

[54] **TAPE PUNCH**

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[63] Continuation of Ser. No. 727,759, May 6, 1968,
abandoned.

[52] U.S. Cl.**234/38, 234/45, 234/78,**
234/128

[51] Int. Cl.**G06k 1/10**

[58] Field of Search.....**234/35, 37, 38, 45, 48, 78,**
234/100, 128

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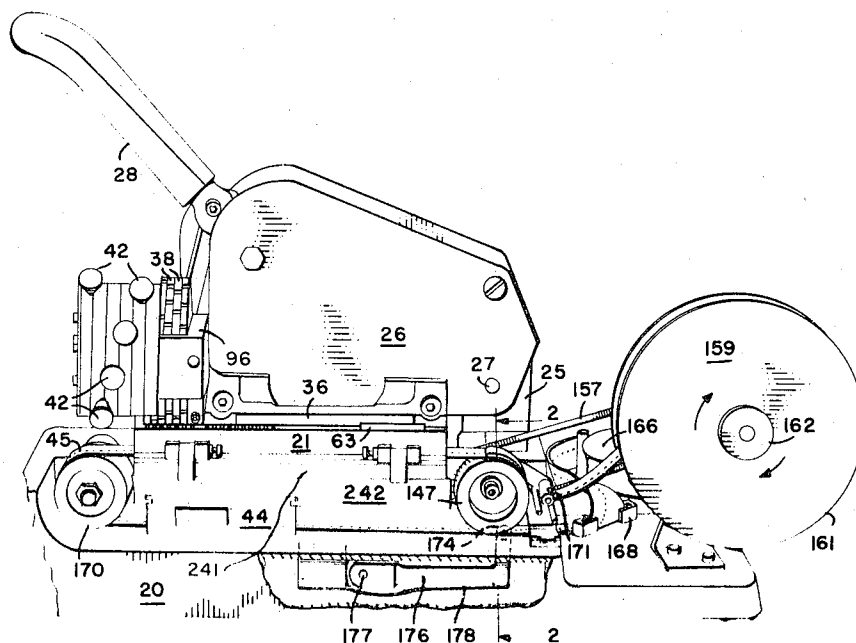
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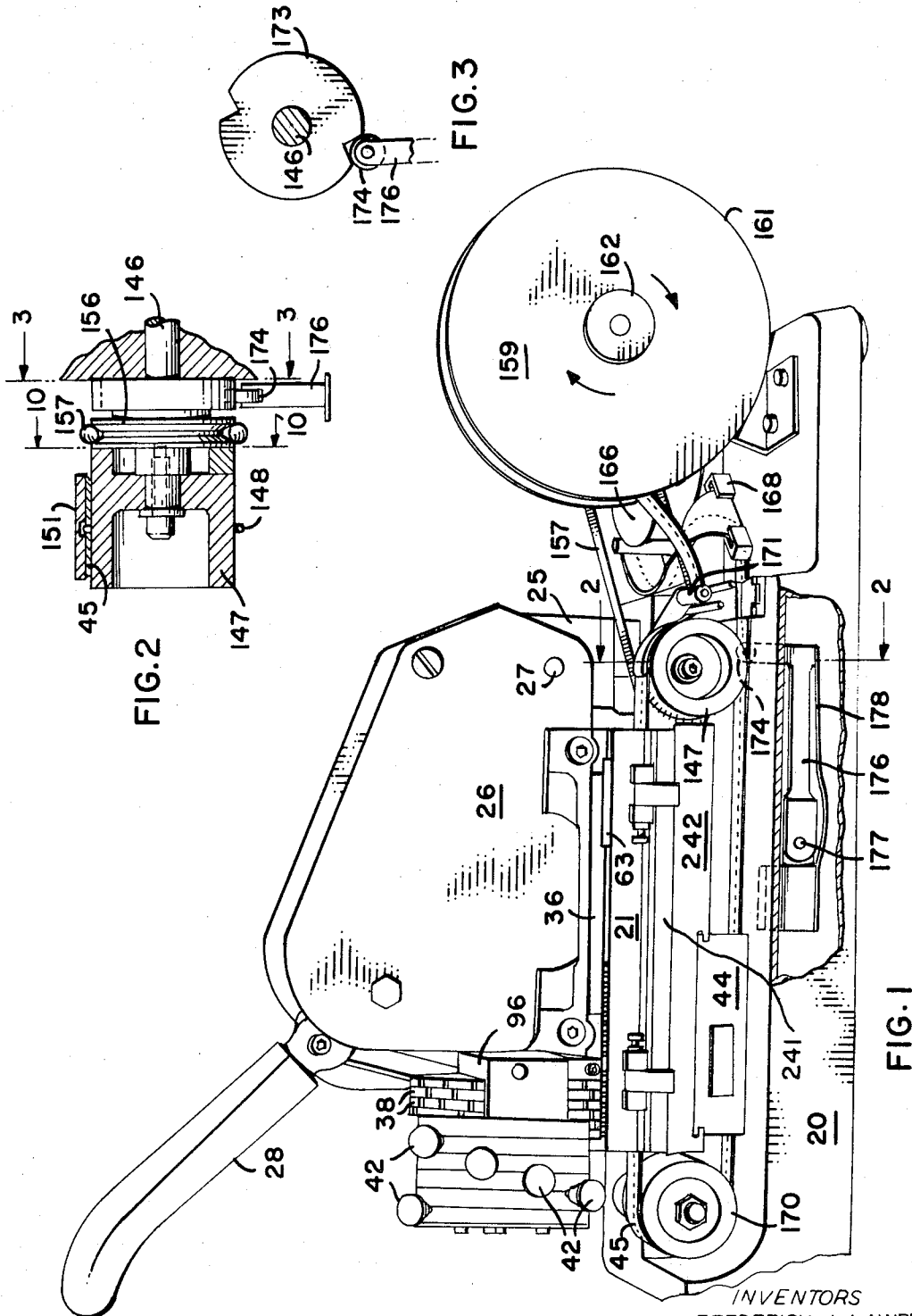
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[57] **ABSTRACT**

A manually operable tape punch for producing code perforations in tape in which a manually operable punch member operates a perforating mechanism including a rectangular array of die holes and a corresponding rectangular array of perforating pins. The pins are yieldably held in a raised position by spring plate means cooperating with all the pins and yieldably mounted by means of a selected plurality of compression springs. The selection of the perforations to be punched may be carried out by a code card by a plurality of adjustable members which are carried by the punch member and associated with the remaining rows of pins of said rectangular array.

