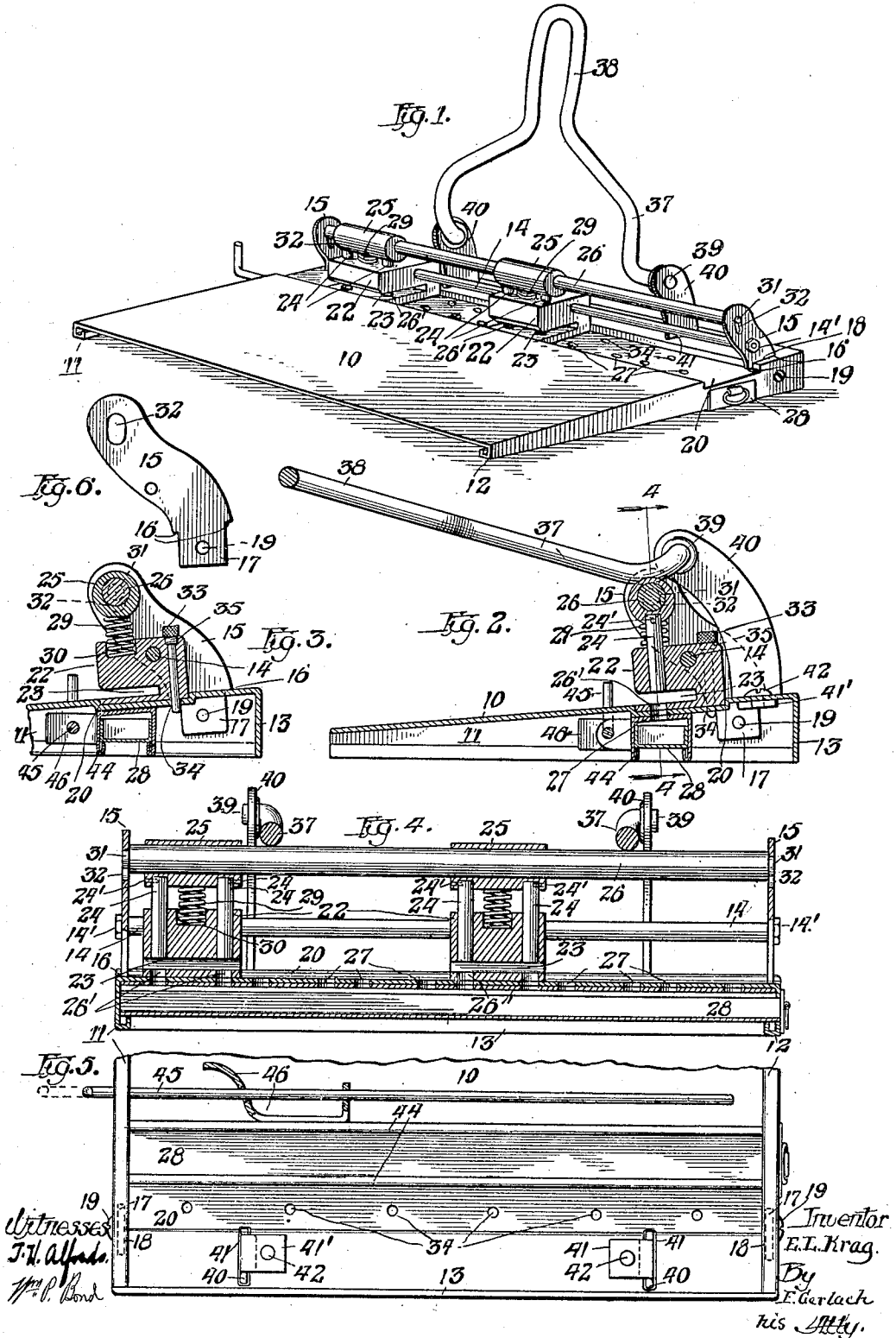


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PERFORATOR.

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PERFORATOR.

