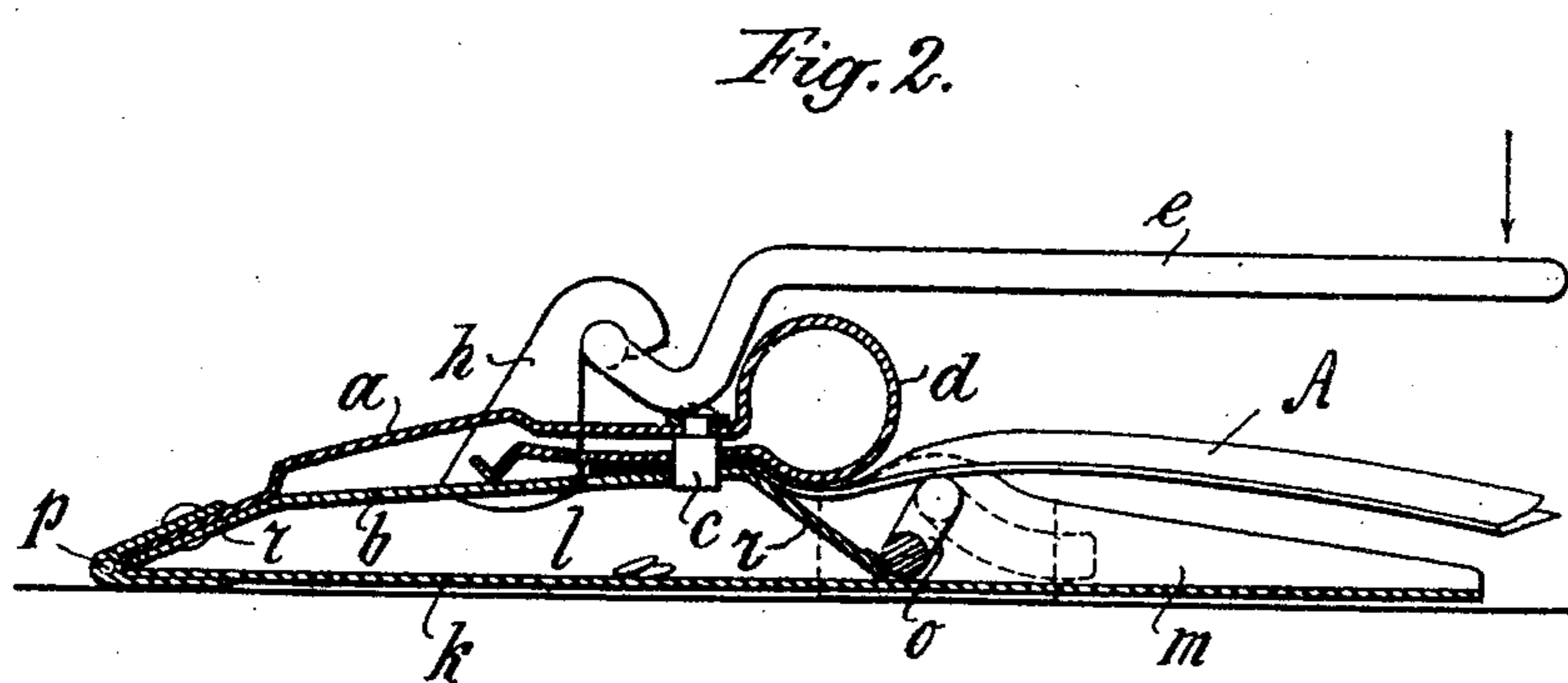
