L. A. COGSWELL.

WORK SUPPORT AND FEED FOR HEEL LIFT GRADERS.

APPLICATION FILED SEPT. 23, 1921.

1,433,873. Patented Oct. 31, 1922.

3 SHEETS—SHEET 1.

Fig. 3.

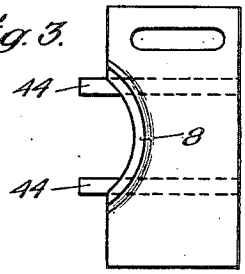


Fig. 2.

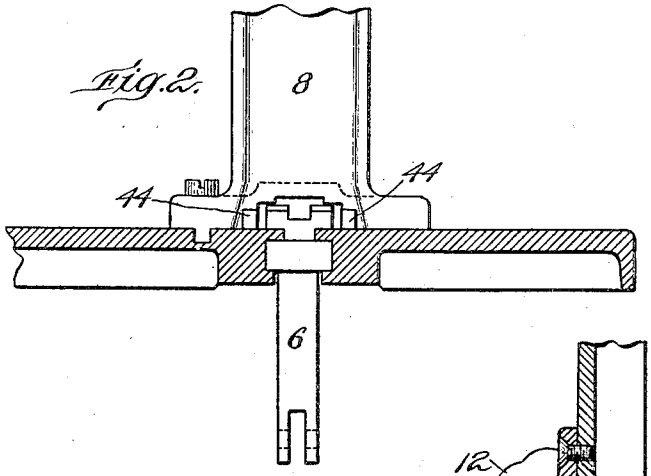
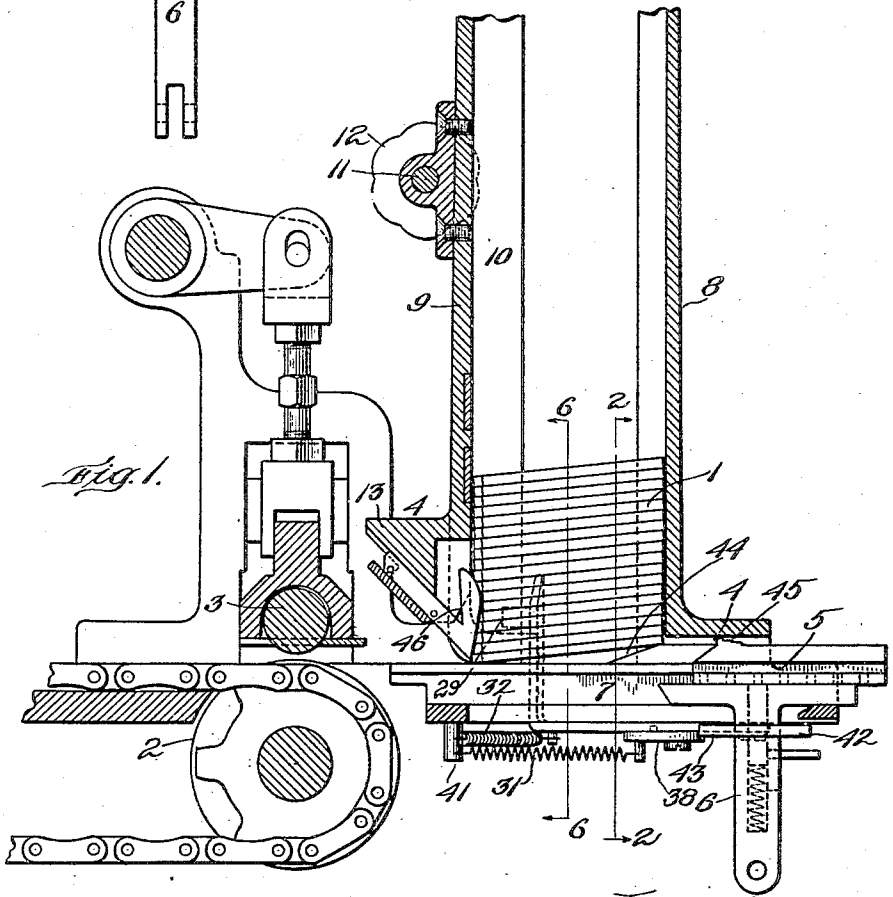


Fig. 1.



