A. SLAYSMAN, Jr.

MACHINE FOR FEEDING SHEET METAL BLANKS.

APPLICATION FILED NOV. 28, 1908.

934,848. Patented Sept. 21, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

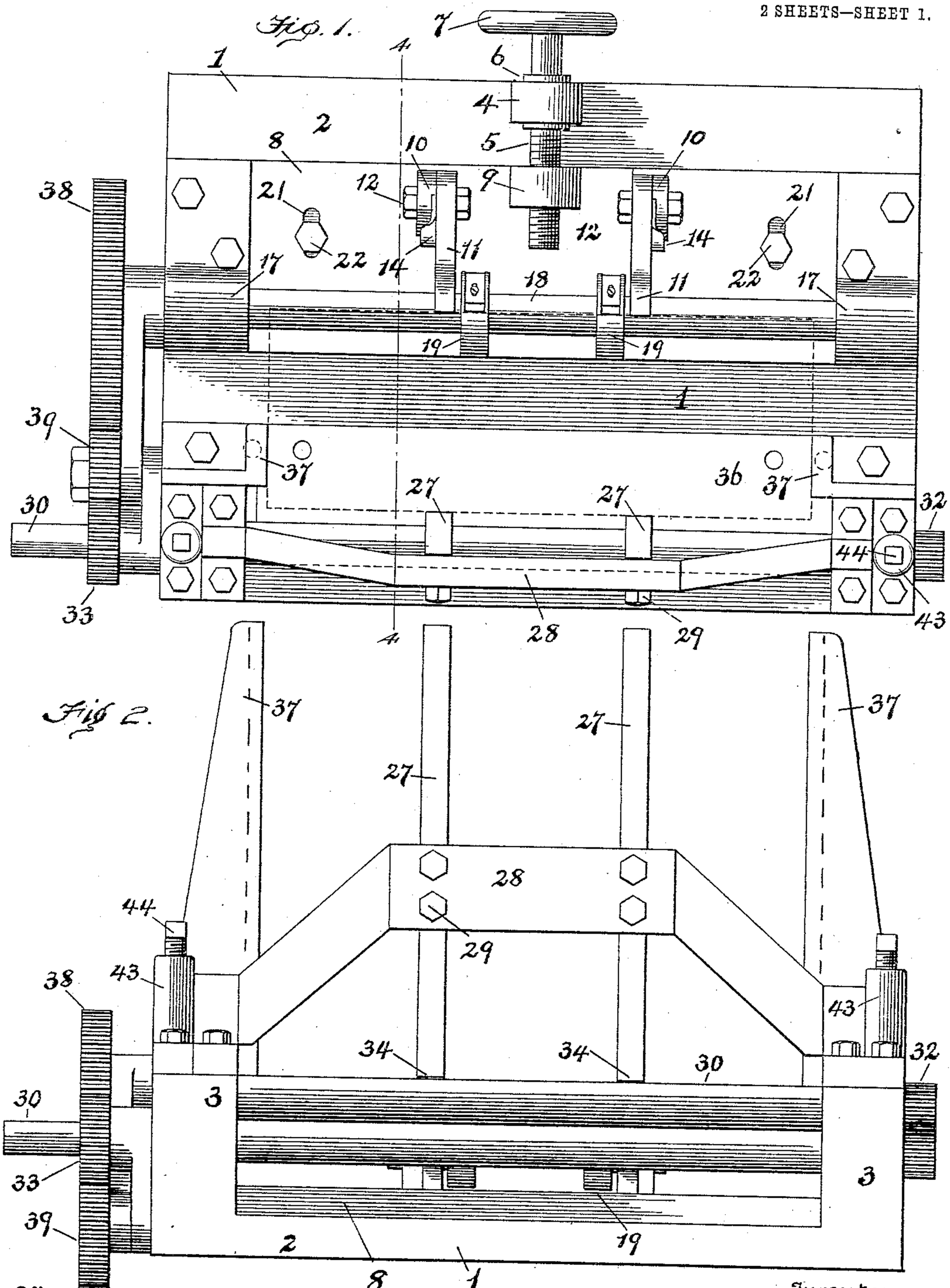

Fig 2.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

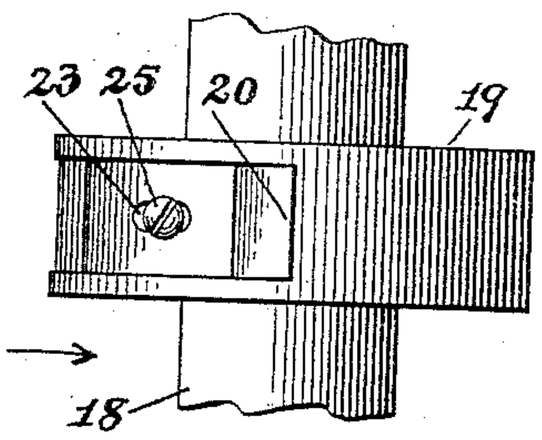

Fig. 3.

