July 7, 1964 E. LANDESMAN 3,139,823

SCREEN PRINTING MACHINE

Filed Nov. 10, 1961 5 Sheets-Sheet 1

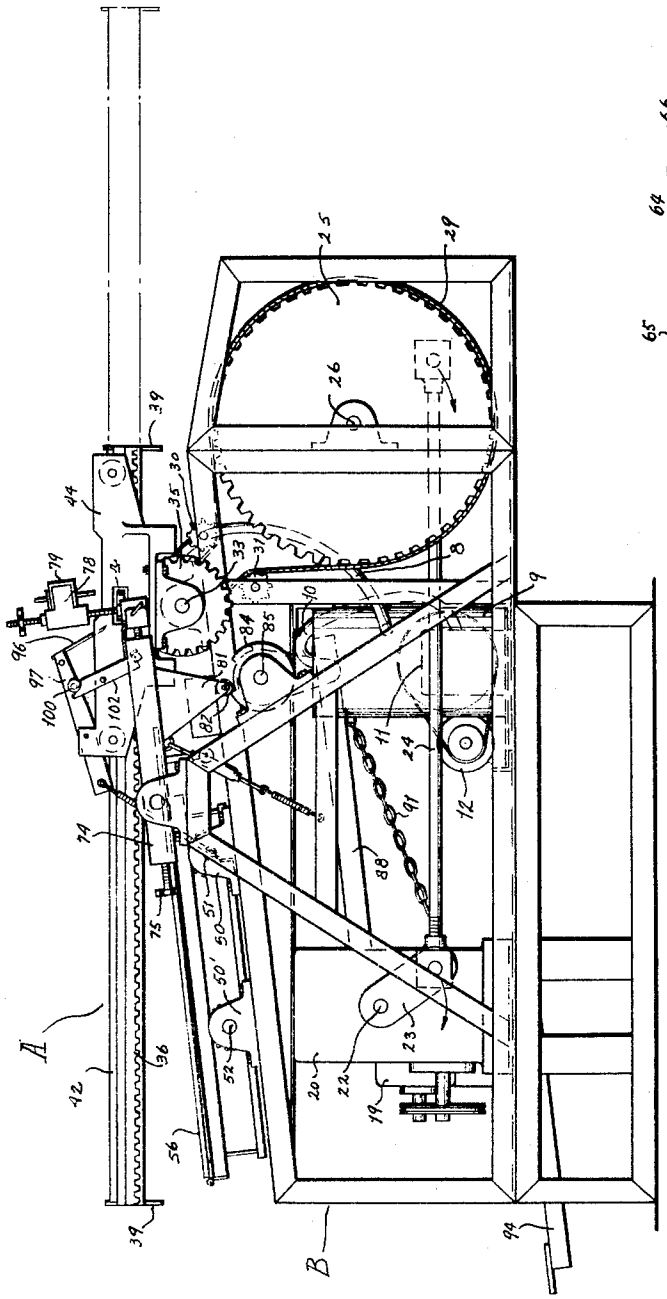

FIG. 1

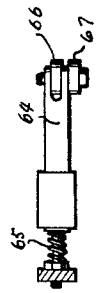

FIG. 8

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July 7, 1964 E. LANDESMAN 3,139,823

