

March 18, 1952

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2,589,673

MAGAZINE STRIPPING MACHINE

Filed June 2, 1949

4 Sheets-Sheet 1

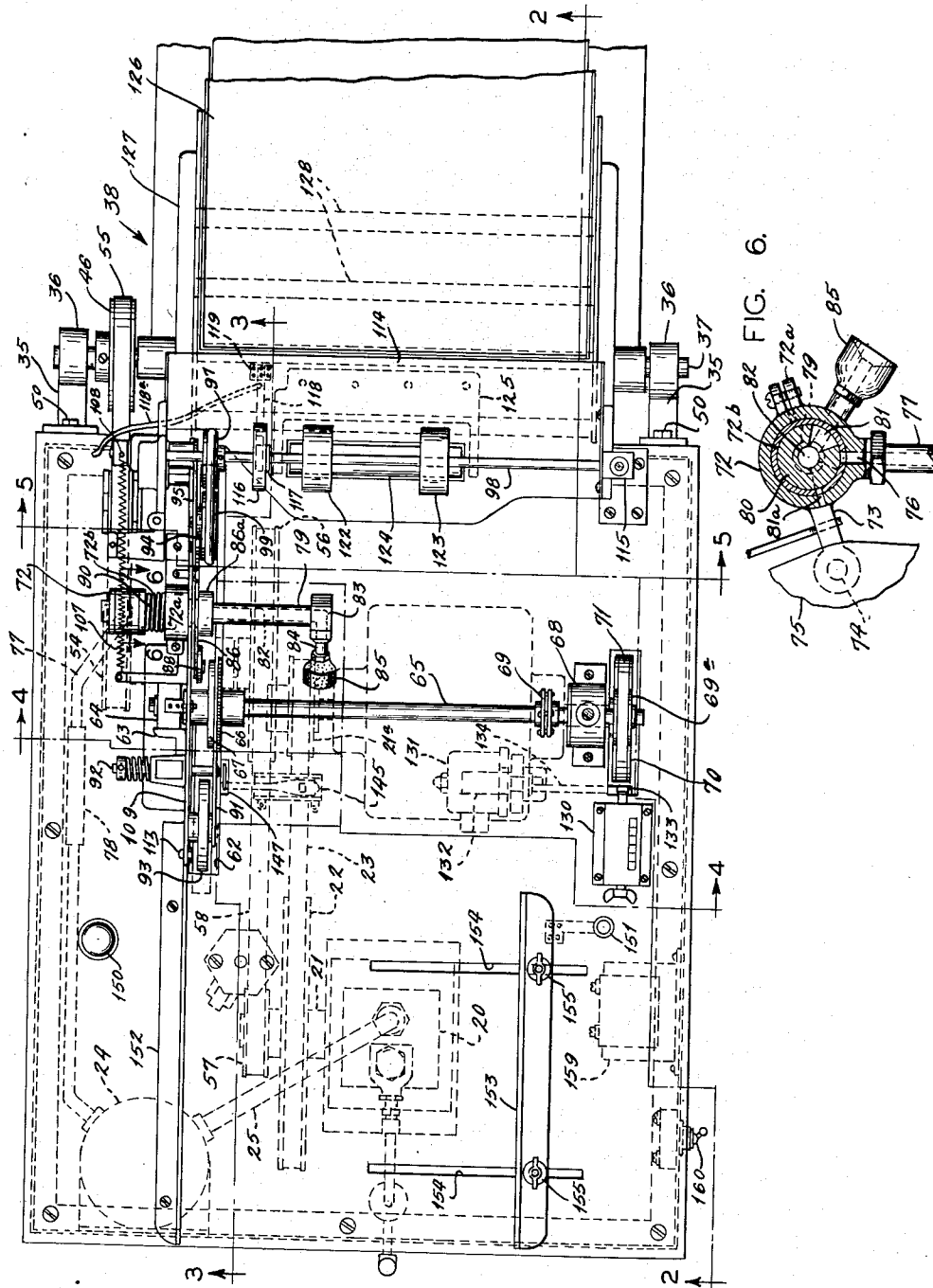


FIG. 1.

FIG. 6.

