No. 746,625. PATENTED DEC. 8, 1903.

J. B. ALLEN.

MACHINE FOR PERFORATING PAPER, &c.

APPLICATION FILED OCT. 30, 1902.

NO MODEL.

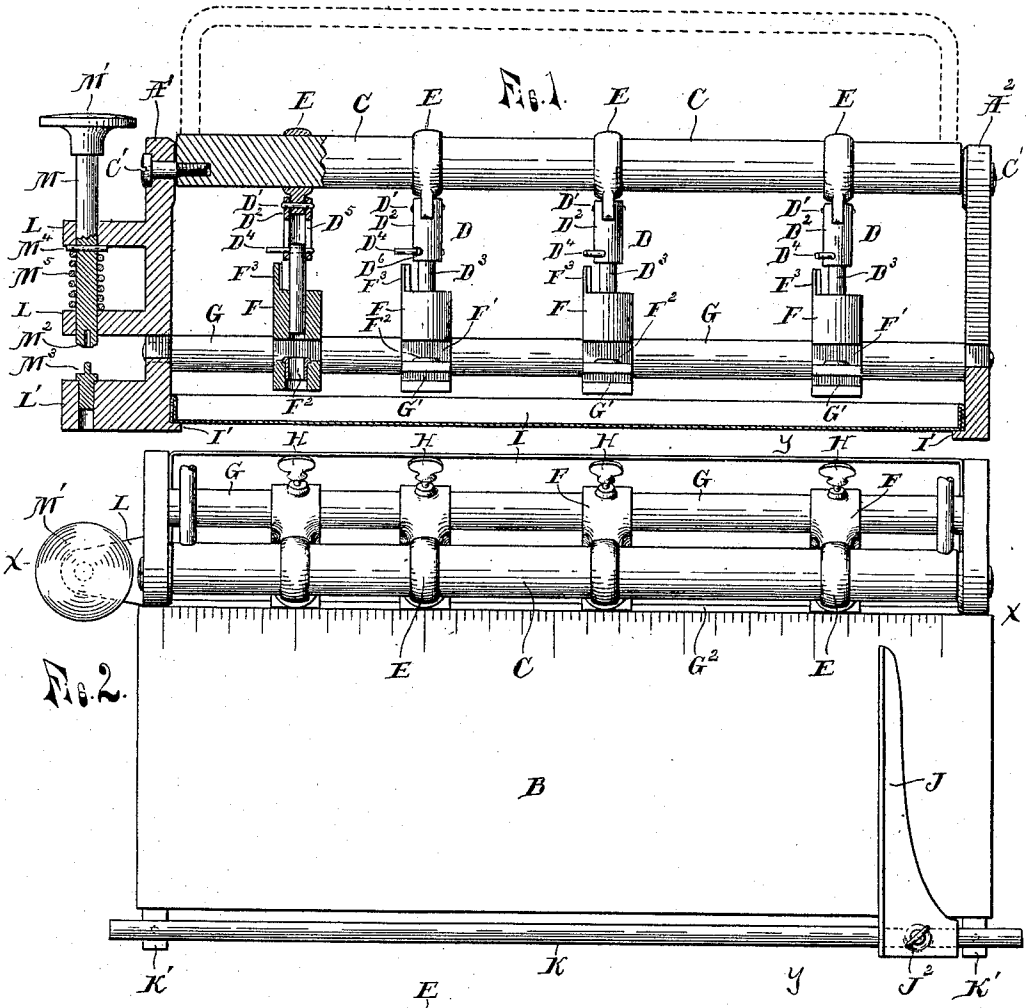

Fig. 1.

Fig. 2.

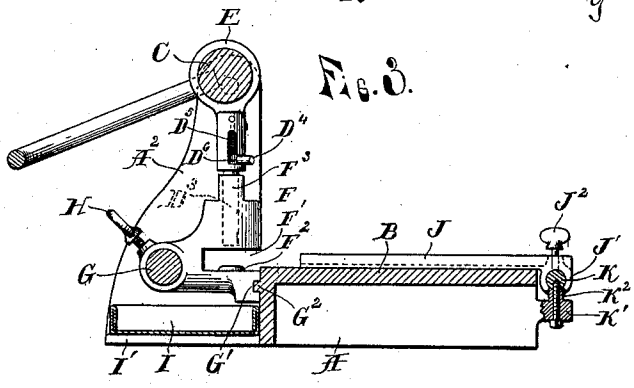

Fig. 3.

WITNESSES.

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No. 746,625. Patented December 8, 1903.

UNITED STATES PATENT OFFICE.

JAMES B. ALLEN, OF DETROIT, MICHIGAN, ASSIGNOR TO AMERICAN TYPOGRAPH COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

MACHINE FOR PERFORATING PAPER, &c.

SPECIFICATION forming part of Letters Patent No. 746,625, dated December 8, 1903.

Application filed October 30, 1902. Serial No. 129,337. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. ALLEN, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Machines for Perforating Paper, &c., of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in perforating-machines; and its object is to provide a strong and inexpensive hand-operated machine which may be quickly and easily adjusted to punch one hole or a series of holes at each operation and may also be adjusted to space the holes at any desired distance apart.

It is also an object of the invention to provide a suitable work-gage which may be moved entirely across or beyond the face of the table, if desired, to guide the paper and may be readily adjusted or detached.

To this end the invention consists in providing a series of simultaneously-operated punches, each consisting of telescopic sections provided with means for holding the sections extended for use and for releasing the same to allow the sections to telescope and render the punch inoperative, and in providing an eccentric shaft for operating the punches, longitudinally of which shaft the punches are freely adjustable, and in providing the frame with a rod for supporting the die-casings, upon which rod the casings may be moved to change the spacing of the punches.