SCREEN PRINTING MACHINE

Filed Nov. 10, 1961 5 Sheets-Sheet 2

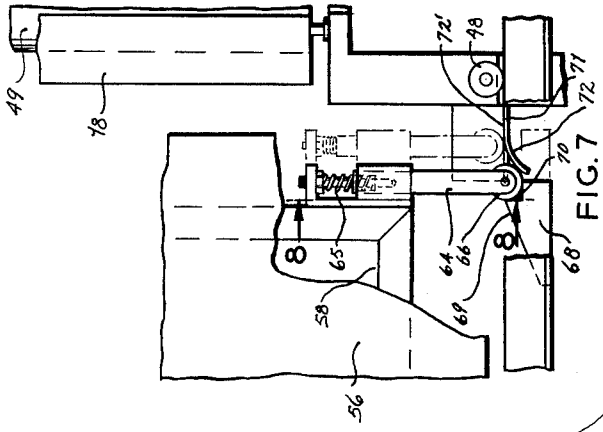

FIG. 7

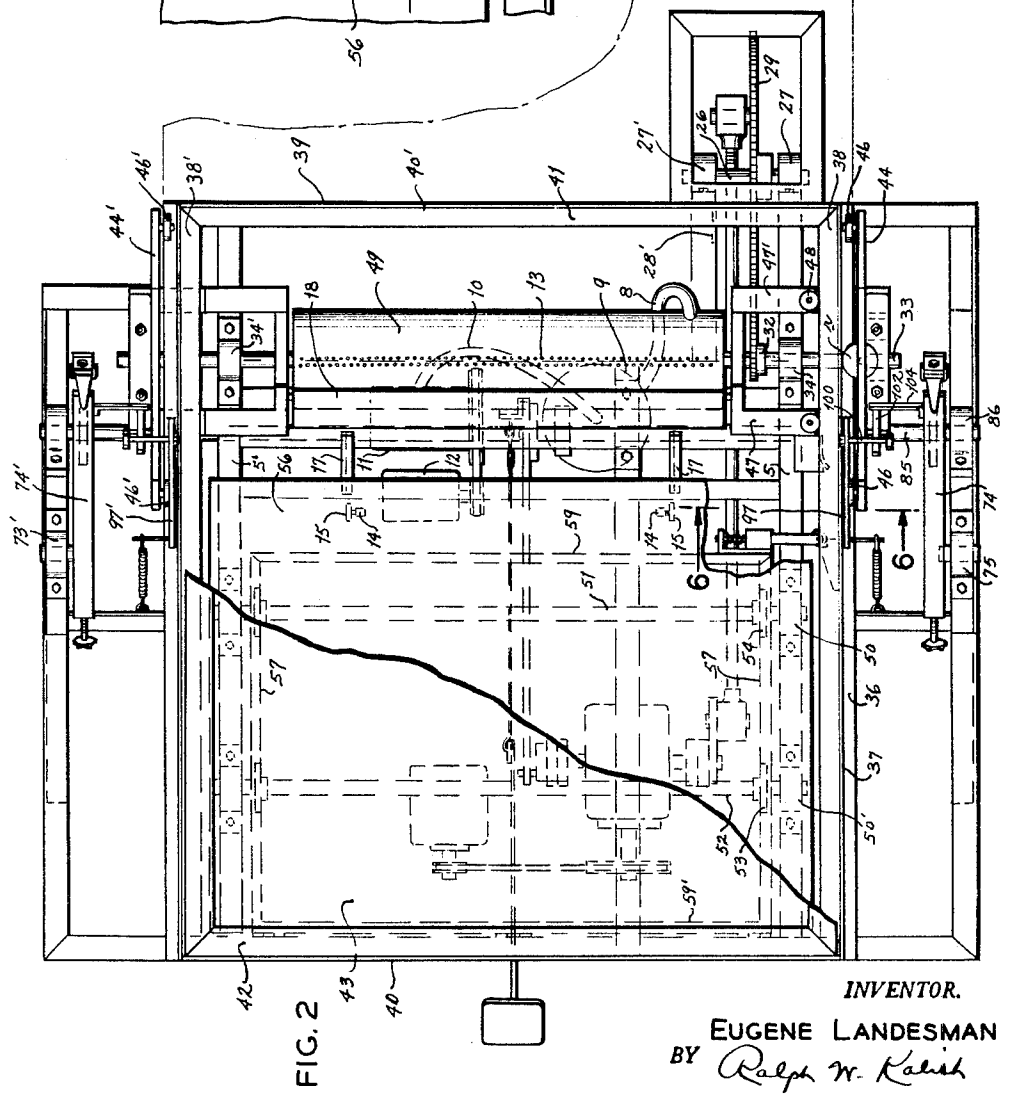

FIG. 2

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July 7, 1964 E. LANDESMAN 3,139,823

SCREEN PRINTING MACHINE

Filed Nov. 10, 1961 5 Sheets-Sheet 3

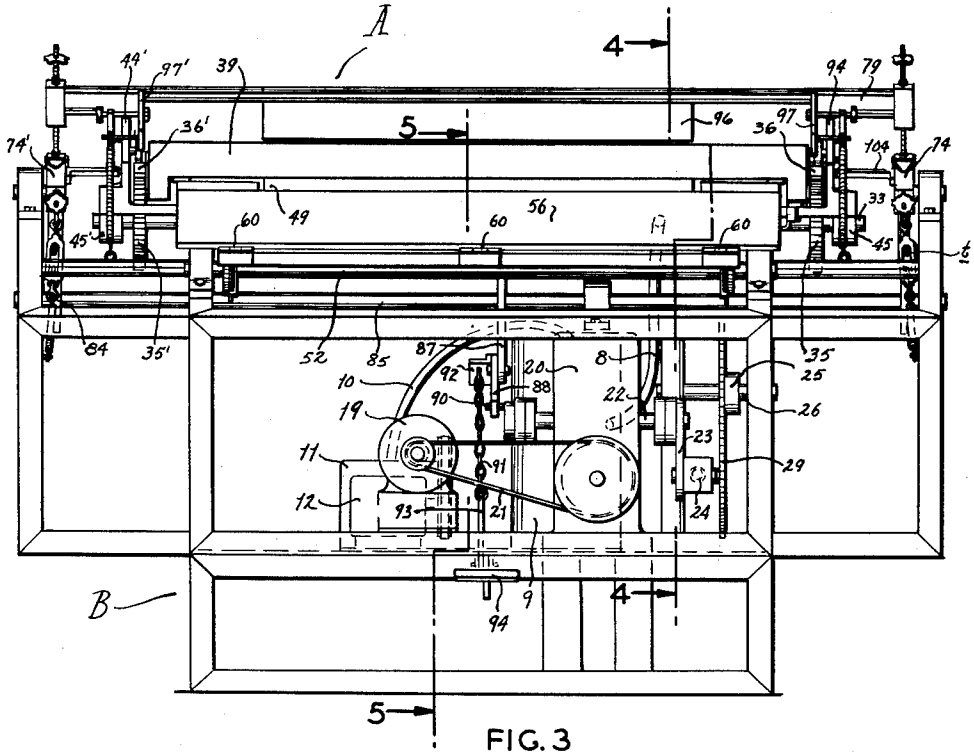

FIG. 3

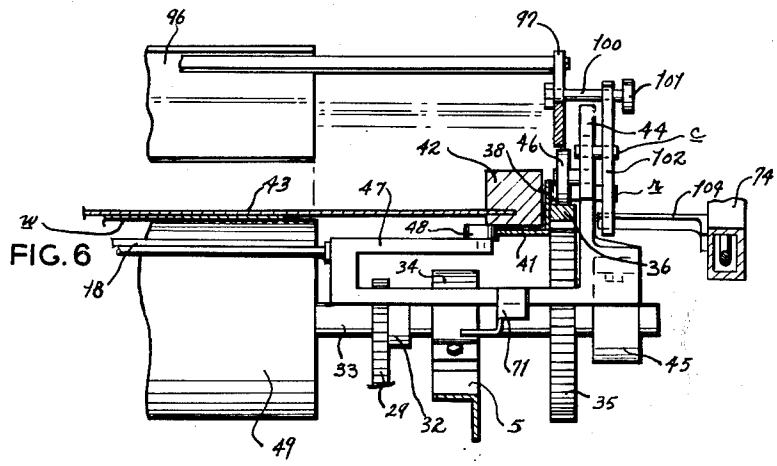

FIG. 6

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July 7, 1964 E. LANDESMAN 3,139,823

