Nov. 13, 1962 J. R. THOMAS 3,063,322

MANUALLY ACTUATED PRECHARGING MEANS FOR OSCILLATING TOOL

Filed June 8, 1959 4 Sheets-Sheet 1

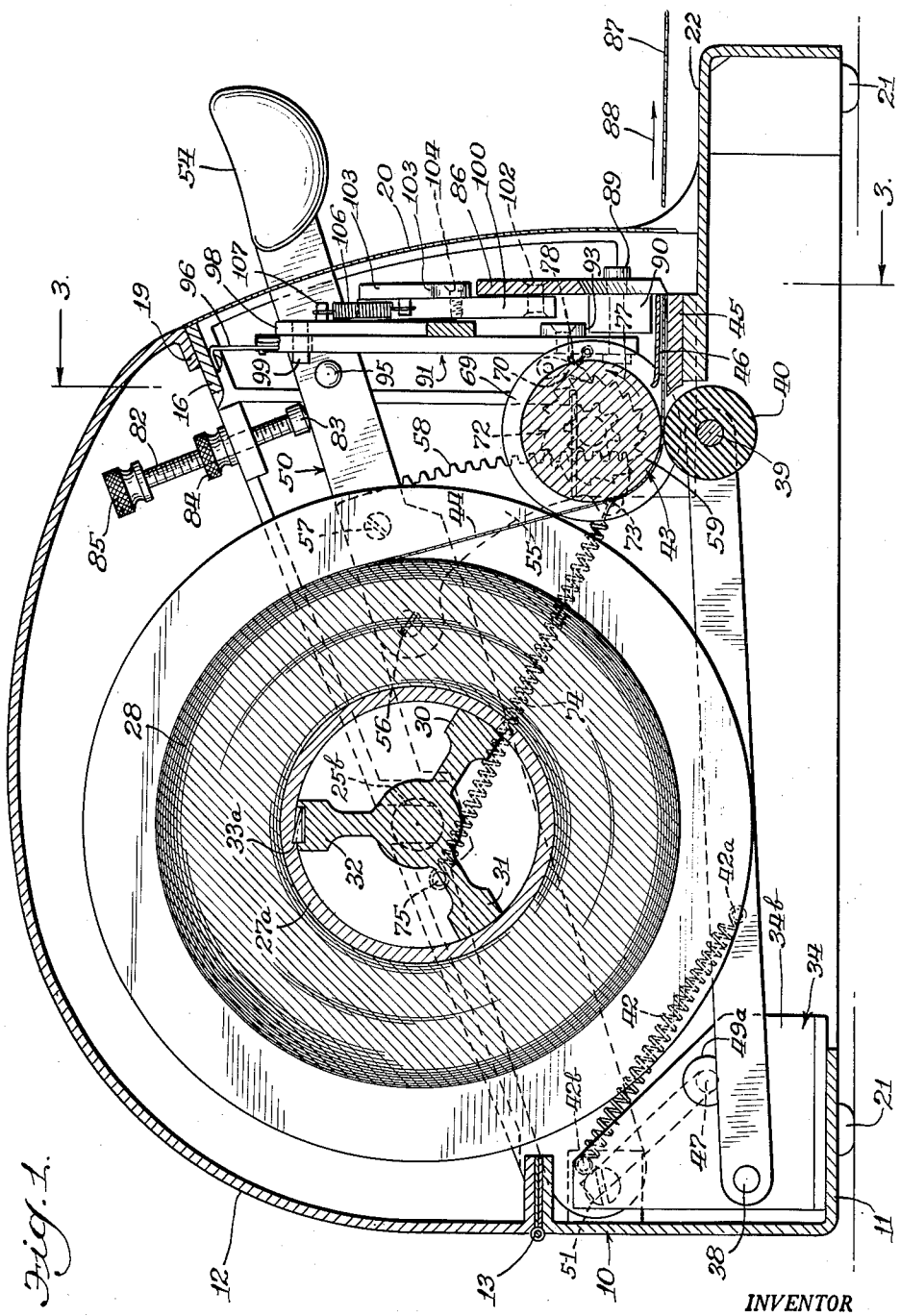


Fig. 1.

