A. L. DAY.

PERFORATING MACHINE.

APPLICATION FILED NOV. 4, 1913.

1,140,505. Patented May 25, 1915.

Fig. 1.

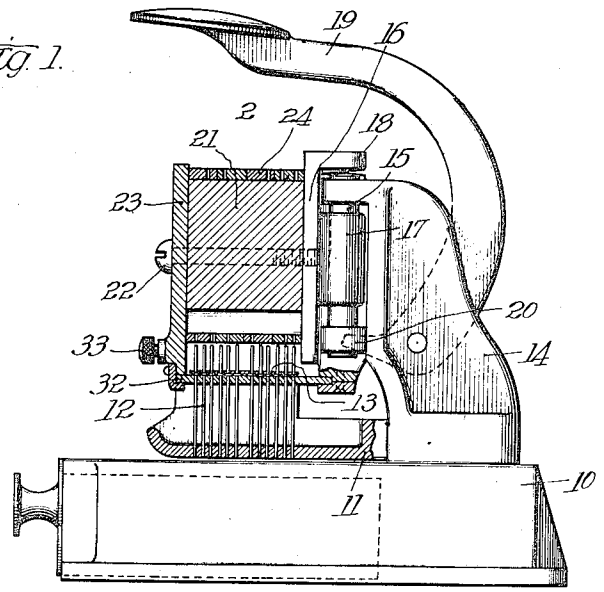
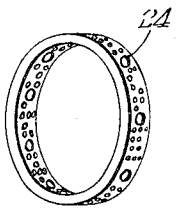


Fig. 6.



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Fig. 2.

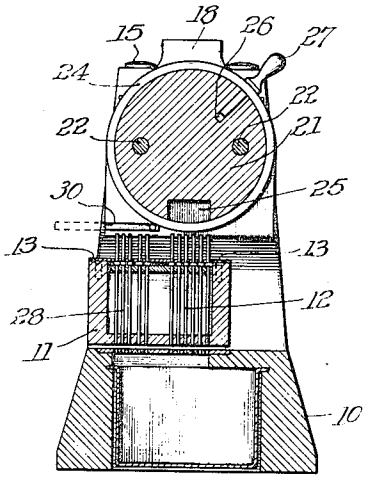


Fig. 5.

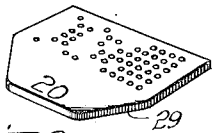


Fig. 3.

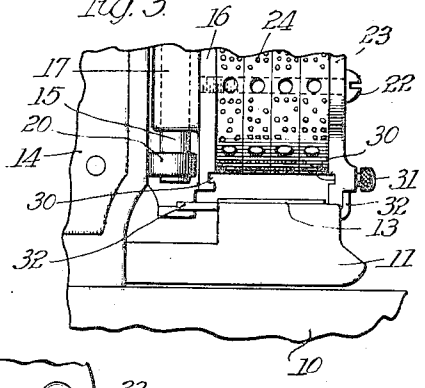
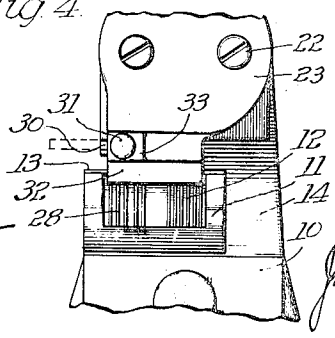


Fig. 4.



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UNITED STATES PATENT OFFICE.

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PERFORATING-MACHINE.

1,140,505. Specification of Letters Patent. Patented May 25, 1915.

Application filed November 4, 1913. Serial No. 799,092.

To all whom it may concern:

Be it known that I, ALFRED L. DAY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Perforating-Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to improvements in perforating machines, the object being to provide a perforating machine which will have, in addition to the perforating mechanism for perforating standard indicia, additional means whereby additional indicia may be perforated, this means being in the form of key-controlled mechanism so that only the person possessing the key may perforate the indicia.

For the purpose of disclosing my invention I have illustrated one embodiment thereof in the accompanying drawings, in which—

Figure 1 is a side elevation of a simple hand machine embodying my invention, parts being broken away to more clearly show the construction thereof. Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1; Fig. 3 is a detailed side elevation of the machine; Fig. 4 is a detailed end elevation; Fig. 5 is a perspective view of the removable key member; and Fig. 6 is a perspective view of one of the matrix rings.

The machine in general is of the type used for perforating numbers, letters, words or other data through one or more sheets of paper, and includes a plurality of groups of small punches, some of the punches in each group being adapted to be depressed when the machine is operated to perforate the desired letter, figure or character. In order to select the proper punches in each group for such perforation, the operating head of the machine is provided with a matrix ring for each group of punches, at least, for any group in which it is desired to change the character of the perforations made by it. The ring is provided at different points with groups of holes adapted when such point is brought opposite the punches and the head depressed or moved toward the group, to receive the ends of the non-perforating punches. The remainder of the punches of the group are pressed forward by the solid portion of the ring or plate and serve to perforate the desired character in the sheet. In addition to the above, a key plate is provided which is removably supported upon the head and has formed therein the necessary perforations for permitting certain of the punches to remain idle so that when this key plate is moved down with the head certain of the punches will be moved to stamp the necessary indicia controlled by the key plate.

