Oct. 4, 1949. E. F. NOELL 2,483,735

MACHINE FOR DIE-CUTTING PAPER

Filed Feb. 15, 1947

4 Sheets-Sheet 1

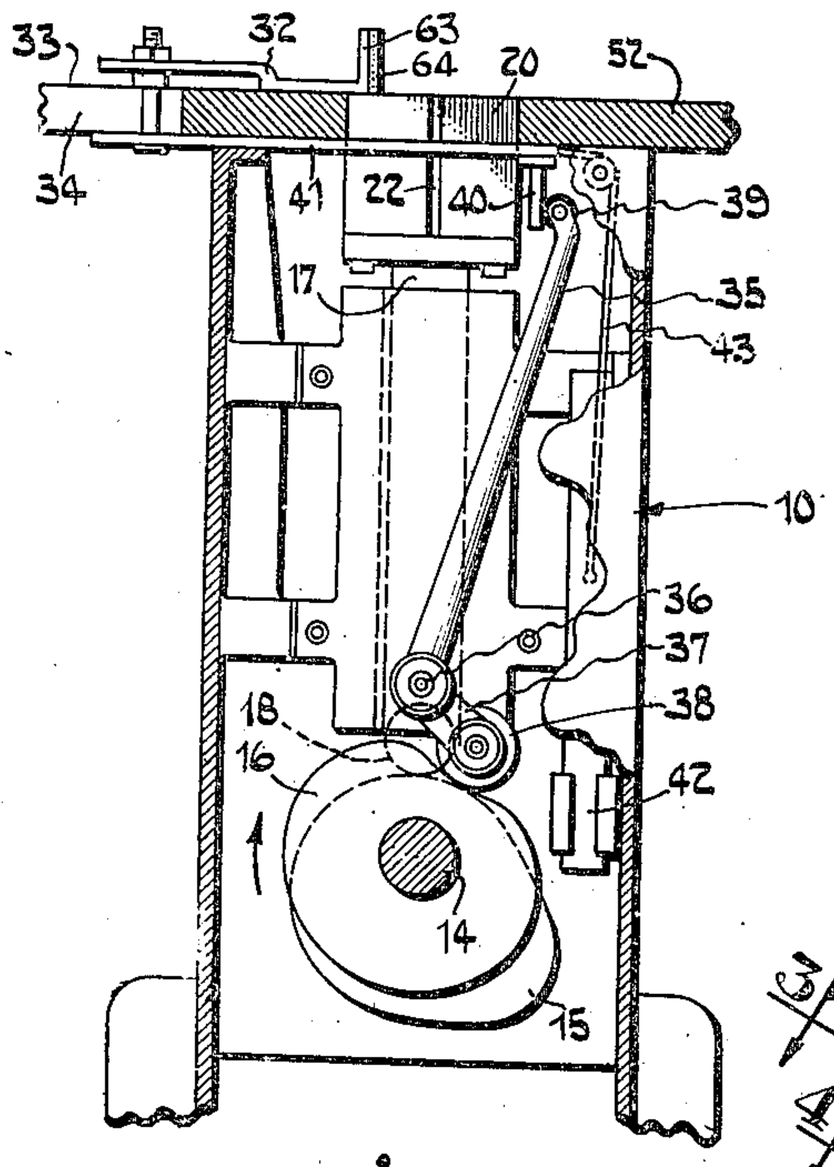

Fig. 2

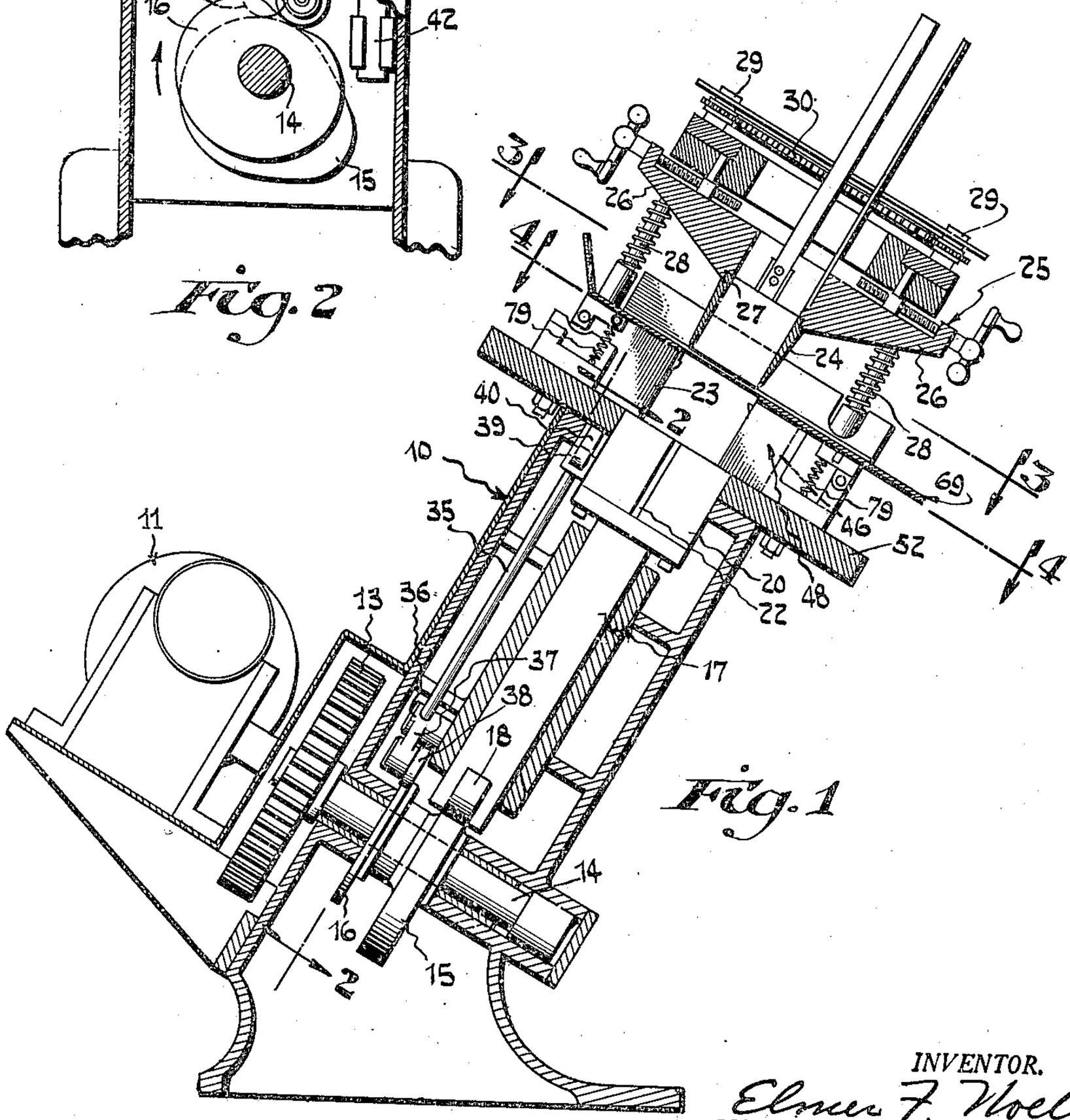

Fig. 1

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Filed Feb. 15, 1947 4 Sheets-Sheet 2