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4 Sheets-Sheet 2

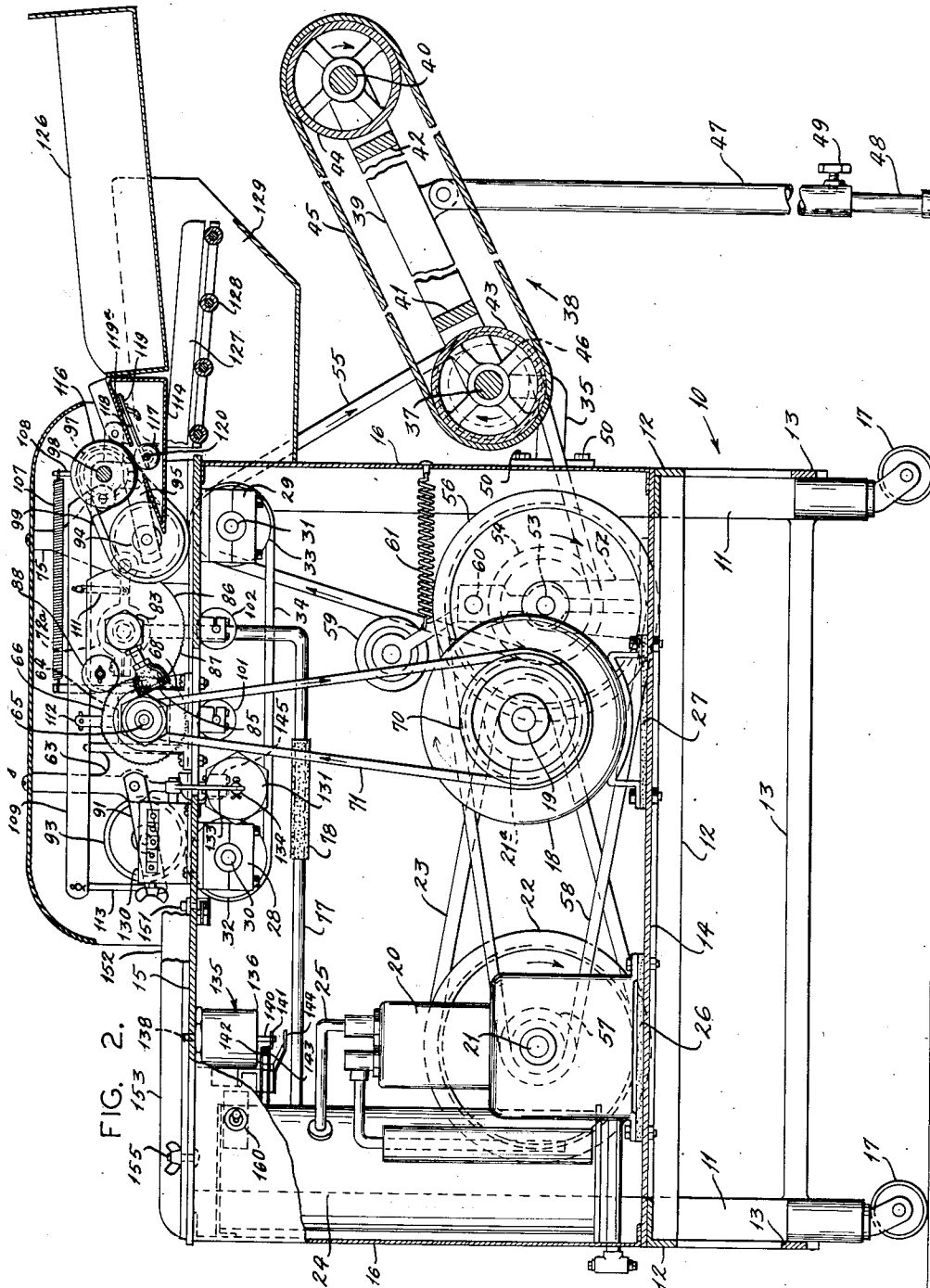


FIG. 2.

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4 Sheets-Sheet 3

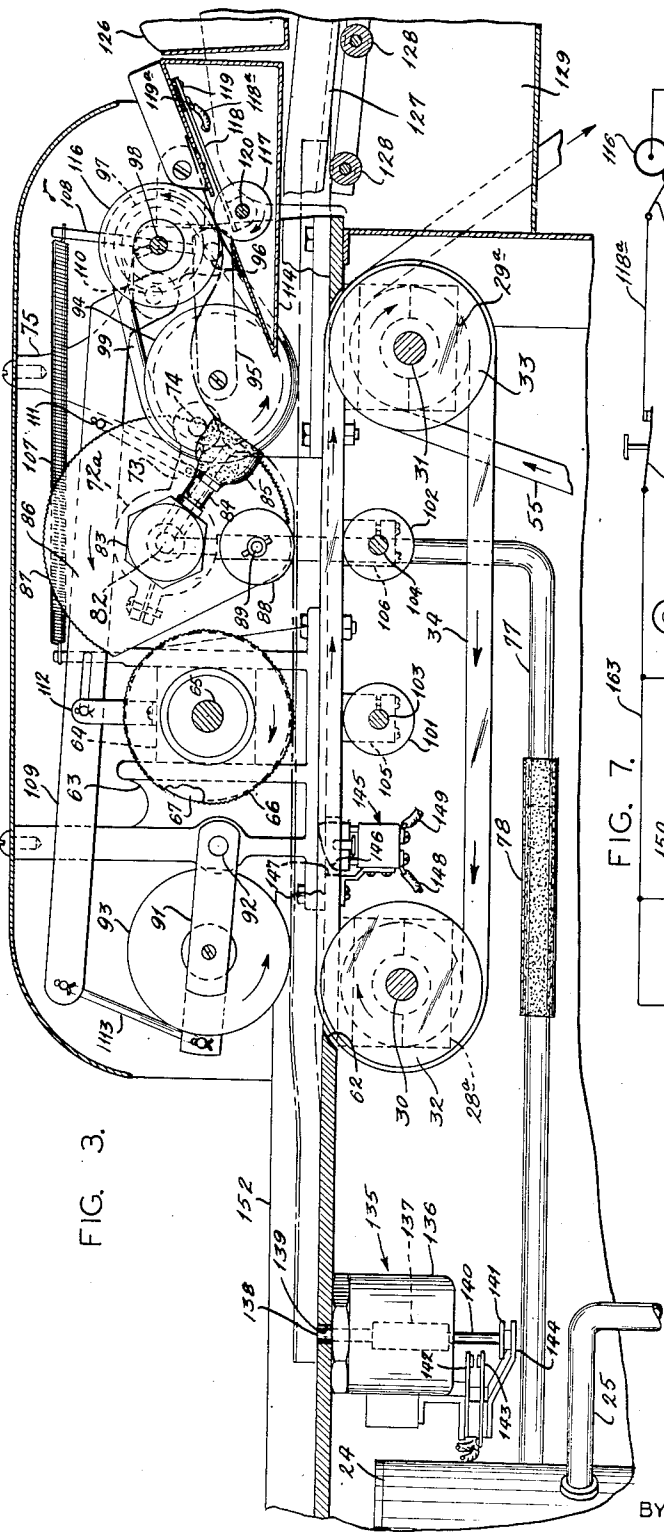


FIG. 3.