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3 SHEETS—SHEET 2.

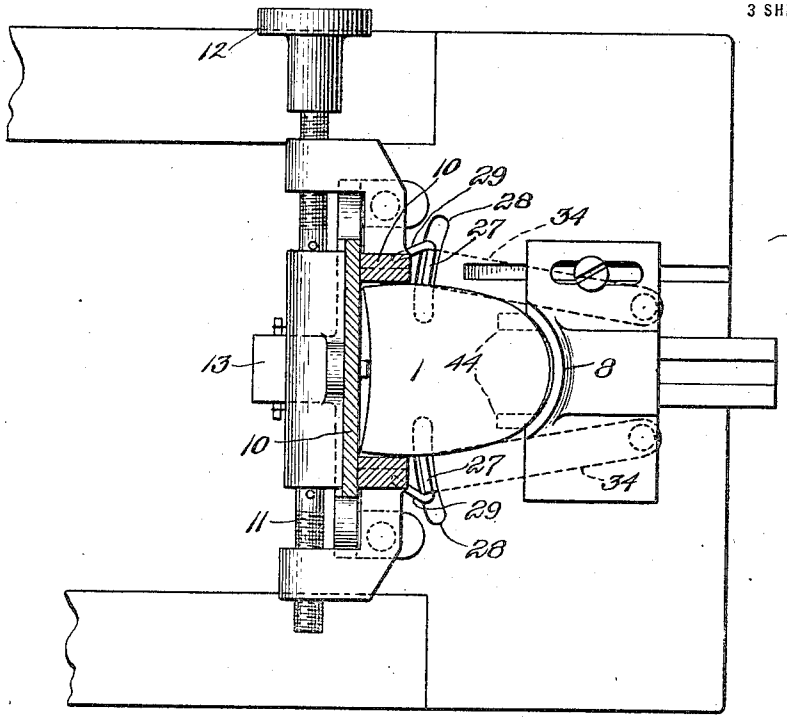


Fig. 4.

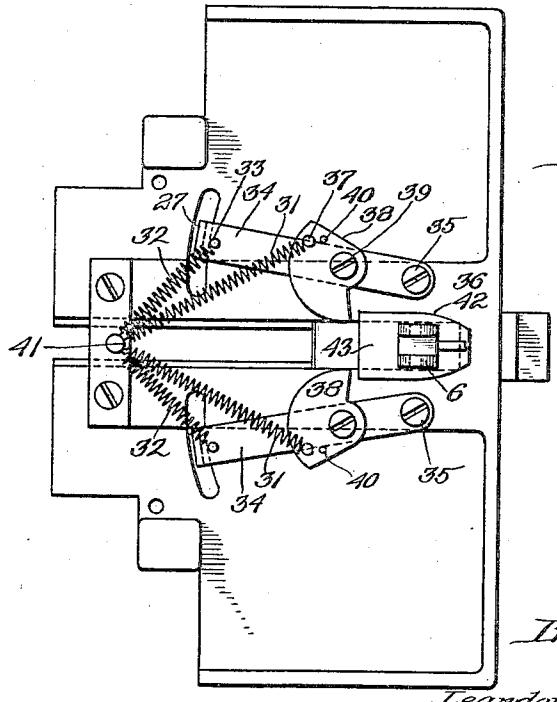


Fig. 5.

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3 SHEETS—SHEET 3.

Fig. 6.

