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S. J. WENTWORTH

HEEL LIFT ASSEMBLING MACHINE

Filed Aug. 25, 1919

3 Sheets-Sheet 1

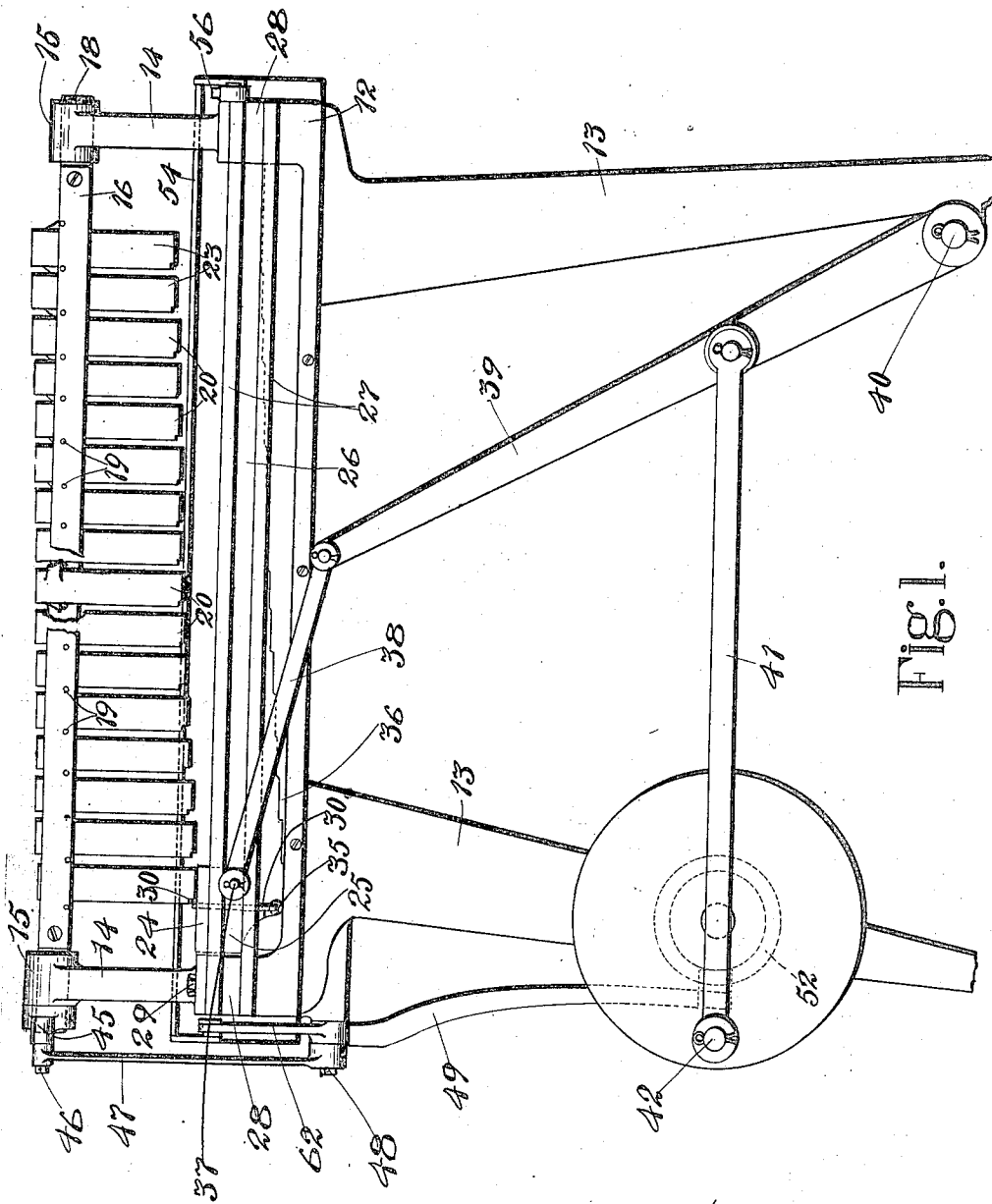


FIG. 1.