The invention consists also in providing a gage upon one end of which is formed a socket to receive a rod, which rod is secured to the frame parallel with the edge of the table and extending beyond the same, and in providing certain other new and useful features, all as hereinafter more fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section on the line *x x* of Fig. 2 of a device embodying my invention; Fig. 2, a plan view of the same, and Fig. 3 a transverse vertical section on line *y y* of Fig. 2.

A is a suitable cast frame upon which is secured a table B, and extending upward at each end of the frame at the rear of the table are the posts A′ A^2, the upper ends of which form bearings for the pivot-pins C′ of the eccentric shaft C. These pivot-pins C′ are shouldered screws which extend through the posts and are screwed into the ends of the shaft C at some distance to one side of its axis, so that said shaft turns eccentrically on its pivots to operate the punches D, which are pivoted at D′ to lugs on rings E, strung loosely on said shaft. These punches D each consist of a tubular portion D^2, which is pivoted at D′ to a ring E, and a solid portion or rod D^3, which fits within the tubular portion and is held therein by a transverse pin D^4, extending therethrough nearitsend and through slots D^5 in the tubular portion, which slots extend longitudinally of said portion and are provided with lateral extensions D^6 at their lower ends, so that when the portion D^3 is extended to bring the pin into contact with the lower end of the slot D^5 and then turned to move said pin into the extension the punch will be locked in its extended position. When the portion D^3 is again turned to bring the pin into the lower end of the slot D^5, said portion will telescope within the portion D^2 (the pin passing up the slots D^5) instead of being forced downward into the die to perforate the article.

F F are the casings, provided with bearings to receive a rod G, which extends across the frame between the posts A′ A^2 and supports the casings at one side, a groove G′ being provided in the front side of each casing to receive a rib G^2 on the frame, which rib supports and guides the casing at the other side. Each casing is thus free to slide independently of the others along the rod and rib and is held in any desired position by a set-screw H. The casings are each slitted inward from the front sides at F′ and the portion above the slot bored to receive the punch and form a guide therefor, and in the portion below the slot is secured the die F^2. Extending upward from the casing at one side of the punch is a lug F^3, adapted to engage the

extended end of the pin D^4 and form a stop for the portion D^3 of the punch when said portion is turned to allow the pin to slide up the slot D^5, so that the said portion D^3 will be positively held from being forced downward into the die when the shaft C is turned.

Supported beneath the dies upon the ledges I′ on the frame is a receptacle I for the punchings, and lying upon the table B, which is provided with a scale along its rear edge, is a gage J, forming a movable abutment against which the paper on the article to be perforated is placed. Said gage is adjustably held square with the table by being provided with a socket J′ at its outer end to receive a rod K, supported and held parallel with the front edge of the table and at a short distance therefrom by arms K′, extending outward from the frame, upon the upper sides of which arms are bosses K^2, formed with seats for the rod, which is secured thereto by screw-bolts extended upward through the arms and bosses into the rod. The socket J′ is cut away at its lower side, so as to pass the bosses K^2, and the rod K is extended a distance beyond the table, so that the gage may be moved across the entire face of the table and beyond the same, if desired, and is held in any desired position by a set-screw J^2.

Extending outward from the side of the post A′ and frame are the arms L and L′, provided at their outer ends with openings in which is a vertical bar M, provided with a head M′ at its upper end and a die M^2 at its lower end, and in the opening in the end of the arm L′ is a counter-die M^3 to receive the ordinary paper-fasteners. To hold the bar M in its raised position, the bar is provided with a transverse pin M^4, and a coiled spring M^5 is sleeved on the bar to engage the pin at one end and one of the arms L at its outer end.

It is obvious that the lug F^3 may be dispensed with, as the resistance of the paper would be sufficient to raise the die, and, if desired, my machine may be operated by foot-power as well as by hand.

Having thus fully described my invention, what I claim is—

1. In a perforating-machine, the combination with a series of dies; of a series of simultaneously-operated punches each consisting of telescopic parts, and means whereby the parts may be held extended or may be released to telescope one within the other, when the punches are operated.

2. In a perforating-machine, the combination with a series of dies; of a series of punches each consisting of a tubular portion provided with a longitudinal slot having a lateral extension at its lower end, a solid portion adapted to slide within the tubular portion and to be extended therefrom to engage its die, and a pin on the solid portion to engage the lateral extension of the slot and hold said portion extended; and means for operating said punches.

3. In a perforating-machine, the combination with a frame, of a series of die-casings each provided with a bearing at one side and a groove at its opposite side, a rod extending longitudinally of the frame through said bearings to support the casings at one side and a rib on the frame to engage the groove and support the casing at the other side, dies in said casings, a series of punches to engage the dies, and an eccentric shaft to operate said punches.

4. In a perforating-machine, the combination with a series of adjustable die-casings and dies in said casings; of an eccentric shaft, a series of rings strung loosely on said shaft, punches each consisting of a tubular portion pivoted at one end to the rings and provided with a longitudinal slot having a lateral extension, and a solid portion movable within said tubular portion and having a pin engaging said slot and extended outward therethrough, and a lug on the upper end of the die-casing to engage the projecting end of said pin to limit the downward movement of the solid portion of the punch.

5. In a perforating-machine, the combination with the frame, a series of dies adjustably mounted on said frame, a series of punches for said dies, an eccentric shaft mounted on the frame to operate said punches, and a table on the frame adjacent to the dies; of a gage adapted to be moved along the face of the table, a socket on the outer end of said gage and cut away at its lower side, arms projecting outward from the frame and provided with bosses formed with seats and a rod secured to said seats and extending parallel with the edge of the table and beyond the same, adapted to be engaged by said socket.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES B. ALLEN.

Witnesses:
OTTO F. BARTHEL,
LEWIS E. FLANDERS.