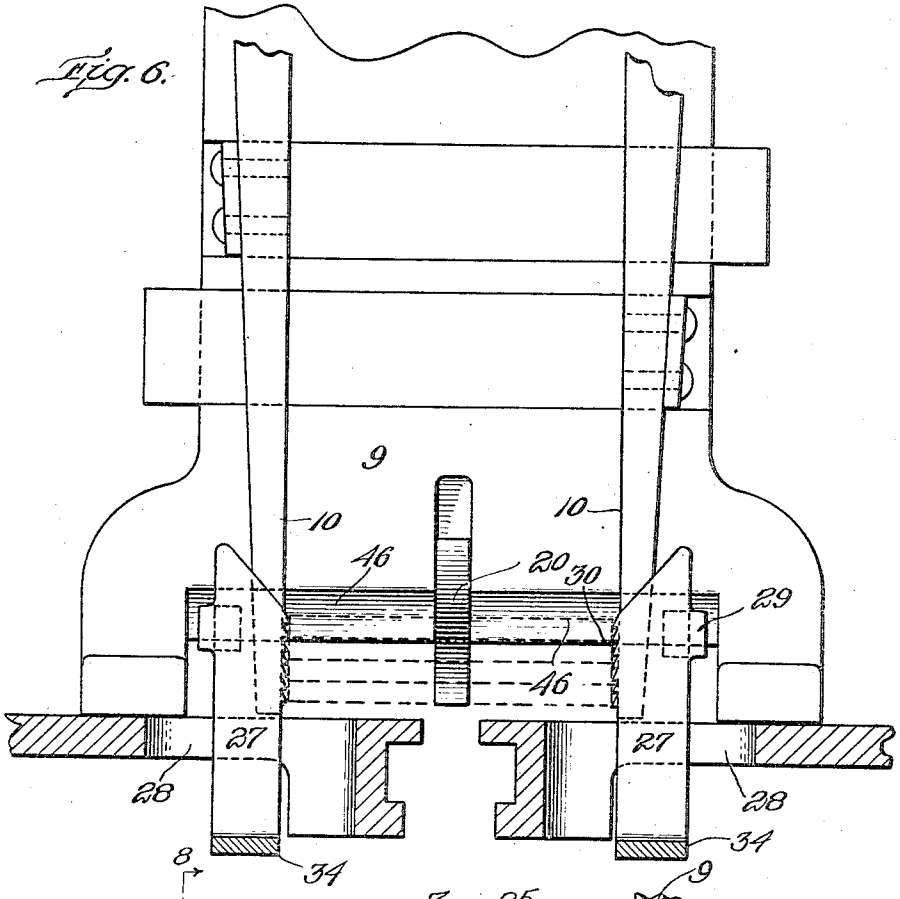


Fig. 7.

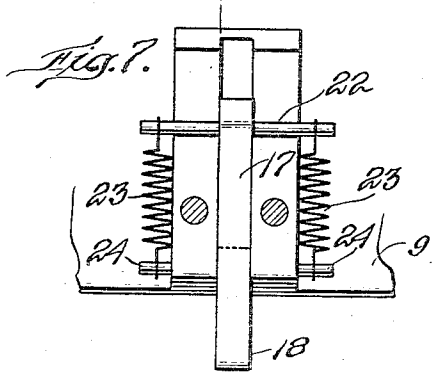
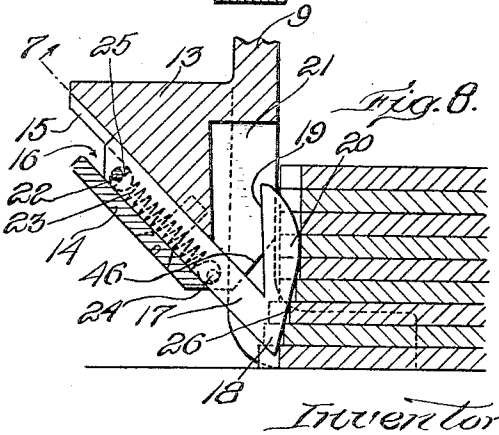


Fig. 8.



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Atty

Patented Oct. 31, 1922. 1,433,873

UNITED STATES PATENT OFFICE.