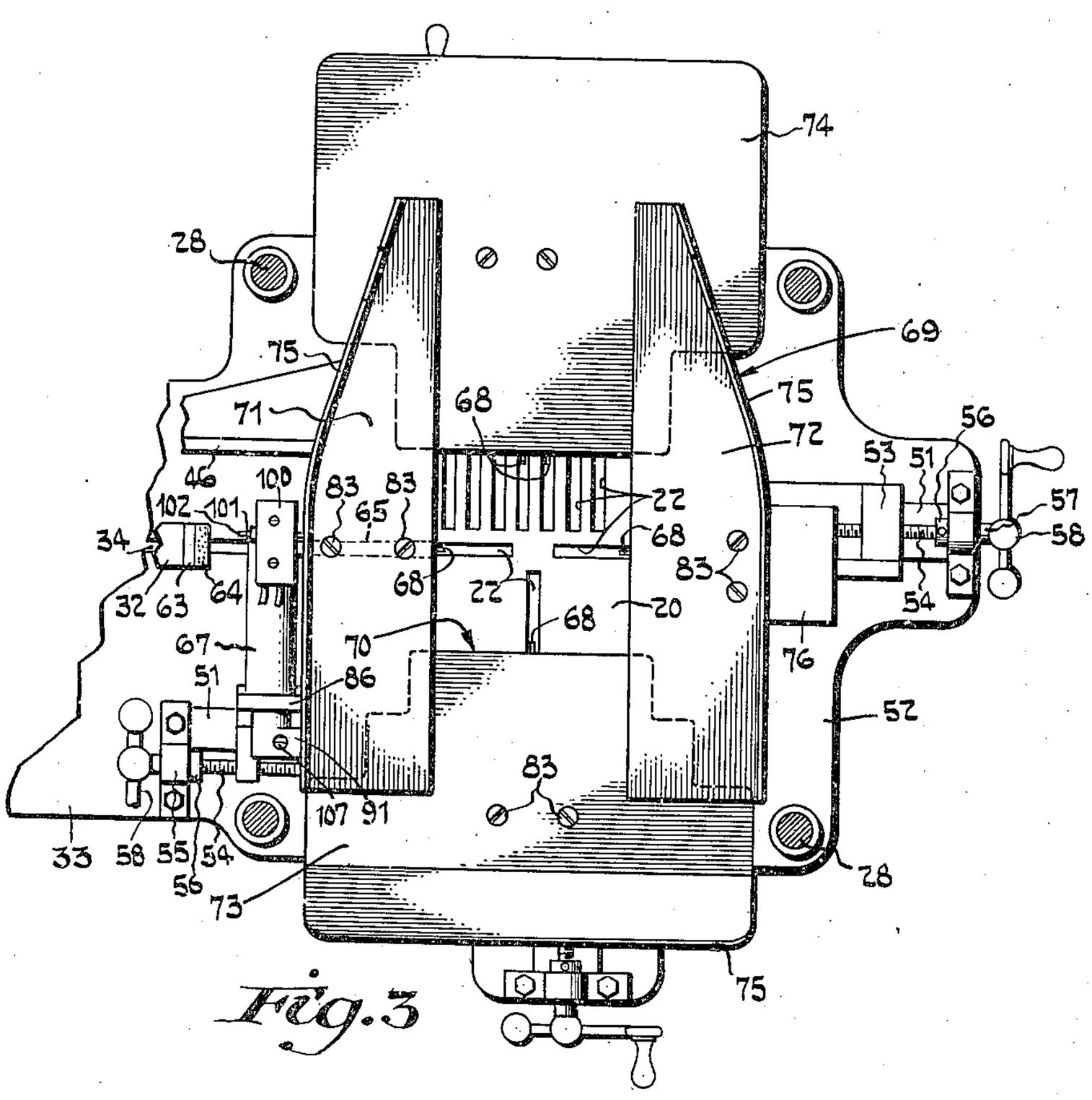

Fig. 3

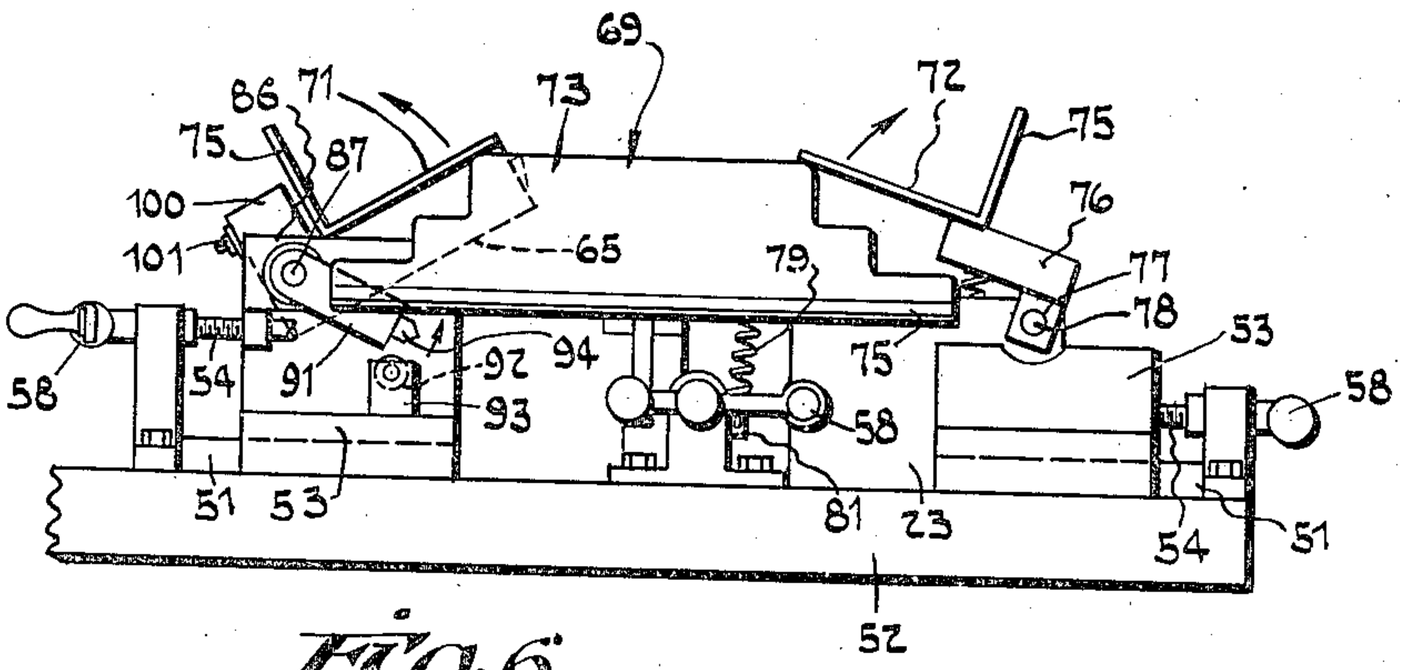

Fig. 6

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MACHINE FOR DIE-CUTTING PAPER