SCREEN PRINTING MACHINE

Filed Nov. 10, 1961 5 Sheets-Sheet 4

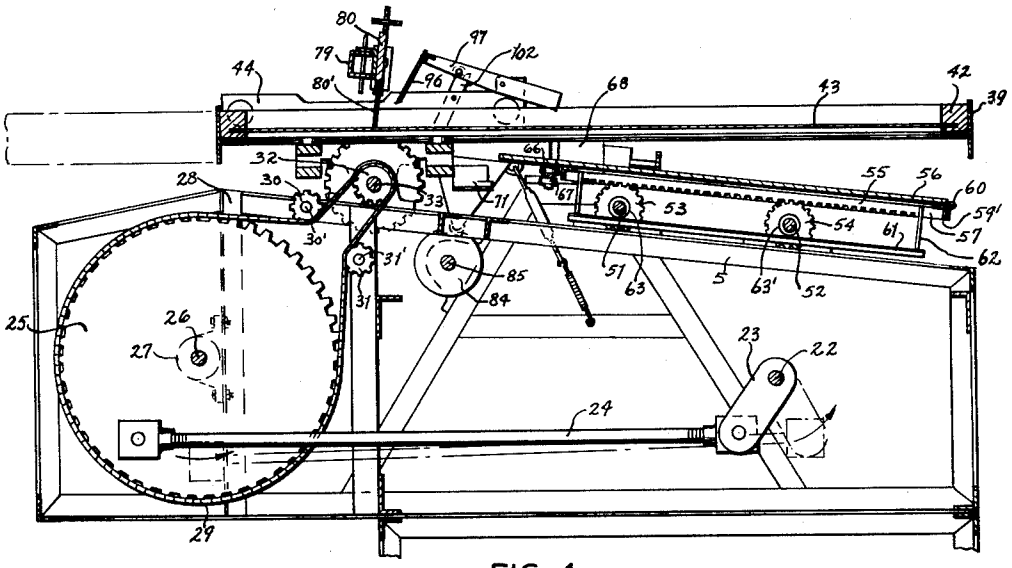

FIG. 4

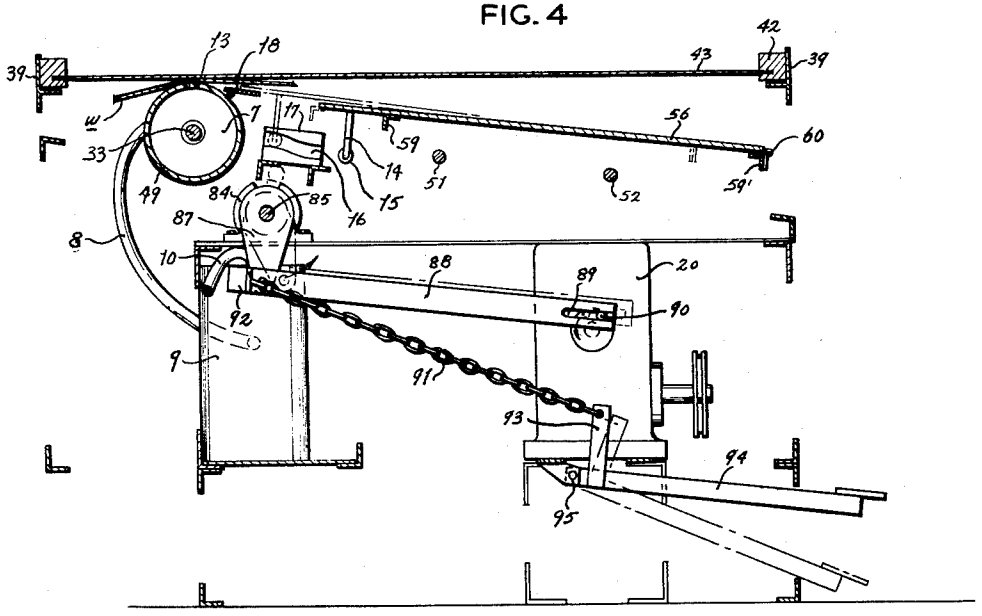

FIG. 5

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July 7, 1964 E. LANDESMAN 3,139,823