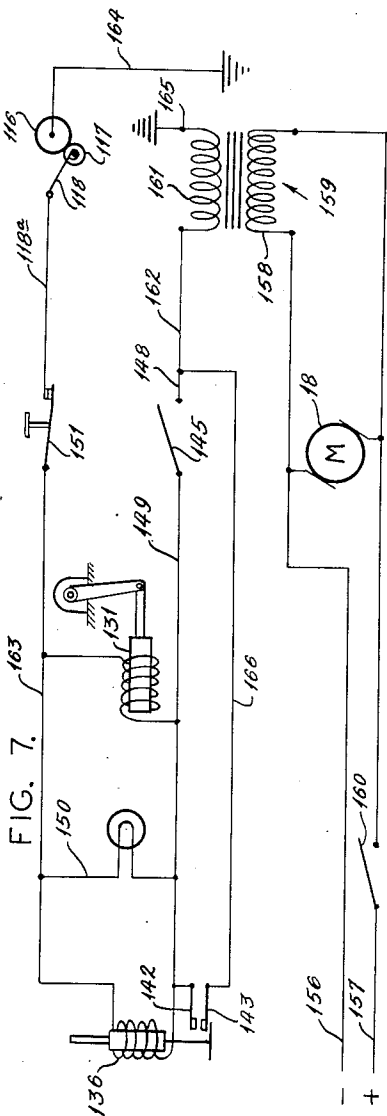


FIG. 7.

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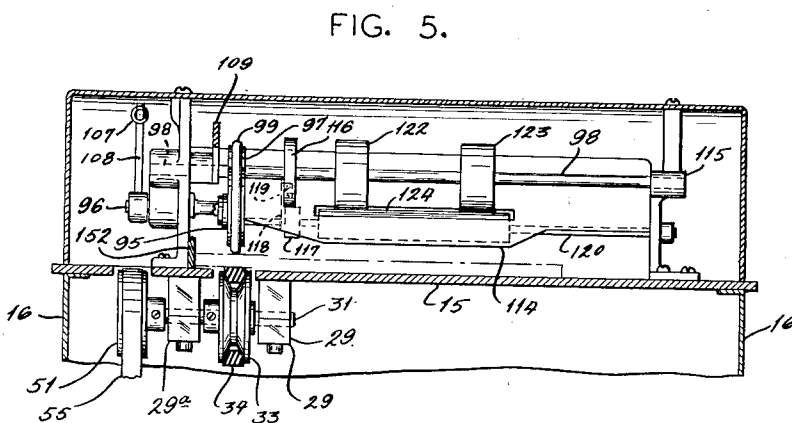
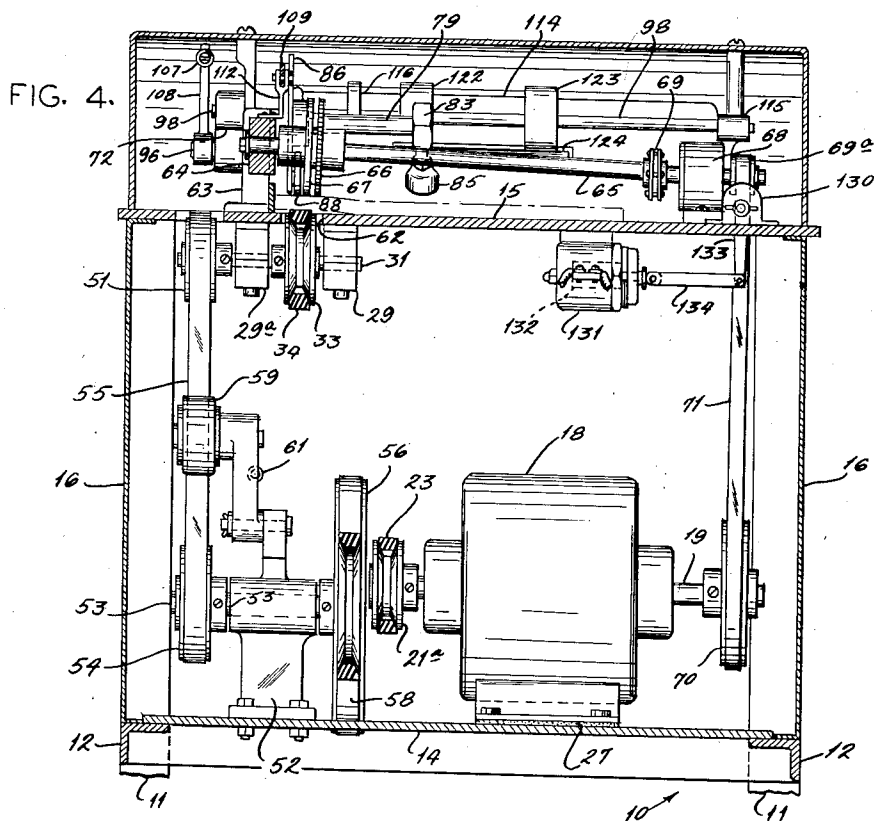
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4 Sheets-Sheet 4



UNITED STATES PATENT OFFICE

2,589,673

MAGAZINE STRIPPING MACHINE

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Application June 2, 1949, Serial No. 96,788

10 Claims. (Cl. 164-61)

1

This invention relates to a machine for detaching a cover or first sheet from magazines or other soft cover periodicals.

A customary business arrangement for the distribution and sale of periodicals usually called magazines includes the crediting of distributors for returned unsold copies. In order to reduce shipping and handling costs it is common practice to return for credit only an identifying portion of the magazine such as, the first sheet or front cover.

