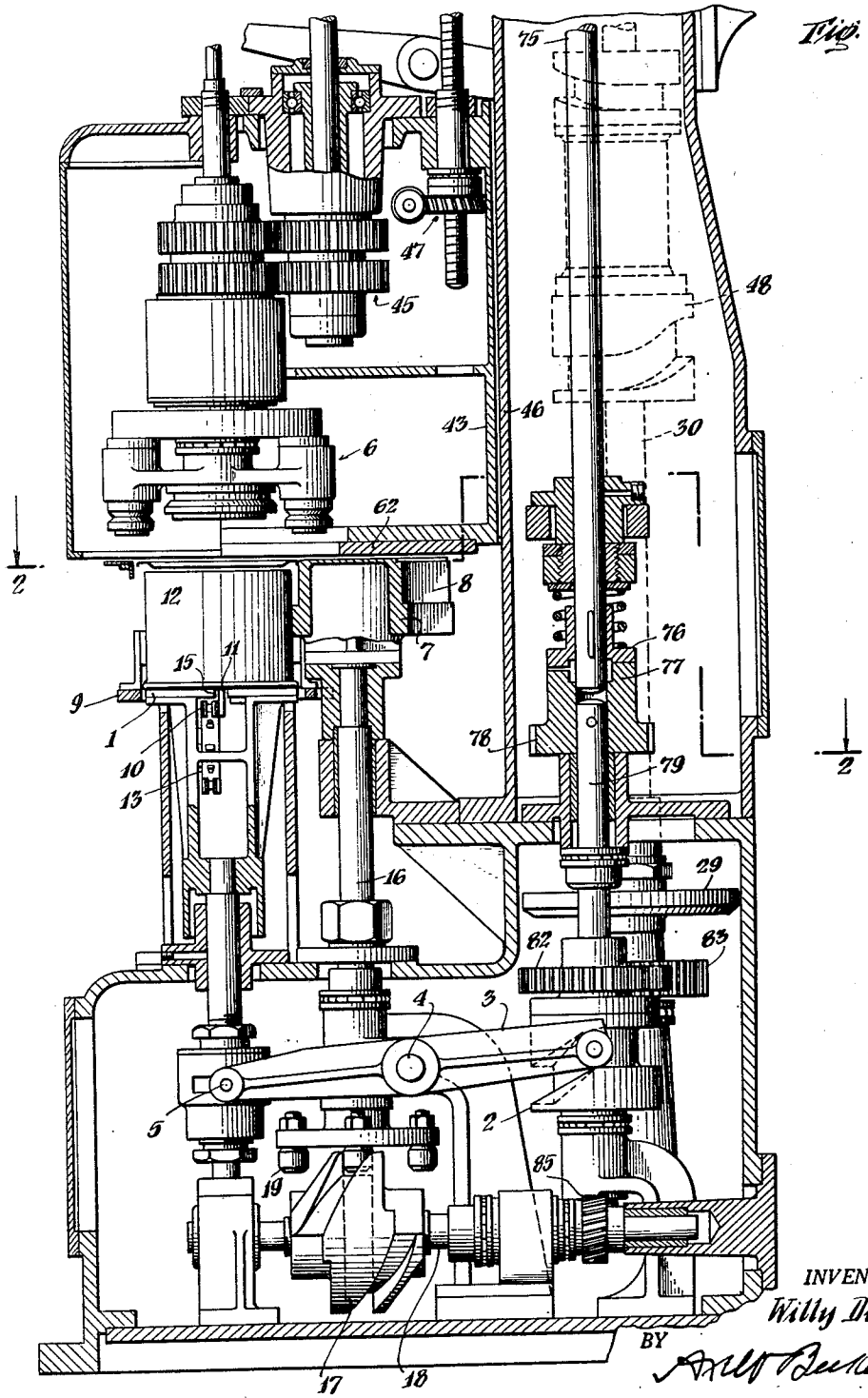
Oct. 16, 1945. W. DIEZEL 2,386,845

COVER FEEDING AND MARKING DEVICE

Filed Oct. 6, 1943 5 Sheets-Sheet 1

Fig. 1