SCREEN PRINTING MACHINE

Filed Nov. 10, 1961 5 Sheets-Sheet 5

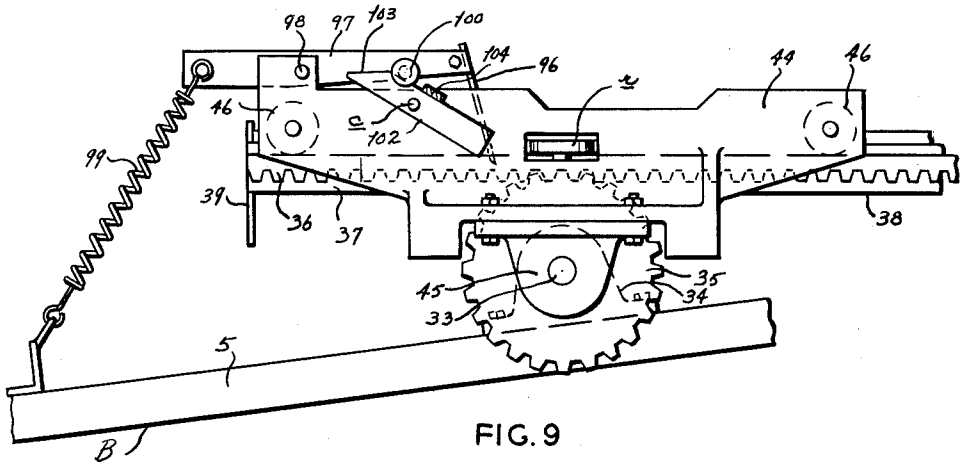

FIG. 9

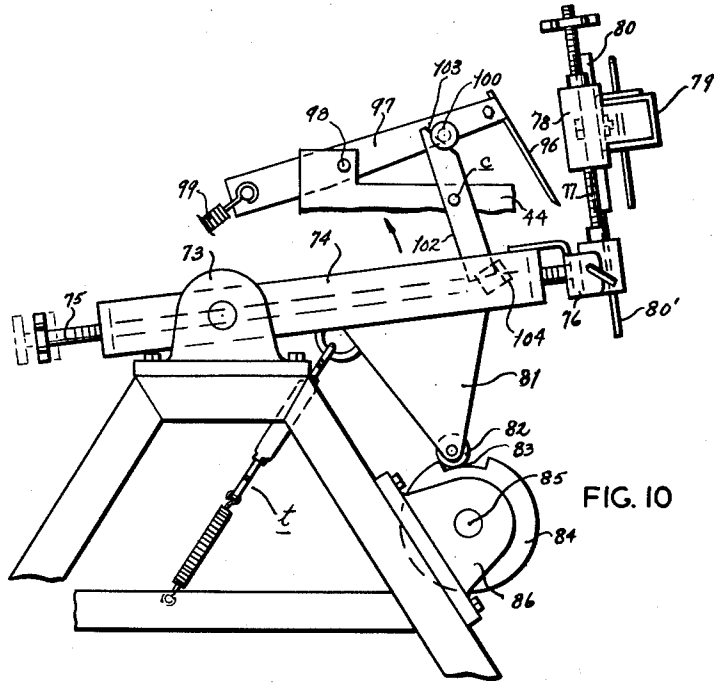

FIG. 10

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United States Patent Office 3,139,823 Patented July 7, 1964

3,139,823

SCREEN PRINTING MACHINE

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Filed Nov. 10, 1961, Ser. No. 151,571
9 Claims. (Cl. 101—124)

This invention relates in general to printing apparatus and, more particularly, to screen printing machines.

It is an object of the present invention to provide a screen printing machine incorporating a fixedly positioned squeegee and a screen adapted for reciprocal travel with respect thereto.

Another object of the present invention is to provide a screen printing machine having unique work-holding means comprising a rotatable cylindrical work support and a cooperating stationary member, whereby is obviated the necessity for mechanical grippers and other customarily utilized work-engaging expedients.

An additional object of the present invention is to provide a screen printing machine embodying novel work-feeding means which comprise an extending and retracting work feed table.

It is a further object of the present invention to provide a screen printing machine which is highly durable and reliable in operation, having a simplicity of parts rendering same resistant to breakdown, and which may be economically manufactured.

Other objects and details of the invention will be apparent from the following description, when read in connection with the accompanying drawings (five sheets) in which—

FIGURE 1 is a side elevation of a screen printing machine constructed in accordance with and embodying the present invention.

FIGURE 2 is a top plan view.

FIGURE 3 is a rearward end view.

FIGURE 4 is a vertical transverse section taken on the line 4—4 of FIGURE 3.

FIGURE 5 is a vertical transverse section taken on the line 5—5 of FIGURE 3.

FIGURE 6 is a fragmentary horizontal transverse section taken on the line 6—6 of FIGURE 2.

FIGURE 7 is a fragmentary enlarged top plan view of the feed table latch mechanism and cooperating parts.

FIGURE 8 is a horizontal transverse section taken on the line 8—8 of FIGURE 7.

FIGURE 9 is an enlarged side view of the paint carrier, showing same in lowered position.

FIGURE 10 is an enlarged side view of the squeegee and control elements therefor, showing the squeegee in lowered, operative position.

Referring now by reference characters to the drawings which illustrate the preferred embodiment of the present invention, A generally designates a screen printing machine which incorporates a main frame, indicated generally at B, comprising a plurality of vertically, horizontally, and obliquely presented components, fabricated preferably of angle stock or other suitable shapes and which are welded, or integrated in a suitable manner, to provide a firm, stable support for machine A.

For purposes of orientation and clarity, the end of machine A in which the work pieces or blanks *w* are fed for the printing operation will be referred to as the rearward end of the machine, as at the left-hand side of FIGURE 1 and as shown in FIGURE 3; while the opposite end of machine A at which will be delivered the printed work will be referred to as the forward end, as at the left-hand side of FIGURES 4 and 5 and the right-hand side of FIGURE 1.

The main driving force for machine A is an electric motor 19 mounted on main frame B at the lower rearward end thereof and being drivingly connected to a gear

reducer 20 by belt and pulley system, designated broadly 21. Said gear reducer 20 is provided with a main drive shaft 22 extending therethrough and on one of its projecting ends mounts a crank arm 23 engaged to a connecting rod or pitman 24, the forward end of which is connected to an enlarged sprocket wheel 25; said latter being mounted on a short shaft 26 journaled at its ends in pillow blocks 27, 27′ secured upon the flanges of frame uprights 28, 28′, respectively, at the forward end of machine A.

Engaged about sprocket wheel 25 is one end portion of a drive chain 29 which, being directed by a pair of relatively closely spaced sprockets 30, 31, carried on stub shafts 30′, 31′, respectively, supported on adjacent frame elements, is trained about a relatively small diameter drive sprocket 32 keyed or otherwise secured upon a cross shaft 33 located upwardly and rearwardly of said sprocket wheel 25 and extending transversely across machine A. Cross shaft 33 is journaled in bearings 34, 34′ bolted upon the forward portion of adjacent frame members 5, 5′, respectively, which extend rearwardly and downwardly in an inclined manner, terminating at the rearward end of machine A. Shaft 33 extends at its ends beyond its bearings for purposes presently appearing. Thus, upon rotation of gear reducer shaft 22, sprocket wheel 25 will be caused to rotate alternatingly in one direction and then another through arcs of approximately 120 degrees, by virtue of the action of crank 23 and pitman 24, with resulting reciprocal rotation of cross shaft 33.

