

Nov. 11, 1924.

1,514,633

H. H. SCHMIDT

BLANK FEEDING MECHANISM

Filed Nov. 15, 1920

4 Sheets-Sheet 1

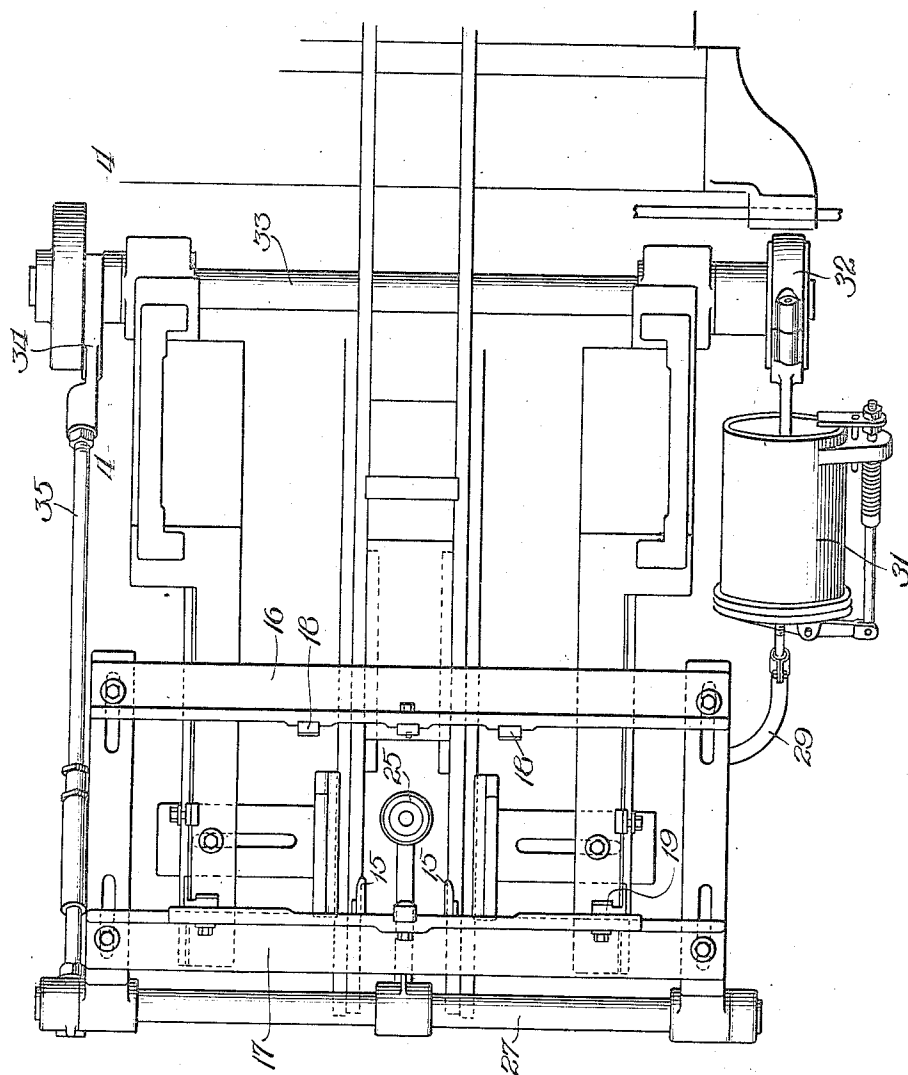


Fig. 1

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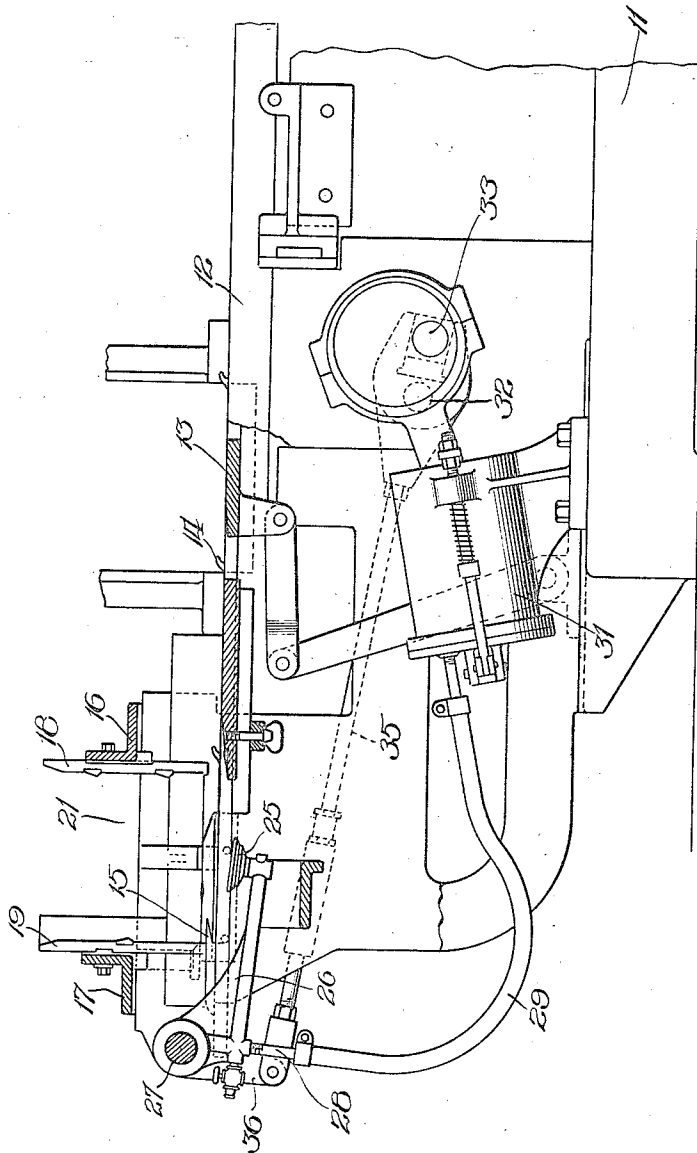
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FIG. 2