INVENTOR.
Willy Diezel
BY
ATTORNEY

Oct. 16, 1945. W. DIEZEL 2,386,845

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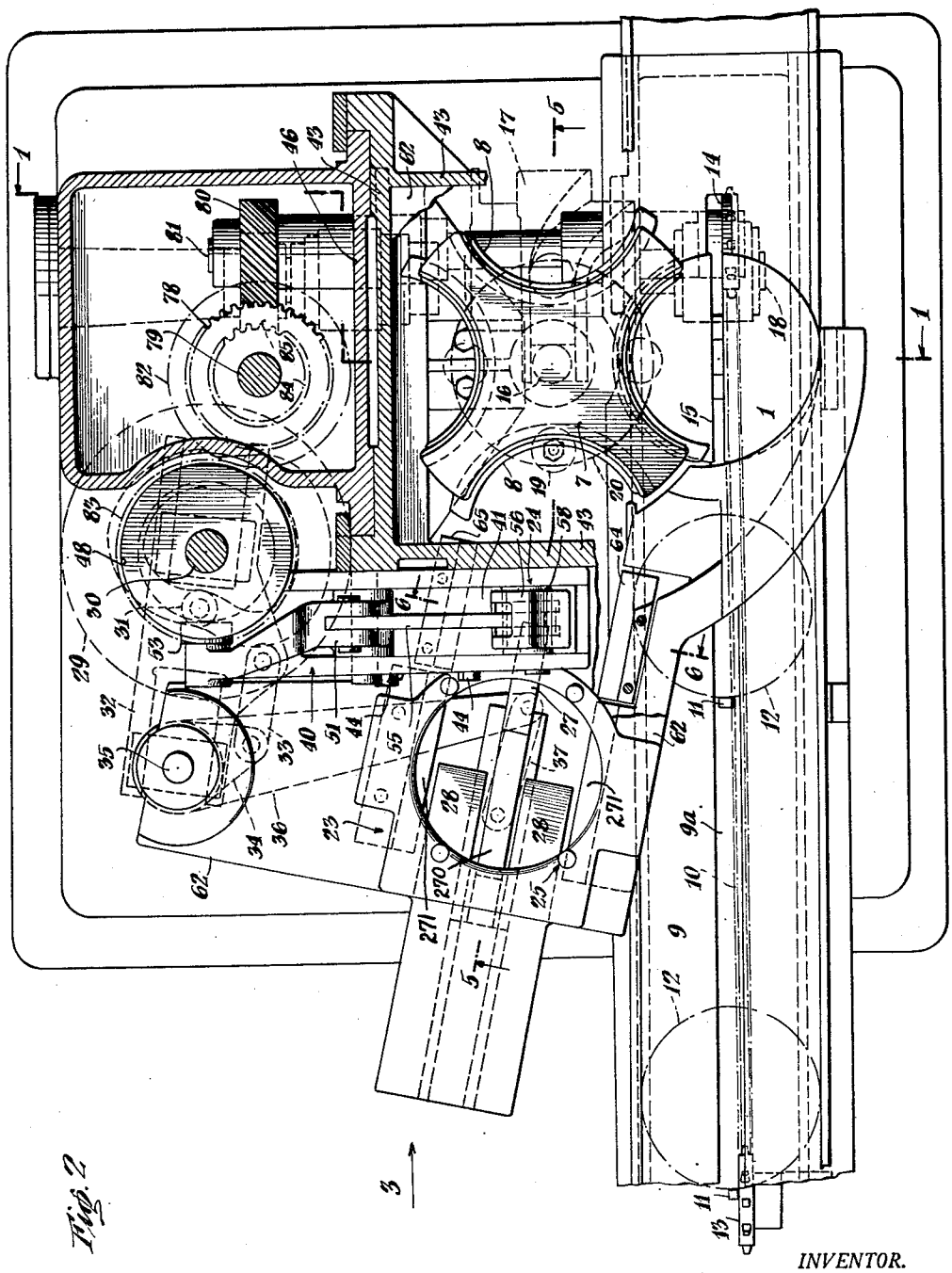