In the present invention I have provided a generally new and improved machine for rapidly detaching and separating the front covers or first sheets from soft cover publications and for counting and stacking these detached portions.

Another object of the invention is to provide a machine which functions automatically to detach and separate from a magazine, its front cover, to count and stack such detached covers, and to eject and convey the remainder of the magazine to a desired point.

Another object of the invention is to provide in a machine of this character, an automatically operated stop feed means which acts to interrupt the feed between each magazine successively fed to the machine until the preceding magazine fed thereto has been successfully processed to the point of counting the detached cover.

Another object is to provide a machine of this character which automatically adjusts itself to receive and dependably process magazines of varying thickness.

Another object is to provide in a machine of this character a generally new and improved rotary type vacuum pickup device which is positive and dependable in its action to pick up a single sheet or cover and which is economical and quiet in its operation.

Another object is to provide a machine of this character which is simple in operation, ruggedly constructed, and conveniently movable to the various magazine stock piles.

Further objects and advantages will become apparent upon perusal of the following complete description and upon reference to the accompanying drawings.

Referring to the drawings,

Fig. 1 is a plan view of a magazine stripping machine constructed in accordance with the principles of the present invention;

Fig. 2 is a longitudinal sectional elevation of the machine shown in Fig. 1, the view being taken on line 2—2 of Fig. 1;

Fig. 3 is an enlarged longitudinal sectional

2

view in part and is taken on line 3—3 of Fig. 1; Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 1;

Fig. 5 is a transverse sectional view in part taken on line 5—5 of Fig. 1;

Fig. 6 is an enlarged detail view of the vacuum pick up control valve; and

Fig. 7 is a diagram of the electrical control system for the automatic operation of the machine elements of the machine being indicated thereon by corresponding numerals.

The machine has a frame structure generally indicated at 10 which comprises four upright members or posts 11, four lower horizontal angle members 12, four lower horizontal tie bars 13, a bottom support plate 14, a top plate or platten 15, and four side plates or cover plates 16. The foregoing frame members are suitably connected as by welding. The frame is provided with four swivelled casters 17 suitably mounted on the lower end of the vertical members 11, whereby the machine may be conveniently rolled into suitable positions for feeding from various magazine stock piles.

Supported on the lower plate member 14, is an electric motor 18, having a driving shaft 19, and a vacuum pump 20 having a crank shaft 21. The motor shaft 19 which rotates in a clockwise direction as viewed in Fig. 2 has a pulley 21a keyed thereto, and the vacuum pump shaft 21 has a pulley 22 keyed thereto. The pulley 22 is driven by the pulley 21a through a belt 23. A vacuum reservoir 24 is provided having a conduit connection 25 with the vacuum pump. The reservoir 24 is suitably connected to and supported by the frame members. The vacuum pump 20 and the motor 18 may be insulated from the frame member 14 by suitable resilient pads 26 and 27 in order to reduce vibration and noise.

Mounted on the underside of the platten 15 and at one side thereof are two sets of bearings 28—28a and 29—29a in which are journaled the shafts 30 and 31 respectively of the work conveyor. Mounted on these shafts between their bearings for rotation with the shafts are V-type pulleys 32 and 33 respectively. These pulleys 32 and 33 are fitted with a V-belt 34 which serves as a work conveyor belt. Mounted on the rear or right side of the machine, in Fig. 2, are a pair of brackets 35, which support at their ends a pair of bearings 36 in which is journaled a shaft 37 of the magazine disposal conveyor, generally indicated at 38. The conveyor 38 further comprises a frame having a pair of longitudinal members 39 which are perforated at both ends and

fitted with suitable bearings which receive the shaft 37 at their inner ends and which receive and journal a second conveyor shaft 40 at their outer ends. The frame members 39 are spaced near their inner and outer ends by transverse members 41 and 42 respectively which are rigidly connected thereto as by welding.

The disposal conveyor shafts 37 and 40 are fitted with wide rollers 43 and 44 respectively for rotation therewith and a wide disposal conveyor belt 45 is fitted over these rollers. One end of the shaft 37 has keyed thereto a drive pulley 46, see Fig. 1. It will be apparent that the outer end of the disposal conveyor may be swung up or down about the shaft 37, and a pair of adjustable supports 47, having telescoping portions 48, and set screws 49, are provided to position and support the outer end of the conveyor at the desired elevation. For convenience in shipment or storage the brackets 35 are removably attached to the uprights 11 by suitable screws 50 whereby the entire disposal conveyor assembly may be detached from the machine.

Mounted on the outer end of the work conveyor shaft 31 and keyed thereto, is a drive pulley 51, see Figs. 4 and 5. There is a pedestal bearing 52 mounted on the lower support plate 14 which journals a shaft 53 having keyed thereto a relatively small pulley 54. The work conveyor drive pulley 51 and the disposal conveyor drive pulley 46 are driven by this pulley 54 through a belt 55. Also keyed to the shaft 53 is a relatively large pulley 56 and there is a small pulley 57 keyed to the vacuum pump shaft which drives this pulley 56 through a belt 58. It will be seen therefore that the work conveyor and disposal conveyor are driven by the motor 18 through the vacuum pump shaft 21 and the intermediate shaft 53 which is journaled in the pedestal bearing 51. A spring tensioned idler pulley 59 pivoted at 60 and having a tension spring 61, is provided to suitably tension the V-belt 55.