7 Claims, 19 Drawing Figures

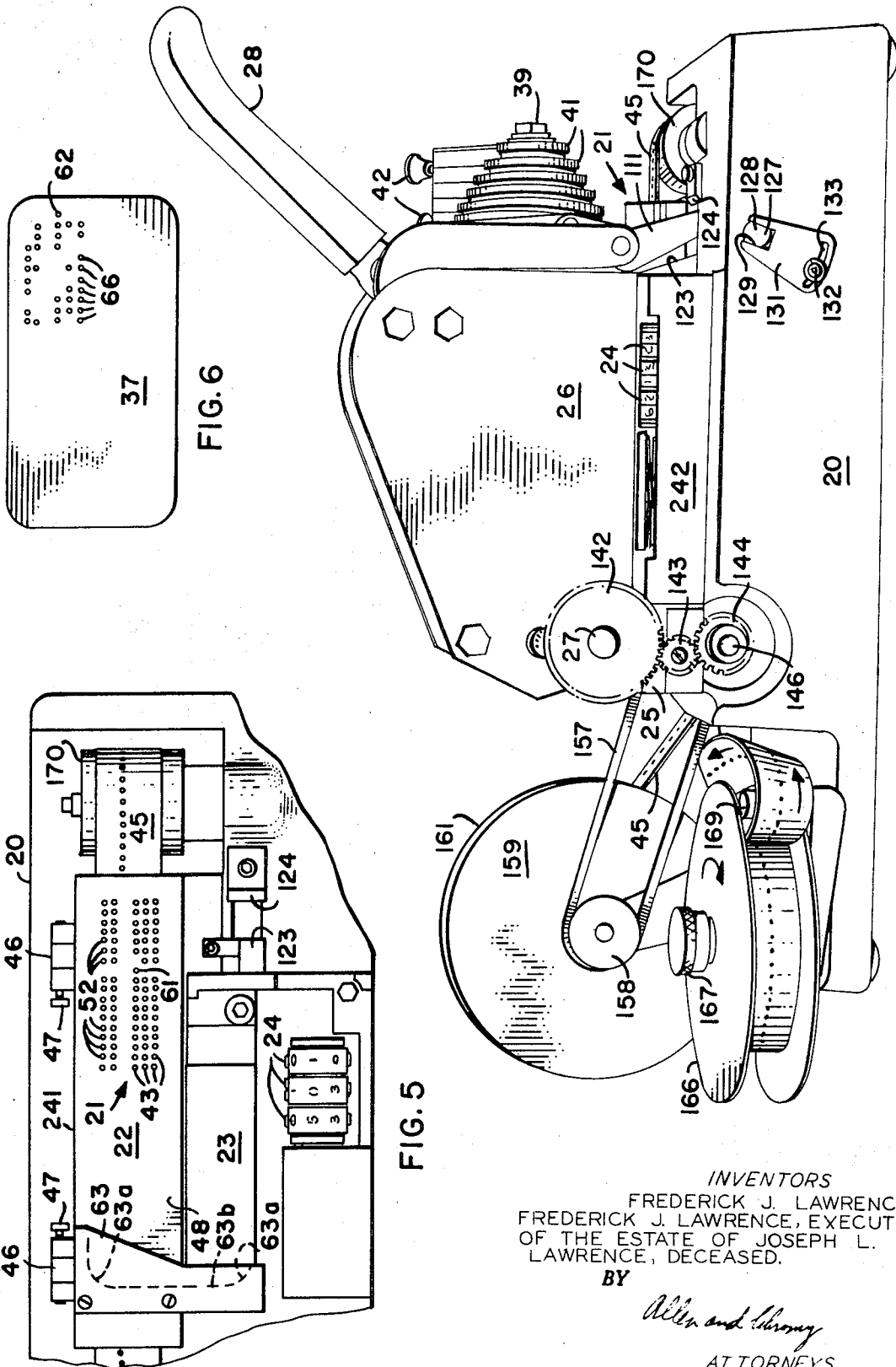




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