Fig. 2

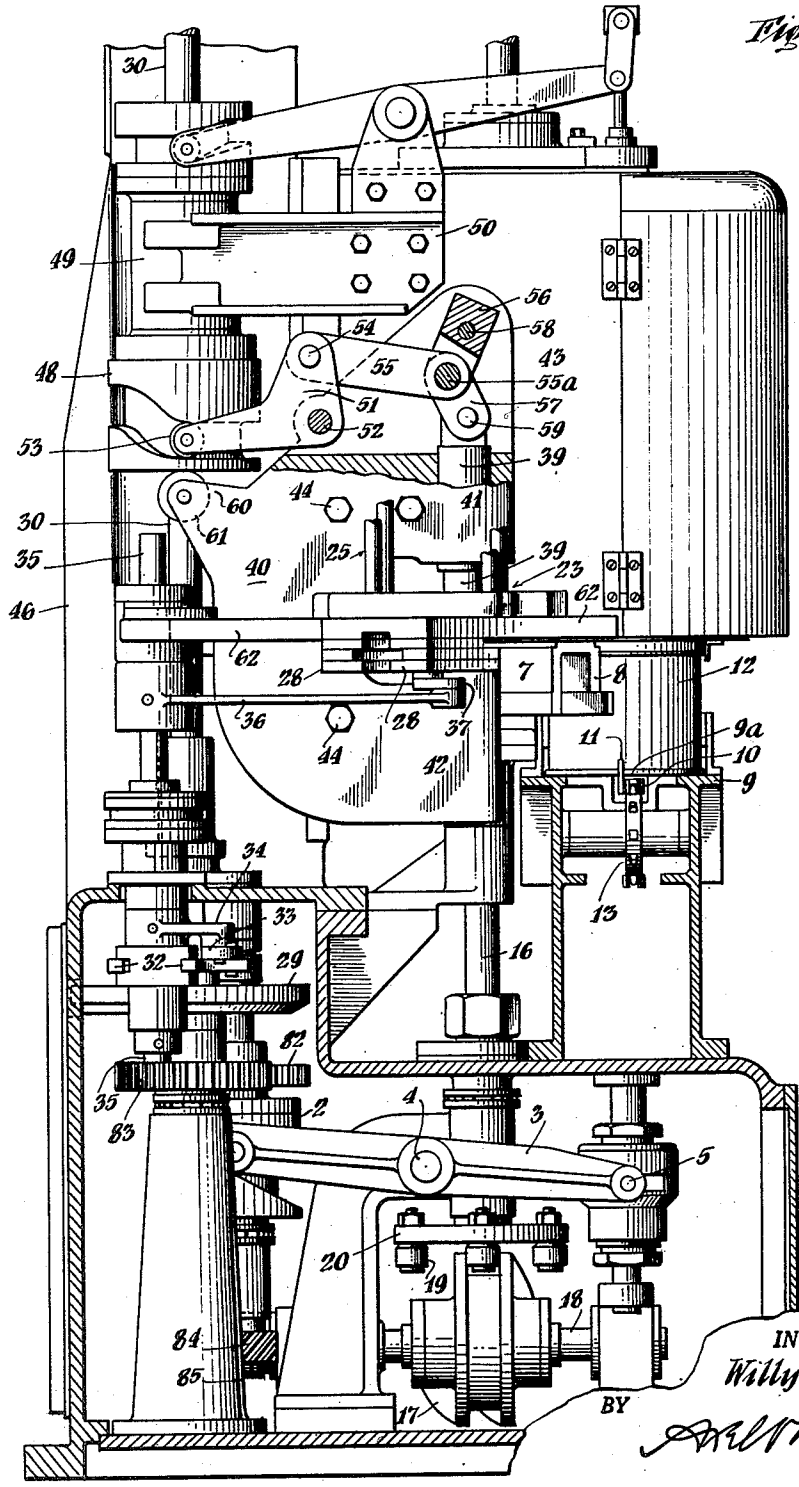
INVENTOR.
Willy Diezel
BY
ATTORNEY

Oct. 16, 1945. W. DIEZEL 2,386,845

COVER FEEDING AND MARKING DEVICE

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Fig. 3