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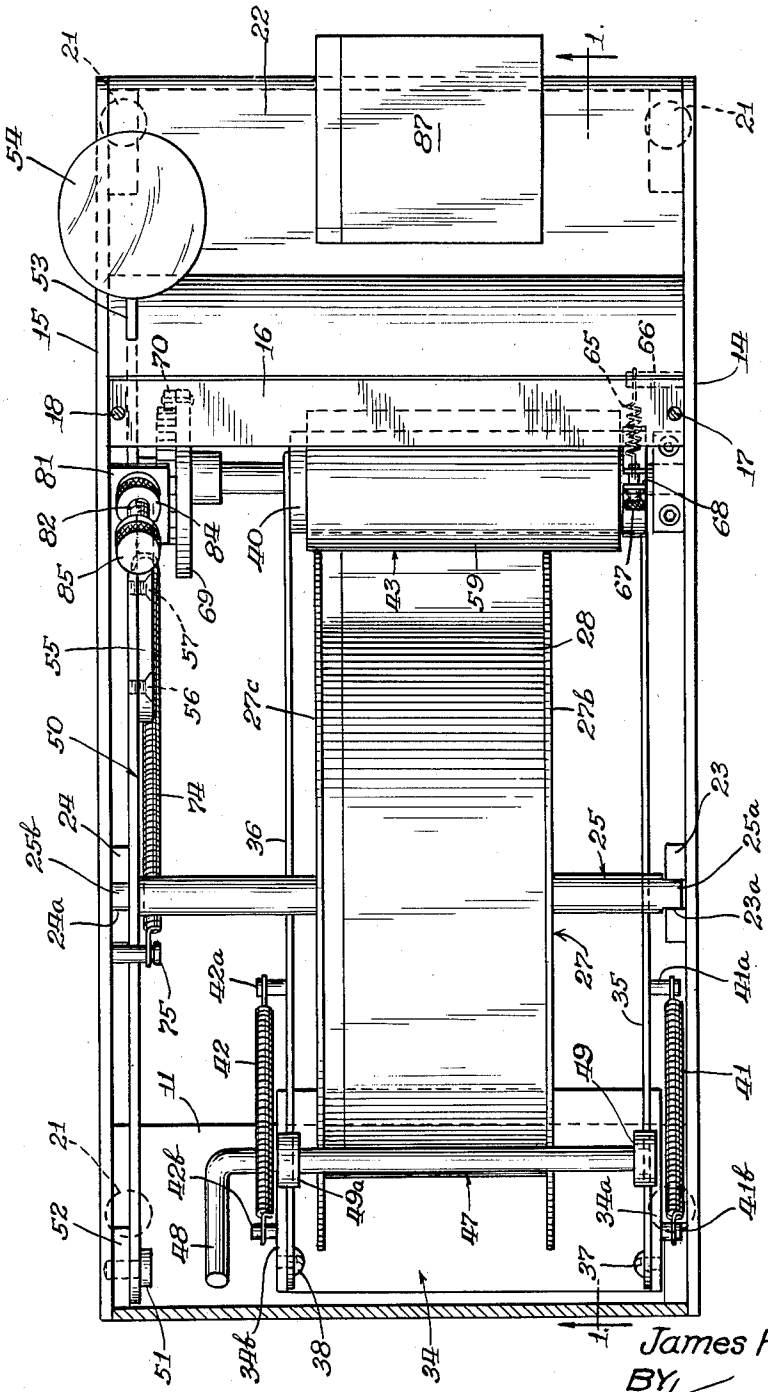


Fig. 2.

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Fig. 3.

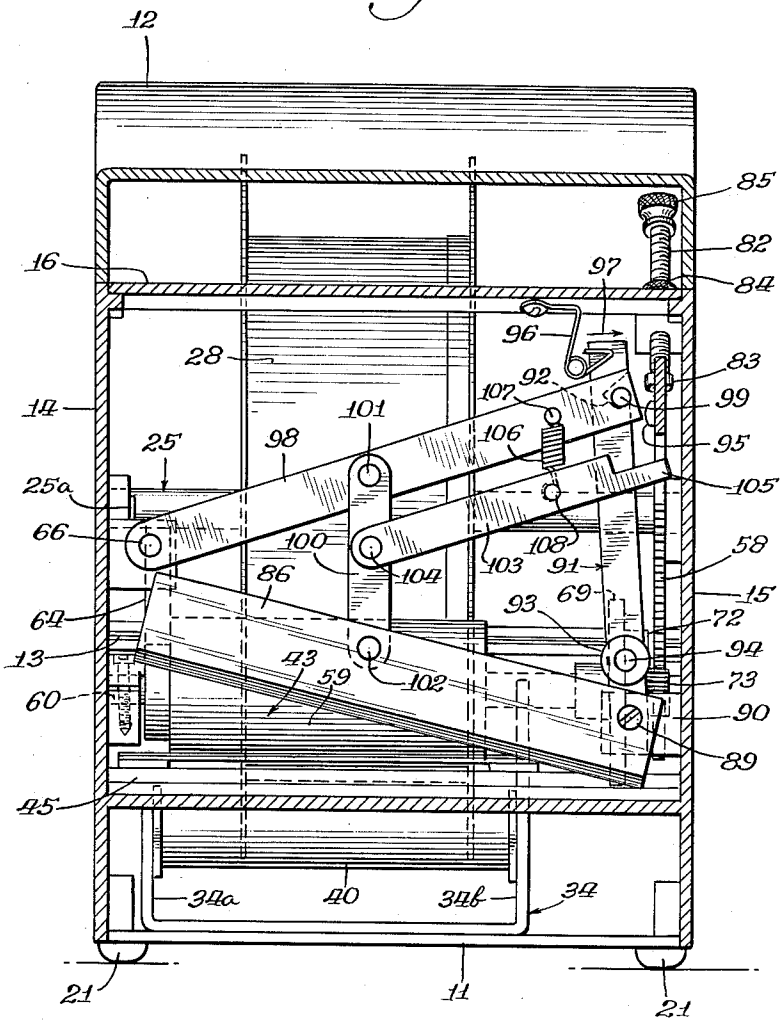
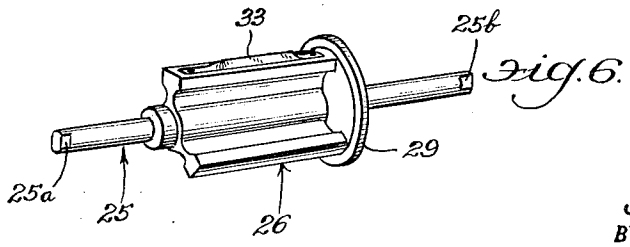