Filed Feb. 15, 1947 4 Sheets-Sheet 3

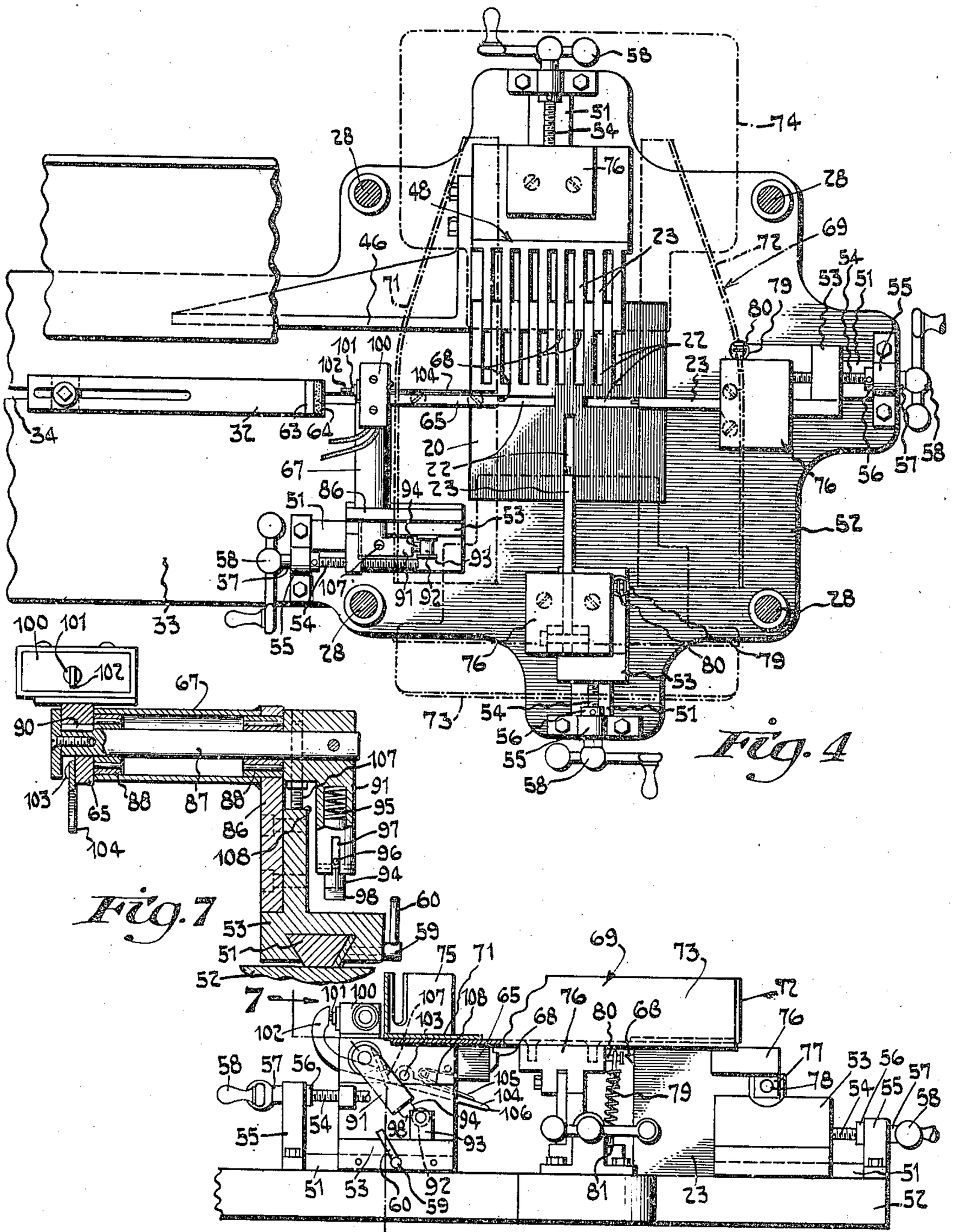

Fig. 4

Fig. 7

Fig. 5

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MACHINE FOR DIE-CUTTING PAPER