INVENTOR.
Willy Diezel
BY
ATTORNEY

Oct. 16, 1945. W. DIEZEL 2,386,845

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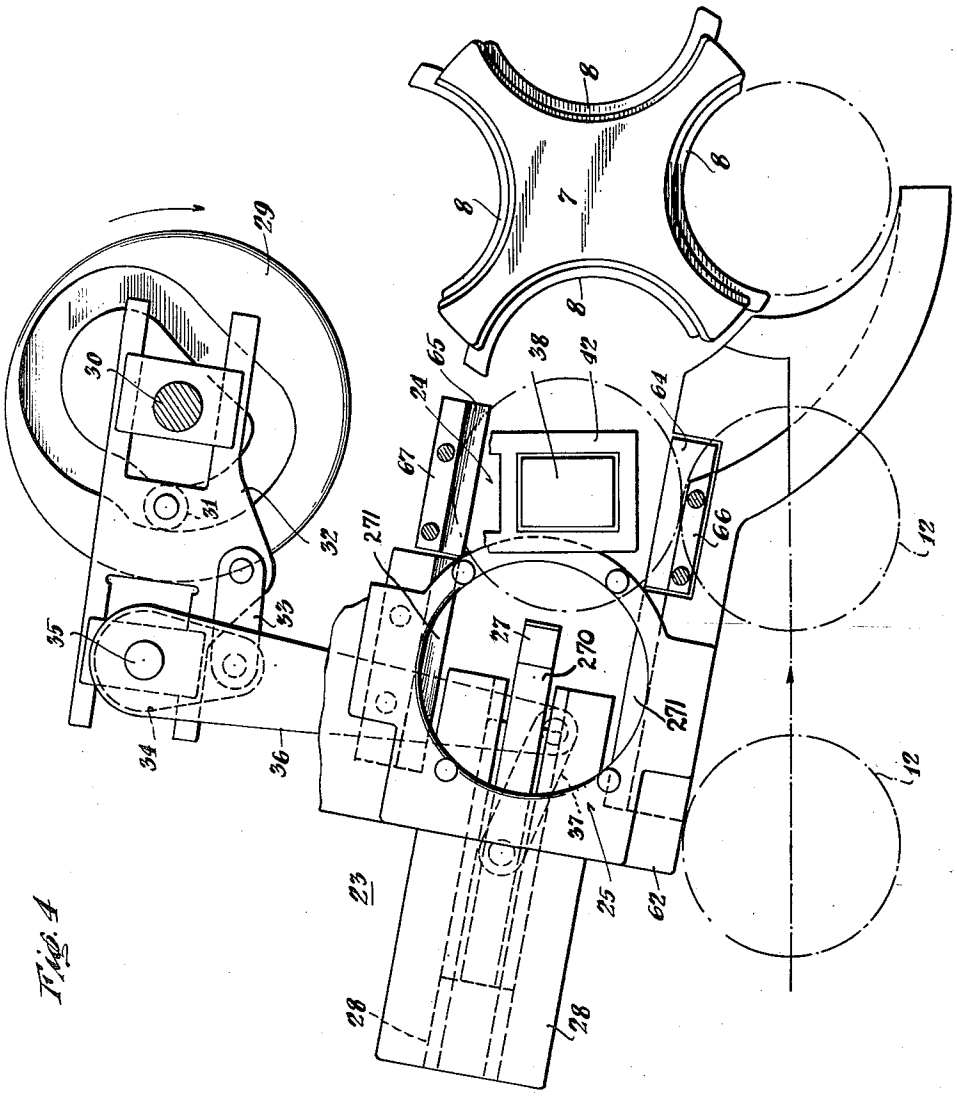


