A. SHIRLAW.

Perforating Machine.

No. 231,109. Patented Aug. 10, 1880.

Fig. 1.

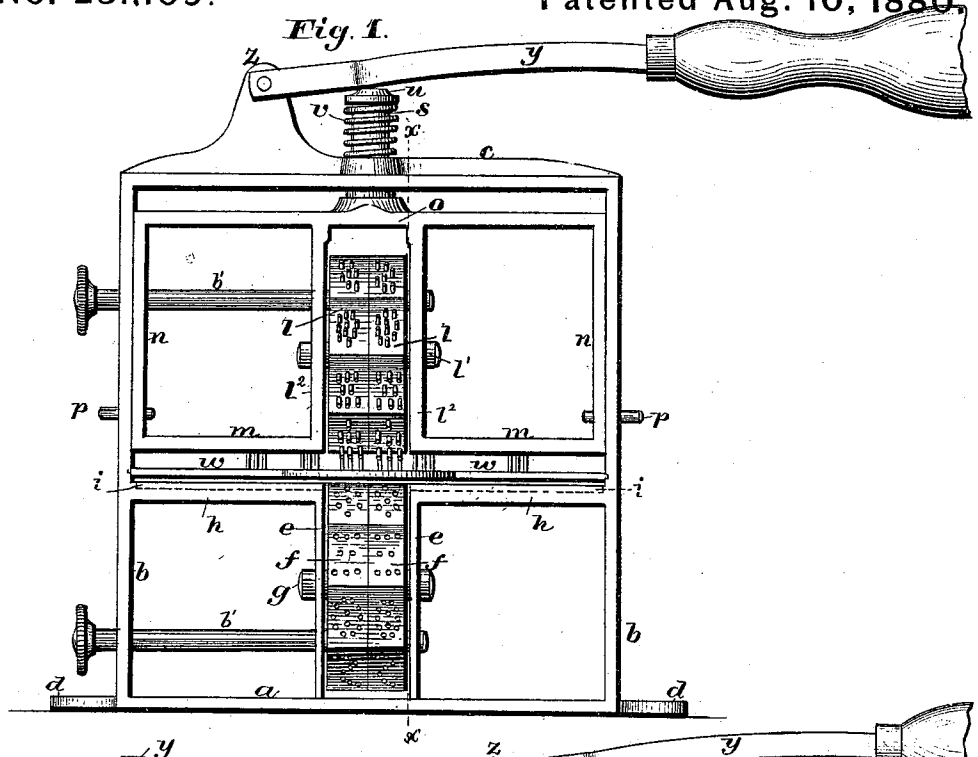


Fig. 3.

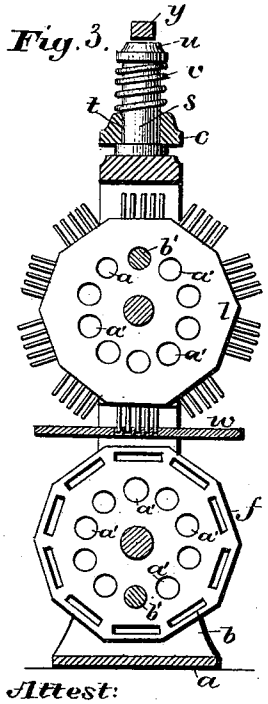
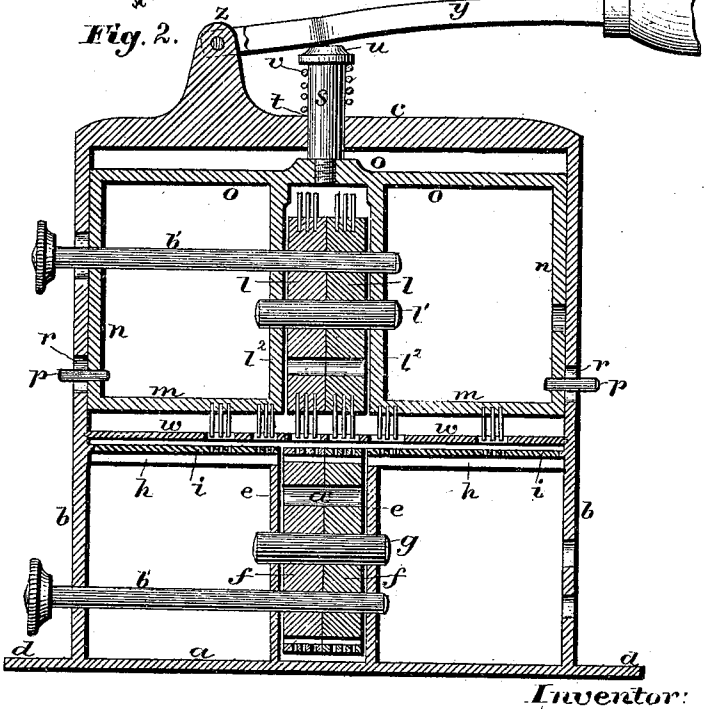


Fig. 2.



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UNITED STATES PATENT OFFICE.

ANDREW SHIRLAW, OF BIRMINGHAM, ENGLAND.

PERFORATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 231,109, dated August 10, 1880.

Application filed February 19, 1880. Patented in England July 30, 1879.