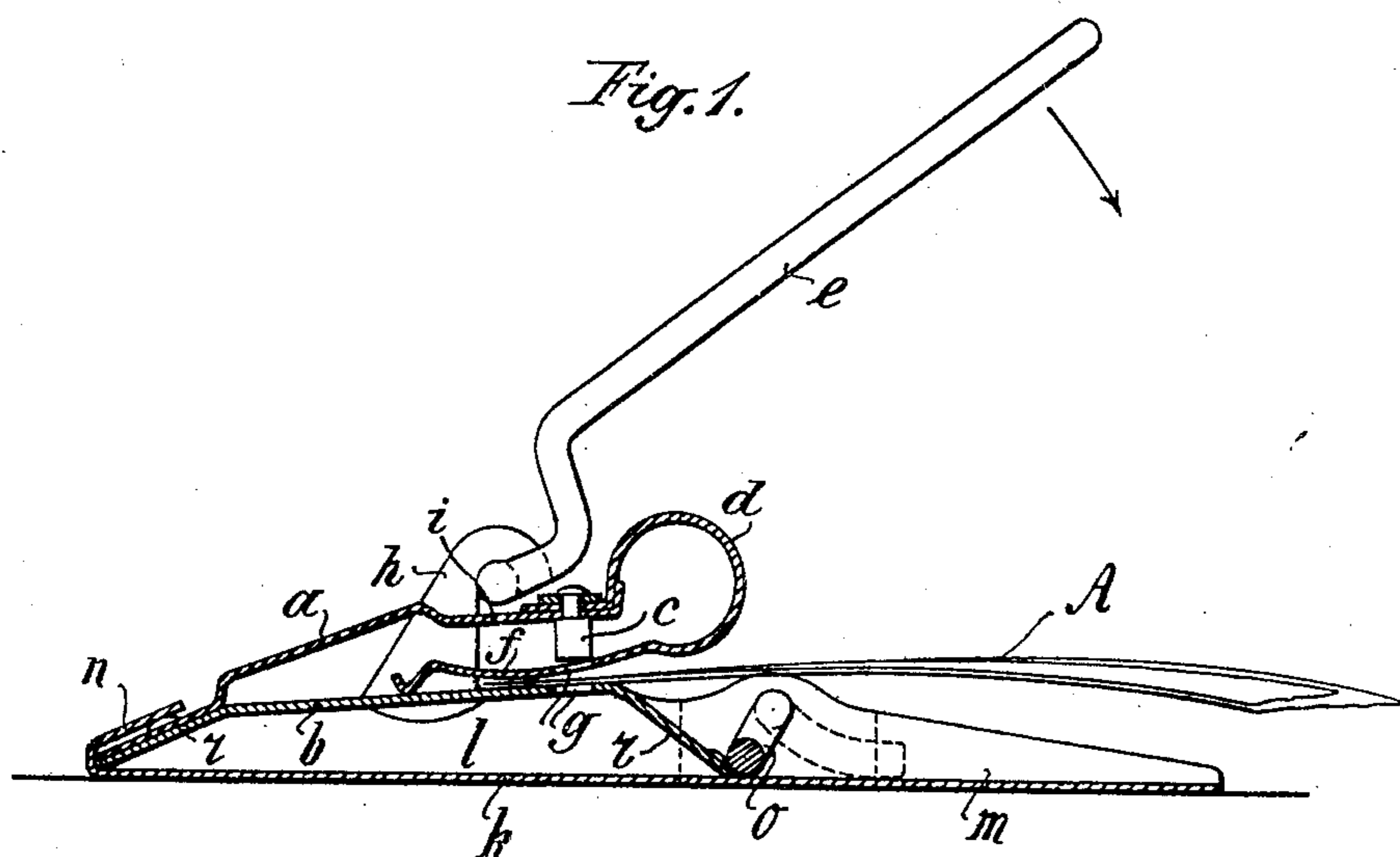