INVENTOR
Samuel J. Wentworth
By his Attorney,
Nelson W. Howard

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3 Sheets-Sheet 2

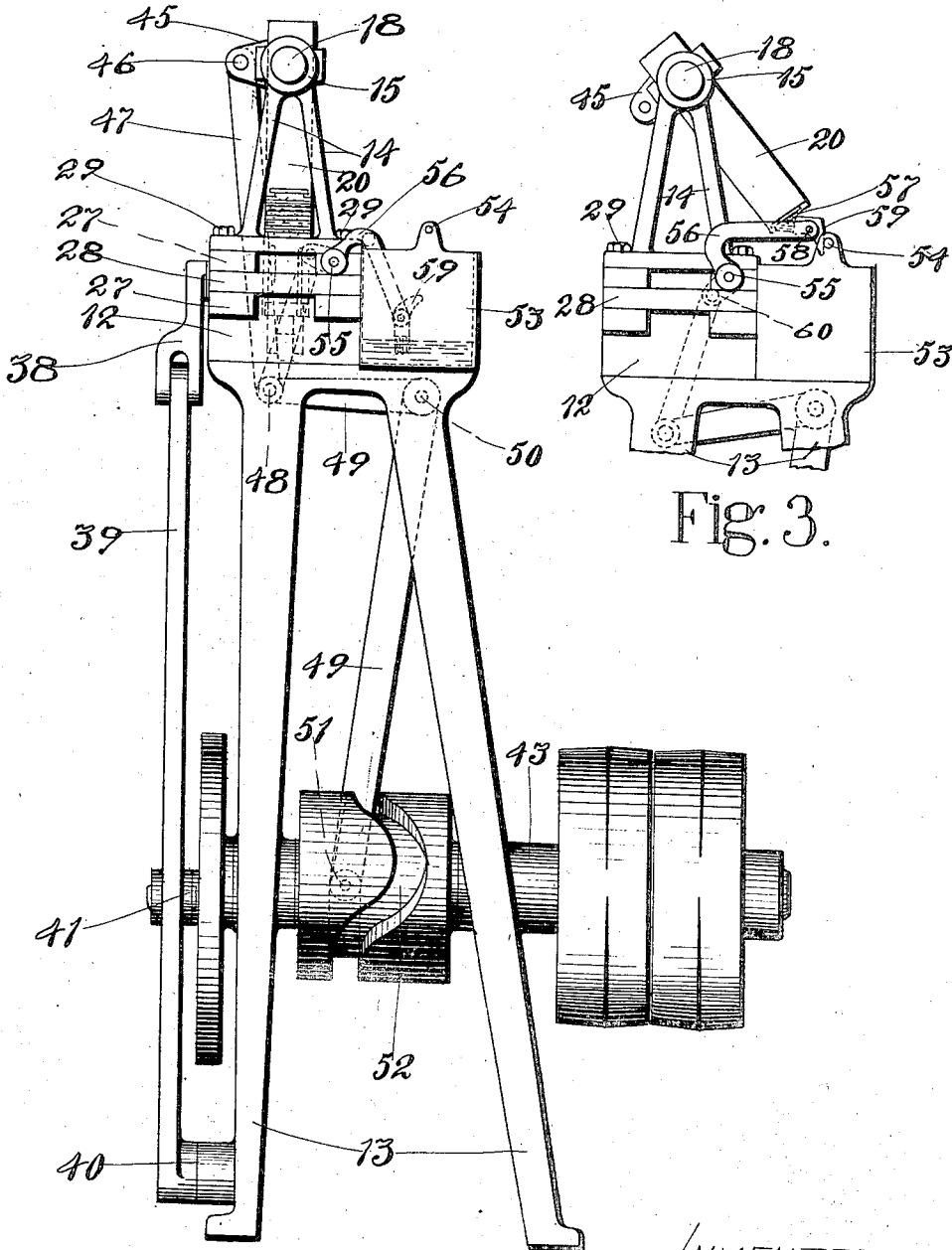


Fig. 2.

Fig. 3.