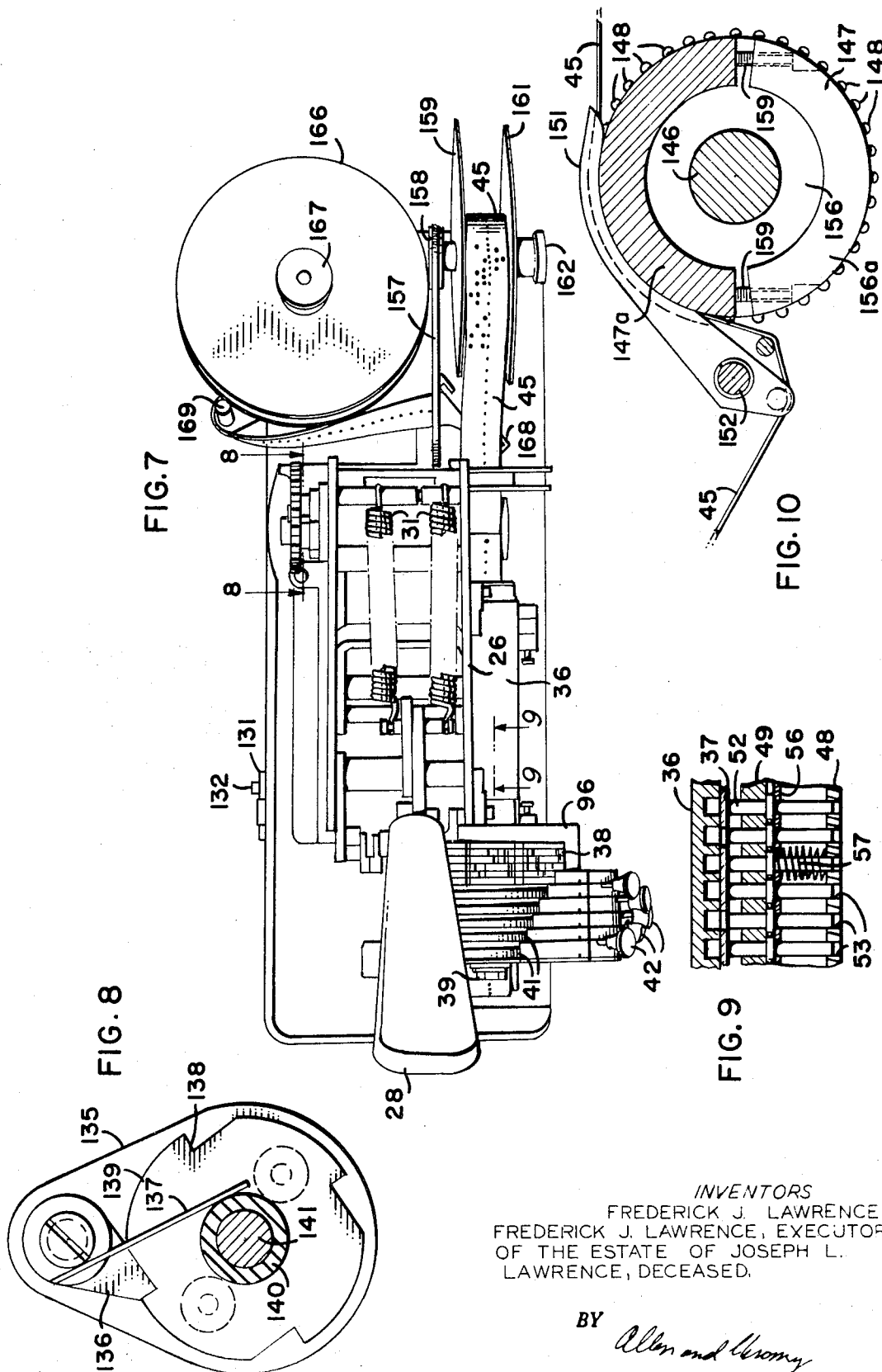


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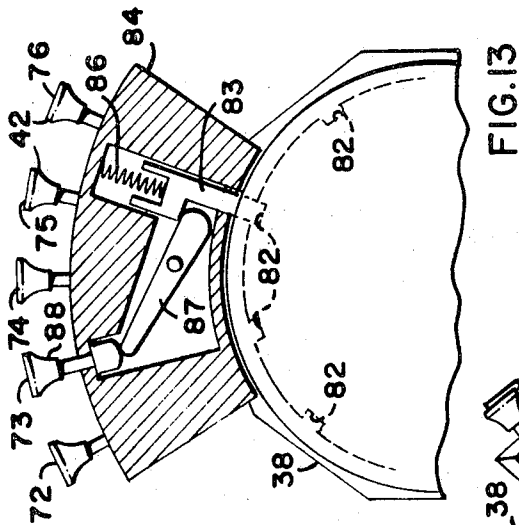