LEANDER A. COGSWELL, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR TO LACENE MANUFACTURING COMPANY, OF MANCHESTER, NEW HAMPSHIRE, A CORPORATION OF MAINE.

WORK SUPPORT AND FEED FOR HEEL-LIFT GRADERS.

Application filed September 23, 1921. Serial No. 502,745.

To all whom it may concern:

Be it known that I, LEANDER A. COGSWELL, citizen of the United States, and resident of Manchester, New Hampshire, have invented an Improvement in Work Supports and Feeds for Heel-Lift Graders, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is especially adapted and intended for use in the machine of my application Serial No. 494,009, filed August 20, 1921, in which the work is relatively rapid and the range or kinds of top-lifts varied, some of them being thin, others thick, some soft and spongy, others hard and bent and tending to curl. The object of the present invention is to provide a more positive and efficient control or maintainance of the heel lifts in proper stacked position and delivery of the lifts one by one from the bottom of the stack in spite of the tendency of one or more of the superposed lifts to move along improperly with the bottom lift being fed. To this end I provide an intermittent retainer for grabbing hold of the edges of the lower lifts at the opposite sides thereof so as to hold all but the bottom one frictionally against feeding movement when said bottom lift is being fed, said retainers releasing their hold between feeding movements so as to permit the stack to settle and the several lower lifts to be adjusted or readjusted before another feeding movement. Also preferably I provide the feeder or projector plate with means for engaging and dragging back into proper position the lower lift if accidentally moved forward by the feeding movement of the previous bottom lift. And also I provide a foot or deflector somewhat in the form of a dog or fish-hook having a movement in a raceway preferably on an angle of about 45 degrees and preferably having a strong balanced return under the influence of two springs, one on each side, the lower end of said foot or blank adjustor being normally in the path of the lift sufficiently to be positively raised and moved rearwardly against the tension of its springs by the feeding movement of the bottommost blank. The construction is such as to make the movement rearward and upward, and then back downward and forward, smooth and firm and the front edge of the foot or barb projects upward and forward slightly with an upper rounded protuberance normally forward from the adjacent wall of the stack about 3/16ths of an inch preferably. This enables the foot to cooperate with and adjust blanks having a curved breast with equal facility with those having a straight breast.

The result of the aforesaid apparatus is that as the stack of lifts settles and the lifts are fed one by one from the bottom thereof there is practically no tendency or liability of improper feeding.

In the drawings in which I have shown a preferred embodiment of the invention—

Fig. 1 is a central, vertical, longitudinal sectional detail;

Fig. 2 shows the front portion of the stack in front elevation looking at it toward the right, Fig. 1; taken approximately on the line 2—2, Fig. 1;

Fig. 3 is a top plan view of the front wall of the stack;

Fig. 4 is a horizontal, sectional view taken approximately at the point 4, Fig. 1;

Fig. 5 is an under side view of the mechanism showing principally the side retainer mechanism;

Fig. 6 is a fragmentary view taken on the line 6—6, Fig. 1;

Fig. 7 is a fragmentary detail of the foot and its support and connections looking down on the same, or may be considered as a section taken on the line 7, Fig. 8; and

Fig. 8 is a vertical, sectional detail taken on the line 8, Fig. 7.

In Fig. 1 I have shown in fragmentary detail that portion of the machine of my application above noted which carries and operates the stack, feeding the heel lifts 1 from the latter to the feed rolls 2, 3, it being understood that roll 3 (as stated in my said application) constitutes the feeler roll or detector of the grading machine. I have herein shown the work projector in the form of a projector block or dog 4 supported on a plate 5 (corresponding to the plate 78 in my application aforesaid) carried by a post 6 reciprocated in a way 7.

The blanks 1 to be fed are supported by a front wall 8 of the stack and rear wall 9 provided with upright guards or guides 10 adjustable for different sizes of blanks by

a right-and-left-hand screw 11 turned by a knob 12, all as described in my before mentioned application.