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Fig. 3

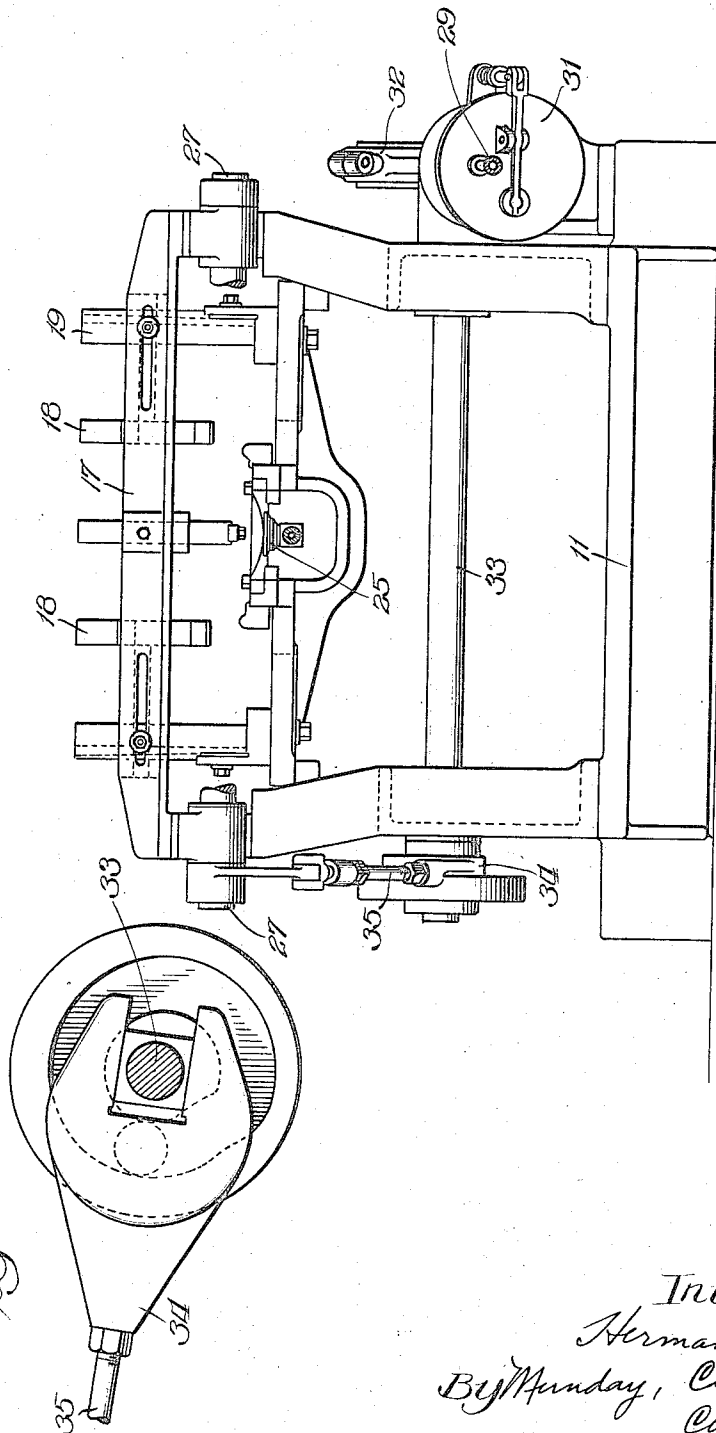


Fig. 4

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