Fig. 6.




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Fig. 4.

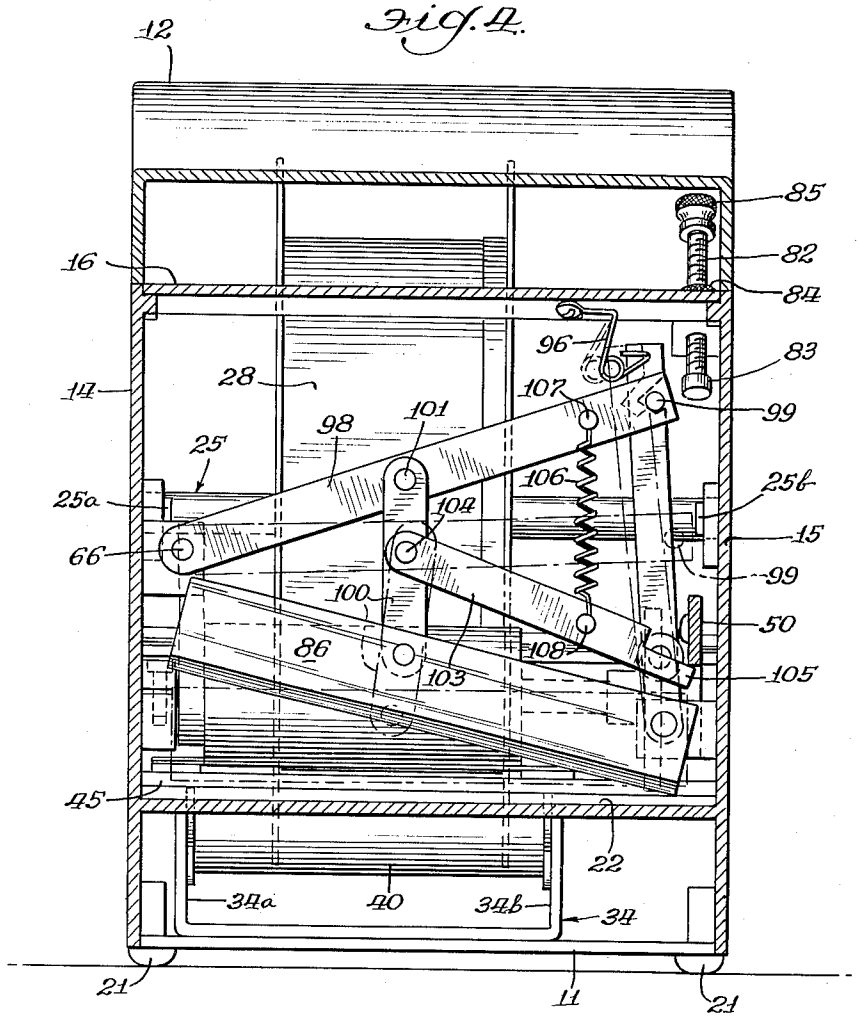
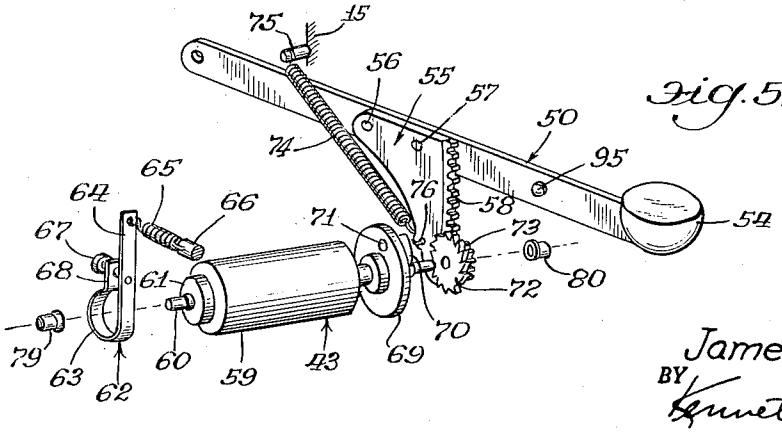



Fig. 5.