Splined or otherwise engaged upon cross shaft 33, outwardly of bearings 34, 34′, are pinions 35, 35′, respectively, which mesh with racks 36, 36′, respectively, carried upon the outer face of the vertical flange 37 of angle-shaped side members 38, 38′ of a rectangular screen frame 39, having transverse end members 40, 40′ (see FIGURE 2). Supported on the inwardly extending horizontal flanges 41 of the members constituting screen frame 39 is a wooden frame 42 to which a screen or stencil 43, of customary construction, is attached. Racks 36, 36′ are substantially co-extensive with the sides of screen frame 39. Accordingly, as cross shaft 33 is rotated upon energization of motor 19 as above described, pinions 35, 35′ will drive the cooperating racks 36, 36′ with resulting travel of screen frame 39 in a horizontal path, within a plane parallel to the support surface or flooring, and with such movement being reciprocal, toward and then away from the forward end of machine A. For supporting and stabilizing screen frame 39 in its horizontal disposition during its alternating changes of direction, there are provided a pair of side plates 44, 44′ which are rigid with frame B, being disposed outwardly of racks 36, 36′ and in overlying relationship to the outer ends of cross shaft 33, which latter is journaled in bearings 45, 45′ carried upon the outer portions of said side plates 44, 44′. Each side plate 44, 44′ carries on its inner face adjacent its opposite ends and substantially equidistant from the proximate pinion 35, 35′ a pair of rollers 46, 46′, respectively, which ride upon the upper, planar guide-forming surface of the adjacent rack 36, 36′, respectively, for stabilizing screen frame 39. Integrally formed with each side plate 44, 44′ and projecting inwardly therefrom, on opposite sides of cross shaft 33, is a pair of parallel U-shaped arms 47, 47′, respectively having outwardly extending return sections. Mounted on the upper portions of each of the arms 47, 47′ adjacent side plate 44, for rotation about a vertical axis is a guide roller 48 for engaging the inner edge of the horizontal flange 41 of the adjacent side member 38 of screen frame 39 (see FIGURE 6). A stabilizing roller *r* is mounted on side member 44 substantially intermediate its length, being disposed for rotation about a vertical axis there presented for abutment against the outwardly presented face of the flange 37 of the adjacent side member 38. Rollers 48 and *r* cooperate both mutually and

with rollers 46, 46' to maintain frame 39 within its path of travel for preventing any undesired tilting or like untoward movement.

Presented beneath, and for contiguity on its upper surface with screen 43, is a cylinder 49 carried on shaft 33 and having a generally smooth-surfaced, peripheral face. As will be shown more fully hereinbelow, cylinder 49 serves as a work support for work pieces *w* during the printing operation and coacts with screen 43, which is pressed against cylinder 49 by a squeegee, to be described below, for maintaining the work pieces *w* in position, as well as for moving the same through machine A.

Cylinder 49 is hollow to define a chamber 7 which is connected by a conduit 8 such as a flexible hose to a reservoir 9 suitably mounted upon the main frame which latter is connected by a conduit 10, preferably flexible, to a pump 11 which is driven by a motor 12; said pump and motor being conveniently carried upon the main frame. Although not shown it is to be recognized that said motor 12 is electrically actuated and there are provided limit switches (not shown) for controlled operation of said motor in desired pre-determined timed intervals. Provided in the face of cylinder 49 is a plurality of openings 13 which are preferably arranged in two aligned rows extending from end to end of said cylinder 49 and being in immediate relationship said two rows of openings 13 being so positioned as to be presented upwardly when cylinder 49 is in initial or operative position. It will thus be recognized that cylinder 49 will respectively swing through a limited arc, consequent to the reciprocal movement of sprocket wheel 25 so that openings 13 will be moved from starting position to a position forwardly thereof during the operation of the machine. It will be of course recognized that by operation of motor 12 and pump 11 chamber 7 will be periodically evacuated for effecting a tight pull upon work pieces *w* received upon and across the rows of openings 13 to thereby prevent such work pieces *w* from inadvertently adhering to screen 43 during the printing operation.

Mounted on each frame member 5, 5', rearwardly of shaft 33, is a pair of spaced-apart bearings 50, 50' in which are journaled shafts 51, 52 respectively disposed in axial, parallel relationship to cross shaft 33. Carried on each end of shafts 51 and 52, inwardly of the proximate bearings are pinions 53, 54, respectively, meshing with racks 55 mounted on the under surface of the sides 57 of a rectangular feed table frame; said sides 57 being connected at their ends by parallel front and rear end members 59, 59'. Carried upon frame 58 is a rectangular feed table 56 fabricated of wood or the like; said feed table being hingedly connected, as at 60, along its rearward transverse edge to the adjacent frame end member 59' and extending at its front end beyond front end member 59. Upon actuation of driving means described hereinbelow, feed table frame 58 together with feed table 56, through coaction of pinions 53, 54 of the related racks 55, will be caused to move upwardly and forwardly, following the inclination of members 5, 5' towards cylinder 49, and then, as will be further described, returned along said path, away from said cylinder 49. For further stabilizing feed table frame 58 in its forward and rearward travel is a track from a member 61 supported in downwardly spaced relationship to each of said side members 57 by means of a pair of arms 62, for cooperation with rollers 63, 63' mounted respectively on shafts 51, 52.

Fixed to the underside of feed table 56, forwardly of front frame member 59 is a pair of spaced apart depending mounting arms 14 each of which mounts at its lower end a cam roller 15 for reception therein a cam-way 16 provided in a block 17 mounted on the main frame immediately rearwardly of cylinder 48 so that upon forward drive of feed table frame 58 by the coaction of cam roller 15 and cam-way 16, said feed table 56 will be elevated at its forward end, with commensurate pivoting at its rearward end by virtue of hinge 60 for presentation of the work piece *w* carried by feed table 56 to cylinder 49.

Provided on the rearward side of the upper portion of cylinder 49 is a narrow, transversely extending, plate 18, as formed of sheet metal or the like, and being rigid in position. The plane on said plate 18 is substantially tangential to cylinder 49. Said plate is intended to serve as a guard for the projecting leading edge of a work piece being carried by feed table 56 for delivery to cylinder 49 so as to prevent such edge from becoming rolled or curling upon itself or from inadvertently dropping downwardly in front of the forward edge of feed table 56, thereby assuring that work pieces *w* will be presented in an effective and reliable fashion to said cylinder 49. It should be observed that with reference to FIGURE 5; work table 56 at the end of its forward travel will move above said plate 18 by reason of the action of cam roller 15 and cam-way 16.

