mounted in spaced apart relation between said members, a bracket having oppositely extending arms mounted for vertical movements on each member, and a pan carried between each pair of arms adapted to partially inclose each roll at the lower part thereof, substantially as described.

4. In combination, spaced apart supports, vertical members located one adjacent each support and mounted for vertical movements thereon, guides depending from each member, a pair of rolls mounted in spaced apart relation on the members, brackets mounted on the guides, a member having oppositely extending arms secured at the upper end of each bracket, pans supported by and between the arms adapted to receive the lower portions of the rolls, a screw threaded into each bracket and extending downwardly below the guides, a shaft mounted below the guides, gearing connections between the shaft and each screw, and means to manually rotate the shaft.

5. In combination, spaced apart supporting frames, upper and lower rolls mounted in pairs in spaced apart relation between the supporting frames, means to simultaneously raise and lower the lower rolls of each pair, a pan partially inclosing the lower part of each lower roll, means to raise and lower said pans relative to the rolls and simultaneously with the rolls as they are raised and lowered, transfer rolls movably mounted adjacent the upper rolls, means to move said transfer rolls into contact engagement with the upper rolls, a pan mounted below and partially covering the lower part of each transfer roll, a platform mounted between the supporting frames in a plane between the upper and lower rolls, an auxiliary support carried by one of the supporting frames, interengaging gears mounted on the auxiliary support, means to drive the gears, connections between the lower rolls and the transfer rolls and certain of the gears for driving them in the same direction, and connections between the upper rolls and others of the gears for driving them in the same direction but opposite to the direction of driving of the remaining rolls, substantially as described.

In testimony whereof I affix my signature.

WILLIAM WALLACE SHERWOOD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."