Fig. 6.

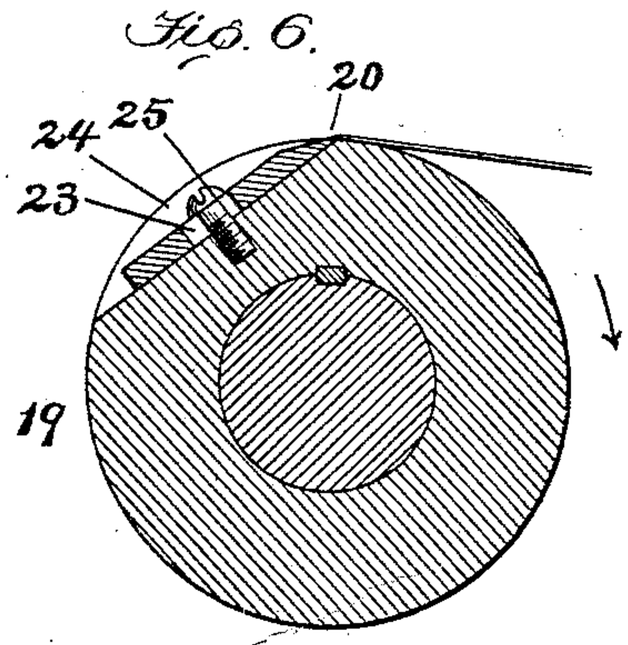

Fig. 4.

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MACHINE FOR FEEDING SHEET-METAL BLANKS.

934,848. Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed November 28, 1908. Serial No. 464,831.

To all whom it may concern:

Be it known that I, ALEXANDER SLAYSMAN, JR., a citizen of the United States, residing at Hamilton, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Machines for Feeding Sheet-Metal Blanks, of which the following is a specification.

This invention relates to a machine for feeding sheet-metal blanks.

The object of the invention is to provide means for automatically feeding sheet-metal blanks—one blank at a time—from a pile of blanks, to a machine where the said blank will be subjected to some useful operation.

The blank-feeding machine of this invention may be attached to a can-body forming machine, or any other machine.

The invention is illustrated in the accompanying drawing, in which,—

Figure 1 is a top plan view of the blank-feeding machine. Fig. 2 is an elevation showing the discharge end of the machine. Fig. 3 is a side elevation of the machine. Fig. 4 is a vertical sectional elevation on the line 4—4 of Fig. 1. Figs. 5 and 6 show the pusher that gives the initial movement to the sheet-metal blank.

The sheet-metal blanks are piled one upon the other, and the pile is placed on the machine, and a movable pusher gives initial movement to a single blank—the lowermost one of the pile, and the blank thus started is gripped by a pair of rollers which completes the movement of the blank; the blank is discharged between the rollers; this is a brief statement of the mode of operation of the blank-feeder.

The numeral, 1, designates a base having a smooth, flat, level top, 2, and the base is provided at its discharge end with two posts, 3, one at each corner; the base in the present instance is also provided at its front end with an upward-projecting bearing, 4, which is bored to receive a horizontal screw, 5, which has two collars, 6, 6, one at each side of the bearing, 4, so that the screw can freely turn in the bearing without advancing. One end of the screw has a knob 7, by which it may be turned. A plate, 8, rests upon the smooth top, 2, of the base, and in the present instance said plate is slidable thereon for the purpose of adjustment: this plate has at its front a short post, 9, which is bored and screw-threaded to receive the end of the said horizontal screw, 5. It will be seen that by turning the screw, 5, the plate, 8, may be given a sliding movement either forward or back. The plate also has two slots, 21, and set-screws, 22, are in the base, 1, and project through the slots in the plate; these set-screws when tightened serve to hold the plate, 8, in the position to which it has been moved by the adjusting screw, 5.