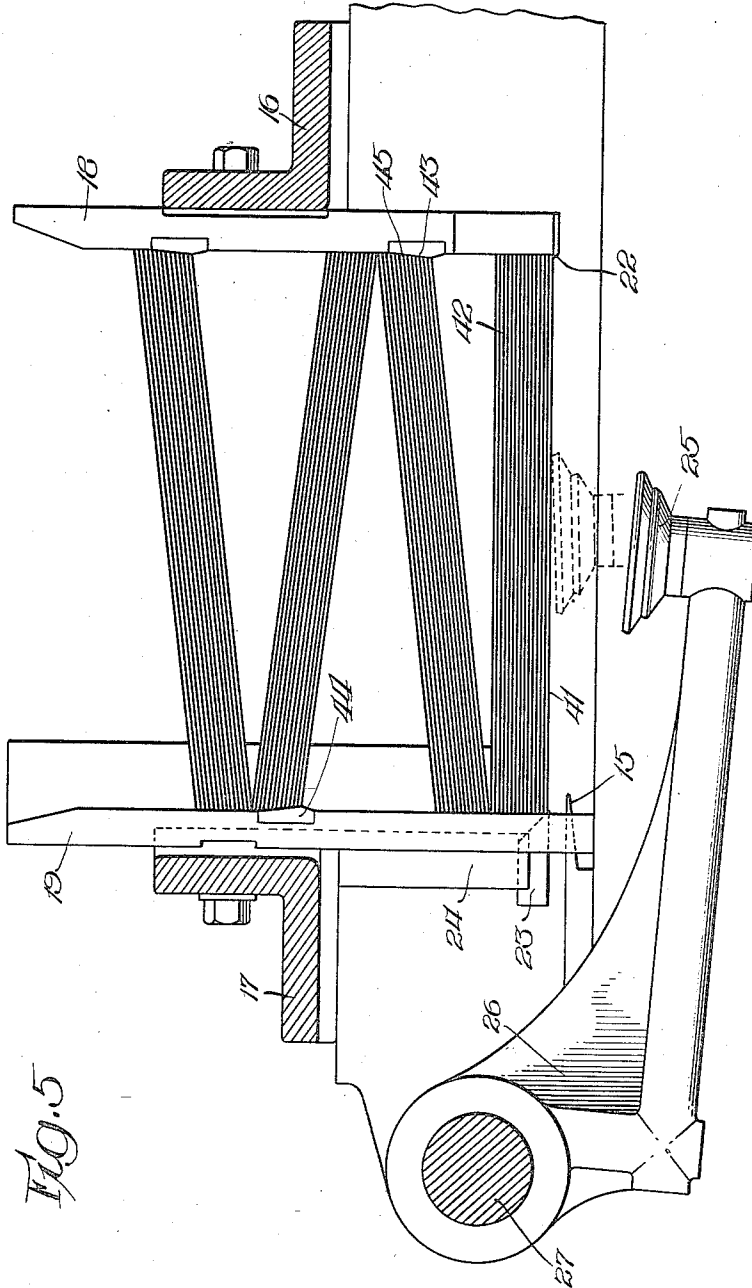
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BLANK FEEDING MECHANISM

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE.