FIG. 13

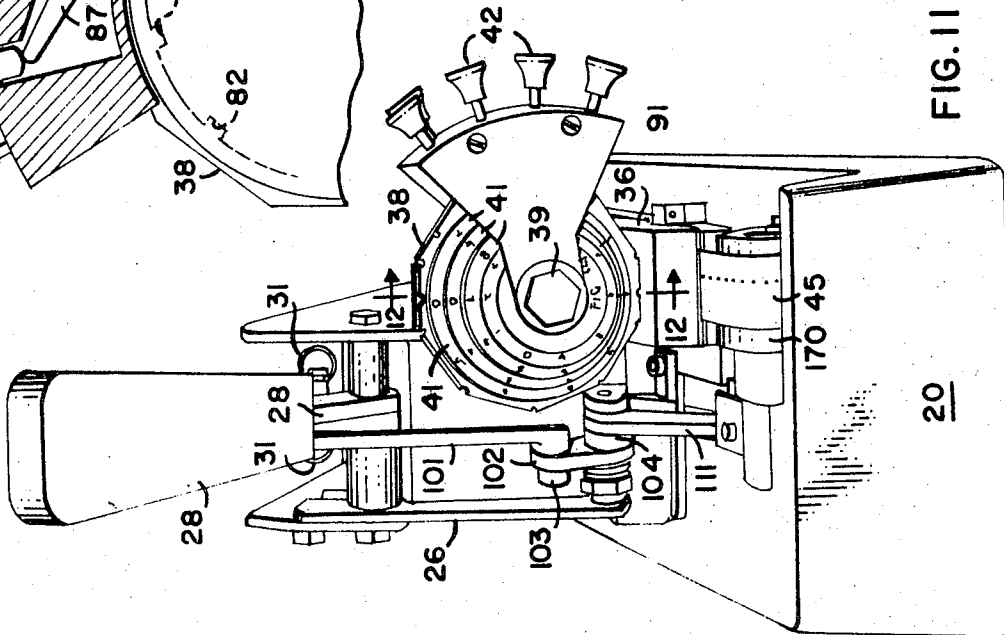


FIG. 11

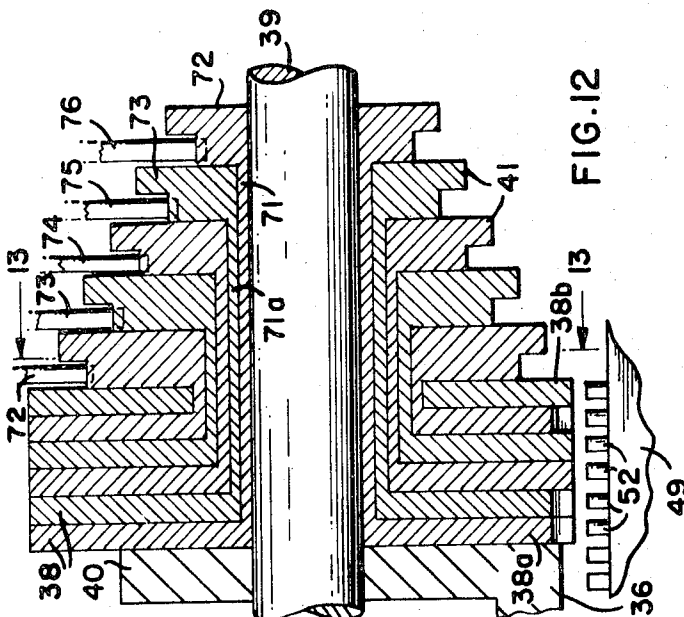


FIG. 12

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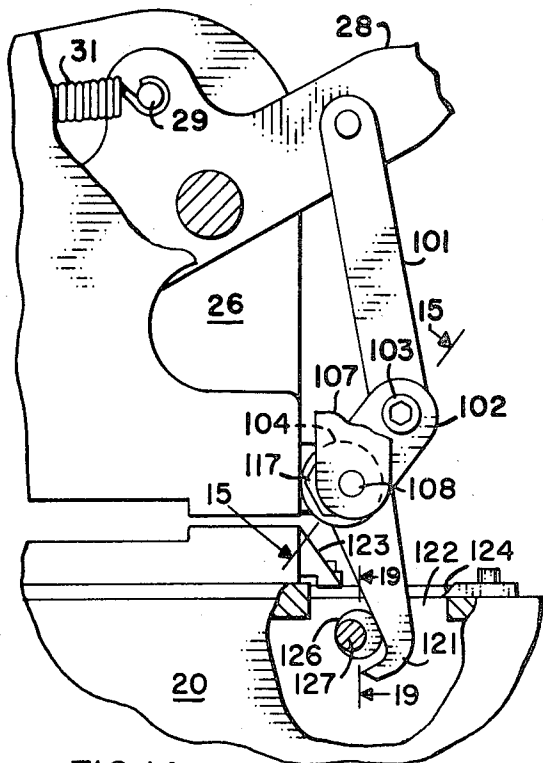


FIG. 14

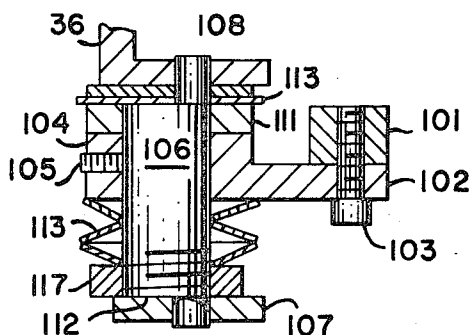


FIG. 15

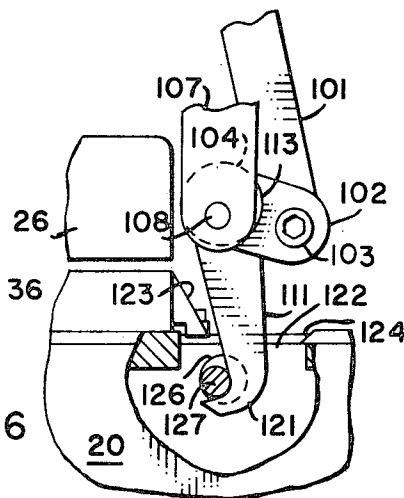


FIG. 16

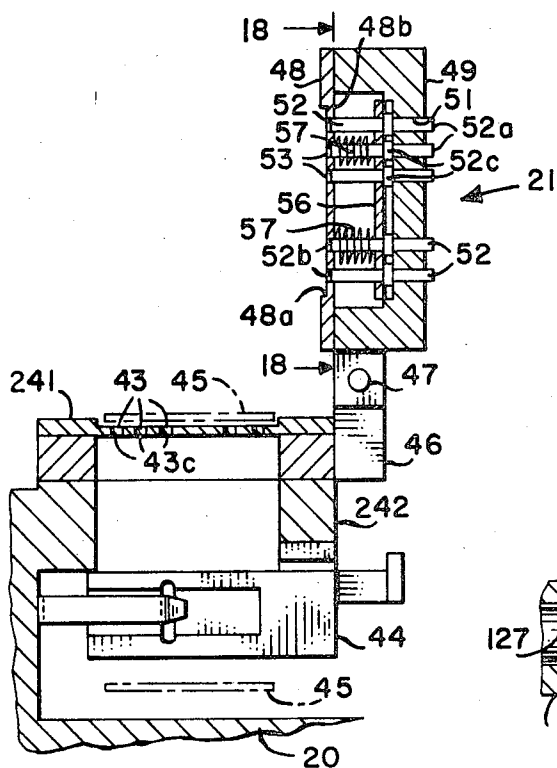


FIG. 17

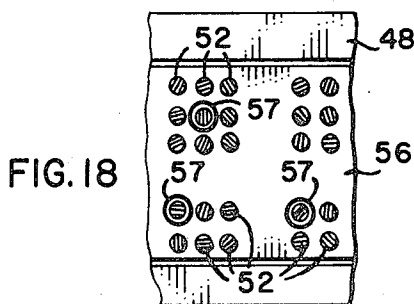


FIG. 18

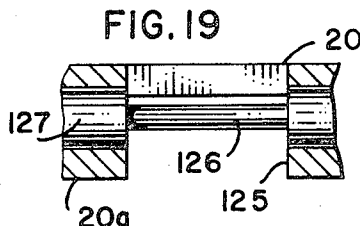


FIG. 19

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TAPE PUNCH

This application is a continuation of our copending Application Ser. No. 727,759 filed May 6, 1968, now abandoned for TAPE PUNCH.