Filed Feb. 15, 1947 4 Sheets-Sheet 4

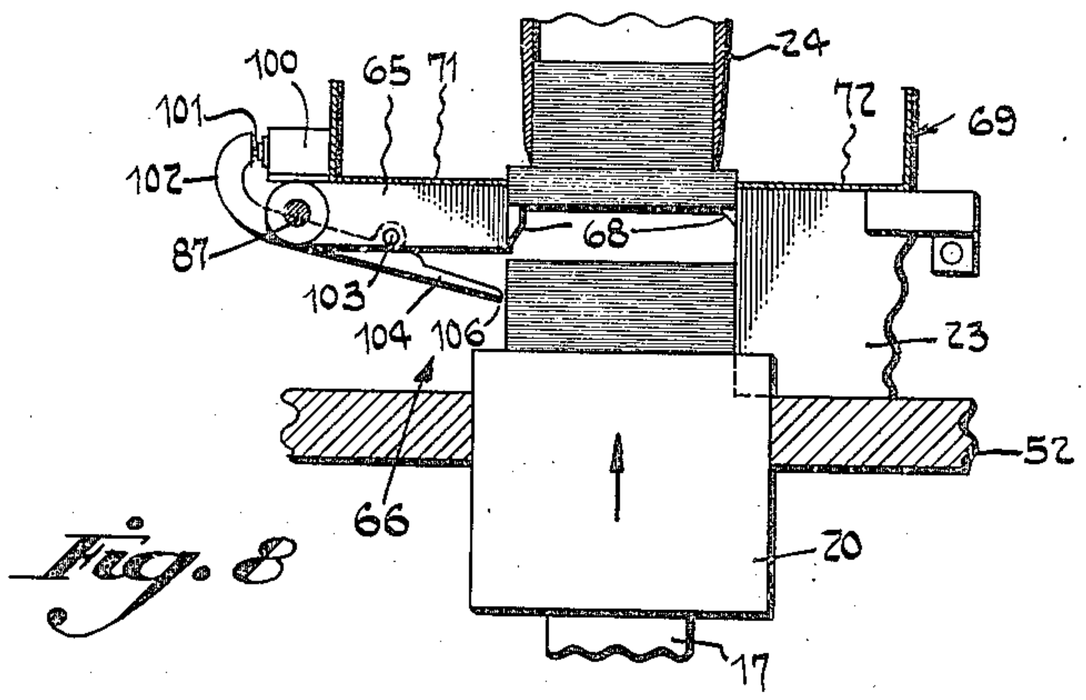

Fig. 8

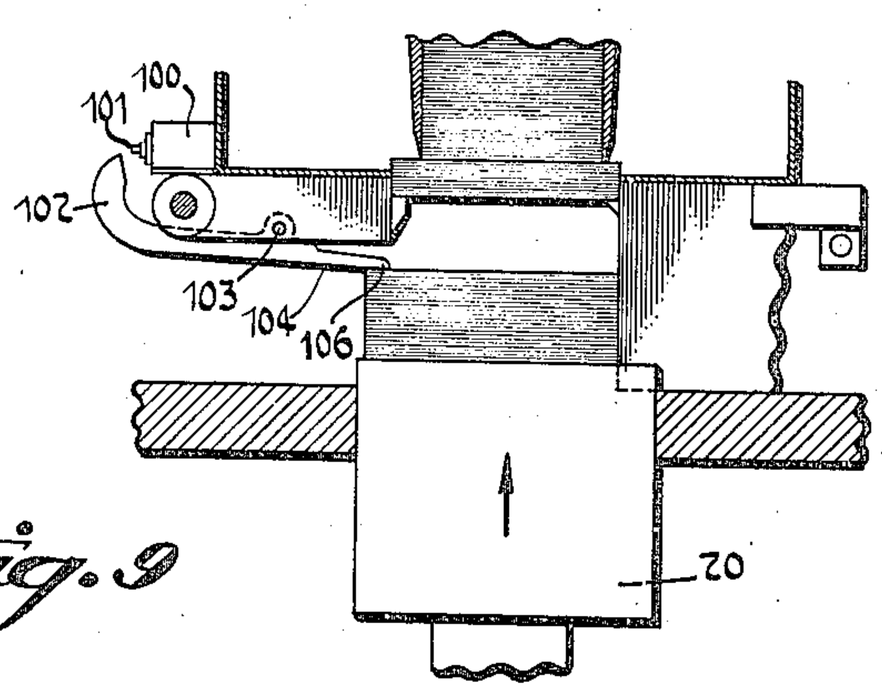

Fig. 9

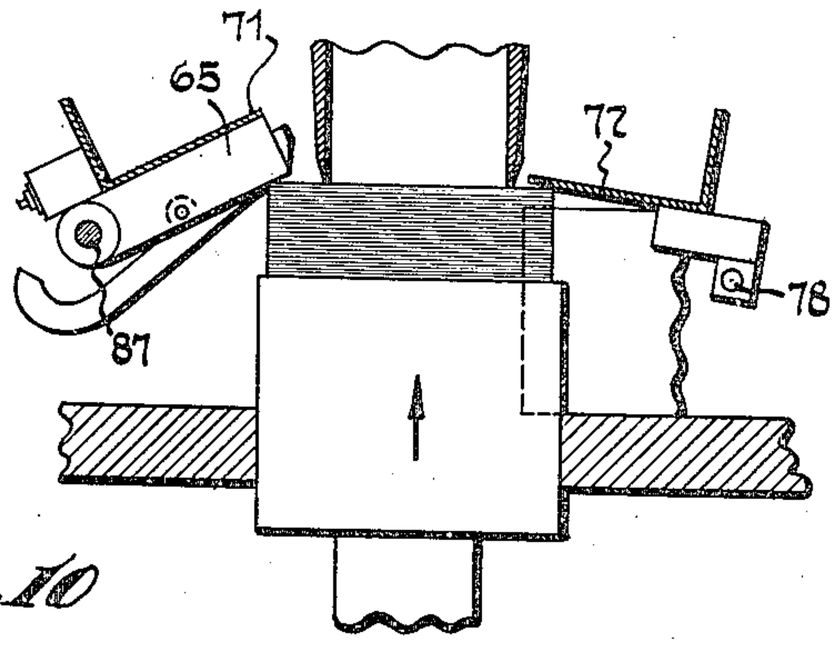

Fig. 10

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Patented Oct. 4, 1949

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UNITED STATES PATENT OFFICE

2,483,735

MACHINE FOR DIE-CUTTING PAPER

Elmer F. Noell, Cincinnati, Ohio, assignor to The Printing Machinery Company, Cincinnati, Ohio, a corporation of Ohio

Application February 15, 1947, Serial No. 728,751

18 Claims. (Cl. 164—21)

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This invention relates to paper cutting machinery and is directed particularly to improvements in machines adapted to die-cut printed stacks of labels, booklets, calendar pads and the like. The stacks are fed automatically into the machine with the printed face positioned accurately relative to a die which cuts the stacked labels to a prescribed size and shape.

In general the machine employs a hollow or tubular die and a cutting block or ram. The stacks are preliminarily trimmed to a square or rectangular shape and delivered by a feed plunger to the cutting block. Guide plates are associated with the block and die to locate the stack accurately with respect to the die. The cutting block then moves toward the die and the stack is die-cut to shape by being forced through the hollow die. The trimmed marginal edges of the stack follow the exterior surface of the die eventually to fall into a discharge chute, and the die-cut stacks pass through the die into a magazine rising from the top of the die.

The present improvements are directed primarily to safety devices which protect the machine from damage if the stacks fed into it are improperly sized or positioned to be received by the guide plates. Ordinarily this condition may cause the stack to be jammed beneath the guide plates as the ram rises and may spring or break either the guide plates, the mounting apparatus of the plates, or the discharge chute, because of the extreme pressure imposed upon them. The apparatus has particular application to the machine disclosed in the patent to Albert B. Schlattner, 2,288,304, issued June 30, 1942, to which attention is invited.

Briefly, the apparatus comprises a ram or cutting block movable relative to a hollow forming die, the cutting block being slotted on three sides to receive the inner edges of the stack guide plates. These plates position the stack accurately with respect to the cutting die. At the receiving side of the block a fourth guide plate or finger is provided which is spaced above the top of the cutter block to permit the stack to pass between the guide plate and block as the stack is fed in. If the stack should be too long on the longitudinal axis taken in the horizontal plane to clear the inner edge of this fourth guide member, the stack will jam against it on the cutting stroke. Additionally, if the stack is too wide, or in the case of a rectangular stack, is inadvertently fed in crosswise to its normal position, those guide plates which are located laterally on opposite sides adjacent the receiving throat, will prevent feeding it all the way onto the ram block. Should this condition prevail the stack would not only interfere with the guide member at the throat but also may jam against the bottom of the discharge chute which is positioned slightly above the cutting edge of the die. Also if the stack is not correctly positioned or is not square with respect to the guide plates, it would be forced up against the discharge chute and cause damage or breakage.

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Briefly, it is the concept of the inventor to provide a safety mechanism to stop the machine automatically should the stack be too large to pass into the area defined by the guide plates, and in conjunction to provide an additional safeguard which permits the guide plate at the receiving side, to trip and relieve excessive force. The discharge chute is made up of overlapping hinged plates which spring to an open position to relieve any strains imposed upon them by an oversize stack.

It has been a principal object of the inventor to provide an automatic safety mechanism whereby the operation of the machine is interrupted immediately should an oversize or improperly positioned stack inadvertently be fed into the cutting area.

It has been another object to provide an electrical circuit breaker arranged to open the drive motor circuit and brake the motor should a stack fail to clear the inner edge of the guide plate at the stack receiving throat, if the stack is oversize or misaligned. The electrical means cooperate with a positive mechanical release which permits the guide plate and discharge chute to yield should the electrical control apparatus fail, or the moving parts of the machine overrun due to brake failure after the circuit is opened.

The guide plates are adjustable to accommodate various stack sizes and include overlapping cover plates carried by and independently movable with the guide plates. These plates form the sectional discharge chute to receive the waste materials trimmed from the stacks. These hinged cover plates swing upwardly if engaged by a misaligned stack or one which does not conform to the size adjustment of the guide plates.

Still another object therefore has been to provide a discharge chute formed of overlapping sections respectively carried by the adjustable guide plates, the sections being yieldable relative to the guide plates to provide a central variable opening surrounding the die which compensates automatically, except for height, for changes in

size and shape when the guide plates are adjusted to correspond to the die.

A further object has been to provide a combined mechanical-electrical trip mechanism which not only stops the machine but which permits the operator safely to reach into the area between the die block and the die to clear the damaged stack from the apparatus after the machine has been tripped and stopped.

Still another object has been to provide a feed plunger having a resilient facing arranged to contact one side of the stack so as to permit the plunger to feed the stack to a position in abutment with the rearward guide plate whereby the facing yields slightly and aligns the rear edge of the stack against the edge of the guide plate.