The adjustable or slidable plate, 8, has on its upper surface two ears, 10, to each of which a vertical stanchion, 11, is jointed by a pivot-bolt, 12, which enables the stanchion to take two positions, either to stand so that one of its edges, 13, will be perpendicular, or to be tilted back on the pivot, 12, to an inclined position, as will be readily understood. The stanchion is retained in the perpendicular position by a spring-catch, 14, secured to the stanchion and engaging with a notch, 15, on the rounded top of the ear, 10. By releasing the spring-catch from the notch, 15, the stanchion, 11, may be tilted back to an inclined position. The pivoted stanchions will not tilt forward because first, the lower end, 16, of the stanchion is squared or at a right-angle with respect to the perpendicular edge, 13, and second, because the pivot-bolt, 12, is located near the edge that is opposite or remote from the said perpendicular edge, as seen in Fig. 4.

A suitable movable pusher is provided to give initial movement to the lowermost sheet-metal blank in the pile of blanks. In the present instance the pusher is mounted on plate, 8, and has a rotary form. The plate, 8, has two bearings, 17, for a rotary shaft, 18, that extends crosswise of the plate; this shaft carries one or more circular heads, 19, each of which is provided at its rim with a slight projection, 20, which will engage the edge of only one sheet-metal blank—the lowermost one—and push said blank far enough to give it the initial movement herein mentioned. One form of construction for the movable pusher is shown in detail in Figs. 5 and 6. Here the shaft, 18, has a ring or circular head, 19, keyed thereon, and the push projection, 20, in this instance comprises a flat narrow blade having a slot, 23, and said blade is seated in a peripheral groove, 24, cut on the circular head; a set-screw, 25, passes through the slot in the blade and enters the said head,

and this set-screw holds the blade firmly in an adjusted position. One end of the blade has a chisel-edge, or beveled edge, 20, and this constitutes the slight projection before referred to on the rim of the circular head, 19. When this projecting beveled edge, 20, becomes worn the blade may be adjusted to take up the wear by means of the slot, 23, and the set-screw, 25. In this rotary form of blank-pusher device the perpendicular edge, 13, of the stanchions has position directly over the axis of the shaft, 18, that carries the pusher, as seen in Fig. 4.

The two stanchions, 11, comprise one side of the housing that receives the pile, 26, of blanks. The opposite side of the housing comprises the two vertical bars, 27, which are supported by a truss-bar, 28, extending crosswise and having its ends resting upon the corner posts, 3; screws, 29, secure the vertical bar, 27, to the truss-bar. A pair of gripping or feed-rollers, 30, one roller being above the other, are mounted in bearings, 31, in the said corner posts, 3. These feed rollers serve to complete the movement of the blank. At one end these two rollers have gear wheels, 32, which mesh together, and at the other end one of the rollers, 30, is provided with a pinion, 33, and on the journal end of this same roller a driving pulley or gear wheel may be placed for driving the machine. Each of the two vertical bars, 27, has its lower end notched or cut-away as at, 34, (see Fig. 4), so that the extremity, 35, of the bar may extend down along side of the uppermost roller, 30, nearly to the line of separation between said two rollers. A plate or bar, 36, extends horizontally across the machine adjacent the said feed-rollers, 30, and a little below the said extremities, 35, of the two vertical bars, 27, thus a narrow open space sufficient for a single sheet of metal to pass, is left between the top surface of said plate, 36, and the said lower extremity, 35. The position of the pile of sheet-metal blanks, 26, is seen in Fig. 4, where the pile shown comprises only a few blanks; the blanks are slightly on an incline, one edge resting on the circular rim of the rotary head, 19, and the opposite edge resting on the plate, 36. The pile, 26, of blanks is housed or confined between the two upright stanchions, 11, and the two vertical bars, 27. The width of this housing space may be increased or diminished by turning the adjusting screw, 5, as already described. At each of the two sides of this housing space, which contains the pile of sheet-metal blanks, is a standard, 37.