There is a narrow rectangular opening 62 in the platten 15 extending longitudinally thereof and at one side thereof through which the upper surface of the work conveyor belt 34 projects slightly above the surface of the platten, see Figs. 1 and 3. Slidably mounted for vertical movement in a cast standard 63, which is mounted on the platten 15 and at one side thereof is a bearing 64, in which is journaled one end of a cutter shaft 65. Mounted on shaft 65 for rotation therewith is a circular saw type cutter blade 66 and adjacent thereto and also mounted on shaft 65 for rotation therewith is a disc 67 just slightly smaller in diameter than the cutter blade. Disc 67 positively limits the depth of cut of the blade 66 under all conditions. The cutter blade 66 is mounted so as to just miss the work conveyor belt 34 but is within the rectangular opening 62. The cutter blade shaft 65 extends across the platten and is journaled at its other end near the other side of the platten in a fixed bearing 68 which is mounted on the platten. The cutter shaft 65 consists of two sections connected by a flexible coupling 69 near the bearing 68 which permits the rise and fall of the shaft at the other end together with the cutter blade and the vertically sliding bearing 64. A portion of shaft 65 extends beyond the bearing 68 and has keyed thereto a pulley 69a which is driven by a pulley 70 keyed to the motor shaft 19 through a belt 71.

To the right of the cutter 66, in Figs. 2 and 3, there is positioned a vacuum pick up device.

This device comprises a rotary valve housing 72, see Fig. 1, and a split bearing 72a which is carried on the outer end of a pivoted arm 73. The arm 73 is pivotally mounted on a pivot 74 which is supported in a cast support standard 75. There is a sleeve or liner 72b which is rigidly clamped in the split bearing 72a and which extends into the valve housing 72. The sleeve 72b is also tightly pressed into the valve housing 72. The bearing 72a and valve housing 72 are thereby rigidly connected. The valve housing 72 has a port 76, see Fig. 6, which communicates with the vacuum reservoir 24 through a conduit 77. The conduit 77 has at least a portion of its length which is flexible as indicated at 78, so as to permit the valve housing 72 to swing up and down with the pivoted arm 73. The vacuum pick up device further includes a hollow shaft 79 which has an enlarged cylindrical portion 80 at one end fitted into the sleeve 72b within the valve housing 72, as indicated in Fig. 6. The enlarged cylindrical portion 80 forms a rotary valve and is provided with a radial port 81 which, when the valve is in certain positions establishes communication between the port 76 and a passage 82 extending longitudinally of the shaft 79. When the valve is in another position the port 81 closes off communication between port 76 and passage 82 and vents the passage 82 by establishing communication with a vent shown at 81a.

Mounted on the other end of the shaft 79 and perpendicular thereto by means of an end fitting 83 and a short nipple 84, is a soft rubber bell shaped pick up cup 85. The cup 85 is in communication with the passage 82 as indicated and is arranged to oscillate with its open end engaging the upper surface of a magazine as it approaches the bottom of its arc of travel. Near the inner journaled end of the shaft 79 there is mounted thereon for rotation therewith a drive disc 86 having a portion of its periphery serrated or toothed as indicated at 87, and having an idler wheel 88 mounted on a shaft 89 supported thereby. The disc 86 is secured to a flange 86a which is suitably fixed on the shaft 79. The drive disc 86 is adapted to be engaged by the upper surface of a magazine as it is being conveyed by the work conveyor and is rotated thereby in a counterclockwise direction. A spring 90, see Fig. 1, normally urges the drive disc and shaft 79 in a clockwise direction.

Toward the front or left side of the machine, Figs. 2 and 3, there is a hold down roller 93, mounted for rotation on the free end of an arm 91 which arm is pivotally mounted at 92 on the cast standard 63. The roller 93 is arranged substantially opposite to the work conveyor pulley 32 and normally rests on the work conveyor belt 34. Toward the rear of the machine there is a pulley 94, rotatably mounted on the end of one leg of a bell crank 95 which bell crank is pivotally mounted at 96 in the bracket 75. Adjacent to the pulley 94 there is a pulley 97 mounted for rotation with a shaft 98 which has one end journaled in the bracket 75. The pulleys 94 and 97 are connected by a belt 99. The belt 99 is arranged to contact the upper surface of a magazine as indicated in Fig. 3, whereby it is driven by the conveyed magazine and in turn drives the pulleys 94 and 97 and the shaft 98 in a direction as indicated by arrows. There is a pair of backing rollers 101 and 102 arranged opposite and below the cutter wheel 66 and the vacuum pick up drive disc at 86 respectively. Backing rollers 101 and 102 are mounted for rotation on shafts

103 and 104 respectively which in turn are journaled in bearings 105 and 106 respectively which are suitably attached to the under side of platten 15.

The pulley 94 and consequently the belt 99 are urged resiliently against the upper surfaces of a magazine by a spring 107 which has one end connected to the bracket 63 and its other end connected to the other leg 108 of the bell crank. There is an arm 109 pivoted at 110 in the rear bracket 75 which extends toward the front of the machine to a free end and which has connected thereto by links 111, 112 and 113, the vacuum pick up arm 73, the vertical sliding bearing 64, and the pivoted hold down roller 93, respectively. These elements therefore are raised and lowered together for a reason to be explained hereinafter.

To the right of the pick up device, is arranged a triangular shaped deflector or separator 114 which extends substantially the width of the platten and has its leading edge forward so as to separate the detached magazine cover from the magazine as it is lifted therefrom by the pick up cup 85. The shaft, 98 extends across the platten and is journaled at its other end in a bearing 115, see Fig. 1, which is mounted on the platten. Mounted on the shaft 98 for rotation therewith is a contact roller 116 and immediately below and in contact with roller 116 is a smaller companion contact roller 117 which is held resiliently against the roller 116 by a resilient blade 118 which is attached to the deflector 114 at 119 and which carries a shaft 120 on which the roller 117 is mounted. The resilient blade 118 is insulated from the deflector 114 as indicated at 119a. The contact rollers 116 and 117 function as an automatic release switch and are adapted to be parted thereby to break a circuit at that point by the detached magazine cover as it passes between these rollers. The contact roller 116 is grounded to the machine and the contact roller 117 is connected to the control circuit to be hereinafter described via the blade 118 and a lead 118a, see Fig. 1.