Further objects and advantages of the invention will be more clearly set forth in a description of the accompanying drawings in which:

Figure 1 is a general vertical sectional view of a complete die-cutting machine incorporating the present improvements.

Figure 2 is a sectional view taken on line **2—2**, Figure 1, further illustrating the general construction of the machine.

Figure 3 is a sectional view taken on line **3—3**, Figure 1, showing the general arrangement of the sectional discharge chute with reference to the cutter block.

Figure 4 is a view similar to Figure 3 taken on line **4—4**, Figure 1, with the discharge chute sections shown in dot-dash lines to illustrate more completely the relationship of the several chute sections with the guide plates and cutter block, illustrating the adjustable mounting means for the guide plates and chute sections, and showing also the feed mechanism.

Figure 5 is a fragmentary side elevation of the upper portion of the machine particularly illustrating the arrangement and mounting means of the chute sections, yieldable guide finger and safety switch at the work receiving throat, the several parts being shown in a normal or operating position.

Figure 6 is a fragmentary side elevation similar to Figure 5, but showing the several parts in tripped position.

Figure 7 is a sectional view taken on line **7—7**, Figure 5, detailing the construction of the mounting apparatus for the yieldable guide finger at the work receiving throat of the machine.

Figure 8 is a diagrammatic view illustrating the operation of the several parts of the apparatus during the die-cutting of a normal sized work stack.

Figure 9 is a diagrammatic view similar to Figure 8 showing an oversized stack in place on the cutter block with the switch trigger actuated by the stack to stop the machine before the stack has jammed against the guide finger at the throat of the machine.

Figure 10 is a diagrammatic view similar to Figure 9 illustrating the effect of a stack in jamming against and tripping the guide finger at the throat due to overrunning after the switch is tripped when the stock is improperly positioned or squared with respect to one or several of the chute sections.

Described in general, the machine embodies a base or pedestal in which is mounted the motor, drive apparatus and the cams which actuate the ram and the feed plunger. Provision is made for feeding the stacks to a cutting block or head mounted upon the upper end of the ram. After being fed in upon the cutting block the stack is

carried upwardly against the lower exposed cutting edge of a hollow cutting die fixed in the head of the machine. In being pressed into the die, the inner area of the stack is cut to the contour of the die and is forced upwardly through the interior of the die. As successive stacks are cut they pass through the die into a magazine rising above the die.

The marginal cuttings or trimmings follow the exterior contour of the die upwardly, eventually to break and fall away from it to an inclined discharge chute. This chute surrounds the die and provides a marginal opening around the outside of the die to permit passage of the cuttings between the edges of the chute and the exterior die surface.

Referring to Figures 1 and 2 of the drawings, the frame or pedestal of the machine is indicated generally at **10** and a drive motor and transmission unit is indicated generally at **11**. The motor is mounted at the base of the machine and the transmission forms a part of the motor. A spur gear carried by the transmission shaft meshes with a large gear **13**. Gear **13** is keyed upon a shaft **14** journalled in the frame **10** and this shaft has keyed to it a cam **15** for operating the ram plunger and a cam **16** for operating the feed plunger.

The ram **17** includes at its lower end a roller **18** in contact with the periphery of cam **15** and the upper end of the ram carries the cutting head or block **20**. The ram is slidably mounted for reciprocation in the frame of the machine in a manner similar to that disclosed in the prior Schlattner patent. The four sides of the cutting head are slotted as at **22** (Figures 1 and 4) to accommodate three guide plates generally indicated at **23** and a guide finger **65** which extend into the block to position and guide the blanks relative to the cutting die **24**.

Die **24** is mounted in alignment with and above the cutting block and is carried by an overhead die mounting head generally indicated at **25** (Figure 1). This mounting head is square in outline and includes on each side, an adjustable slide **26**, each of which is arranged to engage and clamp an upper edge of the die along the respective sides thereof. For this purpose the upper edges of the die include an undercut groove **27** registering with a similar groove in the slides **26**. The purpose of the adjustable slides is to permit the die to be mounted or dismounted conveniently to permit dies of various sizes and shapes to be installed for the particular work desired.

The die mounting head **25** is mounted upon four columns or rods **28** rising from the base, these columns having their upper ends screw-threaded and engaged by sprocket driven nuts **29** rotatably journalled in the head. These nuts are unitarily driven by a sprocket chain **30** to permit uniform vertical adjustment of the die and head relative to the cutter block. Adjustment is accomplished by a hand lever which is connected to one of the sprockets. Rotation of the lever in the appropriate direction is transmitted by the chain to the three remaining sprockets at the respective corners of the head. Thus the head is adjusted equally at four corners to keep it at a plane level with the plane of the cutting block.

The uncut stacks are fed into the machine by means of a feed plunger or pusher **32** operating in a horizontal plane relative to a work table **33** which includes a slot **34** (Figures 2 and 3) in which the pusher is slidably engaged. The pusher is actuated by a lever **35** pivotally mounted in the

frame of the machine at its lower end as at 36 and having an angular foot 37 upon the end of which is pivotally mounted a roller 38. Roller 38 is in contact with the periphery of feed cam 16. The upper end of the lever is bifurcated to receive a roller 39 contacting a thrust member 40 secured to the end of a feed slide 41 which is connected to the pusher. This arrangement causes the feed plunger to be reciprocated horizontally in timed relationship to the vertical movements of the cutter block. By virtue of cams 15 and 16 the feed plunger or pusher is moved outwardly in position to pick up a stack of labels during the period that the cutting block moves upwardly to perform the cutting operation. When the cutting block is in lowered position the feed plunger moves inwardly to deposit the succeeding stack of labels thereon.

The slide is urged in feeding direction either by spring means or as shown by means of a weight 42 connected to the slide by a cable 43. This causes the slide to be moved in feeding direction by gravity and to be returned by positive cam operation. Should any obstruction occur or should the stack be too large to fit between the guide plates, the plunger will be stopped by the stack.

In operation the stacks are placed upon the feed table in front of the pusher while it is at its outward position; the stack is then fed by the pusher into position on the cutter block after which it is die-cut. The machine may be arranged for continuous operation or it may be treadle-operated, including suitable mechanism to stop it after each cycle.

It will be noted that the pedestal 10 of the machine, similar to that of the prior patent, is set on an angle so as to lean to one side. This facilitates maintaining the sheets of blanks in stacked relationship since the stack is resting by gravity partially on edge against the rear guide plate 46 of the work table. This plate extends inwardly and is attached to the rear guide plate assembly generally indicated at 48. Adjustment of the guide assembly 48 causes the back plate 46 to move therewith so as to provide a continuous smooth plane surface to guide the stack. Therefore, the stacked relationship is not disturbed as it is fed upon the cutting block. This angular relationship also facilitates discharge by gravity of the trimmings or waste.

The foregoing structure is substantially a duplicate of that disclosed in the prior Schlattner patent and for this reason is described in a generalized manner. The improvements are more specifically embodied in the apparatus associated with the guide plates and waste discharge chute as hereinafter described.

As previously noted, three sides of the cutting block 20 is provided with a stationary guide plate 23 engaged in slots 22 formed on the respective sides of the cutter block. In the upward motion of the head, the guides serve to keep the blank work stacks in alignment with the die to position accurately the printed matter relative to the die.