DESCRIPTION OF THE INVENTION

The present invention relates to a manually operable tape punch of the type adapted for producing five-channel or more coded or punched tape for use in data processing and the like, and is concerned more particularly with a tape punch of the above character which can be employed to perforate data representing certain fixed characters corresponding to the characters in a perforated code card for use with the tape punch, and certain adjustable code character members in the punch representing data related to the data perforated by the fixed characters.

For example, in the manufacturing operation it is desirable in connection with a system of purchasing, or of taking inventory, to represent a particular article by a number code, and to represent certain data, for example the amount of the article inventory, and the desired purchase, also in code on tape so that the punched tape can be used in automatic accounting operations. Also in connection with credit card operations, the credit card of a purchaser has code perforations representing the identity of the purchaser, or his account number, and the adjustable means or character members can be employed to enter the amount of the purchase in the punched tape, which data is later transmitted to a central accounting system.

The tape punch of the present invention is adapted to be used in systems of the above character and to provide a portable, easily operated, tape punch for the above and similar purposes.

It is a general object of the invention to provide an improved tape punch for producing perforated coded tape.

Another object of the invention is to provide a tape punch of the above character which is manually operable and does not require any connection to a source of power.

A further object of the invention is to provide a tape punch of the above character in which certain of the perforations to be placed in the tape are fixed in accordance with a code card or a reference data, and the remaining perforations to be placed in the tape can be selected to represent varying information with respect to the permanent code data placed on the tape with the code card.

Another object of the invention is to provide a tape punch of the above character in which the operation of punching the tape automatically controls the feeding of the tape for a desired amount for the next operation.

Still another object of the invention is to provide a tape punch of the above character in which the punching means and the tape supporting means are coupled together during the punching operation, but can be separated to allow easy access to the tape when the punching operation is not in process.

A further object of the invention is to provide a tape punch of the above character which has a punching pin assembly which can be separated at the location of the tape so that inspection of the tape can be easily made and the tape can be easily inserted or removed therefrom.

Still another object of the invention is to provide a tape punch of the above character in which a card holder provides for easy and quick alignment of a code card when placed in the tape punch.

5 A still further object of the invention is to provide a multiple row punch mechanism having an improved spring assembly which is utilized with a plurality of rows of the punching pins.

10 Other objects and advantages of the invention will be apparent from the following description of the preferred embodiment thereof as illustrated in the accompanying drawings, in which:

FIG. 1 is a side elevational view in perspective of the tape punch of the instant invention;

15 FIG. 2 is a transverse sectional view, partially in elevation, taken in the plane indicated by the line 2—2 in FIG. 1;

FIG. 3 is a sectional elevation taken in the plane indicated by line 3—3 in FIG. 2;

20 FIG. 4 is a side elevational view in perspective of the punch taken from the opposite side of that shown in FIG. 1;

FIG. 5 is a fragmentary plan view of the base of the tape punch showing the code card station and the perforating pins;

25 FIG. 6 is a plan view of a code control card for use with the mechanism;

FIG. 7 is a plan view of the tape punch;

30 FIG. 8 is a sectional view taken in the plane indicated by the line 8—8 in FIG. 7;

FIG. 9 is a fragmentary detailed sectional view taken in a plane indicated by the line 9—9 in FIG. 7;

35 FIG. 10 is a transverse sectional view taken as indicated by the line 10—10 in FIG. 2;

FIG. 11 is an end elevational view of the punch mechanism;

40 FIG. 12 is an enlarged fragmentary sectional view of the adjustable elements controlling certain of the punching pins, the view being taken as indicated by the line 12—12 in FIG. 11;

FIG. 13 is an enlarged fragmentary sectional view taken as indicated by the plane of the line 13—13 in FIG. 12;

45 FIG. 14 is a fragmentary side elevational view illustrating the operation of the punch in closing of the punch assembly with reference to the die in the base;

FIG. 15 is a fragmentary horizontal sectional view, a certain part shown in elevation, the plane of the view being indicated by the line 15—15 in FIG. 14;

50 FIG. 16 is an enlarged view of a portion of FIG. 14 showing the parts in the fully closed position of the punch and the die;

FIG. 17 is a transverse sectional view through the punch mechanism showing the hinged punch part raised for inspection or adjustment of the tape;

FIG. 18 is a fragmentary sectional view taken in the plane of the line 18—18 in FIG. 17;

60 FIG. 19 is a fragmentary sectional view taken in the plane indicated by the line 19—19 in FIG. 14.

Referring to FIGS. 1, 4, 5 and 11, the tape punch includes generally a base 20, a punch pin mechanism 21 on the base including a control card station 22. A conventional printing platen 23 and a date printer 24 are also mounted on the base. A punching frame 26 is pivotally mounted at 27 on an upwardly extending portion 25 of the base, and carries an operating handle 28

which is pivotally mounted on the frame 26 and is spring-urged in a counterclockwise direction, as viewed in FIG. 14, by springs 31. The punching frame 26 carries a punching plate 36 (FIG. 11) having a rectangular array of perforations or corresponding to the rectangular array of pins in the pin assembly and cooperating with a perforated control card 37 and the card station 22 on the base. The frame 26 (FIGS. 1, 7 and 11) also carries an array of six perforating control disks or decagons 38 journaled on a horizontal shaft 39 carried by an upright wall 40 and having a corresponding array of hand wheels 41 having a plurality of release keys 42. This mechanism is described later in detail.

Punch Mechanism

Referring to FIGS. 5, 7, 9 and 11, the punch pin mechanism 21 comprises a base plate 241 carried by a frame casting 242 and having a rectangular array of perforations 43 therein, each of which is enlarged at the lower end at 43a. Below these perforations 43c there is provided in the casting 42 a slidable tray 44 to receive the chads perforated from the tape 45. The perforated base plate 241 has a pair of upstanding ears 46 which carry removable pivot pins 47 upon which the upper pin-carrying assembly consisting of two spaced plates 48 and 49 is carried, these plates 48 and 49 have a rectangular array of apertures corresponding to the array of apertures 43 in the plate 241 and the apertures 51 in the plate 49 are of a larger diameter to receive the larger ends 52a of a perforation punching pin 52, and the plate 48 has a series of smaller apertures 53 to mate with the lower reduced ends 52b of the pins 52, an annular collar 52c providing a stop for the pins against the plate 49. The lower surface of the plate 48 has a longitudinal groove 48a to engage over the tape 45 and to hold it in place for punching operations and for guiding during movement.