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# 3,063,322
# MANUALLY ACTUATED PRECHARGING MEANS FOR OSCILLATING TOOL

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Filed June 8, 1959, Ser. No. 818,882
3 Claims. (Cl. 83—587)

This invention relates to a new and improved dispenser for strip material.

Modern business practices are constantly changing. Automation has not only occurred in factories and shops but has also engulfed clerical and office procedures. This is true whether or not the business involved is great or small. Attention is directed to our co-pending application entitled Apparatus for Feeding and Applying Stencils, Serial No. 761,040, filed September 15, 1958, wherein there is shown a machine for automatically applying a stencil to an invoice and repeating that process by reason of utilizing a continuous supply of invoice forms and a continuous supply of stencil material in roll form and the machine arranged and constructed to cut a length of stencil material, feed it to a position relative to an invoice form, and apply it to the invoice form in a predetermined desired position. Obviously the industry capable of keeping such a machine operating to efficient capacity is necessarily a large one and it is apparent that all businesses do not carry on a volume sufficient to warrant an investment in the apparatus shown in our co-pending application. However, even though a smaller business would not require the necessarily fully automatic mechanism shown in our co-pending application, it would be and is desirable for any small business, regardless of the volume of business conducted by that concern, to reap benefits from having stencils attached to their invoices at the time of preparing the invoice to enable the simultaneous typing of a shipping stencil when the invoice is typed to facilitate proper addressing of the packages constituting the shipment of the invoice. When the address stencil for packages to be shipped is cut simultaneously with the typing of the invoice address the goods will be shipped to the same address as the invoiced address, and this of course facilitates savings in business practices. Stencils can be and are sold individually to small businesses and these businesses have their employees apply the stencils to the invoice forms at the time of typing the invoice. In intermediate size businesses the purchasing of individual stencils is satisfactory, yet if more than one size invoice is used by the business then it is necessary to stock multiple numbers of sizes of stencils to go with any particular invoice.

It is therefore a principal object of this invention to provide a dispenser for strip material such as stencils from roll formation.

Another important object of this invention is the provision of a stencil dispenser wherein a stencil from a roll may be cut to any desired length and be discharged from the dispenser merely by an operator depressing one lever.

Still another important object of this invention is to supply a stencil dispenser with means for adjustably delivering and cutting a single stencil to any desired length in the operation thereof.

Another and still further important object of this invention is to equip a dispenser of stencil material with means to hold a roll of stencil material, means to discharge a predetermined quantity of the stencil material, cut off that predetermined quantity of material, and discharge the cut stencil piece for immediate use in office procedures without having first to remove a protective backing sheet.

Another and still further important object of this invention is to provide means in a dispenser for feeding



an adjustable length of strip material from a roll supply and simultaneously charge the knife with sufficient power to enable cutting of the strip material so fed from the roll by the operation of a single manually controlled lever, the degree of arcuate swinging of which is varied depending upon the length of feed of strip material desired.

Other and further important objects and advantages will become apparent from the disclosures in the following specification and accompanying drawings.

In the drawings:

FIGURE 1 is a sectional view through the length of the stencil dispenser of this invention and taken substantially on the line 1—1 of FIGURE 2.

FIGURE 2 is a top plan view of the stencil dispenser as shown in FIGURE 1 with portions of the cover removed to show interior construction.

FIGURE 3 is a sectional view taken on the line 3—3 of FIGURE 1.

FIGURE 4 is another sectional view similar to that of FIGURE 3 but with the operating lever moved through a substantial portion of its stroke.

FIGURE 5 is an exploded view of a portion of the drive mechanism imparting feed to the feed roll which dispenses stencil or other pieces of strip material.

FIGURE 6 is a perspective view detail of the roll core employed in the stencil dispenser of this invention.

As shown in the drawings:

The stencil dispenser of this invention is equipped with a housing **10** generally including a base **11** and a curved top cover **12** which is hinged at **13** to the base **11**. As best shown in FIGURE 2, the housing further includes spaced-apart side sheets **14** and **15** which provide the primary means for carrying the operating elements within the housing **10**. A cross member **16** is arranged to span the spaced side members **14** and **15** and be fastened thereto by means of screws **17** and **18** to constitute another part of the housing **10**. The hinged cover **12** is adapted to have its front edge portion **19** rest against the cross frame member **16** in the closed position of the dispenser housing. A relatively light gauge front sheet **20** is arranged to enclose that portion of the dispenser housing extending from the base **11** up to the closed position of the cover **12**. The base **11** is provided with table engaging pads **21** at the four corners of the rectangularly shaped base to cushion the mounting of the device on any support. The base portion **11** has a ledge **22** at the forward end of the dispenser to receive the cut stencil or strip pieces as they are discharged thereover.