At its lower end the rear wall 9 has an angular rearward block-like projection 13 against which is fastened a plate 14 to form, in cooperation with an opposite groove 15, a rectilinear raceway 16 as best shown in Figs. 7 and 8. In this raceway 16 extends a stem or body portion 17 of the deflector foot or adjustor whose lower V-shaped end 18 extends in the path of the bottommost blank, see Fig. 8, whence the deflector has an upstanding barb or foot 19 provided with a gently curved or forwardly bulging front part 20 to hold the superposed blanks properly positioned. The block 13 or lower portion of the wall 9 is cut away at 21 to permit the rearward and upward movement of the foot or portion 19. A bar or pin 22 extends transversely through the upper end of the stem 17 and carries at its outer end springs 23 whose lower ends are secured on stationary pins 24. The downward movement of the projector is limited by the bar or pin 22 engaging shoulders 25 of the block 13. The blank engaging surface from the forward projection or bulge 20 to the lower end 18 has a gentle, rearward slope downward as indicated at 26, Fig. 8. The angle of the raceway which I have found preferable is about 45 degrees and also I prefer to have the bulge 20 project forward from the adjacent surface of the wall 9 of the stack about 3/16ths of an inch to cooperate to the best advantage with blanks having a curved breast as shown in Fig. 4.

Cooperating with the foot 20 and feed dog or projector 4 are side retainers 27, one for each side, being herein shown, which are arranged preferably to engage the lower lifts (preferably four or five of the latter) just back of the guards 10. These retainers have an in and out movement toward and from the blanks in slots 28 provided therefor in the bottom support or table and also preferably have ears 29 to engage the guards 10 to prevent their moving inwardly toward each other too far. At their inner edges these retainers are preferably provided with teeth 30 as best shown in Fig. 6 which preferably slope downwardly to offer maximum resistance against upward movement of the blanks and minimum resistance to downward movement. These retainers are normally held under inward impulse by springs 31, 32, the latter being secured at 33 to an arm 34 pivoted at 35 to the bottom of the support or table 36 and the spring 31 being secured at 37 to a cam plate 38 pivoted at 39 on said arm and provided with a stop 40 limiting its swinging movement on said arms, the opposite ends of said springs are secured at 41 to a stationary part, so that the springs tend to maintain the retainers in engagement with the edges of the blanks to prevent the blanks being fed rearward by the projector 4. The post 6 of the latter carries a cam actuator having a wedge shaped forward end 42 and a block-like rear end 43, which is in position to engage the cams 38 and operates to swing said cams idly on their arms 34 on the feeding movement to the rear or left, Figs. 1, 4 and 5, but to swing apart said arms 34 and thereby open the retainers 27 on the reverse movement toward the right, Figs. 1, 4 and 5. Thus when the lowermost or bottom lift is being moved rearward or fed into the machine by the projector 4, the retainers or jaw-like grippers 27 grip the superposed lifts and make it improbable that any of them will be substantially moved along with the bottom lift, and this gripping engagement is preferably maintained throughout the entire feeding movement. As soon, however, as the feeding movement has been accomplished the reverse movement of the projector 4 and its post 6 and cam 42 separates or releases said retainers from their gripping position and relation so that the stack can settle and the foot 18—20 can aid in adjusting the lower lifts freely to their proper position. The lifts are held up at their opposite front side edges by inclines 44 shown in Figs. 2 and 3 as relatively narrow and spaced a considerable distance apart so as to hold up the sides as shown in Fig. 1 to permit the intermediate portion of the bottom blank to bend or curve downwardly in the path of the projector 4 if the nature of the stock or shape of the lift naturally tends to this position. The projector 4 is preferably provided with steps or notches 45 as best shown in Fig. 1 so shaped that they tend to engage the rear edge of the blank which has been left as the bottom lift (as the previous bottom lift was fed into machine) as said projector is retracted to the position shown in Fig. 1. This engagement of the notches 45 is slight so as not to injure the blank but is sufficient to aid materially in replacing said blank in case it has been accidentally moved forward out of proper position. A further constructional feature which prevents the possible danger of the blanks wedging under the end of the rear wall 9 of the stack by the frictional movement of the blank being fed consists of providing a bevel, 46, as best shown in Figs. 6 and 8, at the bottom of the rear wall. This bevel 46 tends to prohibit two or more blanks being accidentally wedged in under the stack or wall when the feed is set for thin lifts because there is nothing for the ends of the lifts to engage and hold against, inasmuch as the wall is cut away or bevelled and hence the lifts can fall freely at this point and will not wedge or jam. When straight-breast heel-lifts are to be handled,