There is also mounted on the shaft 98 for rotation therewith at approximately its center, a pair of rollers 122 and 123 which are opposed by a wide roller 124 arranged immediately beneath, see Fig. 1. The lower roller 124 is mounted in a manner similar to that in which the contact roller 117 is mounted, that is, on a shaft which is carried by a resilient blade 125 attached to the deflector 114 and which constantly urges the lower roller 124 upward against the rollers 122 and 123. To the rear of the deflector 114 there is a collector box 126 for receiving the detached magazine covers. There is also an apron 127 provided with rollers 128 for carrying the remainder of the magazine beyond the machine to a point where it will fall upon the disposal conveyor belt. The collector box and apron are supported by side brackets 129.

The machine is provided with a conventional industrial counting device indicated at 130, of the type employing a pawl and ratchet and having a shaft which is required to be rotated first in one direction a certain amount and then must be permitted to return oppositely a substantially equal amount for each unit registered. For the actuation of this counting device there is provided a solenoid 131 having a plunger 132 which is connected to an arm 133 of the counter by a link 134. Upon energization the solenoid actuates the counter arm in one direction to register a unit and upon de-energization the counter

is permitted to return, thereby to be in condition to register again upon subsequent energization of the solenoid.

There is also provided a stop feed device located toward the front of the machine and at one side thereof which is generally indicated at 135. The stop feed device comprises a solenoid 136 having a plunger 137. The plunger has a coaxial stop pin 138 extending from its upper end. There is an aperture 139 in the platten 15 through which the pin 138 may be projected upward above the surface of the platten. The plunger 137 is also provided with a downward coaxial extension 140 having a flange 141 on the end thereof. There is a pair of normally open switch contacts 142 and 143 adjacent the projection 140 which are adapted to be engaged and moved to a closed position by the flange 141 as the solenoid plunger is moved upward. When solenoid 136 is energized the plunger 137 moves upward causing the pin 138 to project above the surface of the platten thereby to interrupt the feeding of magazines to the machine. Also the contacts 142 and 143 are closed upon energization of the solenoid. In a de-energized position the solenoid plunger rests on the stop 144 as indicated in Fig. 3.

Rearwardly of the stop feed device there is arranged a counter switch generally indicated at 145, having an actuating blade 146 normally projecting above the surface of the platten through an aperture 147, and which is arranged to be engaged by a magazine to depress it and actuate the switch. The switch 145 is normally in open circuit position and is connected by leads 148 and 149 to the control circuit to be described. There is an indicator light 150 and a normally closed hand operated release switch 151 indicated in Fig. 1 which are connected in the control circuit in a manner and for a purpose to be described. There is a feeding guide bar 152 attached to the top of the platten and extending rearwardly from the front edge thereof. A second adjustable guide bar 153 is provided which may be adjustably positioned transversely of the platten to accommodate magazines of different width by reason of the provision of transverse slots 154 in the platten in which the locking bolts 155 may slide.

Referring to Fig. 7 in which the control circuit is diagrammatically shown, there is a line voltage circuit comprising the leads 156 and 157 in which the motor 18 and the primary winding 158 of a step down transformer generally indicated at 159 are connected in parallel. There is also a master control switch 160 interposed in the lead 157. The leads 156 and 157 are connected to a source of electrical energy such as commercial lines, not shown.

There is also indicated a low voltage circuit which includes the secondary winding 161 of the transformer 159, a lead 162, the lead 148, the counter switch 145, the lead 149, the stop feed solenoid winding 136, a lead 163, the hand release switch 151, the lead 118a, the automatic release switch which comprises the blade 118 and contact rollers 116 and 117, and the lead 164 to ground. The other side of the transformer secondary winding 161 is also grounded commonly to the machine by a lead 165. Parallel connected across the leads 149 and 163 are the counter actuating solenoid winding 131 and the indicator light 150. There is a normally open shunt 166 around the counter switch 145 which is closed upon energization of the solenoid 136 which acts to close the contacts 142 and 143 as hereinbefore described, thereby to provide a holding circuit

irrespective of the operative position of counter switch 145.

Operation

To start operation of the machine the master switch 160 is closed, energizing the motor 18 which drives the vacuum pump 20, the cutter blade 66, the work conveyor and the disposal conveyor. The circuit for the transformer primary winding 158 is also completed making available a source of energy for the low voltage circuit. A magazine to be processed is placed on the front portion of the platten between the guide rails 152 and 153 with its bound edge against the guide rail 152. The magazine is then moved rearward until it abuts the roller 93 which it raises sufficiently to pass thereunder, see Fig. 3. In Figs. 3, 4 and 5 the elements of the machine are shown in a raised position as they will be when a magazine is being processed. The fore part of the magazine is then resting on the work conveyor belt 34 which conveys it rearwardly. Upon passing under the roller 93 the magazine immediately thereafter engages with its lower surface the blade 146 of the counter switch 145, causing this switch to close completing the low voltage circuit.