As best shown in FIGURE 2, brackets **23** and **24** are provided on the sides **14** and **15** respectively to receive and support opposite ends of a spindle or shaft member **25**. The shaft **25** is arranged to carry a core member **26** which in turn receives a large spool **27** having wound thereon a roll of prepared stencil or other strip material **28** to be dispensed. The core **26** is provided at one end with an enlarged disc-like flange **29** and extending from the disc **29** to the other end is provided with three equally spaced apart radial ribs **30**, **31** and **32**. The rib **32** is provided along its outer surface with a V-shaped leaf spring **33** to frictionally engage internally of the spool **27** to securely hold the spool on the core **26**. Each of the bracket members **23** and **24** is provided with an upwardly open socket **23***a* and **24***a* respectively. The ends of the shaft **25** shown at **25***a* and **25***b* are milled with parallel sides so that they may slide vertically within the open sockets **23***a* and **24***a* and thereby prevent the shaft from rotating within the bracket members **23** and **24**. However, the open topped sockets **23***a* and **24***a* permit easy removal of the shaft **25** by lifting vertically from the brackets **23** and **24**.

As best shown in FIGURE 6, the spool receiving core member **26** is mounted on the shaft **25** for separate rota-

tional movement thereon. As shown in FIGURES 1 and 2, the spool 27 having wound thereon a prepared stencil or other strip material 28 to be dispensed by the dispenser of this invention, is removably carried on the core member 26 and thus the entire shaft assembly may be lifted vertically from the brackets 23 and 24. The spool or reel 27 is provided with a centrally disposed cylindrical cardboard member 27*a* and radially extending circular side members 27*b* and 27*c*. The material 28 to be dispensed is wound on the cardboard drum 27*a* between the spaced disc-like walls 27*b* and 27*c*.

As best shown in FIGURE 6, the core 26 is preliminarily positioned on the shaft 25. It is preferred that substantial friction exist between the core 26 and the shaft 25 so that the core 26 generally resists rotation on the shaft 25 on which it is journalled. The frictional means employed between the core and the shaft has not been shown in detail. The reason for desiring resistance to the rotation on the shaft 25 by the core 26 is to prevent overrun or unwarranted discharge of the stencil or other material being dispensed when the strip pulling mechanism, to be subsequently described, is stopped. The end disc 29 is larger in diameter than the internal cardboard cylinder center of the spool and thus acts as the innermost stop for the spool on the core 26. The leaf spring 33 is recessed at its ends within the top of the spoke-member 32 with the central portion of the spring projecting upwardly and one edge thereof 33*a* being considered the leading edge and raised above the other or trailing side of the leaf spring. When the spool 27 is slid over this assembly to a position abutting the disc 29, the leading edge 33*a* of the leaf spring 33 tends to bite into the cylinder core 27*a* of the reel 27 and thereby cause joint or concurrent movement of the spool 27 with the core 26 at least in one direction of rotation.

A bracket 34 affixed to the inside of the base member 11 of the frame supporting structure 10 includes spaced side members 34*a* and 34*b* to which are hingedly attached spaced apart arm members 35 and 36. Hinge pins 37 and 38 in axial alignment one with the other hingedly support the spaced arms 35 and 36 to the bracket 34. The other ends of the generally parallel arms 35 and 36 are joined by a cross shaft 39 on which is mounted a feed roller 40 of rubber or metal such as aluminum. The roller 40 is a pressure roller and constitutes one of two cooperative feed rolls which act to feed or dispense stencil or other material from the spool 27. Spaced apart springs 41 and 42 normally urge the sub-frame of arms 35 and 36 and cross shaft 39 upwardly. One end of the spring 41 is fastened to a post 41*a* on the roll carrying arm 35 and the other end of the spring 41 is fastened to a post 41*b* on the bracket wall 34*a*. Similarly the spring 42 has one end fastened to a post 42*a* on the roll carrying arm 36 and the other end of the spring 42 is fastened to a post 42*b* on the spaced apart wall 34*b* of the fixed bracket 34. The joint action of the springs 41 and 42 causes the sub-frame to swing upwardly about the aligned hinges 37 and 38 on the bracket 34.

As shown in FIGURE 1 a second feed roll 43 is mounted directly over the roll 40 and cooperates with the roll 40 to feed a sheet material therebetween. A strand of strip material 44 from the spool 27 extends down from the top of the spool and then extends forwardly beneath the upper roll 43 and over the lower roll 40 whereafter it passes through the forward end of the dispenser over a ledge-like member 45. A fixed guide sheet 46 is spaced above the ledge 45 to define a relatively enclosed passage for the strand of material 44 on its passage out of the dispenser. The roll 43 is rotatably driven in a manner which will be subsequently described, whereas the roller 40 merely has frictional engagement with the driving roll 43 to thereupon hold the strip material 44 to be discharged against the driving roll.