Feed table frame 58, together with feed table 56, is adapted to be pulled forwardly on its work feeding stroke by means of engagement with screen frame 39, and with such engagement being discontinued after a predetermined increment of joint travel whereby said table frame 58 is released for gravity-impelled return to starting or rearward position. With reference being now made to FIGURES 7 and 8, there is mounted upon the forward end edge of feed table frame 58, beneath feed table 56, adjacent one side thereof, a latch arm 64 normally urged by a compression spring 65 to outward projection at its outer end extremity, beyond the adjacent side edges of frame table frame 58 and feed table 56. Mounted for rotative movement about a vertical axis about the outer end of latch arm 64 is a pair of upper and lower cam rollers 66, 67, respectively. Provided for cooperation with upper cam roller 66 is a latching cam 68 fixed upon the under side portion of screen frame 39, inwardly of the adjacent rack 36. Said cam 68 incorporates a vertical cam surface 69 which is outwardly and rearwardly inclined so that as screen frame 39 travels rearwardly on its return stroke, said cam surface 69 will engage cam roller 66 and force latch arm 64 gradually inwardly against the bias of spring 65. At the forward end of inclined cam surface 69, cam 68 is provided with a vertical, forwardly directed shoulder 70 so that as cam 66 loses contact with cam surface 69 on continued travel of frame 39, latch arm 64 will be sprung outwardly under release of tension on spring 65 to position roller 66 forwardly of said shoulder 70. As feed table 56 reverses its direction of travel for movement forwardly, shoulder 70 will abut against roller 66 and thereby interlock table 56 with frame 39 for joint movement therewith. Accordingly, feed table 56, having had a work piece *w* placed thereon, will progress forwardly to present the same to cylinder 49 in screen 43 as above described.

Feed table frame 58 is released from screen 39 by means of a cam 71 arranged upon the main frame beneath the travel path of screen frame cam 68 and located a predetermined distance forwardly of the forward edge of feed table frame 58 when the latter is in rearward or initial position. Said cam 71 incorporates a vertical, outwardly and rearwardly flaring surface 72 which projects into the path of movement of latch arm lower roller 67 as the same is pushed forwardly by latching cam 68, and a forward vertical cam surface 72' substantially aligned with the inner edge of shoulder 70. Lower cam roller 67 will engage cam surface 72 causing latch arm 64 to be forced inwardly against the bias of spring 65 to remove upper roller 66 from engagement with shoulder 70. By this action, forward travel of feed table frame 58 is terminated, and the same is thus liberated for return, through gravity, to rearward or starting position, with pinions 53, 54 and racks 55 as well as rollers 63, 63' and track members 61 properly controlling such movement.

Mounted on main frame elements, in its lateral outer portions, on opposite sides of the screen frame 39, are bearings 73, 73' (FIGURE 10) for squeegee support arms

74, 74', respectively, for swinging of the latter within a vertical plane. Each of said arms 74, 74' is provided with a longitudinally extending, adjusting screw 75 which latter at its forward end carries an internally threaded block 76 for engagement with a vertical control screw 77. Each screw 77 carries, upwardly of the related block 76, a mount 78 for connection to one end of a transverse element 79 extending across machine A above screen 43 for supporting in its central portion a squeegee bar 80, fabricated, preferably, of wood, or the like, and being grooved on its downwardly directed edge portion for receiving a flexible squeegee 80'. It will be observed that squeegee 80' is located immediately above cylinder 49 so that when the same is in lowered or operative position (FIGURE 4) it will coact, through screen 43, with cylinder 49 for maintaining work pieces *w* in position for the printing operation as well as to assist in movement of the same forwardly.

By operation of screw 75, the horizontal relationship of squeegee 80' to cylinder 49 may be controlled, and screw 77 permits adjustment of the amount of downward pressure applied by squeegee 80', all as may be necessary by any particular printing operation.

Integral with each support arm 74, 74' and depending therefrom, forwardly of mounts 73, 73', are brackets 81, which in their lower ends carry a cam roller 82 for engagement with the operating edge 83 of a plate cam 84 mounted on the ends of a rock shaft 85 extending across machine A, beneath frame 39 for journaling at its ends in bearings 86 suitably presented on main frame components (FIGURE 10). Each bracket 81 is connected to an adjacent main frame element by means of a turnbuckle and spring arrangement *t* (as shown in FIGURE 10) and biasing support arm 74, 74' and the related structure downwardly. It will thus be seen that such bias is additive to the normal gravitational urging and thus provides additional pressure between cam roller 82 and plate cam 84. Fixed on rockshaft 85, substantially intermediate its length, for movement therewith, is a depending arm 87 engaged at its lower end to the forward end of a connecting link 88; said latter at its rearward end being provided with a longitudinal cam slot 89 for receiving a crank pin 90 carried on one end of gear reducer drive shaft 22. As said drive shaft 22 rotates, reciprocal axial motion will be imparted to link 88 for effecting alternating rocking of shaft 85.

Consequent to the forward component of movement of link 88, shaft 85 will be rocked in clockwise direction, as viewed in FIGURE 10, which will cause a peripherally elevated portion 83' of operating edge 83 of cam 84 to engage cam roller 82 for causing upward swinging of the forward end of support arms 74, 74' to thereby raise squeegee 80' from engagement with screen 43 immediately prior to the return travel of said screen frame 39 and to so maintain same until link 88 is pulled rearwardly which will be at the end of the rearward travel of screen frame 39 into the position shown in FIGURE 1. At this juncture, shaft 85 is rocked in counter clockwise direction, as viewed in FIGURE 10, for causing cam roller 82 to drop into the peripheral depressed portion 83'' of operating edge 83 of cam 84 with resultant lowering of squeegee 80' into operative position on screen 43 (FIGURE 4) and to maintain same during printing, or forward travel, of screen frame 39.