the front wall 8 is moved forward the 3/16ths of an inch which enables them to be adjusted by the automatic foot adjustor or deflector the same as I have described for the heel-lifts with curved breasts.

In use as the projector 4 moves the bottom blank rearward into the machine, the rear edge of the blank moves the foot 18 rearward and upward against the pressure of the springs 23 until the blank escapes from the foot. The lower heel lifts immediately above this bottom heel lift are meanwhile held gripped at their edges by the retainers 27 so that they have very little tendency to move forward by the frictional engagement therewith of the lift being fed into the machine. As the projector moves rearward the cams 38 are swung idly with a latch movement by the engagement therewith of the member 43 on the post 6 of the projector and are caused to snap behind said post by their spring 31 when the post has moved rearward sufficiently. The retainers 27 continue to hold the blanks against rearward movement with the blank being fed until the latter has been fully fed rearward into the machine. Then as the projector retreats to get in position for another feeding movement the wedge shaped end 42 engages the cam surfaces of the cams 38 and thereby swings the retainers 27 away from each other and out of engagement with the lifts. As the latter fall loosely downward the notches or steps 45 of the projector tend to drag the bottom blank forward, the backward movement of the projector again to its forward position tending to raise slightly the blanks which are settling down while at the same time the foot or deflector 18, under the action of its springs 23, follows forcibly behind these blanks and adjusts them to approximately the relation shown in Fig. 5. The upper blanks as they slide down or settle down are forced more or less forward by the bulge 20 while the inclined face of the foot below said bulge aided by the spring action, presses downward and forward the lower blanks or heel lifts. With plenty of tension on the two small springs 23 the bottom blank now resting on top of the projector is sure to get into correct position for the next feeding. As the projector gets back the cams 38 are released and the springs 32, 31 snap the retainers into holding engagement again with the lower blanks at the side edges of the latter and the parts are ready for another rearward feeding movement. There is more or less friction from one blank resting on another, and when the feed moves rearward the first blank, or bottom blank, the deflector or foot 18 recedes in its upward rectilinear travel, the second blank being carried rearward sometimes by friction. It will be understood that the blanks are not absolutely uniform in size nor position and notwithstanding the grippers or retainers 27 some of them occasionally slide rearward. The shape and direction of movement of the deflector or foot 18 aids greatly in keeping the blanks back in proper alignment against the front stack.

My invention is further described in the following claims:

1. In a machine of the kind described, means to hold a pile of blanks in stack formation, feeding means to engage the bottom of the pile to feed the blanks one by one, and retaining mechanism for automatically holding the lower blanks of the pile at their side edges while the bottommost blank is being fed, said retaining mechanism including upstanding members having downwardly notched vertical edges to grab and hold against the lower blanks.

2. In a machine of the kind described, means to hold a pile of blanks in stack formation, feeding means to engage the bottom of the pile to feed the blanks one by one, and retaining mechanism for automatically holding the lower blanks of the pile at their side edges while the bottommost blank is being fed, said retaining mechanism including upstanding members having downwardly notched vertical edges to grab and hold against the lower blanks, and limiting means to limit undue inward movement of said members.