INVENTOR-

Samuel J. Wentworth
By his Attorney
Nelson W. Howard

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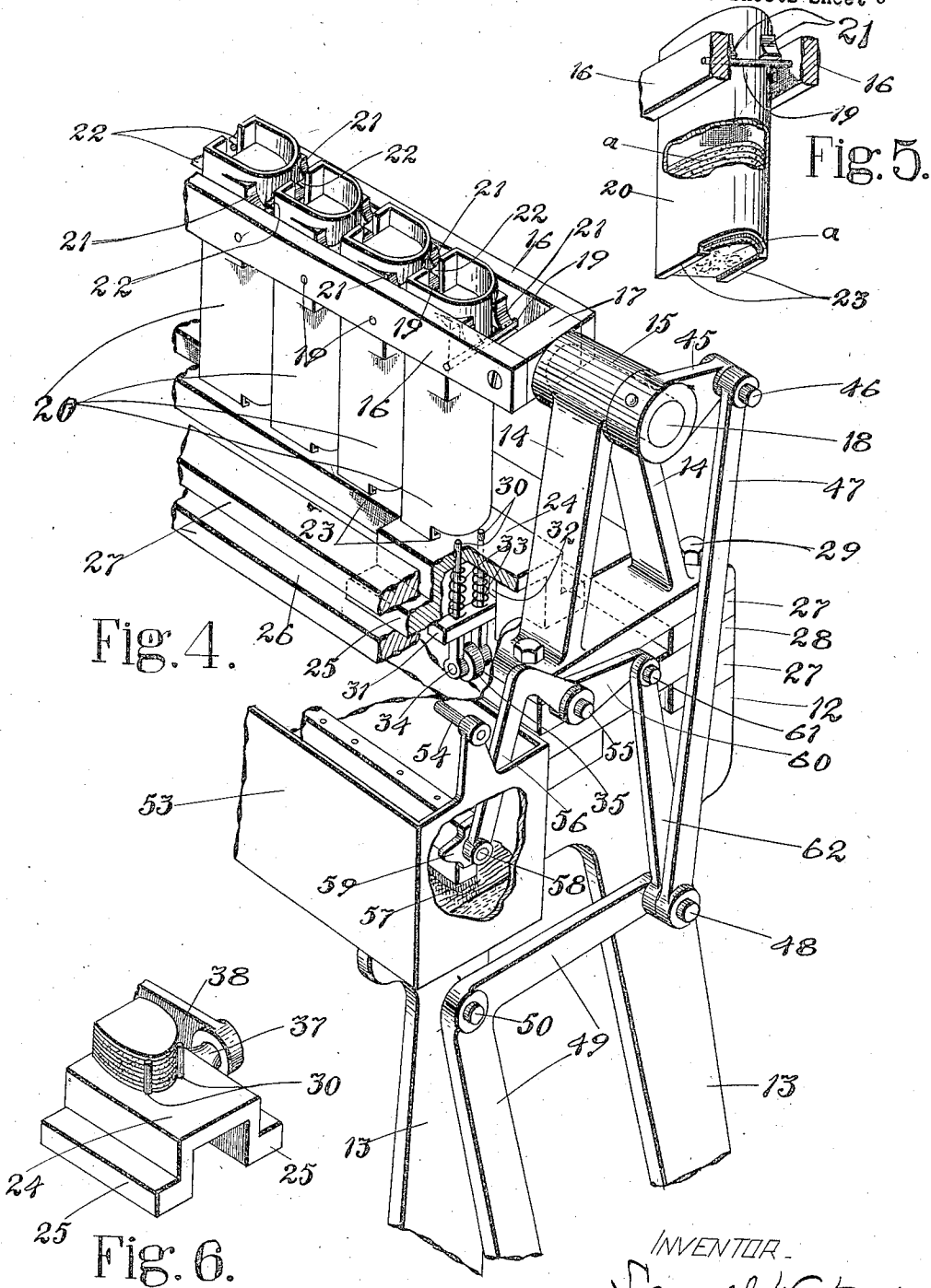
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HEEL LIFT ASSEMBLING MACHINE

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3 Sheets-Sheet 3



INVENTOR
Samuel J. Wentworth
By his Attorney
Nelson W. Howard

UNITED STATES PATENT OFFICE.

SAMUEL J. WENTWORTH, OF NEWPORT, KENTUCKY, ASSIGNOR TO UNITED SHOE MACHINERY CORPORATION, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

HEEL-LIFT-ASSEMBLING MACHINE.