Fig. 4

INVENTOR.
Willy Diezel
BY
ATTORNEY

Oct. 16, 1945. W. DIEZEL 2,386,845

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Fig. 5

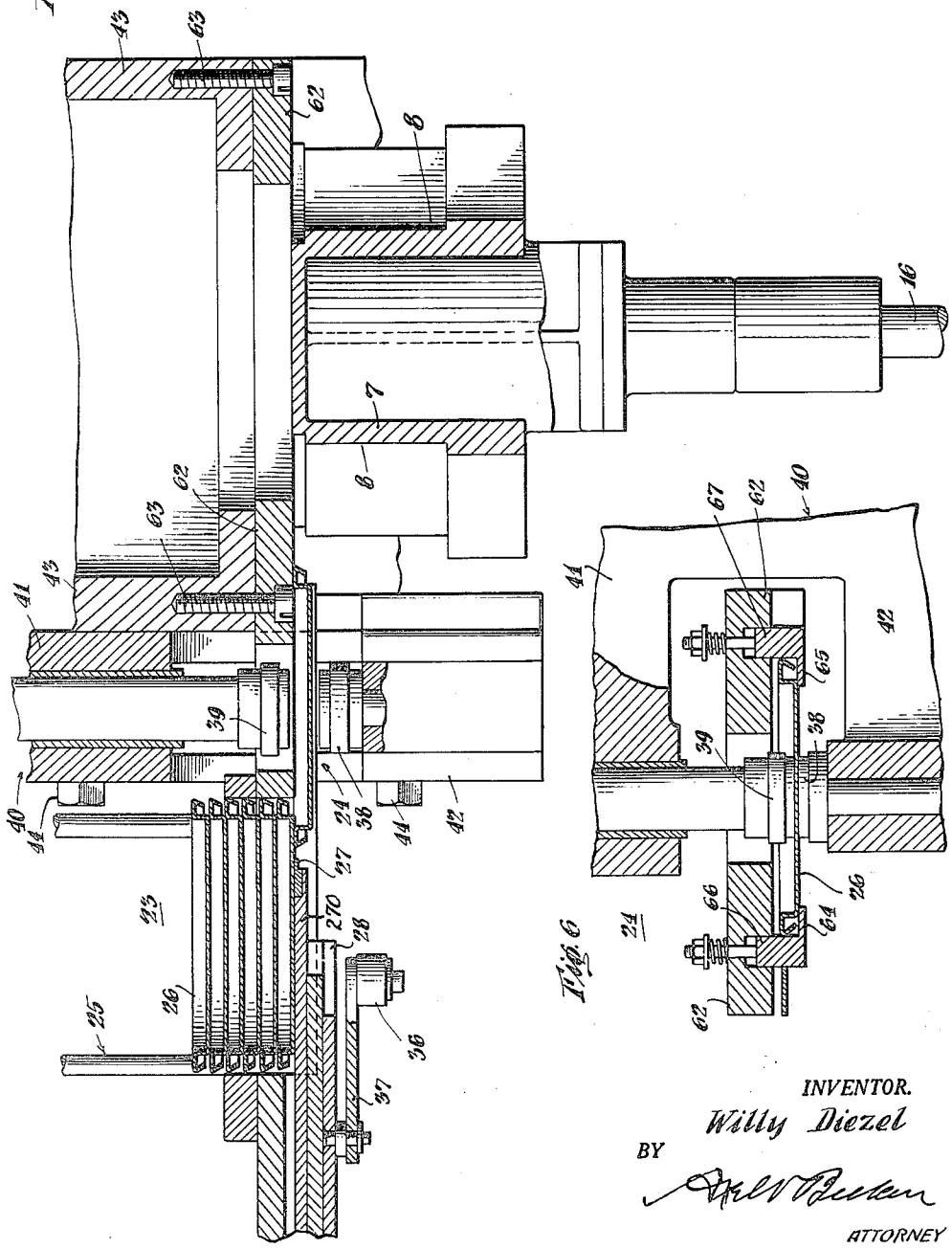


Fig. 6

INVENTOR.
Willy Diezel
BY
Karl V. Beeken
ATTORNEY

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UNITED STATES PATENT OFFICE

2,386,845

COVER FEEDING AND MARKING DEVICE

Willy Diezel, Fairfield, Conn., assignor to The Max Ams Machine Company, Bridgeport, Conn., a corporation of New York

Original application January 16, 1942, Serial No. 426,967. Divided and this application October 6, 1943, Serial No. 505,114.

1 Claim. (Cl. 101—4)

The present invention relates generally to cover-feeding and marking devices such as are used in connection with seaming machines for uniting covers or can-ends to can-bodies. This application is a division of one filed on January 16, 1942, Ser. No. 426,967.

One object and feature of the invention is to provide a marking device for the covers that not only is capable of striking a sufficiently powerful blow to legibly mark the covers, but also one that will do so without jarring the machine unduly.

A further feature of the invention resides in so associating the marking device and cover-feeding means that they can be adjusted together to render the machine capable of handling can-bodies of different heights, and to effect such adjustment in unison with the seaming mechanism.

Fig. 1 is a vertical sectional view of a seaming machine, the section being substantially on the plane of line 1—1 of Fig. 2;

Fig. 2 is a horizontal sectional view substantially on the plane of line 2—2 of Fig. 1;

Fig. 3 is a view in elevation looking in the direction of arrow 3 of Fig. 2, with parts broken away and in section;

Fig. 4 is a more or less diagrammatic plan view of the cover-feeding and marking device;

Fig. 5 is a vertical sectional view substantially on the plane of line 5—5 of Fig. 2; and

Fig. 6 is a vertical sectional view substantially on the plane of line 6—6 of Fig. 2.