3. In a machine of the kind described, means to hold a pile of blanks in stack formation, feeding means to engage the bottom of the pile to feed the blanks one by one, and retaining mechanism for automatically holding the lower blanks of the pile at their side edges while the bottommost blank is being fed, and means operating with said feeding means to engage the bottom blank, and tending to move it back to proper normal position upon the return movement of the feeding means.

4. In a machine of the kind described, means to hold a pile of blanks in stack formation, feeding means to engage the bottom of the pile to feed the blanks one by one, and retaining mechanism for automatically holding the lower blanks of the pile at their side edges while the bottommost blank is being fed, said feeding means having a blank engaging projector, and a stepped, retracting device provided immediately behind said projector and operating to engage and tending to move back the lowest blank to proper normal position for the next feeding movement.

5. In a machine of the kind described, means to hold a pile of blanks in stack formation, feeding means to engage the bottom of the pile to feed the blanks one by one, said feeding means having a blank engaging projector, and a stepped, retracting device

provided immediately behind said projector and operating to engage and tending to move back the lowest blank to proper normal position for the next feeding movement of the projector.

6. In a machine of the kind described, means to hold a pile of blanks in stack formation, feeding means to engage the bottom of the pile to feed the blanks one by one, and retaining mechanism for automatically holding the lower blanks of the pile at their side edges while the bottommost blank is being fed, said first mentioned means having a rear wall provided at its lower end with a deflector foot in the path of the blank being fed and movable thereby rearwardly and upwardly in a rectilinear path, and a spring for forcibly returning said foot in pressing engagement with the lower blanks after the feeding movement of the bottom blank has been accomplished.

7. A stack provided at the lower end of its rear wall with a rearwardly and upwardly extending raceway, a deflector foot mounted for movement in said raceway and adapted to engage and adjust the lower layers of the work in the stack.

8. A stack provided at the lower end of its rear wall with a rearwardly and upwardly extending raceway, a deflector foot mounted for movement in said raceway and adapted to engage and adjust the lower layers of work in the stack, and a spring under normal tendency to move said deflector foot downward and forward.

9. A stack provided at the lower end of its rear wall with a rearwardly and upwardly extending raceway, a deflector foot mounted for movement in said raceway and adapted to engage and adjust the lower layers of work in the stack and opposite springs one at each side of said foot under normal tendency to move the foot downward and forward.

10. A stack provided at the lower end of its rear wall with a rearwardly and upwardly extending raceway, a deflector foot mounted for movement in said raceway and adapted to engage and adjust the lower layers of work in the stack, said foot having a V-shaped lower end with a front face sloping gently upward and forward.

11. A stack provided at the lower end of its rear wall with a rearwardly and upwardly extending raceway, a deflector foot mounted for movement in said raceway and adapted to engage and adjust the lower layers of work in the stack, said foot having a V-shaped lower end with a front face sloping gently upward and forward and a rear face sloping upward and rearward.

12. A stack provided at the lower end of its rear wall with a rearwardly and upwardly extending raceway, a deflector foot mounted for movement in said raceway and adapted to engage and adjust the lower layers of work in the stack, said foot having a V-shaped lower end with a front face sloping gently upward and forward and verging into a forward protuberance or rounded face in position to engage and deflect the top lifts above the bottom of the stack.

13. A stack having a rear wall provided at its lower end with a deflector foot consisting of a rearwardly and upwardly extending stem and approximately vertical barb or front end provided with a bulging face for engaging the rear ends of the blanks, and a raceway provided in said wall for directing the movement of said stem.

14. A stack having a rear wall provided at its lower end with a deflector foot consisting of a rearwardly and upwardly extending stem and approximately vertical barb or front end provided with a bulging face for engaging the rear ends of the blanks, and a raceway provided in said wall for directing the movement of said stem, and spring means for maintaining said foot under tendency to move forcibly downward and forward.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

LEANDER A. COGSWELL.

Witnesses:
GEO. H. MAXWELL,
OLIVER D. HOGUE.