The counter actuating solenoid 131 upon energization actuates the counter 130 in one direction. The stop feed solenoid is also energized. The stop feed pin 138 will however be momentarily prevented from raising until the magazine has passed rearwardly sufficiently to permit the plunger 137 to rise. When this does occur however the plunger 137 will rise interposing the stop pin 138 in the path of a succeeding magazine and the switch contacts 142 and 143 will be closed to complete a shunt around the counter switch 145. The magazine after passing over the counter switch 145, next passes under the cutter wheel 66, which due to the relation of the sizes of the pulleys 70 and 69a travels at a high speed and in a direction as indicated by arrows.

The cutter wheel 66 is spaced a slight distance transversely from the guide rail 152 so that the top cover or sheet will be cut along a line close to its bound edge. The disc 67 mounted alongside of the cutter wheel 66 and which is just slightly smaller in diameter than the cutter wheel limits the depth of cut so that the magazine cover and one or two top sheets only are detached. The magazine as it continues rearwardly next passes under the drive disc 86 of the vacuum pick up device. In Fig. 3, the disc 86 is shown rotated counterclockwise to its limit in which position it will be moved after a sufficient amount of the magazine has passed under it. The position which it normally assumes, however, due to the return spring 90 is indicated in Fig. 2.

As the magazine passes under the disc 86 its upper surface is engaged by the serrated periphery of the disc which causes the disc to be rotated counterclockwise. As this occurs the bell shaped soft rubber pick up cup is swung into engagement with the top cover or sheet of the magazine and is strongly held thereto by vacuum. As the magazine continues to move rearward the top cover or sheet is lifted therefrom as the cup 85 swings upward in its arc, and at the point shown in Fig. 3 the cover or top sheet is released due to the vacuum being cut off as indicated in Fig. 6 and the fore end of the cover or sheet is dropped on the upper inclined surface of the deflector 114. It will be understood that the top sheet or cover is only partially detached along its bound edge at this point and

as the magazine continues rearward the top cover is entered between the revolving rollers 116, 122, 123 and the lower tensioned idler rollers 117 and 124. As the drive disc 86 and the pick up cup 85 are rotated to the position shown, the idler wheel 88 contacts the upper surface of the magazine and the drive disc 86 therefore is not rotated any further in a counterclockwise direction. As soon as the entire magazine has passed under the disc 86 it will immediately return clockwise to the position shown in Fig. 2 in which the valve port 81 assumes the position shown dotted in Fig. 6 and in which position communication between the vacuum reservoir 24 and the pick up cup 85 is again cut off.

As the top cover or sheet passes between the rollers 116 and 117 which are the contacts of the automatic release switch, the low voltage circuit is broken at this point permitting the stop feed plunger 138 to drop below the surface of the platten and permitting the counter to be returned to condition for registering the next unit. The velocity of the rollers 116, 122 and 123 is such that the covers after they are completely detached are carried over the deflector and deposited and neatly stacked in the collector box 126. The remainder of the magazine continues rearward passing under the pulley 94 from where it is pushed out on the rollers of the inclined apron 127 and thence falls on the disposal conveyor belt 38 to be carried to a suitable elevation for deposit on a stock pile or in any suitable containers.

The purpose of the stop feed mechanism and the holding shunt around the counter switch is to insure a break between the magazines fed to the machine so as to permit the complete cycle of the counter to take place and to permit the pick up device to return. Also in the event a magazine is fed to the machine having a folded or mutilated cover or top sheet which will not pass through the contact rollers 116 and 117, feeding is stopped until such magazine cover is removed. In such instances the counter and stop feed mechanism may be released by the hand release switch 151. In normal operation the indicator light 150 will light up as the magazine is fed in and closes the counter switch 145 and will go out when the cover passes through the contact rollers 116 and 117 thus continuously signalling the operator that the machine is functioning properly and that the detached covers are being properly counted.

It will be noted, as a magazine is fed between the hold down roller 93 and the work conveyor belt that the arm 109 will be raised at its outer end and that the vertically sliding bearing 64 which carries the cutter blade and shaft and the pick up device will also be raised just slightly less than the thickness of the magazine being fed due to the lever arm lengths. This arrangement provides for the slight pressure desired between the surface of the magazine and the cutter wheel and drive disc due to the weight of these interconnected parts which results in smooth operation and avoids the abrupt jarring action which would otherwise occur if a relatively thick magazine being processed were to raise the cutter wheel and drive disc separately. It will be obvious that magazines of wide variation in thickness may be processed due to this arrangement.

The foregoing description is intended to be illustrative, not limiting, the scope of the invention being set forth in the appended claims.

I claim:

1. In a magazine stripping machine, a horizontal platen having a front and rear portion, a slitting blade mounted above said platen and arranged to cut the top cover of a magazine on said platen as it is moved thereunder, conveyor means for moving a magazine rearward on said platen, guide means for guiding a magazine under said blade such wise that its top cover is slit parallel with and adjacent its bound edge, a vacuum pick up device rearward of said slitting blade having a suction contact element pivotally supported above said platen and arranged to swing across the surface of said platen in an arc parallel to the direction of travel of said conveyor, whereby the upper surface of a magazine on said platen will be contacted thereby at the low point of its arc and whereby the detached magazine cover portion will be lifted from the remainder of the magazine as said contact element swings upward, and a V-shaped deflector positioned rearward of said vacuum pick up device and having its leading edge forward for separating the detached cover from the remainder of the magazine.

2. In a magazine stripping machine in combination, a slitting blade, guide and conveyor means for feeding a magazine past said slitting blade such wise that one cover thereof is slit along its bound edge, a vacuum pick up device positioned adjacent said blade having a pivoted contacting element adapted to swing into engagement with the detached magazine cover and then away, thereby to separate the detached cover from the magazine, a deflector positioned adjacent said pick up device and arranged to deflect the detached cover, and means adapted to be engaged by the conveyed magazine for oscillating said contact element in one direction, and spring means for returning said contact element.