As shown in FIGURES 1 and 2, a rod-like member 47



is journally mounted for rotation in the spaced end walls 34*a* and 34*b* of the bracket 34. A bent end 48 provides a hand engaging portion to permit manual rotation of the shaft 47. Cam members 49 and 49*a* are fixedly mounted in spaced apart positions on the shaft 47 adjacent the arms 35 and 36 of the roll carrying frame. The cam elements 49 and 49*a* are arranged so that in the position as shown in FIGURE 1 the roll 40 may have frictional contact with its cooperative roll 43. However, if the L-shaped end 48 of the rod member 47 is swung around the shaft rotates causing the larger portion of the cams 49 and 49*a* to move the arms 35 and 36 downwardly against the action of the springs 41 and 42 thus rendering ineffective the action of the cooperative feed rolls 40 and 43 in the delivery of a paper product from this dispenser.

An operating lever 50 is hingedly mounted at 51 on the side wall 15 of the dispenser. A sleeve spacer 52 is disposed between the operating lever and the side wall 15 to maintain clearance between the lever 50 and the side wall. The forward end of the operating lever 50 extends through a slot 53 in the front panel 20 of the dispenser. A large knob-like member 54 is fastened to the forward end of the arm 50 and enables an operator of the dispenser to move the lever 50 downwardly about its hinge 51. As best shown in FIGURE 5 the operating arm 50 is provided with a downwardly depending bracket member 55 riveted to the arm at 56 and 57. The bracket member is provided with an arcuate gear rack 58 along its forward edge thereof. Also shown in the exploded view of FIGURE 5 is the feed roll 43, which includes a rubber outer surface 59 and an inner shaft 60. A drum-like member 61 is provided at the end of the larger diameter rubber portion 59 of the roll and projects endwise therefrom. A roll rotation retarding element 62 includes a drum engaging loop 63 and an upwardly projecting arm 64 to which is attached a light spring 65. The spring is fastened at its other end to a shaft or pin 66 as shown in FIGURES 3 and 4. The strap-like brake element 62 is completed by having a screw 67 passing through an upper extension 68 of the loop 63 for engagement with the upwardly projecting arm 64. The brake member 62 acts to slightly retard rotation of the driven feed roll 43 to insure and control accurate feeding of the stencil or other material being dispensed.

The other end of the roll 43 has mounted therearound an enlarged ring-like member 69 which has a pawl 70 hinged thereto at 71 adjacent the outer periphery thereof. A ratchet wheel 72 is arranged and constructed to be engaged by the pawl 70 of the ring-like member 69. A spur gear 73 is formed integrally with and adjacent the side of the ratchet wheel 72 for engagement with the arcuate gear rack 58 of the depending bracket 55 on the operating arm or lever 50. Thus when the knob 54 of the lever 50 is depressed the gear rack 58 moves downwardly causing rotation of the spur gear 73 and a similar rotation of the ratchet wheel 72. During this downward movement the pawl 70 engages the ratchet wheel 72 and causes a rotation of the ring member 69. The ring member 69 is affixed to the roll 43 so that on a downward movement of the operating arm 50 there is a corresponding rotational movement of the upper feed roll 43. A spring 74 is fastened to a post or the like 75 just above the arm 50 and is fastened at its other end to an attaching pin or the like 76 on the lower end of the bracket 55. Thus there is a normal urging of the operating arm 50 to return to its uppermost position such as shown in FIGURE 1. When the arm 50 is returned upwardly the pawl 70 ratchets freely over the ratchet teeth in the wheel 72 so there is no reverse direction of rotation of the feed roll 43.

Downward movement of the operating lever 50 is accomplished by manually depressing the knob 54. The depending bracket 55 with its arcuate gear rack 58 on the forward end thereof causes rotation of the spur gear 73 as shown in FIGURE 1. Similarly the ratchet wheel

72 is rotated simultaneously with the spur gear 73 inasmuch as they are formed integrally one with the other. The large disc-like member 69 is rotated by reason of the pawl 70 engaging the ratchet wheel 72. As previously stated, during downward movement of the operating lever 50 the feed roller 43 is actuated whereas during the upward stroke of the operating lever 50 the pawl merely "freewheels" or ratchets over the ratchet wheel teeth. This is clearly evidenced in FIGURE 1 wherein when the gear rack 58 is lowered the spur gear 73 and ratchet wheel 72 are rotated in the direction of the arrow 77. In this direction of rotation the pawl is prevented from slipping out of the ratchet wheel teeth by reason of the right angle portions of the teeth whereas when the ratchet wheel rotates in an opposite direction the pawl 70 slides up and over the very shallow angles of the ratchet wheel teeth so that in effect there is provided a one-way drive of the feed roll 43. A small spring element 78 is arranged to constantly urge the pawl 70 against the ratchet wheel 72. The exploded elements of FIGURE 5 include the shaft 60 as being journally mounted in spaced bearings 79 and 80 in the spaced apart side walls 14 and 15 of this dispenser.