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To all whom it may concern:

Be it known that I, ERIK L. KRAG, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Perforators, of which the following is a full, clear, and exact description.

The invention relates to perforators designed more particularly for use in offices where letters, papers and documents are to be perforated so that they can be bound or filed.

The invention designs to provide a perforator which is simple in construction and which is constructed so that the several parts thereof can be easily assembled and separated to permit replacement and adjustment of the punches.

The invention also designs to provide a punch of improved construction.

The invention consists in the several novel features of construction hereinafter set forth and more particularly defined by claim at the conclusion hereof.

In the drawings: Figure 1 is a perspective of a perforating device embodying the invention. Fig. 2 is a longitudinal section taken through one of the punching dies. Fig. 3 is a longitudinal section taken through one of the lock-pins whereby the punches are secured in desired position. Fig. 4 is a section on line 4—4 of Fig. 2. Fig. 5 is an inverted plan, a portion of the bed being broken away. Fig. 6 is a detail view of one of the brackets whereby the guide-rod for the punch-blocks is sustained.

10 denotes a bed or base formed of sheet-metal and provided with a back-wall 13 and vertical side-walls 11 and 12 which are bent inwardly and upturned to form a surface which is adapted to rest or slide upon a desk or table. A guide-rod 14, whereby the punch-blocks are guided transversely, is secured by nuts 14' in arms or brackets 15 which are provided with shoulders 16 adapted to engage the bed, and an extension 17 which extends through a slot 18 formed in the bed and is secured to the side-wall of the bed by a screw 19 which secures the bracket against side-walls 12 of the bed. Bed 10 is bent to form a transverse channel 20 wherein one or more punch-blocks 22 are adapted to travel. Guide-rod 14 extends through the punch-blocks and the lower face of each block fits into channel 20 and thereby the blocks are guided transversely. Each punch-

block is recessed as at 23 to receive the paper or article to be perforated and one or more dies or punches 24 are slidably mounted in the punch-blocks. The upper end of each punch is secured by a pin 24' in a collar or sleeve 25 which is free to slide transversely on an operating-bar 26. Below recess 23 the punch-blocks are provided with perforations 26' to admit the punches, and through which the punchings can pass. Perforations 27, in suitable number, are also formed in bed-plate 10 through which the punchings can pass into a receiver 28. A spring 29 is mounted in a pocket 30 which is formed in each of the die-blocks and the spring engages sleeve 25 to hold the punches normally in their upper position and to restore them in such position after operation. Rod 26 is vertically movable, being connected to the brackets 15 by having its reduced ends 31 extended into slots 32, formed in said brackets. Sleeves 25 are movable transversely with the punch-blocks and punches and may, therefore, be adjusted to the desired position with respect to another punch-block, or to perforate the paper at the desired point.

The punch-blocks are held in assigned position and in position to cause registry of the punches and openings 27 by pins 33 which are adapted to pass through the rear portion of the punch-blocks and into either of a series of holes 34, formed in the bed-plate. The upper end of pin 33 is formed so it can be conveniently turned by the fingers and may, if desired, be provided with a short screw-thread 35 which is adapted to engage a corresponding thread formed in the die-block so that, by giving the pin about one turn, it will be free for removal.

Rod 26, which extends through the sleeves to which the punches are connected, is operated by a lever 37 which is preferably formed of a rod which is bent to form a handle 38 and pintles 39 adapted to enter holes in brackets 40 whereby the lever will be pivotally sustained. The lever is adapted to engage punch-operating rod 26 and to depress such rod to force the punches through the paper. Each bracket 40 is preferably formed of sheet-metal and extends through a slot 41 in the bed-plate and has a laterally bent portion or lug 41' adapted to fit against the under side of the bed-plate and is secured thereto by a screw 42. The drawer 28 is adapted to be withdrawn through one

of the sides of the bed-plate and is mounted to slide in a channel-bar 44 which is secured to the bed-plate.