3. In a magazine stripping machine, a substantially horizontal platen having a forward and rear edge, a rotary slitting cutter mounted above said platen and adapted to slit the top cover of a magazine when the magazine is placed on said platen and passed under said cutter, said cutter being slidably mounted for vertical adjustment, means normally urging said cutter in a downward direction, a stop member movable with said cutter and arranged to bear on the surface of a magazine closely adjacent the cutting edge of said cutter for accurately gauging the depth of cut, and means positioned forward of said cutter and engaged by a magazine as it is fed rearward toward said cutter for raising said cutter and said stop member to a height above said platen which is slightly less than the thickness of the magazine being fed.

4. In a magazine stripping machine, a substantially horizontal platen having a forward and rear edge, a rotary slitting cutter mounted above said platen, a shaft for said cutter, a journal for said shaft, said journal being slidably mounted for vertical movement and being normally in its lowermost position due to gravity, a roller forward of said cutter, said roller being carried on the free end of a horizontal pivoted arm and normally resting on the surface of said platen, a horizontal lever pivoted at a point rearwardly of said cutter and having a connection with the free end of said arm and with said vertically sliding journal whereby said cutter will be raised an amount less than the thickness of

a magazine as the magazine is fed rearwardly under said roller.

5. In a magazine stripping machine in combination, a slitting blade, guide and conveyor means for feeding a magazine past said slitting blade such wise that one cover thereof is slit along its bound edge, a vacuum pick up device positioned adjacent said blade having a pivoted contact element adapted to swing into engagement with the detached magazine cover and then away so as to separate it from the magazine, deflector means adjacent said pick up device for deflecting a detached magazine cover, a source of suction, communicating means between said contact element and said source of suction, valve means for controlling said communicating means, means adapted to be engaged by a conveyed magazine for oscillating said contact element and for moving said valve means in one direction, and spring means for returning said contact element and valve means in an opposite direction, said valve means being operative to establish communication between said source of vacuum and said contact element when in an intermediate position and operative to cut off communication therebetween as it approaches both extreme positions.

6. In a machine of the class described, a platen, a horizontal endless conveyor belt having a pair of end pulleys mounted below said platen and having its upper length projecting through an elongated slot in said platen so that the upper surface thereof is slightly above the surface of said platen, means for driving said conveyor, a guide rail parallel with said conveyor belt, a rotary slitting cutter mounted above said conveyor belt and adjacent said guide rail for slitting the top cover of a magazine along its bound edge when said magazine is placed on said conveyor with its bound edge against said guide rail, an oscillating pick up device pivotally mounted above said conveyor belt for lifting the detached cover from said magazine, a deflector adjacent said pick up device having an inclined surface diverging upwardly from said conveyor, a pair of meeting rollers for conveying the detached magazine cover upwardly along the inclined surface of said deflector, and means having frictional engagement with said conveyor belt for driving said rollers.

7. In a magazine stripping machine, a frame structure, a table on said structure, means for conveying a magazine placed flatly thereon across said table and beyond one edge thereof, cutting means mounted above said table and arranged to slit the top cover of a magazine along its bound edge as it is conveyed thereby, means mounted above said table and adjacent said cutter having a suction contact element arranged to engage a detached magazine cover and to lift it therefrom as a magazine is conveyed thereby, receptacle means for receiving detached magazine covers, a second conveyor arranged to receive stripped magazines as they drop from said table and for conveying them to a remote point, a vacuum pumping device supported in said frame and a prime mover supported in said frame for driving both of said conveyors and said vacuum pump.

8. In a magazine stripping machine, a platen, means for conveying a magazine across said platen, a magazine guide rail extending across said platen, a slitting blade mounted for vertical adjustment above said platen and adjacent said guide rail whereby the top cover of a magazine is slit along its bound edge when the bound edge

11

of a magazine is placed against said guide rail, a rotary vacuum pick up device mounted for vertical adjustment above said platen and immediately posterior to said slitting blade whereby the detached upper magazine cover will be lifted from the magazine as the pick up device rotates away from the magazine surface, and a deflector member posterior to said pick up device for deflecting the detached magazine cover, said deflector having a surface diverging upward from said platen and having a forward leading edge immediately posterior to said pick up device and spaced above said platen sufficiently to permit the remainder of the magazine to pass thereunder.

9. In a machine of the kind described, a horizontal belt conveyor, means for driving said conveyor, a guide rail parallel with said conveyor, a slitting cutter mounted for vertical adjustment above said conveyor and adjacent said guide rail whereby the top cover of a magazine is slit along its bound edge when placed on said conveyor with its bound edge against said guide rail, a rotary vacuum pick up device mounted for vertical adjustment above said conveyor and posterior to said slitting cutter for lifting the detached magazine cover, a deflector posterior to said pick up device having a surface diverging upwardly from said conveyor and having a leading edge immediately posterior to said pick up device and spaced sufficiently above said conveyor to permit

12

passing of the remainder of the magazine thereunder.

10. In a machine of the kind described, a horizontal conveyor, means for driving said conveyor, a vertically movable slitting cutter mounted above said conveyor, a vertically movable rotary vacuum pick up device mounted above said conveyor and posterior to said slitting cutter, and a vertically movable lifting roller mounted above said conveyor and anterior to said slitting cutter, said lifting roller, said slitting cutter and said rotary vacuum pick up device being connected so as to move vertically together and being normally biased in their lowermost positions, whereby said slitting cutter and said pick up device are lifted above the conveyor an amount proportionate to the thickness of the magazine as a magazine is fed between said lifting roller and said conveyor.

CLIFTON A. COBB.

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