As may be seen in FIGURES 2 and 5, mechanically operated means may be provided for effecting rocking of shaft 85, should such be desired if motor 19 is not actuated. Such means comprise a chain 91 engaged at its forward end to a bracket 92 on arm 87 and at its rearward end to the upper end of a leg 93 extending upwardly from the forward end of a foot pedal 94 pivoted, as at 95, upon the main frame. By depressing pedal 94 shaft 85 may be rocked to permit elevation of squeegee 80'.

Rearwardly of squeegee bar 80, and extending above and across screen 43 is a paint wiper or carrier 96 comprising a flat metal plate for engaging screen 43 on its lower end edge for relatively moving the printing fluid, or, commonly called, paint, to the forward end portion of screen 43 as the same travels rearwardly on its non-operating stroke. Thus, wiper 96 serves, in effect, to hold the paint while screen 43 is moved. Said wiper 96 is secured at its ends to the forward ends of support arms 97, 97' which are each pivotally mounted, as at 98, on the adjacent side plate 44, 44'; there being an extension spring 99 connected to the rearward end of each arm 97, 97' for counterbalancing said arms to render same in a substantial floating condition; said springs being fixed at their opposite ends to the proximate frame member 5, 5'.

Fixed at its inner end on each support arm 97, 97' for lateral outward projection therefrom, is an arm 100, which extends beyond the adjacent side plate 44, 44'; said arms 100 being forwardly of pivot points 98 and carries rigidly on their outer ends an annular cap 101. An elongated cam is rockably mounted, as at *c*, substantially centrally of its length, on the outer face of the adjacent side member 44, 44', as the case may be, and having an inclined operating edge 103 at its normally upper end for engagement with the arms 100 on its normally rearwardly directed surface. Cam 102 is in abutment on its forward edge portion with a detent 104 projecting inwardly from the inner face of the related support arm 74, 74', as the case may be (see FIGURE 6), and terminating spacedly outwardly from the adjacent side plate 44, 44'.

As may best be seen in FIGURE 9, wiper 96 is normally biased into downward position at its forward end, on contact on its lower edge with the upper face of screen 43. However, spring 99 exerts a counter-balancing effect so that, for purposes presently described, said wiper 96 may be elevated with limited force.

It will be recognized that the squeegee 80' and wiper 96 will at all times be in opposite relation to screen 43, that is, when squeegee 80' is in contact with said screen wiper 96 will be elevated or raised therefrom (see FIGURE 10), or when squeegee 80' is in elevated or out-of-contact relation with screen 43 wiper 96 will be in contact (see FIGURE 9). Accordingly, with squeegee 80' in lowered or operative position detent 104 will engage the lower forward edge of cam 102 preventing forward rocking of such lower end so as to firmly maintain same in substantially vertical relation wherein the operating edge 103 will be held securely against arm 100, thereby supportingly holding said arms 97, 97' in upwardly swung position at their forward ends so as to maintain wiper 96 spacedly above screen 43. Upon elevation of support arms 74, 74' by reason of the cooperation of cam roller 82 and cam plate 84, as above described, said cam 102 will be caused to rock rearwardly and downwardly at its upper end through coaction between same and detent 104 whereby contact with wiper 96 and its related support structure will be freed to swing downwardly, for returning wiper 96 to contact with screen 43.

In view of the foregoing, the operation of machine A should be reasonably apparent. However, to recapitulate, it will be assumed that screen frame is in rearward-most position, as shown in FIGURE 4, with wiper 96 elevated, squeegee 80' lowered, with the paint or printing fluid immediately rearwardly thereof. A blank work piece *w* is placed upon feed table 56 with the forward end portion of said blank *w* extending beyond the leading edge of said table 56. Also in this condition it will be remembered that latch arm 64 will be in outwardly projecting position with its upper roll 66 abutting shoulder 70, thereby interengaging feed table frame 58 and screen frame 39. Upon energization of motor 19 cross shaft 33 will be rotated in a counter-clockwise direction, as viewed in FIGURE 4, to cause forward travel of screen frame 39 and, hence, feed table frame 58 and feed table 56 will be pulled therealong. The forward, lead-

ing edge of the work blank *w* will be supported on the upper surface of plate **18** until delivered to cylinder **49** by the feed table **56** upon elevation of the latter, at its forward end, as described, said work blank *w* will be thus interposed between cylinder **49** and the squeegee **80'** which forces the underlying portion of screen **43** thereagainst. Cylinder **49** will be evacuated by timed operation of the system described for exerting a downward pull upon the work blank *w* to prevent inadvertent adhesion to screen **43**. Thus, in this connection the squeegee **80'** serves as a stationary gripping member while cylinder **49** constitutes a movable, cooperating member so that the work blank *w* is pulled, by the cylinder, past squeegee **80'**. Cylinder **49** acts as a work support while simultaneously being a work holding and presenting member, with the printing being applied to the work blank *w* by the printing fluid forced through screen **43** by squeegee **80'**. It will therefore be recognized that the squeegee is rigidly positioned during operation and differs from current structures wherein the squeegee is caused to move traversingly of the length of a screen or stencil. The rotating work support cylinder **49** constitutes a novel feature in that in screen printing machines heretofore the work support has been normally a flat, stationary surface, such as, a table, or the like. Additionally, the cooperative action of the squeegee, screen and cylinder in presenting and holding the work during the printing operation is most unusual for current machines have involved specific work-holding elements or devices such as, mechanical grippers, and the like.

Feed table frame **58** is unlatched after short, forward, travel which has been adequate to present the work piece *w* to the cylinder **49** and thus said feed table frame **58** is free to return for the succeeding feeding operation whereby the next work blank *w* may be placed thereon in anticipation of return of the screen frame **39** for relatively rapid high-speed operation.

When screen frame **39** reaches the forward end of its travel, at the end of what might be termed, "the printing stroke," squeegee **80'** will be caused to be elevated, in the manner above described, so as to be removed from contact with the screen during the return or non-operating stroke, and at such juncture wiper **96** will be lowered for presentation of the paint or printing fluid for effective utilization by the squeegee on the next operative stroke. It will, of course, be recognized that the evacuation system will be unleached after cylinder **49** has completed its forward turning so as to remove the limited pull upon the work blank *w* to thereby permit same to freely flow from the machine A as along a conveyor (not shown), or the like.