To all whom it may concern:

Be it known that I, ANDREW SHIRLAW, a subject of the Queen of Great Britain, residing at Birmingham, in the county of Warwick, Kingdom of Great Britain, have invented certain new and useful Improvements in Perforating-Machines, of which the following is a full, clear, and exact description.

This invention relates to machines employed for perforating checks, bills, and similar valuable papers for the purpose of preventing their fraudulent alteration. This I accomplish in the manner hereinafter described in detail, reference being had to the accompanying drawings, in which—

Figure 1 represents a front elevation of a perforating-machine; Fig. 2, a vertical central sectional view, and Fig. 3 a sectional view on the line *x x* of Fig. 1.

Referring to the accompanying drawings, the metallic frame is composed of a base-piece, *a*, end standards, *b*, and an upper cross-piece, *c*, the base-piece having ends *d*, provided with perforations by which to secure the frame to a suitable support.

The base-piece is constructed with two vertical plates, *e*, situated a suitable distance apart to receive between them the die-wheels *f*, which are loosely journaled on an arbor, *g*, having its end bearings in the plates *e e*, and the upper ends of the latter are respectively connected with the end standards, *b*, by means of the horizontal platforms *h*, within which are arranged lead or other soft-metal plates *i*, having perforations and forming a seating for the punch-pins, hereinafter described.

The die-wheels *f* are polygonal in shape, and each of their peripheral sides are perforated (see Fig. 1) to correspond with the punch-pins on two punch-wheels, *l*, of similar form to the die-wheels, and which are journaled on an arbor, *l'*, in the side arms, l^2, of vertically-sliding frames, said frames consisting of lower pieces, *m*, end pieces, *n*, and top connecting-bars, *o*, and, in connection with the arms l^2, forming substantially two rectangular frames depending from the connecting-bar *o*.

The end pieces, *n*, are provided with laterally-projecting pins *p*, arranged in slots *r* in the end standards, *b*, for the purpose of guiding and limiting the vertical movement of the sliding frames.

To the central part of the bar *o* is fixed a vertical cylindrical or other shaped stud, *s*, which passes through a correspondingly-shaped opening, *t*, in the cross-piece *c*, and is provided with a head, *u*, between which and the upper side of the said cross-piece is arranged a spiral or other suitable spring, *v*, for the purpose of maintaining the sliding frame in an elevated position with respect to the lower die-wheels, *f*.

Between the lower edge of the sliding frame and the upper edge of the stationary platforms *h* and the soft-metal plates *i* is arranged a draw-off plate, *w*, for the purpose of releasing the check or other paper from the punch-pins when the latter are elevated.

The sliding frame is depressed for the purpose of puncturing the paper by any suitable means, the same consisting, in the present example, of a lever, *y*, pivoted at one end to a lug, *z*, on the cross-piece *c*, and resting on the head of the stud *s*, the lever being provided with a handle, by which it is actuated.

The perforations in the die-wheels *f* and the punch-pins on the wheels *l* are arranged in the form of numerals from 1 to 9, the remaining numeral being a cipher.

The drawings show two die-wheels and two punch-wheels, which are, of course, adapted for two columns of figures only; but by the use of additional wheels the columns may be extended.

The lower edge of the sliding frame may be provided with a cipher (one or more) to multiply the amounts punched by ten or to indicate francs, florins, or dollars, and on the opposite side of the wheels said sliding frame is provided with an arrangement of punches representing "Under."

The die and punch wheels are each provided with a series of apertures, *a'*, into any of which may be inserted the ends of rods *b'*, passing through one of the end standards, *b*, for the purpose of locking the wheels in their adjusted position.

As each side or face of the wheels is provided, respectively, with a numeral arrangement of punches and a numeral arrangement of perforations or matrices, and as each wheel is capable of being rotated independent of the other and then locked in position, it will be manifest that any two numbers can be adjusted into position for use.

The operation of my machine will be evident from the foregoing description; but in order to explain, I will state that when the die-wheels and punch-wheels have been properly adjusted to the required figures the check or other paper is inserted beneath the draw-off plate *w*, and rests upon the platform *h*. The sliding frame is then suddenly forced down by means of the actuating-lever, which will perform the puncturing operation, when the lever is released and the sliding frame will be thrown upward by means of the spring *v*, and caused to assume its normal position.

I do not wish to be understood as claiming a stationary matrix, a clearer-plate, and a reciprocating perforator, as such is not my invention.

What I claim is—

1. In a machine for perforating checks and other paper, the combination of the rotary adjustable die-wheels journaled on an arbor arranged in fixed bearings, a platform for supporting the check or other paper, and the rotary adjustable punch-wheels journaled on an arbor arranged in a vertically-movable frame, substantially as and for the purpose described.

2. The combination, in a paper-perforating machine, of the rotary adjustable die-wheels, a platform for supporting the paper to be perforated, the rotary adjustable punch-wheels journaled in a vertically-movable frame, mechanism for locking the said die and punch wheels in the adjusted position, and mechanism for reciprocating the movable frame, substantially as and for the purpose described.

3. The combination of the rotary die-wheels and the rotary punch-wheels, capable of vertical reciprocating movement, each of said wheels having a series of lateral apertures, *a'*, with the rods *b'*, adapted to be passed through said apertures for locking the respective wheels in their adjusted position, substantially as described.

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Witnesses:
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