Each guide plate is carried relative to a dovetailed slide rail 51 fixed to a flange or table 52 forming the upper portion of the base or pedestal. The guide plates 23 are secured to mounting blocks 53 which have their lower ends in sliding engagement with the rails 51. This permits the blocks to be adjusted laterally relative to the cutter block to accommodate various stack sizes and shapes.

Adjustment is accomplished by means of a screw-threaded shaft 54 having its inner end screw-threaded into the slide block and having its outer end carried in a bearing bracket 55 on the rail 51. To prevent longitudinal displacement, the inner side of the bearing bracket is engaged by a collar 56 secured on the shaft and its outer surface is engaged by a collar 57 forming a part of the adjustment crank 58 secured to the outer end of the screw shaft. Suitable gib plates are provided to establish the proper clearance of the slide blocks relative to the dovetailed rail 51. A lock screw 59 having an actuating lever 60 serves to lock the slide block and guide plate in adjusted position (Figure 5). This screw is screw-threaded into the slide block and forces the gib plate against the guideway and thus frictionally locks the block 53 to the guide rail 51.

It will be noted that the feed plunger 32 includes a vertical stack pusher 63 having a resilient facing 64 such as sponge rubber, which engages one side of the work stack as it is fed in. The guide plate 23 opposite to the receiving side of the cutter block serves as an abutment to establish vertical alignment of the stacks. The stack is fed in against this guide plate and thus is pressed between the resilient facing 64 and the plate. The straight edge of the plate aligns the side of the stack and the facing 64 absorbs the thrust imposed on the pusher by the counterweight 42 or spring. This prevents bouncing of the pusher due to impact and insures more perfect alignment of the stack with the guide plate. The facing also absorbs any unevenness due to slight irregularities in the size of the individual sheets which otherwise may buckle and cause a disturbance in stack alignment as the pusher retracts. It has been found that the resilient facing causes a substantial improvement in the quality of the work and in the performance of the machine.

As shown in Figure 3, a single guide plate 23 is utilized at the forward or operator's side of the machine while at the opposite or rearward side, the guide plate assembly 48 embodies a series of guide plates 23 in the present instance eight in number. This series of plates preferably is formed in one piece. It will be noted that the cutter block includes a plurality of slots 22 corresponding in number with the guide plates of assembly 48.

At the forward or work receiving side of the cutter block the guide plate or finger 65 is of somewhat different construction. Since the stacks are fed into the machine from this side, this plate is carried in an elevated position centrally above the work table to provide an opening or throat generally indicated at 66 (Figures 8–10) through which the stacks may pass. In order to provide this opening, finger 65 is mounted upon a laterally extending arm 67 (Figure 7) carried by a mounting block similar to the mounting blocks 53 previously described, and provided with similar adjusting means.

As shown in Figures 3 and 5, each guide plate, along its inner edge, includes a spring-pressed detent 68 similar to the detents of the prior patent and serving to retain the uncut portion of the stack in position in the guides during the return cycle of the cutter block.

A waste discharge chute adapted to receive the trimmings from the blanks which are forced up the outside of the die, is indicated generally at 69. By reason of the angular position of the pedestal this chute is disposed at an angle so as to dis-

charge the cuttings by gravity as they fall upon it. It will be noted that the chute is constructed in four sections, preferably of sheet metal (Figure 3). Three of these sections are carried upon the respective guide plates **23** and the fourth is mounted upon guide finger **65**. The inner edges of the respective plates are in alignment with the inner edge of each guide plate. Consequently the opening **70**, formed by the inner edges of the sections collectively, conforms automatically to the setting of the guide plates. Each section may be adjusted independently of its adjoining sections and in this manner the size and shape of opening **70** varies and conforms closely to the stack when the guide plates are properly adjusted. Additionally each section is arranged to trip or swing upwardly to prevent damage should the stack jam between the cutter block and chute as hereinafter disclosed.

As viewed in Figure 3, the chute is made up of a left hand plate section **71** at the receiving side, an identical section **72** at the right hand side, a section **73** at the front, and a rear or discharge section **74**. The sections **71**, **72**, and **73** are provided with flanges **75** while the discharge section **74** constitutes a flat plate. It will be noted that the left and right hand sections **71** and **72** overlie the forward and discharge sections **73** and **74**, and that the flanges **75** enclose three sides of the chute, leaving the rear side open for discharge.

The plates **72**, **73**, and **74** each are hingedly mounted in an identical manner, and the respective guide plates relative to which they are mounted, are fixed. However, the plate **71** at the receiving side of the machine operates in conjunction with the guide finger **65** and is mounted directly upon the guide finger. For this purpose the guide finger itself is hingedly mounted to cause the chute section to swing upwardly with the finger when it is tripped.

As shown in Figures 5 and 6, chute sections **72**, **73**, and **74** each are mounted upon respective blocks **76** and each block includes a bifurcated lug **77** engaged over the upper edge of guide plate **23**. Each block **76** is pivotally mounted by means of a stub shaft **78** extending through the respective lugs. A tension spring **79** (Figure 5) is anchored upon a pin **80** secured to block **76** and its lower end is anchored on a pin **81** secured to the mounting block **53**. The chute section is secured to the upper surface of the block **76** by means of a pair of flat head screws **83—83**, flush with the upper surface of the plate section. The sections therefore are free to be rocked upwardly as shown in Figures 6 and 10 against the tension of springs **79**.

Should the stack be too wide to feed in between the guide plates **23** at the forward and rearward side of the machine, the stack will be stopped and caused to bear against the underside of the chute plates when the cutter block rises. Normally this would cause damage or breakage to the chute sections and to the overhanging guide finger **65**. By virtue of the spring mounting, the plates and finger **65** are free to spring upwardly as shown, in which position the motor is stopped and the operator may with safety reach in and clear the obstruction.

The adjusting mechanism for the guide finger **65** is disposed to one side of the cutter block as shown in Figures 4 and 7. Likewise, as stated heretofore, the guide finger **65** is maintained in an elevated position with reference to the work table to permit passage of the work stacks. Guide

finger **65** is carried upon the arm **67** extending laterally from block **53** and overhanging the work table. Arm **67** includes a mounting plate **86** welded or otherwise secured at one end and plate **86** is attached to the mounting block **53**. This arm **67** is in the form of a hollow sleeve through which passes a control shaft **87** journalled at opposite ends in suitable bearings **88** in the sleeve. Upon the inner end of this shaft, disposed approximately in the center of the work table and cutter block, is mounted the guide finger **65**, the finger preferably being keyed or pinned to the shaft as at **90**. The opposite end of shaft **87** projects through plate **86** and upon this end is pinned a detent arm **91**. The detent or latch arm **91** cooperates with a latch roller **92** rotatably journalled in a bearing block **93** secured upon mounting block **53**. Engagement of the latch arm with the roller **92** locks the guide finger **65** in its horizontal or normal operating position, subject to being disengaged when an overload is imposed upon it.

For this purpose the latch arm **91** includes at its swinging end, a spring-pressed plunger **94** confined in a bore formed in the free end of the arm. A compression spring **95** is in bearing engagement against the end of the detent plunger and has its opposite end seated in the top of the bore. The plunger includes a pin **96** engaged in a slot **97** formed in the arm. This retains the plunger in place in the end of the arm and prevents rotation of the plunger.