The amount of rotation of the feed roll 43 may be adjusted in order to enable the dispenser to feed various lengths of the material supply 28 from the forward end thereof. It is obvious that if the starting position of the operating lever 50 were changed, there would be more or less rotation of the spur gear 73 and thus more or less rotation of the feed roll 43. The adjustment means of this invention utilizes the principle just described. Adjustment is accomplished by utilizing a bracket or ledge 81 and a cooperative screw 82. The bracket 81 is fastened to the inside of the wall 15 adjacent to the cross shelf 16 intermediate the cover and front panel of the dispenser of this invention. The cooperative screw 82 threadedly engages the ledge 81 and has a foot or bottom portion 83 adapted to abut the top surface of the operating lever 50. A lock nut 84 is fastened to the screw 82 as best shown in FIGURE 1 for engagement with the top surface of the ledge 81 thereby accurately controlling the distance between the upper surface of the operating arm 50 and the underside of the ledge 81. A head 85 is provided on the top of the screw 82 to facilitate easy screwing of the member into or out of the fixed ledge 81. Thus if a shorter stencil were required the lock nut 84 would be loosened and the screw 82 would be turned downwardly. This causes the foot 83 to move the top surface of the operating arm 50 downwardly with respect to the maximum uppermost position of the arm. Thus there is a reduced number of effective gear rack teeth 58 engaging and rotating the spur gear 73.

A further function of the dispenser of this invention is to shear a piece of stencil, or other paper material, from the source of supply 28 and thereupon discharge a completely severed piece of the material dispensed. The ledge 45 previously described as the shelf over which the stencil material is discharged, also acts as a stationary shear member. A movable shear or knife element 86 is adapted to cooperate with the ledge member 45 in shearing the stencil material into predetermined lengths such as that shown being discharged at 87 in the direction of the arrow 88. The movable knife 86 is hingedly mounted on a pin 89 affixed to a stationary bracket or the like 90 which in turn is fastened to the side wall 15 of the dispenser of this invention. A vertical arm member 91 is hinged on the other side of the bracket or boss 90 in alignment with the pin 89 which as previously stated constitutes the hinge for the movable knife member 86. The vertically disposed arm member 91 is characterized in two respects, first it has a cut-out or notched portion 92 adjacent the upper end thereof and along the right hand side as viewed in FIGURE 3 and second a small roller 93 is mounted thereon by means of a pin or the like 94. The roller 93 is disposed relatively close to the hinge axis 89 about which the vertical member 91 is capable of swinging in a transverse arcuate path as viewed in either FIGURE 3 or 4. A pin 95 affixed to the operating arm 50 and projecting outwardly therefrom is arranged and constructed to engage the roller 93 on the vertical member 91 thereby causing the vertical member 91 to swing about its axis 89 inwardly toward the center of the dispenser against the action of the torsion spring 96 when the operating arm is swung downwardly. As shown in FIGURES 3 and 4 the vertical post 91 is swung outwardly in the direction of the arrow 97. A first cross link or arm 98 is hinged on the pin 66 to which the brake spring is fastened as previously described. A pin 99 on the link member 98 is arranged to engage the notch 92 in the vertical member 91. A vertically disposed link member 100 is hinged at its upper end at 101 to the link 98 and at its lower end at 102 to the movable knife member 86. A second cross link or arm 103 is hinged at one end at 104 to the vertical link 100 intermediate the attachment of the link 100 to the link arm 98 and the movable knife 86. The other end of the link arm 103 has a tongue-like projection 105 which is disposed beneath the operating arm 50 in such a manner that when the arm 50 is moved downwardly by the operator depressing the knob 54 the link member 103 is moved downwardly about its hinge 104 causing an extension of a spring 106 which joins the first and second cross links 98 and 103. The spring 106 engages an attaching post 107 on the member 98 and an attaching post 108 on the member 103. The extension of the spring 106 is clearly indicated in FIGURE 4 where the link arm 103 has been lowered substantially and has moved away from the upper link arm 98. The upper link arm 98 is prevented from moving downwardly by reason of the engagement of the pin 99 in the notch 92 of the vertical swinging member 91. When the operating arm 50 is depressed causing the pin 95 to engage the roller 93 and move the member 91 outwardly the member 98 is pulled abruptly downwardly. Of course when the member 98 is swung downwardly there is a simultaneous abrupt downward movement of the swinging knife 86 to thereupon shear the stencil or other paper material which is fed through the passage over the ledge 45 and beneath the guide member 46. This means that the cutting means in the dispenser is not dependent on the speed which the operator moves the control arm 50 downwardly. There is no gradual shearing of the discharged material but rather an immediate and abrupt full shearing of that material which is being dispensed. Immediately following the delivery of the stencil material from the supply 28 and the cutting off thereof as evidenced by the cut and separated stencil 87 being discharged outwardly and forwardly from the dispenser the operator is entirely through with his part of the operation and he merely releases his grip on the knob 54 whereupon the spring pulls the lever 50 upwardly to its starting position. This starting position is dependent on the position of the adjustable foot 83. Also at this starting position all of the knife mechanism is reengaged for commencing the discharge and dispensing of another piece of the roll supply 28.