An adjustable paper-stop or guide is provided for positioning the edge of the paper so that a number of sheets can be punched at the same point with respect to the edges thereof. This guide or stop 45 is preferably formed of a rod having its outer end bent upwardly to form a stop and extending inwardly through a friction-plate 46 which is secured to the channel-bar 44 and has one of its ends bent so it will be resilient and frictionally hold the rod in assigned position transversely and will also secure it frictionally against rotation. Therefore the stop can be turned into horizontal position when not in use, being retained in such position by the resilient strip and it can also be adjusted longitudinally to bring the stop in the desired position and will be yieldingly held in any desired position.

The invention provides a construction in which most of the parts are formed of sheet-metal and which can therefore be produced at a low cost.

It is sometimes desirable to remove one of the die-blocks and the punches carried thereby, or to add one or more of them. So it is also desired sometimes to substitute a punch-block in which there is but a single punch or die. This can be readily accomplished by merely removing one of the screws 19, whereupon bracket 15 may be withdrawn from the bed-plate and the punch-blocks, sleeves and punches can be removed from rods 14 and 26 or replaced thereon. The construction of the punch-blocks and their connection with the operating-bar or rod are simple. By use of removable brackets of sheet-metal the operating-lever can be readily secured in operative relation with respect to the punches. The use of sheet-metal parts in forming them makes it possible to produce a perforator which is durable and is light and compact so it can be easily handled.

Manifestly the invention is not restricted to the precise details set out since these can be modified without departing from the spirit and scope of the invention.

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

1. In a perforator, the combination of a bed-plate, a transverse guide-bar, a punch-block transversely movable on said bar, an operating-bar, brackets in which said operating-bar is guided, a sleeve longitudinally movable on the operating-bar, a punch secured to said sleeve and extended into said guide-block, a spring interposed between the sleeve and the block and a lever for shifting the operating-bar.

2. In a perforator, the combination of a

bed-plate having a transverse channel therein, brackets removably secured to the bed-plate, a guide-bar secured to said brackets, a punch-block guided in said channel and by said guide-bar, an operating-bar movably held in said brackets, a sleeve longitudinally movable on the operating-bar, a punch rigidly secured to said sleeve and extending into the punch-block, and a pivoted-lever whereby the operating-bar can be shifted.

3. In a perforator, the combination of a bed-plate having slots therein, a pair of brackets, each formed of sheet-metal and having abutments adapted to engage the bed-plate and having a portion thereof extended through one of said slots so it can be secured to the bed-plate, a transverse guide-bar sustained by said brackets, a punch-block longitudinally movable on said bar, a punch guided in said block, an operating-bar, and a lever whereby the operating-bar can be shifted.

4. In a perforator, the combination of a bed-plate having slots therein and sides extended to form walls, brackets formed of sheet-metal having abutments adapted to engage the bed-plate and portions extending through said slots and fitting against the inner side of said walls, a transverse guide-bar sustained by said brackets, a punch-block guided by said bar, a punch guided in said block, an operating-bar, said brackets having slots formed therein by which the operating-bar is guided, a sleeve longitudinally movable on the operating-bar and to which the punch is secured, and an operating-lever for shifting said bar.

5. In a perforator, the combination of a bed-plate, brackets formed of sheet-metal secured thereto, a punch-block, a punch guided in said block, a transverse guide for the block sustained by said brackets, a transverse operating bar, a sleeve longitudinally movable on the operating-bar and to which the punch is secured, an operating-lever, said bed-plate being provided with slots, a pair of brackets in which said lever is pivoted, formed of sheet-metal and extending through said slots, and provided with bent portions whereby the brackets can be secured to the under side of the bed-plate.

6. In a perforator, the combination of a bed-plate, said plate being extended to form sides, a punch block, a punch guided thereby, a transverse guide for the punch-block, an operating-lever, a paper stop or guide comprising a longitudinally movable rod, said rod being free to turn and extending through one of said sides, and means for frictionally retaining the rod against longitudinal movement and rotation.

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Witnesses:

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