Application filed August 25, 1919. Serial No. 319,717.

To all whom it may concern:

Be it known that I, SAMUEL J. WENTWORTH, a citizen of the United States, residing in Newport, in the county of Campbell and State of Kentucky, have invented certain Improvements in Heel-Lift-Assembling Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to heel building machines and more particularly to that type of machine which assembles adhesively coated lifts in piles preparatory to subsequent treatment such as compressing the piles.

An object of the present invention is to provide an economical machine which will satisfactorily supply paste or cement to the under surfaces of lifts in a plurality of magazines and gather those lifts into a pile.

To this end, a feature of the invention consists in a plurality of lift magazines which are movably mounted and which are shifted from one position to another, adhesive being applied simultaneously to the lower lifts of the magazines while the latter are in one position, and the coated lifts being gathered into a pile after the magazines are returned to normal position.

Preferably and in accordance with a feature of my invention, paste-applying and lift-gathering mechanisms are mounted side by side in position to act alternately on lifts carried by a laterally movable plurality of magazines.

Another feature of the invention comprises means for supporting the magazines which will require no fastenings to secure the magazines in place, thereby enabling the magazines to be readily lifted from operative position and replaced.

The invention also consists in certain features of construction and arrangements of parts which will be hereinafter described and defined in the appended claims.

In the following specification one mechanical embodiment of the invention will be specifically described for the purpose of illustration, but it is to be understood that the invention is not limited in its scope to the embodiment described in detail, except in so far as defined by the claims at the end of said specification.

In the drawings.

Fig. 1 is a side elevation of a machine embodying my improvements;

Fig. 2 is an elevation looking from the right of Fig. 1;

Fig. 3 is a view similar to the upper portion of Fig. 2 but illustrating the lift magazines in a different position;

Fig. 4 is a perspective of parts of the machine looking from a point behind the left hand end of Fig. 1, parts being broken out to illustrate details;

Fig. 5 is a broken out perspective view of one of the lift magazines or tubes, illustrating the support therefor; and

Fig. 6 is a perspective view of the lift collecting slide or block with a succession of lifts gathered thereon.

A suitable frame 12 is provided with legs 13 and at each end has an upright 14. At the tops of the uprights are bearings 15 to support the swinging series or row of lift holding magazines. The frame for supporting the magazines comprises side bars 16 held properly spaced by end blocks 17 (Fig. 4) having trunnions 18 mounted in the bearings 15. Mounted in the side bars 16 and extending across the space between said bars are transverse pins 19, said pins being located at gradually increasing heights starting from the left hand end in Fig. 1.

Each lift magazine or tube 20 is formed or provided with oppositely projecting lugs 21, 22. As illustrated in Fig. 4 the two lugs 21 rest upon one transverse pin 19, while the lugs 22 at the opposite side of the magazines rest upon the next pin 19. In other words, each pin 19 excepting the two end ones of the series has resting upon it two lugs 22 of one magazine and two lugs 21 of the next magazine which is in a higher plane, the lugs 22 of the one magazine entering the space between the two lugs 21 of the next magazine. This structure enables any or all of the magazines to be lifted out for any purpose such as filling them with lifts, or for cleaning them, or to enable different sizes of magazines to be readily mounted in position. The lower end of each magazine is open and is formed or provided with ledges 23 (Fig. 5) to support the lifts *a* enclosed in the magazines, with the side margins of the lower lift resting on said ledges. At what may be termed the front

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and rear of each magazine the material thereof is cut away so as to permit the edge-wise removal of the bottom-most lift from the magazine in the manner hereinafter described.

One way to provide for a steady support and close fit of the magazines between the bars 16 so that no change need be made in the rocking frame 16, 17, when different sizes of magazines are employed, is to vary the size of the lugs 21, 22. For instance, if magazines of less transverse capacity than illustrated in Figure 4 are to be employed, then the lugs will be relatively larger. That is, the lugs 21 will be of size laterally to snugly fit the inner walls of the bars 16 and the lugs 22 will have a length to reach the surface of the next magazine.