The spring means for maintaining the pins elevated or raised, as shown in FIG. 17, comprises a resilient, flexible thin spring plate 56 which is perforated corresponding to the smaller diameter 52b of the pins, and a plurality of selectively spaced compression springs 57 which extend between the plate 56 and a wall 48b of the member 48. The plurality of springs 57 are provided to yieldably hold the plate 56 in the position shown in balanced fashion. Upon depression of any pin 52 associated with the plate 56, the plate 56 will yield and permit depression of the pin, so that this pin can perforate the tape 45. The pins 52 which are not positively actuated, although moving slightly with the plate 56, are held by the tape 45 and will not produce a perforation. This spring means provides for use of a larger diameter spring 57 of larger size wire as it has the entire space between adjacent pins 52 to accommodate its diameter and spacing. In FIG. 17 the thickness of the plate 56 is exaggerated for clear illustration. The actual thickness of the plate 56 is in the order of 0.015 inches.

Perforation Control Mechanism

Means are provided for positioning of a perforation control or code card over the punching mechanism to control one group or rectangular array of the perforating pins in producing coded perforations in the tape, and for the other group of pins perforation control disks or decagons 38 carried by the punch mechanism.

The punch pin mechanism 21 is provided with a positioning means for the control card 37 and, referring to FIG. 5, this comprises a perforating pin 61 which is the only pin of a row and which is longer and is more elevated than any of the pins 52, and engages a corresponding hole 62 in the control card 37 (FIG. 6), and a nest formed by a plate 63 (FIG. 5) at the control card station 22 which is secured to the upper plate 48 of the punch mechanism and in part is spaced from the upper surface of this plate 48 as distance to form a card-shaped recess to receive an end of the card 37. This recess has rounded corners 63a which correspond to the rounded corners of the control card and an end wall 63b which forms a stop for the end of the control card. The flexible control card 37 can have its end placed in the recess or positioning slot formed by the plate 63 as seen in FIG. 5, and then allowed to spring down until its aperture or positioning hold 62 engages over the raised pin 61 of the group of pins 52.

As seen in FIG. 6 the control card 37 has a series of code perforations 66 which correspond in reverse code to the ordinary five-hole code, i.e., where there is no perforation a hole will be punched in the tape upon operation of the punch mechanism. Conversely where there is a perforation, the punch pin will be allowed to enter the perforation without punching the tape. The pin 61 is of sufficient length to always be operated so that the single hole in the row of perforation is always perforated to indicate "space." The unperforated row to the right of the perforations in card 37 in FIG. 6 would result in perforating the entire row having pins 52 but as seen in FIG. 5 one of these pins is omitted so that the code designation for "Figs. following" is punched in this row of holes to indicate that the following code designations, as will be explained in connection with control disks or decagons 38, are to be in "Numbers" or "Figs".

The second means for controlling perforations comprises the six settable perforation control disks or decagons 38 (FIGS. 11, 12 and 13), which have their ten sides slotted or recessed in code fashion corresponding to different number or letter symbols as the case may be. In general, as indicated in FIG. 11, each surface of the decagon corresponds to one of the numbers from 0 to 10 except the endmost decagon 38a which may have certain special designations such as "minus," "plus," or "space," and the right hand decagon 38b, as seen in FIG. 12, which is a special designation control disk, like the disk 38a and may bear the different designations of "letters," "figures," "space," "minus," "plus," etc., depending upon the desired information to be placed in between the two groups of perforations being punched. It will be noted in FIG. 12 that the decagons have their lowermost surface spaced below the adjacent bottom surface of the plate 36 by a thickness equivalent to the thickness of the control card 37 so that the active surface of the control card 37 and the lower surfaces of the control disks 38 are in the same plane with reference to the pins 52.

As seen in FIG. 12, the left-most disk 38a is secured integrally, as by brazing, to a sleeve 71 which is secured at its other end to a knurled handle or disk 72. The second control disk 38 is similarly connected by a sleeve 71a to a control disk 73 so that these disks (with

the exception of the endmost disk 38b) are controlled by the control disks or handles 72, 73, 74, 75 and 76. These adjusting or control disks may have the numerals representing the active faces of the associated punching decagons placed on the upper visible surfaces thereon if desired.

Latch means are provided for the various decagons 38 (FIG. 13) to insure their remaining in the selected adjusted position, and for this purpose the various control disks 72 through 76 are each provided with a series of ten notches 82 adapted to be engaged normally under spring pressure by a latching pawl or finger 83, which is housed in recessed frame 84 and backed up by a spring 84. Each pawl 83 is adapted to be operated by a pivoted release lever 87 having its other end under the control of a key 88 slidable in the frame 84. There is one key 88 for each of the five knurled control disks 72, etc. Upon depression of the key 88, it rocks the lever 87 and lifts the latch pawl 83 so that the associated control member can be turned and adjusted. The right-most control member of decagon 38b can be adjusted independently and has no control disk associated therewith.

The retaining plates 91 and 92 for the latch pawl mounting plates 84 are, with the latch plates 84, secured on the shaft 39 by a nut 93, and at the rear they are retained by a bracket 96 (FIG. 7) on the punch plate 36 in which the shaft 39 is secured.