HERMAN H. SCHMIDT, OF MAYWOOD, ILLINOIS, ASSIGNOR TO AMERICAN CAN COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

BLANK-FEEDING MECHANISM.

Application filed November 15, 1920. Serial No. 424,330.

To all whom it may concern:

Be it known that I, HERMAN H. SCHMIDT, a citizen of the United States, residing in Maywood, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Blank-Feeding Mechanism, of which the following is a specification.

This invention relates in general to blank feeding mechanisms and has more particular reference to mechanisms for feeding blanks successively from the bottom of a vertically arranged stack of blanks. While the embodiment of the invention selected for the purposes of illustration is of the suction feed type, it will be readily understood that it may be embodied in feeds of other types without departing from the spirit and scope of the invention or sacrificing all of the material advantages.

A principal object of the invention is the insurance of a maintenance of uniform feeding conditions at the bottom of the stack, from which the blanks are successively removed. In this respect the invention contemplates the pressure of a substantially uniform weight upon the bottommost blank so that the selective mechanism may be nicely adjusted to this uniform condition and operate with certainty regardless of the height of the stack in the stack holder.

Another important object of the invention is the provision of a blank feeding mechanism of this character wherein the bottommost blank will sustain merely a mild pressure so that a correspondingly mild suction force may be employed to separate it from the remainder of the blanks and arrange it in feeding position.

Another important object of the invention is the attainment of these and other beneficial results without the addition of moving parts and without complicated operation of the apparatus or requiring parts that are delicate or likely to require frequent repair or replacement.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which taken in connection with the accompanying drawings discloses a preferred embodiment thereof.

Referring to the drawing,—

Figure 1 is a top plan view of an apparatus embodying my present invention;

Fig. 2 is a longitudinal section through the same;

Fig. 3 is an end elevation looking from the left in Figs. 1 and 2;

Fig. 4 is a detail section on the line 4—4 of Fig. 1; and

Fig. 5 is an enlarged vertical section through the stack holder and showing a stack of blanks in place.

For the purpose of illustrating my invention I have shown on the drawing the feed end of a can body maker which comprises a frame 11 of any usual or preferred construction and supporting a table 12 at its top. This table is provided with a feed slide 13 having feeding lugs 14 and 15, said lugs and slide being of any usual or preferred construction and adapted for operation in any usual or preferred manner.

Mounted above the table are two arbors 16 and 17 to which are fastened upright posts or stack holder members 18 and 19 arranged at opposite sides of a passage 21 in which a stack of blanks may be positioned. The members 18 are provided with stack supporting plates 22 at their bottom for supporting the forward edge of the lowermost and superimposed sheets and blocks 23 are provided upon the bottommost of auxiliary stack forming members 24 at the rear.

A suction head 25, mounted upon an arm 26, is pivoted on shaft 27 and this suction head through a pipe 28 and hose 29 communicates with an exhaust cylinder 31 operated by an eccentric 32 on a shaft 33 caused to continuously rotate as a part of the body maker apparatus. The shaft 33 also oscillates the shaft 27 by an eccentric 34 pitman 35 and crank arm 36.

In the feeding operation the suction head is moved up by an oscillation of the shaft 27 into contact with the lowermost sheet of the stack and upon return reciprocation of the suction head this sheet is pulled down in the center into the path of the undercut lug 15 on the slide bar 13. This movement causes its forward edge to clear the lower ends of the stack forming member 18. A forward reciprocating movement of the slide moves the lowermost blank from beneath the stack holder and it begins its step by step advance through the apparatus. So much of the feeding mechanism as has

just been described is perhaps merely incidental to my present invention and detailed explanation is not thought necessary.