To remove lifts *a* successively from the row of magazines and gather them into a pile as shown in Fig. 6 I provide a sliding carriage or block 24 having flanges 25 engaging slots or spaces 26 between guide bars 27, there being a pair of such guide bars at each side of the machine as shown by comparing Figs. 2, 3 and 4.

The bars 27 are held properly spaced at their ends by spacing strips 28, bolts 29 passing down through the feet of the uprights 14 and through the ends of the bars 27 and strips 28 into the upper portion of the frame 12. Mounted to slide vertically in the upper middle portion of the block 24 are lift-removing pins 30, a cross bar 31 (Fig. 4) being secured to both of said pins, the ends of said bar extending into vertical guides or ways 32 in the inner walls of the block 24. By means of suitable springs 33 the bar 31 and the pins 30 are returned to lower position after they have been raised as hereinafter described. The lower ends of the two pins 30 are connected by a cross pin 34 on which is mounted a roll 35 adapted, as the slide block is shifted from the left hand portion of Fig. 1 to the right hand portion, to pass successively on to the steps of a bar 36 rigidly mounted in the frame of the machine, the height of each step above that of the preceding one being substantially equal to the thickness of the material which is employed for the heel lifts *a*. The bar 36 may be removable so that one having steps of different heights can be substituted therefor to accord with different thickness of the material from which the lifts have been cut.

In the embodiment of the invention illustrated the lift-collecting slide block 24 is reciprocated to gather the lifts from the bottoms of the magazines by the following means:

Connected to a stud or pin 37 of the slide block is one end of a link 38 (Figs. 1 and 6) the other end of said link being connected to a lever 39 pivotally supported at 40

and connected by a pitman 41 with a crank 42 actuated by a shaft 43 (Fig. 2) having fast and loose pulleys.

As is shown in Fig. 4 one of the trunnions 18 has an arm 45 carrying a pin 46 which is connected by a link 47 with a pin 48 of the upper member of an elbow lever 49 which is pivotally connected at 50 to any suitable portion of the machine frame. The lower end of the elbow lever 49 carries a roll 51 indicated by dotted lines in Fig. 2, said roll engaging a groove cam 52 carried by the shaft 43. The object of the construction just described is to swing the oscillating frame which is supported by the trunnions 18, and the row of lift magazines, from the position indicated in Fig. 2 to that indicated in Fig. 3 so that the lower lift in each magazine (usually excepting the first one) will be presented for the application of suitable cement hereinafter referred to as paste to the under surface thereof.

A long paste reservoir 53 is supported by the frame of the machine, said reservoir having at its ends suitable supports for a rod 54 (Figs. 2, 3 and 4). Mounted in the frame and extending parallel with the paste reservoir is a rock shaft 55 having arms 56 suitably bent or formed so as to be swung over the edge of the paste reservoir and back therefrom, said arms supporting a paste brush or equivalent 57, said paste brush or equivalent having pivots or trunnions 58 mounted in the ends of the arms 56. The brush or paste applicator has one or more tappet lugs 59 (Fig. 4) to contact with the rod 54 as presently described. An arm 60 of the rock shaft 55 carries a pin 61 connected by a link 62 with the pin 48 of the elbow lever 49.

The machine is operated as follows, it being assumed that the magazines 20 have had the requisite number of lifts *a* of substantially uniform thickness placed therein as indicated in Fig. 5. Assuming that the normal relative positions of the parts are as indicated in Figs. 1 and 2, when the machine is started, the rotation of the shaft 43 acts, through the crank 42, pitman 41, lever 39 and link 38, to slide the block 24 toward the right from the position shown in Fig. 1. At the start, the lift collecting pins 30 project only high enough above the top of the block 24 to engage the edge of the lowermost lift in the first magazine or tube. Just before the slide block reaches a position where the upper ends of the pins 30 are about to pass under the second magazine or tube, the roll 35 rides upon that portion or step of the inclined track or bar 36 which is in the next higher plane, thereby lifting the pins 30 against the action of the springs 33 sufficiently to cause the upper ends of the pins to engage the edge of

the lower lift in the second magazine and slide it out so that it rests with its underpasted surface upon the top of the lift which has been taken from the first magazine. This operation continues as the block progresses, the pins 30 successively removing the bottom lifts from the magazines and gathering them in a pile one on top of the other. The pile of lifts thus gathered on the block 24 may be removed and transferred in any suitable manner to the next machine which is to operate upon the heel.