1 indicates a platform located at the seaming station of the machine and having means for raising and lowering said platform, consisting here of cam 2 and lever 3 pivoted at 4 and pivotally connected to said platform at 5. The function of this platform is to raise a can-body and a cover into engagement with the seaming mechanism, indicated generally at 6, which seaming mechanism may be of any suitable construction and need not be described in detail. 7 is a turret, intermittently rotatable step by step by means that will be described at a later point. This turret has four pockets 8, each to receive a cover and a can-body. 9 is a can-body support that extends in a straight line to pedestal 1, and 10 indicates a conveyor having pins at 11, extending up through a slot 9a in said support, for pushing can-body 12 over said support and to uninterruptedly transfer said can-body from said support to said pedestal while the latter is in its lower position. Conveyor 10 is trained over sprockets 13 and 14 and it will be seen that said conveyor has unobstructed passage through an opening 15 in the pedestal. The speed of conveyor 10 is uniform and can-body 12, therefore, is not subject to any change in speed in passing from can-support 9 to pedestal 1. Turret 7 is mounted on a rotatable shaft 16 that is intermittently turned 90° by a suitable variable speed mechanism. In the present instance, such speed mechanism consists of cam 17, mounted on shaft 18, with which cam engage four rollers 19, mounted on a disk 20, carried by shaft 16.

23 indicates a cover-feeding device intended to feed the covers singly to a marking device 24 and thereafter to one of the pockets 8 of turret 7, said pocket receiving the covers while the turret is standing still. It is the custom to mark the covers by means of die stamping but, owing to the fact that a rather sharp blow has to be used in order to mark the cover legibly and such sharp blow has a tendency to jar the machine as a whole as well as the cover feeding means, the tendency has been to diminish the impact, with the result that the covers are often illegibly or partially marked. In order to overcome this difficulty, both the cover-feeding mechanism and the marking device supporting and operating means have been individually improved and have also been coordinated in a new manner as will presently appear.

The cover-feeding means or device comprises the usual stack 25 for holding a supply of covers 26 and these covers are removed from the stack and fed forward over stationary ledges 271 by a reciprocatory slide 270 having a feeding dog 27. This slide 270 reciprocates in guides 28 and receives its motion from a cam 29, mounted on shaft 30, with which cam engages a cam roll 31, carried by a slidable yoke 32, pivotally connected by means of a link 33 to an arm 34, carried by rockshaft 35. Rockshaft 35 carries an arm 36, pivotally connected by means of a link 37 to slide 270. Cam 29 is so formed that slide 270 carrying feeding dog 27 is first given a forward movement sufficient to separate a cover from the stack and to feed it into position at the marking station of marking device 24. Said slide 270 is then retracted slightly so as to free dog 27 from engagement with the cover that it has just fed to the marking station and, while said slide 270 is so retracted and dog 27 is out of engagement with the cover, the punch of the marking device descends and strikes a sharp blow on the cover. Slide 270 now moves forward again so as to cause dog 27 to feed the cover from the marking station into pocket 8 of turret 7, and slide 270 is then retracted all the way back to put dog 27 in position to separate and feed the next cover. It will be seen that by this device the sharp impact which the punch of the marking device delivers to the cover will not be transmitted to slide 270 and will thus not tend to disarrange or jar the parts of the cover-feeding device.

Marking device 24, although consisting of the usual anvil 38 and hammer or plunger 39, presents important features of improvement, as will

presently appear. 40 indicates a bracket, having upper and lower jaws 41 and 42 that are spaced apart but connected (Figs. 3 and 6) so as to form a unitary structure, and this bracket 40 is secured to seaming mechanism housing 43 as by means of bolts 44. Housing 43 carries seaming mechanism 6 and its actuating means 45, and is slidably adjustable on framework 46 in a vertical direction by means of a suitable adjusting device conventionally shown and indicated at 47. It has been customary to have the seaming mechanism housing adjustable on the framework and to have the hammer of the marking device adjustable with it, but the anvil in such cases was then carried by the lower framework. The result of such former construction was that a terrific jar was imparted to the elements associated with the lower part of the machine and a tremendous strain was exerted on the cam (such as 48) that actuated the hammer. In order to lessen the strain and jar it was customary to lessen the impact of the hammer as much as possible, with the result that the covers were often only partially, or illegibly, marked. Experience has shown that an impact of the order of fifteen tons to the square inch is necessary to adequately mark the stock of which the cover is made, and such pressure or blow can be made use of with the present construction without deleterious effects, as will now appear (Fig. 3). Cam 48 is carried by a sleeve 49 that is supported on bracket 50 bolted to housing 43. The motion of cam 48 is transmitted to hammer or plunger 39 by means of a bellcrank 51, pivoted at 52 on bracket 40, carrying at one end a cam roll 53 to engage cam 48 and having its other end pivotally connected at 54 to a link 55, which latter in turn is pivotally connected at 55a to toggle links 56 and 57. Toggle 56 is pivotally supported at 58 on bracket 40 and toggle 57 is pivotally connected at 59 to hammer or plunger 39. Bracket 40 is provided with a projection 60 carrying one or more freely rotatable abutment or thrust rollers 61 that engage beneath cam 48. It will be seen from the foregoing that sleeve 49 and therefore cam 48 is adjustable in unison with housing 53 and bracket 40. It will further be seen that, when cam 48 actuates plunger 39 and strikes the cover on anvil 38, the force of the blow is transmitted back through bracket 40 and in an upward direction to thrust roller 61 that bears against cam 48 (that is, in a direction opposite to that of the blow of the hammer) and thereby tends to ease the strain on the same.