In operating the punch 26 by the handle 28, means is brought into play to first lock the punch 26 and the base 20 in a connected relation as shown in FIG. 14, and then by increased leverage to make the actual perforating movement of the punch. For this purpose the handle 28 is connected by a link 101 (FIGS. 14 and 15) to an arm 102 by means of a pivot screw or stud 103. The arm 102 is provided at its lower end with a boss 104, which is secured by a set screw 105 to an eccentric portion 106 of a mounting pin 108 pivotally carried in the base plate 36 of the punch frame and a depending bracket arm 107 secured to the punch mechanism. A connecting lever or latch member 111 is also apertured to engage over this eccentric portion 106 of the pin 108 and is frictionally secured thereon between a shoulder 112 of the pin 106 and the boss 104. A spring washer 113 is held adjustably in place by a nut 117 by which an adjustable friction can be placed on the lever 111 so that it tends to move with the lever 102 and its hub 103 unless positively held against movement therewith. This lever 111 has at its lower end a hook 121 which is aligned with an opening 122 in the base casting 20 and this opening has at either side an inclined surface 123 and 124 to guide the hook 121 downwardly therethrough. This hook 121 is adapted to be moved and engage under an eccentric portion 126 of a shaft 127. The shaft 127 is journaled respectively in a side wall of the base 20 in an intermediate wall 20a and in a depending boss 125 of FIG. 19 of the base 20. This shaft 127 (FIG. 4) has a flattened end 128 to engage closely in a slot 129 in a lever 131 which is a turning handle for the shaft 127 and the portion 126 to effect vertical adjustment of the eccentric pin 128. This lever 131 is held in place by a clamp screw 132 in passing through a slot 133 in the lever and threaded into the base member 20.

As the handle 28 is moved from the position shown in FIG. 4, the first action of the arm 102 is pivoting one about the axis of the shaft 104, and a corresponding pivoting movement of the latch lever 111 is effected so as to move its hook underneath the eccentric portion 126 of the shaft 127. With the hook in place continued action or pivoting of the arm 102 is ineffective to make further movement of the hook lever 111, but the eccentric portion of the pin 104 is moved from the position shown in FIG. 14, to that shown in FIG. 16 thereby effectively moving the base 20 and the punch 26 together to effect perforating operation on the tape. In this fashion the desired leverage is effected to effect manual perforation of a considerable number of holes in a tape at the same time.

Feed Mechanism

As seen in FIGS. 7 and 8, a plate 135 on the frame of the punch carries a pawl 136 which is urged by a spring 137 into engagement with one of the notches 138 of a disk 139 journaled on the shaft 141 and connected by a sleeve 140 to an external gear 142 (FIG. 4). Gear 142 is connected with an idling gear 143 to a pinion 144 carried by a cross shaft 146 (FIG. 10) suitably journaled on the frame of the machine. This cross shaft 146 carries at its other end a tape drive pinion 147 having a peripheral series of tape drawing pins 148 with round ends which comprise feed pins for engaging the feed perforations of the tape 45 which is held in place by a spring-urged retainer arm 151 pivoted on a shaft 152. The drive pinion 147 (FIG. 2) is journaled on the shaft 146, and has a half portion or segment 147a (FIGS. 2 and 10) which opposes a half-segment 156a of a pulley 156 which is secured to the shaft 146 and is connected to the segment 147a by a pair of adjusting screws 159. By this means the relation of the feed pins to the tape can be adjusted with reference to the feed of the tape and the position of the perforating pins to advance the pins so as to vary the position of the perforations in the tape with respect to the perforating pins 52 to correspond to either of two positions of the feed holes with respect to the code perforations, i.e., with the centers transversely aligned or with the leading edges of the holes transversely aligned. In this manner the perforator can be adjusted to accommodate different types of tape.

As seen in FIG. 2 the pulley 156 is connected by a spring belt 157 with a drive pulley 158 (FIG. 7), for the take-up reel 159 for the perforated tape. The outer flange 161 of this reel is held in place by a removable knob member 162. The feed reel 166 for the tape is journaled on a vertical shaft 167 and the feed of the tape therefrom passing through a right angle turn guide 168 after extending over a guide pin 169 and thence goes underneath the punch mechanism as seen in FIG. 1 to a front idler drum 170, and then back over and through the punch mechanism and under a guide pin 171 to the feed reel.

The shaft 146 (FIG. 3) carries a double notched disk 173 which is engaged by a retaining roller 174 to resiliently hold the drive sprocket for the tape in place. The roller 174 (FIGS. 1 and 2) is carried by a lever 176 which is pivoted at 177 on the base 20 and is urged resiliently in a counterclockwise direction as viewed in FIG. 1 by means of a leaf spring 178 to maintain roller 174 in contact with disk 173.

To trace the drive, the lifting movement of the punch frame 26 from its "down" position as seen in the drawings effects, through the pawl 136, a one-quarter revolution of the notched disk 139, and through the sleeve 140 turns the gear 142 one-quarter of a revolution. This gear has a two-to-one drive ratio with the gear 144 and the shaft 146 receives a one-half revolution on this backstroke or lifting movement of the punch mechanism. Upon the down movement, which would be a clockwise movement in FIG. 8, the pawl 136 rides back over the notched disk 139 to engage the next succeeding notch 138 for the next actuation.

OPERATION

The operation will be described assuming that the tape punch mechanism is to be used in connection with accounting operations involving a credit card of the general type shown in FIG. 6, wherein the code perforation 66 bear the number or name designation of the holder of the card. After a purchase, the card 37 is placed in the tape punch for example, in FIG. 5, with the unperforated end seated in the nest formed by the plate 63 and against the abutment wall 63b and then its aperture 62 is placed over the pin 61, all of this being effected with the punch member 26 in raised position. The perforations of the code card are in controlling relation with a left-most group of pins 52 beginning at the left of the pin 61. The row comprising the pin 61 and the next row to the right of pin 61 is aligned with the blank portion at the right-most end of the card 37 are associated with the card 37 but the card does not select the holes to be punched.