It will be seen that in the present instance, and for the purpose of securing the feature of adjustability of the size of the housing space, the rotary shaft, 18, that carries the revolving pusher heads which give initial movement to each blank, is mounted on the slidable plate, 8, while the two feed-rollers which complete the movement of the blank are mounted on the stationary posts, 3. In order to permit the said plate, 8, to slide for the purpose of making an adjustment, and at the same time to maintain a connection of the gear wheels between the shaft, 18, and the feed-rollers, 30, a special gear device has been provided. This comprises a gear-wheel, 38, on the end of pusher shaft, 18, and an intermediate gear, 39, which engages both gears, 38, and, 33, and transmits the motion. All three of these gear-wheels are at one side of the machine. The intermediate gear, 39, is suspended by two links, 40, and, 41, which connect, respectively, between the shaft, 18, and the spindle, 42, on which the intermediate gear turns, and between the journal of feed roller, 30, and said spindle, 42. As shown in Fig. 3, the two links, 40, and, 41, hang in the form of a V, and it will be understood that if the slidable plate, 8, should be moved toward the bearing, 4, on the front of the base, the position of these two links, 40, and, 41, would slightly change, and the V-form would be widened, and the intermediate gear raised. If the slidable plate, 8, should be moved in the opposite direction, the V-form of the two links, 40, and, 41, would be narrowed, and the intermediate gear, 39, would be lowered. It will be understood that at no time in making these adjustments will the three gears, 33, 38, and, 39, be disconnected; for practical reasons this is important.

The numeral, 43, designates a tubular upright box directly over the bearing, 31, of the feed rollers, 30. Two of these boxes, 43, are employed, one being over each bearing, 31. The top of each box has a screw, 44, with a square head; this screw is to increase or diminish the pressure on a spiral spring which is inclosed within said tubular box, 43. The said spiral spring is indicated by broken lines in Fig. 3.

In view of the foregoing description the operation of the machine will be understood by the following additional explanation.

To place the sheet-metal in the housing the two stanchions, 11, may be tilted back to an inclined position, first releasing the spring catches, 14, from their notches, 15, to permit this tilting. Then a lot of sheet-metal blanks should be placed in the housing and piled up as at, 26, one upon the other. The lowermost blank of the pile will have one edge resting on the circular rim of the two rotary heads, 19, and the opposite edge of the blank will rest on the plate, 36. The blanks may be piled as high as the stanchions, 11, and bars, 27. After the desired number of metal blanks have been placed in the housing the stanchions, 11, should be restored to their normal vertical

position. The placing of a pile of blanks in position within the housing may be done without tilting the stanchions, if desired.

Rotary motion being applied to the pusher-shaft, 18, and feed rollers, 30, the effect will be that the slight projections, 20, on the rims of the circular heads, 19, will engage the edge of the lowermost blank of the pile, 26, and push said blank, or give it an initial movement; the blank will thus slide through the narrow open space between the lower extremity, 35, and the top surface of the plate, 36, which guides the blank between the two feed rollers, 30; the moment the feed-rollers grip the blank, the latter will have its movement completed, and be rapidly drawn through and discharged onto suitable mechanism of the machine to which this blank-feeder may be attached.

As has already been stated, the form or construction of the pusher device that imparts initial movement to the blank, may be different, and it is not necessary that it be rotary.

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

1. The combination of a stationary base; a plate slidable on said base; a housing having two vertical sides to receive a pile of sheet-metal blanks—one of said vertical sides being mounted on the stationary base and the other side mounted on the said slidable plate; a movable pusher to give initial movement to the lowermost blank in said pile, and said pusher mounted on the slidable plate; and feed-rollers mounted on the stationary base and adapted to complete the movement of said lowermost blank.

2. The combination of a circular head mounted on a rotatable horizontal shaft and having on its rim a pusher; a housing having two vertical sides between which sheet-metal blanks may be piled so that one edge of the lowermost blank will rest on the rim of the circular head—and the vertical edge of one of said sides having position directly over the axis of the said horizontal shaft, and means to complete the movement of the lowermost blank after it has been started by said pusher.

3. The combination of two vertical sides between which sheet-metal blanks may be piled one upon the other,—one of which sides has its lower end pivoted or hinged to enable it to tilt back; a movable pusher to give initial movement to the lowermost blank in the pile without disturbing the other blanks; and means to complete the movement of said lowermost blank.

4. The combination of a stationary base; a plate slidable on said base; a housing having two vertical sides to receive a pile of sheet-metal blanks—one of said vertical sides being mounted on the stationary base and the other side mounted on the said slidable plate; a rotary pusher on a shaft to give initial movement to the lowermost blank—said pusher mounted on the slidable plate; a pair of feed rollers mounted on the stationary base and arranged to complete the movement of said lowermost blank; a gear wheel on the pusher shaft; a gear wheel on one of the feed rollers, and an intermediate gear-wheel connecting said two gear-wheels and suspended by two links, 40, and, 41, whereby the width of the housing may be adjusted and at the same time maintain a connection of the said gear-wheels.

In testimony whereof I affix my signature in presence of two witnesses.

ALEXANDER SLAYSMAN, Jr.

Witnesses:
Chas. B. Mann,
G. Ferdinand Vogt.