Turning now our attention back to the cover-feeding means, it will be seen that stack 25, guides 28 and the other elements of said cover-feeding means are carried by a supporting member or plate 62 slidably adjustable on rockshaft 35 and connected to housing 43 at 63 and, therefore, adjustable with said housing. Adjacent the marking station are two depressible cover supporting ledges 64 and 65 (Figs. 2, 4 and 6) that are supported by spring-pressed plungers 66 and 67 so that they will yield in a downward direction when the hammer strikes the cover. These spring-pressed plungers are seated in plate 62. Lower stationary anvil 38 and upper movable hammer 39, that constitute the marking device, are located intermediate said depressible ledges 64 and 65 and adjacent opposite faces of a cover resting on said depressible ledges (Figs. 2, 4, 5 and 6). On the initial stroke of slide 270, a cover 26 is moved by dog 27 over stationary ledges 271 and onto depressible ledges 64 and 65 in position to be marked by the marking device. Slide 270 is now partially retracted, thereby freeing dog 27 from engagement with cover 26. Hammer 39 descends, marking the cover against stationary anvil 38, the blow on the cover causing depressible ledges 64 and 65 to move downwardly. Slide 270 now advances again, causing dog 27 to remove said cover from its position on said depressible ledges. Finally, slide 270 is completely retracted to bring said dog 27 into position to feed another cover over said stationary ledges 271 and onto said depressible ledges 64 and 65 upon the next advance of slide 270.

The means for actuating the machine are, in the present instance, as follows: Shaft 75 is the instrumentality from which motion is derived for operating the elements with which we are concerned. Shaft 75 has a clutch member 76 (Fig. 1) that engages a corresponding clutch member 77 on gear 78 fast on shaft 79. The clutch is interposed in the connections merely for the purpose of allowing the clutch members to disengage in case an obstruction to the running of the machine occurs. Gear 78 meshes with pinion 80 on shaft 81, which latter carries sprocket wheel 14 that drives chain 10 of the can-body conveyor. Shaft 79 also carries a gear 82 that meshes with and drives gear 83 on shaft 30, thereby operating both cams 48 and 29 and thus actuating the cover-feeding means and the marking device. Shaft 79 further carries cam 2 that actuates the pedestal lifting means, and carries also a gear 84 that meshes with and drives gear 85 on shaft 18, the latter of which carries cam 17, whereby the turret is rotated. It is unnecessary to describe the operating means for the seaming mechanism.

I claim:

In a cover feeding and marking device, stationary cover-supporting ledges to receive covers one by one; depressible, spring-seated cover-supporting ledges to receive a cover from said stationary ledges; a lower stationary anvil and an upper movable hammer, constituting a marking device, located intermediate said depressible ledges and adjacent opposite faces of a cover resting on said depressible ledges; a reciprocatory slide; a feed dog on said slide; actuating means and connections for said slide to first advance said slide to cause said dog to move a cover over said stationary ledges onto said depressible ledges in position between the anvil and hammer, second, to partially retract said slide to free said dog from engagement with the cover on said depressible ledges while the hammer and anvil mark said cover, third, to advance said slide to cause said dog to remove said cover from its position on said depressible ledges, and, fourth, to completely retract said slide to bring said dog into position to feed another cover over said stationary ledges onto said depressible ledges upon the next advance of said slide; and an actuating device and connections to operate the hammer toward and away from the anvil to mark a cover resting on said depressible ledges while said slide is partially retracted and said dog is free from engagement with said cover.

WILLY DIEZEL.