The control card 37 therefor is placed over the upper ends of the pins 52 of the ten left-most rows forming a first principal group of pins with its unperforated portions in controlling relation with the pins. Subsequently, when the punch member is operated, the pins which are not aligned with the aperture 66 in the code card 37 will be operated to punch holes. Immediately adjacent this principal group to the left of the pin 61 are the two fixed designations comprising the pin 61 and the four pins in the row to the right thereof which will always be operated by the unperforated right hand edge of the code card 37 and these constitute a third group of pins of fixed designations. The right-most six rows of pins 52, as seen in FIG. 5, constitute another principal group and these are aligned with the abutments formed by the lower-most surface of the decagons 38 (FIG. 12) which are manually set to represent numbers, or in the case of the decagons 38a and 38b, are set for special designations such as "alphabet following," "figures following," "pulse," "minus," etc. The middle four of these rows would represent the amount of the purchase to be entered and punched in the tape 45.

The tape itself is fed from the horizontally disposed feed reel 166 as seen in FIGS. 1, 4 and 7, and this tape preferably has the feed holes therein pre-perforated, the tape being properly aligned by means including the tape feed wheel 147 carrying the feed pins 148.

If desired, appropriately placed pins for perforating the feed holes may be mounted in the perforating mechanism and it will be seen that they would be underneath a solid portion of the code card so that the feed holes will always be punched if this modification is used.

After the code card 37 has been put in place and the decagons 38 appropriately adjusted, the punch member 26 is brought down by means of handle 28 from an upright position to a position as shown in FIG. 4, for example, where the hook member 111 has entered the aperture in the base 20, but has not been engaged with the shaft 126. Continued pressure on the handle 28 will cause the hook 111 and the lever 102 to rotate and assume the position shown in FIG. 14 where the hook 121 has engaged the portion 126 of the shaft 127, and the punch member 26 and the base 20 are coupled and ready for a further operation which will effect the actual perforation of the tape. This further operation is accomplished by depressing the handle 28 to its fullest extent when the lever 102 will be pivoted and its eccentric 104 will cause a shortening of the distance between the coupling point of the hook 121 and the punch member 26 to effectively bring the punch member down and with increased leverage effect the punching of the full array of holes determined by the control card 37 in place and by the setting of the decagon disks 38. When the lever 28 is allowed to rise under the influence of its spring the first action is pivotal movement of the hook 111 to a disengaged position so that the punch member 26 is again in condition to be elevated to its upright position by use of the handle 28.

During this elevating movement, the tape feed mechanism is brought into play by the operation of the pawl 136 (FIG. 8) causing a quarter turn of the gear 137 (FIG. 4) and correspondingly a one-half turn of the shaft 146 and of the feed pinion carrying the feed pins 148 (FIG. 10). This operation advances the tape onto the punch tape reel 159, 161 and feeds a new unpunched area of tape underneath the perforating pins ready for the next perforating operation.

Referring to FIG. 17, it will be noted that the top portion 48 of the perforating mechanism has a longitudinal recess 48a in its bottom face immediately beneath the pins 52 forming a channel to receive the tape. The pins 52 are held in elevated position by means including a spring plate 56 and a plurality of compression springs 57 which are fewer in number than the pins 52, and which always have intervening between them and the next adjacent spring one spring-free pin 52 so the entire space around the pin becomes available for occupancy by the compression spring which can therefore be made of wire larger in diameter and of a larger diameter in coil. In this way there is no likelihood of the spring becoming wedged in the clearance opening which of necessity must be provided around each pin 52 and the wall of the aperture 53 in the housing portion 48 of the perforating mechanism.

While the above operation has been described in connection with the use of the control card 37 as a credit card, obviously, this card could also be an inventory card of a particular item, for example in a warehouse or store where the permanent identification of the item could be coded into the card in the holes 66 and where the adjustable members or decagon 38 could be used either for the amount in inventory plus the amount ordered, in cases or units, as the item demanded. In this way, a record of the inventory is placed permanently on an elongated tape.

While we have shown and described a certain preferred embodiment of the invention, the invention is capable of modification and variation from the form shown so that scope thereof should be limited only by the scope of the claims appended hereto.

We claim:

1. In a punch mechanism for perforating paper tape and the like objects, a base member, a movable punch member operatively related to said base member for relative movement toward and away from said base member, said movable punch member having two positions relative to said base member, one of the positions comprising an open position in which both the punch member and the base member are accessible for inspection and repair, and said second position comprising an operating position wherein the punch member and the base member are in relatively close spaced apart relation for relative perforating movement between the two, perforating mechanism carried by one of said members and operable by relative movement between the two members to effect a perforating operation, and means establishing an operating connection between said two members including normally disconnected leverage means brought into play by relative closing movement between said punch member and said base to effect perforating operation of said perforating mechanism.

2. In a punch mechanism as recited in claim 1, in which said movable punch member is pivotally mounted at one end thereof on said base member and in which said connection comprises a holding element mounted on one of the members and a hook mounted on the other of the members in pivoted fashion and adapted to engage and be connected to said element.

3. In a punch mechanism as recited in claim 1, in

which said perforating mechanism comprises a rectangular array of perforating pins and a rectangular array of die holes cooperatively related therewith and means for receiving an object such as tape between said pins and said holes, said pins being operated by said punch member upon closing movement with respect to said base member.

4. In a punch mechanism as recited in claim 3, in which said rectangular array of pins and associated die holes are divided into two principal groups, and in which said groups are separated by a third group of pins of selected character for effecting a constant punching operation and in which means associated with each of said principal groups of pins for selecting the pins and corresponding die holes for operating on the object to be punched.

5. In a tape punch as recited in claim 4, in which a code card is associated with said perforating pins and in which tape perforating mechanism includes means for locating said code card with respect to one of the principal groups of perforating pins and in which adjustable perforating control members on said movable member are associated with said second principal group of pins.

6. In a punch mechanism as recited in claim 4, in which one of said third group of pins is longer than the other pins and in which said code card has a perforation for engaging over said longer pin to aid in the location thereof.

7. In a punch mechanism as recited in claim 1, in which said perforating mechanism comprises a die member and a pin-carrying member movably mounted thereon, and means providing for holding the object to be punched between said two members, said movable member when elevated permitting inspection and/or removal of the object to be punched.

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