In the operation of the device of this invention a supply of strip stencil or other paper material is placed on the spindle core 26 in the form of a spool 27 whereupon the material is threaded beneath the cooperative feed roll 43 and over the upwardly spring biased lower feed roll 40 and thence out the guide passage defined by the lower ledge 45 and upper confining plate 46. The length of stencil or paper material desired to be cut from the spool supply 28 is determined by the position of the screw 82 and its limit foot or stop 83. The operator now depresses the knob 54 causing the arm 50 to be swung downwardly thus rotating the feed roll 43 and delivering a predetermined length of stencil or other paper material through the shear members 45 and 86. Immediately

upon the operating arm reaching its lowermost position the pin 95 engages the roller 93 causing an outward swinging of the vertical member 91 and a releasing of the knife mechanism as just described. Thereupon the stencil piece as shown at 87 is severed from the roll supply 28 and the operating lever swings upwardly for resetting of the mechanisms and enabling the dispenser to be immediately used again in dispensing a similar length of material. Or, the screw 82 may be readjusted and some other length of material may be dispensed.

Previously stencils were each equipped with a protective backing sheet to prevent the stencils from sticking together when they were stacked up for packaging. In the dispenser of this invention the roll of stencil supply does not require a backing sheet and thus the stencils dispensed by depressing the handle lever 50 are immediately ready for use. The saving in time by using this dispenser and not having to strip a protective sheet from each stencil is material and there is thus a corresponding substantial saving in labor cost.

I am aware that many details of construction may be varied throughout a wide range without departing from the principles disclosed herein and I therefore do not propose limiting the patent granted hereon otherwise than as necessitated by the appended claims.

What is claimed is:

1. A strip cutting knife mechanism including a supporting structure, a stationary shear plate mounted on said supporting structure, a shear knife hingedly mounted on one side of said supporting structure at a position closely adjacent one end of said stationary shear plate, and linkage means intermediate said supporting structure and said shear knife for causing said shear knife to move past said stationary shear plate in a cutting action, said linkage means including a generally vertically disposed arm hinged at its lower end on said supporting structure, said arm having a notch cut inwardly from one side thereof near the upper end thereof, a first cross link hinged on said supporting structure at a position spaced from said arm hinge, pin means in said first cross link at its end opposite its hinge mounting and arranged at engage said notch, a first spring means normally urging said vertical arm in a direction to maintain engagement of said pin in said notch, a generally vertical link hingedly joining said first cross link and said knife, a second cross link hingedly joining said vertical link intermediate its hinged ends, a second spring joining said first and second cross links, an operating member, means actuating said linkage means comprising a sequence of operations in which the operating member swings said second cross arm about its hinge to precharge said second spring, said operating member swings said vertically disposed arm about its hinge to release said first cross link from the notch in said vertically disposed arm, said precharged second spring causing said released first cross link to swing about its hinge to thereby cause said vertical link to swing said hinged shear knife about its hinge past said stationary shear plate.

2. A strip cutting knife mechanism including a supporting structure, a stationary shear plate mounted on said supporting structure, a shear knife hingedly mounted on one side of said supporting structure at a position closely adjacent one end of said stationary shear plate, and linkage means intermediate said supporting structure and said shear knife for causing said shear knife to move past said stationary shear plate in a cutting action, said linkage means including a generally vertically disposed arm hinged at its lower end on said supporting structure, said arm having a notch cut inwardly from one side thereof near the upper end thereof, a first cross link hinged on said supporting structure at a position spaced from said arm hinge, pin means in said first cross link at its end opposite its hinge mounting and arranged to engage said notch, a first spring means normally urging said vertical arm in a direction to maintain engagement of said pin in said notch, a generally vertical link hingedly joining said first cross link and said knife, a second cross link hingedly joining said vertical link intermediate its hinged ends, a second spring joining said first and second cross links, means actuating said linkage means, means for actuating said linkage means including an operating lever hingedly mounted on said supporting structure, said operating lever arranged to engage said second cross link and swing it downwardly away from said first cross link against the action of said second spring and extending said second spring, and means on said operating lever swinging said vertical arm about its lower hinge mounting against the action of said first spring means, whereby the pin is released from said notch permitting said first cross arm to abruptly swing down about its hinge by the pulling action of said extended second spring thus causing said joined knife to abruptly swing down past said stationary shear plate.

3. A device as set forth in claim 2 in which there is included a third return spring means for said operating lever to reengage said knife mechanism to its starting position.

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