As soon as the gathering of the lifts from the magazines is completed, the elbow lever 49 is actuated by the cam 52 to move the links 47, 62 downwardly. This results in swinging the oscillating magazine frame from the position shown in Fig. 2 toward the position shown in Fig. 3, and simultaneously results in actuating the rock shaft 55 to swing the paste applicator up from the paste in the reservoir 53. During the last portion of the upward movement of the arms 56, and just as the magazines are reaching the position indicated in Fig. 3, the tappet lugs 59 contact with the rod 54 resulting in swinging the brush up from its pendent position against and across the lower lifts in the magazines. Preferably, of course, the lift in the lowermost magazine, the one at the left in Fig. 1, should receive no paste. This result may be accomplished simply by having the paste applicator of such length that it will not extend over the first magazine. In other words, if there are 16 magazines, the paste applicator will be of such length as to contact with only 15 of them, omitting the one at the left in Fig. 1.

A particular advantage resulting from setting the pins 19 at gradually increasing heights along the frame 16, 17 is that the magazines can be made as duplicates of each other, particularly as to height, thereby providing for economical construction of the magazines. Moreover there is no necessity for assigning a definite location for each magazine. Either one of the magazines can be placed anywhere along the frame.

Since the magazines are duplicates in construction, including their shoulders or lugs 21, 22 no fastenings are required for holding them in position. They can readily be lifted out for purposes such as hereinbefore described.

The series of lift magazines, open at their lower ends and having the ledges 23, presents lift delivering mechanism while the carriage or block 24 and its pins controlled by the stepped bar or track 36 constitute lift-gathering mechanism, the latter being longitudinally movable relatively to the magazines, while the said lift delivering mechanism is laterally shiftable relatively

to the gathering mechanism. The relative timing of operation of the crank 42 and the groove cam 52 is such that the return movement of the lift-gathering mechanism to normal position occurs while the magazines are still sufficiently swung aside from the position shown in Fig. 2 to permit the lift-gathering pins 30 to move back idly. In other words, the timing of operation of the parts is such that the pins 30 can remove lifts from the magazines only while the carriage or block for said pins is moving in the proper direction relatively to the magazines, the magazines being then shifted out of position laterally so that the pins can not contact with any lifts during retreat of the carriage and pins to the normal position of Figs. 1 and 4. This enables a very simple structure of lift-gathering mechanism to be successfully employed, said mechanism requiring no adjustments and having no small parts liable to fail to operate.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A heel lift assembling machine, having in combination, a plurality of movably mounted lift magazines, means for shifting the magazines from one position to another, means for applying paste simultaneously to lifts in a plurality of the magazines while the magazines are in one of said positions, and means for gathering the pasted lifts into a pile after the magazines are returned to normal position.

2. A heel lift assembling machine, having in combination, an elongated paste applying mechanism, a guide parallel therewith, a lift gatherer movable along said guide, and a plurality of lift magazines movable from operative relationship with the paste-applying mechanism to operative relationship with the lift gatherer.

3. In a machine of the class described, a plurality of movable lift magazines, lift gathering mechanism, a paste applying device, and means for moving the magazines simultaneously at regular intervals into and out of co-operative relation to the paste applying device.

4. In a heel lift assembling machine, an oscillatory frame, lift magazines supported thereby, and paste-applying and lift-gathering mechanisms mounted side by side in positions to alternately act on lifts carried by the magazines.

5. In a heel lift assembling machine, an oscillating frame, lift magazines removably carried thereby, and paste-applying and lift-gathering mechanisms mounted side by side in positions to alternately act on lifts carried by the magazines.

6. In a heel lift assembling machine, a paste reservoir and a lift-gathering mecha-

nism in parallel relationship, an oscillating frame having a plurality of lift magazines, means for actuating the frame to cause the lower ends of the magazines to alternately occupy positions over the reservoir and over the lift-gathering mechanism, and means for transferring paste from the reservoir to lower lifts in the magazines while they are over the reservoir.