As shown in Figure 7, the detent plunger **94** includes a tapered end **98** which is engaged behind the roller **92**. It will be apparent that pressure imposed upon the bottom of guide finger **65** at its overhanging end will tend to rock the guide finger, shaft **87** and detent arm **91**, upwardly. However, this force will be resisted by engagement of the detent plunger with the roller **92**. If the force is excessive, for example, should the edge of a stack engage the finger, it will be sufficient to depress the detent plunger by a wedging action of the tapered end of the plunger with respect to roller **92**. This will permit the guide finger to be tripped upwardly as shown in Figures 6 and 10, the detent plunger being depressed sufficiently to snap past the roller. The apparatus thereby is protected against overloading and breakage, mechanically.

It will be noted that the chute section **71** is mounted directly upon the top of the guide finger **65**. It is secured in place preferably by a pair of flat head screws **83—83** engaged in the finger. By this arrangement the chute section swings unitarily with the guide finger when the finger is tripped. The arrangement also causes the finger to be tripped should the stack engage and trip the chute section, thereby preventing damage either to the chute section or to the guide finger.

As shown in Figures 4 and 5, a switch element **100** is secured to the guide finger **65**. This switch includes a button **101** adapted to be engaged by the end of a trigger **102** which is pivotally mounted as at **103**. The trigger may be mounted on one side of the guide finger as shown or it may be disposed within a slot formed in the lower side of the finger. The trigger includes a shank portion **104** coextensive with the finger and inclined slightly downwardly toward the cutter block. This shank portion is disposed beneath the lower surface of the guide finger. A trigger spring **105** engaged between the shank **104** and the guide finger causes a slight pressure to be applied to the switch button which keeps the power circuit closed. A slight upward force against the shank therefore

causes the circuit through switch element 100 to be opened to de-energize the motor and apply the brake. The end of the shank terminates in line with the inner edge of the guide finger as at 106. It will be apparent that under normal operating conditions the stack will pass the inner end of the trigger and guide finger (Figure 8) but that an oversize stack will engage the shank 104 of the trigger, causing the trigger to swing upwardly as shown in Figure 9, to open the switch 100.

Switch element 100 preferably is normally closed and is connected in the control circuit of the drive motor in a manner to cause the motor to be stopped when the switch is opened. The motor is equipped with an automatic electrically controlled brake to cause it to stop immediately when the circuit is opened. Therefore, upon engagement of the switch trigger by the stack the circuit is interrupted and the machine stopped as shown in Figure 9.

If for any reason the motor is not stopped quickly enough to prevent contact of the stack with the guide finger, for example due to a faulty switch or brake, or should the machine overrun slightly due to inertia, damage to the machine is prevented by the pivotal mounting of finger 65 as shown in Figure 10. After the switch 100 is opened, further operation of the machine is prevented until the obstruction is cleared away and the finger 65 reset.

As shown in Figures 3 and 6, the sections making up the discharge chute are overlapped in such a manner that jamming of the stack with sections 73 or 74 causes sections 71 and 72 to be raised as shown in Figure 6. On the other hand, jamming of sections 71 or 72 does not disturb sections 73 or 74. However, the overlapped relationship of the plates does not interfere with the yieldability of the chute when the work jams, since each plate is pivotally mounted. The yieldability of the chute affords protection against breakage and notifies the operator to shut off the machine and clear the obstruction when any jamming occurs.

After the chute sections are raised, the cutting area of the machine is open to facilitate clearing away the obstruction. After the interfering stack has been removed, three of the plates 72, 73, and 74 will drop automatically to a normal position due to the tension springs 79. Plate section 71, however, which is carried by guide finger 65, remains in its tripped position until it is manually depressed. Depressing the plate causes the detent plunger 94 to snap into engagement behind roller 92 thereby resetting the machine. The guide finger and chute section is maintained in level operating position by means of a set screw 107 which engages the upper edge of the mounting block 53 as at 108 when the guide finger is reset.

The electrical control system preferably incorporates a starting switch which must be actuated before the machine resumes operation. Therefore, after the guide finger 65 has been tripped, it is necessary for the operator to clear away any obstructions, reset the guide finger, and then actuate the starting switch to restart the motor before the cutting operations can be resumed. This arrangement prevents premature starting when the guide finger is reset and thereby protects the operator from injury.

Having described my invention, I claim:

1. In a machine for trimming blanks of thin sheet material; a cutting block, a die, guide means between the block and die for guiding a stack of blanks, said guides arranged to provide a lateral opening to the top surface of the cutting block, power means for reciprocating said cutting block, means for delivering stacks of blanks thereto, a control switch for said power means, said switch disposed in said lateral opening and adapted to be engaged by the stack of blanks in the event they are disaligned with respect to the guide means and, a discharge chute for the trimmings from the label blanks, said discharge chute being displaceable if engaged by an improperly aligned stack.

2. In a machine for cutting stacks of blanks; a cutting block, a die, said cutting block adapted to support a stack of blanks, said stack of blanks adapted to be moved against the cutting edge of the die, guide means between the die and cutting block, means for feeding the stack of blanks onto the cutting block against the guide means, a discharge chute surrounding the die for receiving and discharging the trimmings from the trimmed labels, said discharge chute being yieldable and being adapted to be displaced upwardly by engagement of the stack of blanks therewith, in the event that the stack of blanks does not fit perfectly in the space defined by the guides or is cocked with respect thereto, for preventing breakage of the parts.

3. In a machine for cutting sheet elements from blanks; a cutting block, a die, said cutting block adapted to support a stack of blanks, power means for reciprocating said block whereby said stack of blanks is adapted to be moved against the cutting edge of the die, guide means between the die and cutting block, means for feeding the stack of blanks onto the cutting block against the guide means, a discharge chute surrounding the die for receiving and discharging the trimmings from the trimmed labels, said discharge chute being yieldable and being adapted to be displaced upwardly by engagement of the stack of blanks therewith, in the event that the stack of blanks does not fit perfectly in the space defined by the guides or is cocked with respect thereto, for preventing breakage of the parts, and a switch associated with said discharge chute, said switch actuated by contact with the misaligned stack for stopping the power means prior to displacement of the discharge chute.

4. In a machine for trimming blanks of thin sheet material; a cutting block, a die, guide means between the block and die for guiding a stack of blanks, said guides arranged to provide a lateral opening to the top surface of the cutting block, power means for reciprocating said cutting block, means for delivering stacks of blanks thereto, a discharge chute for the trimmings from the label blanks, said discharge chute being yieldably displaceable if engaged by a disaligned stack, and a control switch for said power means, said switch mounted on said chute and adapted to be engaged by the stack of blanks in the event they are not aligned with respect to the guide means.

5. In a machine for cutting labels or the like from blanks; a cutting block, a die, said cutting block adapted to support a stack of blanks, said stack of blanks adapted to be moved against the cutting edge of the die, guide means between the die and cutting block, means for feeding the stack of blanks onto the cutting block against the guide means, a discharge chute surrounding the die for receiving and discharging the trimmings from the trimmed labels, and said discharge chute consisting of sections, there being one section on each side of the die, said sections

being hinged and being adapted to be displaced upwardly by engagement of the stack of blanks therewith, in the event that the stack of blanks does not fit perfectly in the space defined by the guides or is cocked with respect thereto, for preventing breakage of the parts.