My present invention concerns itself more particularly with the maintenance of an even pressure on the lowermost blank 41 in the stack holder and this independently of the height of the stack as the feeding causes this height to diminish or as the positioning of more blanks in the stack may cause it to increase. The invention in this regard contemplates the provision of a relatively small predetermined portion of the stack, indicated at 42, supported from the remainder and relieved of a large part of the remainder of the weight of the stack. This I accomplish by providing protruding members 43 and 44 arranged upon the members 18 and 19 and extending into the stack receiving space in vertically staggered relation. The protuberances or protruding members have inclined faces 45 adapted to engage beneath the blanks and support one side of them so long as the other side of the blank is not lowered a sufficient distance to free the side separated by the protuberance. These protuberances divide the stack into two upper or oppositely inclined portions, one end of each said portions resting upon a protuberance and the other end resting upon the stack portion just beneath. As each lower stack portion diminishes by the feeding of the blanks the end of the stack portion above it lowers correspondingly and the lowermost blank of said upper stack portion may slide from the protruding member and fall into the stack portion immediately therebeneath.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A blank feeding mechanism, comprising a stack holder for blanks from the bottom of which the blanks may be singly removed, said stack holder comprising means whereby the entire contents of the stack are divided and supported in a series of three or more separate sections of blanks which sections are alternately and oppositely inclined to each other, and means engaging the said ends of the lowermost blank for supporting it in feeding position.

2. A blank feeding mechanism, comprising a stack holder for blanks from the bottom of which the blanks may be singly removed, said stack holder comprising in-

wardly extending members arranged for supporting the upper ends of a series of separate sections of such blanks when in inclined position, the lower end of each section of blanks above the bottom section being abutted against the side of the stack holder and being further supported by the upper end of the next lower section of the blanks.

3. A blank feeding mechanism, comprising a stack holder for blanks from the bottom of which the blanks may be singly removed, said stack holder comprising inwardly extending members arranged alternately on opposite sides of the stack holder at progressively greater heights for supporting the upper ends of separate sections of such blanks when in inclined position, the lower end of each section of blanks above the bottom section being abutted against the side of the stack holder and being further supported by the upper end of the next lower section of blanks.

4. A blank feeding mechanism, comprising a stack holder for blanks from the bottom of which the blanks may be singly removed, said stack holder comprising inwardly extending members arranged for supporting the upper ends of a series of alternately and oppositely inclined separate sections of such blanks, the lower end of each section of blanks above the bottom section being abutted against the side of the stack holder and being further supported by the upper end of the next lower section of blanks.

5. A blank feeding mechanism, comprising a stack holder for blanks from the bottom of which the blanks may be singly removed, said stack holder comprising inwardly extending members arranged for supporting the upper ends of a series of three or more oppositely and alternately inclined separate sections of such blanks, the lower end of each section of blanks above the bottom section being abutted against the side of the stack holder and being further supported by the upper end of the next lower section of blanks.

6. A blank feeding mechanism, comprising a stack holder for blanks from the bottom of which the blanks may be singly removed, said stack holder comprising substantially vertical sides and inwardly extending members arranged on said sides for supporting the upper ends of separate sections of such blanks when in inclined position, the lower end of each section of blanks above the bottom section being abutted against the side of the stack holder and being further supported by the upper end of the next lower section of blanks.

7. A blank feeding mechanism, comprising a stack holder for blanks from the bottom of which the blanks may be singly removed, and blanks therein arranged in a series of oppositely and alternately inclined

separate sections, said stack holder comprising inwardly extending members arranged for supporting the upper ends of said separate inclined sections of blanks, the lower
5 end of each section of blanks above the bottom section being abutted against the side of the stack holder and being further supported by the upper end of the next lower section of blanks.

10 8. A blank-feeding stack holder having means for dividing and supporting the entire stack of blanks in a bottom section and thereabove a plurality of alternating oppositely inclined sections, the bottom section having supports under its ends so as to
15 directly take the weight of the inclined section next above, and the upper end only of each inclined section having an inwardly protruding member with which it engages.

HERMAN H. SCHMIDT.