Referring more particularly to the embodiment of the invention illustrated in the drawings, the base portions 10 and 11 of suitable material are bolted or otherwise fastened together to form a rigid member, the two members being slightly spread at their forward ends to form a slot or mouth to permit the insertion of a sheet or sheets to be perforated. A suitable guide plate is carried in the lower portion 10 to coöperate with the punches 12 in making the perforations. The adjacent part of the upper member 11 is provided with a suitable guide plate for the lower ends of the punches, and the plate 13 secured to the upper side edges of this same part forms a guide for the upper end of the punches. The upper portion of the machine consists of a suitable arm 14 provided with a pair of vertically disposed rods 15 on which vertically moves the operating head of the machine. This head preferably comprises a supporting plate 16 having a pair of hollow arms 17 fitting over the rods 15. The upper end of this plate is provided with a laterally projecting tongue 18 between which and the upper end of the supporting arm 14 is interposed a coiled spring for maintaining the head in its raised position. The arm 14 has pivoted thereon an operating lever 19, one end 20 of which fits in a slot in the lower end of the plate 16, so that when the forward end of the lever 19 is depressed the head will be forced downwardly. Secured upon this plate 16 is a cylindrical mandrel 21, preferably secured in position by screws 22 which pass through an end plate 23 to be more fully described hereafter, through the mandrel, and into the plate 16. This mandrel carries the rotatable matrix rings 24,

which matrix rings have suitable perforations therein to accommodate the non-punching punches, so that when the rings are depressed with the head they force predetermined punches through the paper to make the proper character. These rings are sections of comparatively thin tubing, and are provided at various points about their circumference with suitable apertures arranged to permit the upper ends of certain of the punches to pass therethrough when the head is depressed.

The mandrel 21 is provided with a longitudinal groove 25 on its under side a little above the ends of the punches, so that there will be sufficient clearance space for their upper ends after they pass through the matrix rings. In the upper side of the mandrel 21 there is provided a groove 26 into which the pins 27 for the matrix rings are inserted when the ring is brought into the desired position over the punch group.

In addition to the matrix rings and the groups of punches controlled thereby, I provide an additional set of punches 28, which punches are controlled by a removable key plate 29. This key plate is perforated to permit the non-operating punches to project therethrough, and is mounted on the head and moves with the head in the perforating operation. The key plate is held in position in a pair of grooves 30, formed respectively in the plates 23 and 16 at the lower ends thereof so that the bottom of the key plate will lie in the same plane as the lowermost portion of the matrix rings, whereby when the head is depressed to cause the matrix rings to punch the indicia controlled thereby the key plate is also moved downwardly to cause the punches controlled thereby to make their proper indicia. This arrangement is particularly advantageous where it is desired that the person operating the punch have a private mark for indicating that the papers were stamped by him, such, for instance, as the cashier in a public service corporation office where a large number of payments are made and the date of payment together, if necessary, with other indicia is perforated in the bills paid. The various cashiers are each provided with a key plate having, say, a definite number. When the cashier goes on duty he merely inserts his own key plate into the machine, and as long as he is receiving and perforating receipts his indicating mark will be perforated with the other indicia. When this cashier goes off duty he readily removes the key plate and carries it with him and the next cashier inserts his key plate into the machine, thus permitting each person who operates the machine to have his own indicating key plate, whereby at any time the sheet perforated will show just what person operated the machine.

The readily removable key plate is held in position in its grooves by means of a locking thumb screw 31 which passes through the side walls of the plate 23, and when screwed into engagement with the side of the key plate will hold the same firmly in its grooves. The movable head is provided with a raising means which insures the punches being raised with the head, so that the paper may be readily withdrawn from beneath the punches and there will be no danger of some of the punches sticking. This raising plate 32 is secured in position in grooves formed in the lower ends of the plates 23 and 16, and above this plate the punches are provided with shoulders 13 adapted to be engaged by the plate so that the punches will be properly raised.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a perforating machine, a group of punches, an operating head therefor, a readily removable key plate mounted on said head and having openings therethrough to receive the non-perforating punches in said group and serving to operate the remainder of the group.

2. In a perforating machine, the combination with groups of punches, of an operating head therefor having adjustable matrices provided with openings therethrough to receive the non-perforating punches of said groups and operating the remainder of the groups, and a readily removable key plate mounted on said head and having openings therethrough to receive non-perforating punches of said groups and serving to operate certain punches of the groups.

3. In a perforating machine, a group of punches, an operating head therefor, a plurality of matrices mounted on said head and having openings therein to receive the non-perforating punches of the group, and a readily removable key plate mounted on said head and provided with perforations to receive the non-perforating punches and serving to operate certain of the punches.

4. In a perforating machine, a group of punches, an operating head therefor, a plurality of rotatable matrix rings having perforations to receive the non-perforating punches of the group and serving to operate certain of the punches of the group, and a readily removable key plate provided with perforations for receiving non-perforating punches of the group and serving to operate certain of the punches of the group.

5. In a perforating machine, the combination with groups of punches, of an operating head therefor, an adjustable matrix comprising a thin ring provided with openings therethrough to receive the non-perforating punches of certain of said groups, and operating the remainder of said groups,

a flat readily removable key-plate having openings therethrough to receive the non-perforating punches of other groups, and operating the remaining punches of said groups, and means whereby said key plate may be mounted on said head in a plane tangential to the bottom of said ring.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

ALFRED L. DAY.

Witnesses:
E. R. KING,
W. PERRY HAHN.