6. In a machine for trimming blanks of thin sheet material, a cutting block, a die, a guideway between said block and die, a lateral passageway to the surface of the block, means for delivering a stack of blanks to said block through said lateral passageway, power means for causing said stack to be engaged against the cutting edge of the die, a discharge chute surrounding said die for receiving and discharging the cuttings from said blanks, a control means for said power means, and said discharge chute consisting of independent sections disposed around the die, the section of the discharge chute adjacent the lateral passageway including a control switch for the power means, said sections being pivotally mounted so as to swing upwardly when engaged from beneath, said switch being located on the section over the lateral passageway whereby engagement of the switch by a misaligned stack of blanks will stop the power and any further continued movement of the cutting block will cause the sections to be displaced on their pivotal mountings and no breakage can occur.

7. A cutting machine for labels and the like comprising; a cutting die, a cutter block, power means for actuating the cutter block relative to the die, means for feeding work stacks upon said cutter block, a discharge chute surrounding said die, said chute being formed of a series of plates, said plates being yieldably mounted to permit said chute to be displaced if an obstruction is jammed between the chute and said cutter block.

8. A machine for trimming labels or the like comprising; a cutting die, a cutter block, power means for actuating the cutter block relative to the die, means for feeding work stacks upon said cutter block, a discharge chute surrounding said die, said chute being formed of a series of plates disposed in overlapping relationship, each of said plates being yieldably mounted individually to permit said chute to be displaced if an obstruction is jammed between the chute and said cutter block.

9. A cutting machine for labels or the like comprising; a cutting die, a cutter block, power means for actuating the cutter block relative to the die, means for feeding work stacks upon said cutter block, a discharge chute surrounding said die, said chute being formed of plate sections, each of said plate sections being individually yieldable, and a power control element associated with said plates to de-energize said power means when one of said plates is actuated.

10. A label cutting machine comprising; a stationary die, a movable cutter block, a work feeding table, means associated with said table for feeding stacks of work to said cutter block, power means for causing reciprocation of the block relative to the die, a series of vertical guide plates disposed at the sides of said cutter block and adapted to guide the work stack relative to said die, a guide finger disposed above said work feeding table to permit the work stacks to be fed beneath said finger, means on each of said guide plates and said guide finger to adjust the same individually relative to said cutter block, and yieldable mounting means for said guide finger adapting said finger to spring to an open position when a work stack is jammed between the finger and said cutter block.

11. A machine for trimming stacks of blanks comprising; a stationary die, a movable cutter block, a work feeding table, means associated with said table for feeding stacks of blanks to said cutter block, power means for causing reciprocation of the block relative to the die, a series of vertical guide plates disposed at the sides of said cutter block and adapted to guide the work stack relative to said die, a guide finger disposed above said work feeding table to permit the work stacks to be fed beneath said finger, means on each of said guide plates to adjust the same individually relative to said cutter block, yieldable mounting means for said guide finger, and a power control element associated with said guide finger, said element arranged to deenergize said power means when a stack is jammed between said cutter block and the guide finger.

12. A machine for trimming labels or the like comprising; an interchangeable stationary die, a movable cutter block, means for feeding work to said cutter block, means for causing reciprocation of the block relative to the die, a series of guide plates disposed at the sides of said cutter block and adapted to guide the work relative to said die, individual means on each of said guide plates to adjust the same relative to said cutter block to correspond to the size and shape of said die, a series of chute plates, one for each of said guide plates, said chute plates respectively pivotally mounted on said guide plates and arranged to be adjusted unitarily with said guide plates, said chute plates arranged in overlapping relationship and adapted to provide a central opening surrounding said die and conforming generally to the size and shape of the die when said guide plates are adjusted to correspond to said die.

13. A cutting machine for trimming labels or the like comprising; a stationary die, a movable cutter block, means for feeding stacks of work to said cutter block, means for causing reciprocation of the block relative to the die, a series of vertical guide plates surrounding said cutter block and adapted to guide the work stack relative to said die, a series of overlapping chute plates, means on each of said chute plates adapted to adjust the same individually relative to said cutter block, each of said chute plates being hingedly mounted individually, spring means adapted to maintain said chute plates in normal position, said chute plates collectively providing a discharge chute having a variable central opening surrounding said die, conforming generally to the size and shape of the die and adapted to spring to an open position when a work stack is jammed between the chute and said cutter block.

14. A label cutting machine comprising; a stationary die, a movable cutter block, a work feeding table, means associated with said table for feeding stacks of work to said cutter block, power means for causing reciprocation of the block relative to the die, a series of vertical guide plates disposed at the sides of said cutter block and adapted to guide the work stack relative to said die, a guide finger disposed above said work feeding table to permit the work stacks to be fed beneath said finger, means on each of said guide plates to adjust the same individually relative to said cutter block, yieldable mounting means for said guide finger, a series of overlapping chute plates, one for each of said guide

plates, each of said chute plates hingedly secured to a respective guide plate, a chute plate secured to said guide finger, said chute plates collectively providing a discharge chute having a variable central opening surrounding said die conforming generally to the size and shape of the die and adapted to spring to an open position when a work stack is jammed between the chute and said cutter block.

15. A cutting machine for trimming blanks comprising; a stationary die, a movable cutter block, a work feeding table, means associated with said table for feeding stacks of work to said cutter block, power means for causing reciprocation of the block relative to the die, a series of vertical guide plates disposed at the sides of said cutter block and adapted to guide the work stack relative to said die, a guide finger disposed above said work feeding table to permit the work stacks to be fed beneath said finger, means on each of said guide plates and said guide finger to adjust the same individually relative to said cutter block, and a latch mechanism associated with said guide finger, said mechanism adapting the guide finger to spring to an open position when an obstruction is jammed between said finger and said cutter block.

16. A cutting machine for trimming stacks of blanks comprising; a stationary die, a movable cutter block, a work feeding table, means associated with said table for feeding stacks of blanks to said cutter block, power means for causing reciprocation of the block relative to the die, a series of vertical guide plates disposed at the sides of said cutter block and adapted to guide the work stack relative to said die, a guide finger disposed above said work feeding table to permit the work stacks to be fed beneath said finger, mounting means for said guide finger disposed at one side of said work table, a rotatable shaft extended from said mounting means to pivotally support said guide finger, a latch arm secured to the opposite end of said shaft, said latch arm operable to latch the guide finger in a normal operating position and arranged to trip and permit the guide finger to swing to an inoperative

position when an obstruction is lodged between the guide finger and cutter block.

17. A cutting machine for trimming stacks of blanks comprising; a stationary die, a movable cutter block, a work feeding table, means associated with said table for feeding stacks of blanks to said cutter block, power means for causing reciprocation of the block relative to the die, a series of guide elements disposed at the sides of said cutter block and adapted to guide the work stack relative to said die, a guide finger disposed above said work feeding table to permit the work stacks to be fed beneath said finger to said cutter block, yieldable mounting means for said guide finger adapting said finger to spring to an open position when a work stack is jammed between the finger and said cutter block, a power control element associated with said guide finger, and a trigger operatively connected to said power control element, said trigger co-extensive with and disposed beneath the guide finger and arranged to de-energize said power means when a stack contacts the trigger.

18. A cutting machine for trimming stacks of blanks comprising; a stationary die, a movable cutter block, a work feeding table, a feed plunger associated with said table for feeding stacks of work to said cutter block, power means for causing reciprocation of the block relative to the die and for actuating said feed plunger in timed relation with said cutter block, an abutment against which the work stacks are aligned, and a resilient facing on said feed plunger, said facing adapted to align the work stack with reference to said abutment.

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