7. In a machine of the class described, a frame having a longitudinal space, supports extending across said space, lift magazines removably mounted on said supports, and paste-applying and lift-gathering mechanisms for acting on lifts carried by said magazines.

8. In a machine of the class described, a laterally movable frame having a longitudinal space, supports extending across said space, lift magazines removably mounted on said supports, and paste-applying and lift-gathering mechanisms mounted side by side in positions to alternately act on lifts carried by the magazines.

9. In a machine of the class described, a swinging frame having a longitudinal space, supports extending across said space, lift magazines removably mounted on said supports, and paste-applying and lift-gathering mechanisms mounted side by side in positions to alternately act on lifts carried by the magazines.

10. In a machine of the class described, a laterally movable frame having a longitudinal space, supports extending across said space, lift magazines having lugs bearing on said supports, and paste-applying and lift-gathering mechanisms mounted side by side in positions to alternately act on lifts carried by the magazines.

11. In a machine of the class described, the combination with lift-gathering mechanism, of a frame having a longitudinal space, lift-magazines located in said space and having lugs projecting from opposite walls, and supports extending across the space of said frame between the magazines and under the lugs of adjacent magazines.

12. In a machine of the class described, the combination with lift-gathering mechanism, of a frame having a series of supports at gradually increasing heights, duplicate-height magazines mounted on said supports, and means for actuating the lift-gathering mechanism to successively remove lifts from the lower ends of the magazines.

13. In a machine of the class described, the combination with a series of magazines having lift-delivering lower ends at gradually increasing heights, of a sliding carriage having vertically movable pins, a cross bar connecting said pins, the carriage having guideways for the ends of said bar, and means for gradually elevating said pins as the carriage moves under the magazines.

14. In a machine of the class described, the combination with a series of magazines having lift-delivering lower ends at gradually increasing heights, of a sliding carriage having vertically movable pins, a cross bar connecting said pins, the carriage having guideways for the ends of said bar, and means for gradually elevating said pins as the carriage moves under the magazines, said elevating means comprising a stepped bar below the carriage and a roll connected to said pins and constructed and arranged to co-operate with the stepped bar to impart successive elevations to said pins.

15. In a machine of the class described, the combination with lift-delivering mechanism, of lift-gathering mechanism one being longitudinally movable relatively to the other, and means for shifting one of said mechanisms laterally relatively to the other during one of the directions of longitudinal movement to avoid gathering lifts during that direction of movement.

16. In a machine of the class described, a laterally movable plurality of lift magazines, lift-gathering mechanism mounted to reciprocate in a plane below the magazines, and means for moving the magazines to a position away from co-operation with the gathering mechanism during movement of the latter in one direction of reciprocation.

17. In a machine of the class described, a plurality of movable lift magazines, a paste applying device, lift gathering mechanism, and means for moving the magazines alternately into positions where they are all in co-operative relation to the paste applying device or the lift gathering mechanism, respectively.

18. In a machine of the class described, a plurality of lift magazines, lift-gathering mechanism, a paste reservoir at one side of the gathering mechanism, a paste applicer movable from the reservoir to position to transfer paste to the lower lifts in the plurality of magazines simultaneously, and means for shifting the magazines to and from position to co-operate with the paste applicer.

19. In a machine of the class described, a plurality of lift magazines, lift-gathering mechanism, a paste reservoir at one side of the gathering mechanism, a rock shaft having arms carrying a paste applicer, means for shifting the magazines to locate their lower ends above the reservoir, and means for actuating the rock shaft to effect contact of the paste applicer with the lower lifts in the plurality of magazines simultaneously.

20. In a machine of the class described, a paste applying device, a lift gathering device, and a plurality of lift magazines movable from a position in which they are all in co-operative relation to one of said devices to a position in which they are all in co-op-

erative relation to the other of said devices.

21. In a machine of the class described, a plurality of laterally movable lift magazines, lift gathering mechanism, a paste reservoir at one side of the gathering mechanism, a rock shaft having arms, a paste applier pivotally connected with said arms, means for actuating the rock shaft to elevate

the paste applier, and means for tilting said paste applier when elevated, said tilting means comprising a fixed stop and a tappet carried by the pivoted applier. 10

In testimony whereof I have signed my name to this specification.

SAMUEL J. WENTWORTH.