Machine A thus incorporates a multiplicity of novel features and elements which are so inter-related in their cooperative action and in their relative timing to conduce to a high-speed, reliable printing operation, and which machine may be most economically manufactured.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the screen printing machine may be made and substituted for those herein shown and described without departing from the nature and principle of the present invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A screen printing machine comprising a main frame, a shaft mounted for rotation on said main frame and extending transversely thereof, a work supporting cylinder carried on said shaft, means for driving said shaft alternatingly in one direction of rotation and then in the other, a screen frame mounting a screen disposed in overlying relationship to said cylinder for presenting said screen in contiguity thereto, a squeegee positioned above said screen and cylinder, work-feeding means for feeding a work piece for engagement between said cylinder and screen means for causing reciprocal movement of said work-feeding means toward and away from said cylinder, latch means for effecting interengagement between said screen frame and said work feeding means, and means for effecting reciprocal travel of said screen frame relative to said cylinder.

2. A screen printing machine comprising a main frame, a shaft mounted for rotation on said main frame and extending transversely thereof, a work supporting cylinder carried on said shaft, means for driving said shaft alternatingly in one direction of rotation and then in the other, a screen frame mounting a screen disposed in overlying relationship to said cylinder for presenting said screen in contiguity thereto, a squeegee positioned above said screen and cylinder, means for operatively connecting said shaft and said screen frame for effecting reciprocal travel thereof consequent to alternation of rotation of said shaft, a work-feeding member adapted for reciprocal movement toward and away from said cylinder, means for engaging said work-feeding member and said screen for contemporaneous travel and means for releasing said work-feeding member and said screen after joint travel of predetermined extent.

3. A screen printing machine comprising a main frame, a shaft mounted for rotation on said main frame and extending transversely thereof, a work supporting cylinder carried on said shaft, means for driving said shaft alternatingly in one direction of rotation and then in the other, a screen frame mounting a screen disposed in overlying relationship to said cylinder for presenting said screen in contiguity thereto, a squeegee positioned above said screen and cylinder, a work feeding member for presenting a work piece for reception between the cylinder and screen, said work feeding member being adapted for travel toward and away from said cylinder, latch means for effecting engagement between said work-feeding member and said screen frame for joint travel thereof, means for effecting unlatching of said work-feeding member and said screen frame after predetermined joint travel thereof and means for effecting reciprocal travel of said screen frame relative to said cylinder.

4. A screen printing machine comprising a main frame, a shaft mounted for rotation on said main frame and extending transversely thereof, a work supporting cylinder carried on said shaft, means for driving said shaft alternatingly in one direction of rotation and then in the other, a screen frame mounting a screen disposed in overlying relationship to said cylinder for presenting said screen in contiguity thereto, a squeegee positioned above said screen and cylinder, a work feeding member for presenting a work piece for reception between the cylinder and screen, said work feeding member being adapted for travel toward and away from said cylinder, means operatively connecting said shaft and said screen frame for effecting reciprocal travel thereof consequent to alternation of rotation of said shaft, and means releasably interengaging said screen frame and work feeding member for concurrent movement for a predetermined interval.

5. A screen printing machine comprising a main frame, a shaft mounted for rotation on said main frame and extending transversely thereof, a work supporting cylinder carried on said shaft, means for driving said shaft alternatingly in one direction of rotation and then in the other, a screen frame mounting a screen disposed in overlying relationship to said cylinder for presenting said screen in contiguity thereto, a squeegee positioned above said screen and cylinder, a work-feeding member for presenting a work piece for reception between the cylinder and screen, said work-feeding member being adapted for travel toward and away from said cylinder, means operatively connecting said shaft and said screen frame for effecting reciprocal travel thereof consequent to alternation of rotation of said shaft, latching means for effecting engagement between said work-feeding member and said screen frame upon movement of said latter in one direction, so that upon reversal of travel of said

screen frame, said work-feeding member will be moved jointly therewith, and cam means for effecting unlatching of said work-feeding member and said screen frame after the latter has been carried a predetermined distance toward said cylinder.

6. A screen printing machine comprising a main frame, a rotatably mounted work-support member provided on said main frame, a screen frame carrying a screen disposed in overlying relationship to said work-support member, means for effecting reciprocal movement of said screen frame with respect to said work-support member, a squeegee positioned above said screen and work-support member, a work-feeding member for presenting a work piece for reception between said screen and work-support member, said work-feeding member comprising a rigid table, means for effecting movement of said table toward and away from said work-support member, a latching arm provided on said work-feeding member, cooperative means provided on said screen frame for engaging said latching arm, whereby said work-feeding member may be moved toward said work-support member, and means for effecting disengagement of said latching arm located spacedly from said work-support member.

7. A screen printing machine comprising a main frame, a work-supporting member rotatably carried on said main frame, means for alternatingly rotating said work-supporting member in first one direction and then in the other, a screen frame mounting a screen disposed in overlying relationship to said work-supporting member, a squeegee positioned above said screen and work-supporting member, means for effecting reciprocal movement of said

screen frame relative to said work-supporting member for travel forwardly of the machine during the printing operation and rearwardly thereof during the printing-preparatory operation, the work-feeding member disposed below said screen and adapted for reciprocal movement toward and away from said work-supporting member, and latching means for inter-engaging said screen frame and said work-feeding member for joint travel during movement of said screen frame rearwardly of the machine.

8. A screen printing machine as defined in claim 7 and further characterized by said work-feeding member being rearwardly and upwardly inclined, guide means for controlling the travel path of said work-feeding member, and means for effecting disengagement of said latching means after said work-feeding member has been caused to travel a predetermined distance toward said work-supporting member.

9. A screen printing machine as defined in claim 8 and further characterized by said work-feeding member being adapted for gravity induced return travel subsequent to disengagement of said latching means.

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