No. 803,727.

PATENTED NOV. 7, 1905.

A. TENGWALL.
PAPER PERFORATOR OR PUNCH.

APPLICATION FILED MAR. 11, 1904.



WITNESSES

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ANDREAS TENGWALL, OF HELSINGBORG, SWEDEN.

PAPER PERFORATOR OR PUNCH.

No. 803,727.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed March 11, 1904. Serial No. 197,659.

To all whom it may concern:

Be it known that I, ANDREAS TENGWALL, manufacturer, a subject of the King of Sweden and Norway, and a resident of Villa Walltorp, Helsingborg, Sweden, have invented a Paper Perforator or Punch, of which the following is a specification.

My invention relates to a device for perforating such papers as are to be arranged in letter-files, deed-covers, &c. It has a spring-plate that carries the punch and which is pressed down by a lever or similar arrangement, so as to force the punch through the paper. The paper to be punched lies upon a second plate connected with the spring-plate, and this second plate has a hole for the punch to pass through. Devices of this kind are well known.

The object of my invention is to improve such devices in several respects, and in particular it is intended to effect an easier release of the punch after the papers have been perforated when several letters are punched simultaneously. Further, the bottom plate on which the whole perforator rests is arranged to form a receiver for the disks of paper punched out.

On the drawings annexed two forms of the new perforating device are shown.

Figure 1 is a section through one form of the device. Fig. 2 is a section through a slightly-modified form of the device.

The perforating device consists of two plates *a* and *b*, of which the plate *a*, that carries the punch *c*, is a spring-plate. Both plates rest upon a sole-plate *k*.

According to my invention the spring-plate *a* has a curved spring *d* bent backward at its free end at the point where the punch *c* is fixed. The spring *d* may be riveted on the plate *a*, thus forming a special plate-spring, as shown in Fig. 1, or it may be made in one piece with the spring-plate *a*, as shown in Fig. 2.

Under the punch *c* there are holes *g*, made in the spring *d* and in the lower plate *b*. The plate *a* is so bent that its surface *i*, from which the punch *c* starts, will lie nearly parallel with the under plate *b* when the punch is pressed down upon the inserted paper *A*. The punch will therefore be as nearly as possible perpendicular to the paper. The surface *f* of the spring *d* underneath the punch is slightly curved.

The hooks *h*, of which there may be two, one at each side, form supports for the press-

ing-handle *e* in the usual way, while they serve at the same time as guides and stops to prevent the paper going in too far.

The paper *A* is inserted between *b* and *f* and the pressing-handle *e* is pressed down. The spring *a*, as well as the spring *d*, is then put in tension and the surface *f* presses the sheets of paper over the holes *g* and tight against one another, so that when the punch passes through, the paper round about the hole is held tight, thus as far as possible avoiding creasing. When the handle is let go, the short spring *d*, which is in high tension and considerably increases the resiliency of the plate *a*, presses the part *i*, with the punch *c*, upward and at the same time keeps the paper tight against the under plate *b*. Thereafter the perforated sheets can be easily drawn out from the space between *b* and *f*.

The part *f* of the spring *d* does not move sidewise when the papers are held fast between it and the lower plate *b*—that is, while the handle *e* is being pressed down and released. On the contrary, the part *f* is pressed on the paper with a swinging action about its free end, which lies on the plate *b* and forms a center of movement, so that the paper is not torn or pushed aside by any lateral frictional movement.

The sole-plate *k* serves not only for carrying the plates *a* and *b*, but also as a receiver for the pieces of paper punched out. With the object in the form shown in Fig. 1 the edges of the sides *m* and the edge *n* at one end are bent upward and fitted tight against the plate *b*, and as the plate *b* has downturned ends *r* a closed space *l* is formed and serves as a receptacle for the chips of paper. The perforating part of the device is attached to the sole-plate by a bolt-bar *o* or some similar arrangement.

In the form shown in Fig. 2 the edge at the end of the plates *a* *b* does not pass under a turned-up edge *n* of the plate *k*, but instead these plates *a* *b* are connected to the sole-plate *k* by a hinge *p*, about which they turn. As the perforating arrangement and the sole-plate can thus be separated or opened up, it is easy to shake out the disks of paper punched out, and in case the punch-pin *c* has become blunt it can be easily sharpened or changed.

Of course two (or more) punches may be fitted to the plate *a*.

Having now fully described my invention,

what I claim, and desire to secure by Letters Patent, is—

1. In a paper-punch the combination with a plate having a hole for the punch of a second spring-plate which carries the punch and whose end is bent back so as to form a spring which bears on the first plate and means for actuating the punch. 35
2. In a paper-punch the combination with a plate having a hole for the punch of a second spring-plate which carries the punch and whose end is bent back so as to form a spring which bears on the first plate and is made with a hole in it for the punch to pass through and means for actuating the punch. 40
3. In a paper-punch the combination with a stationary plate having a hole for the punch of a second spring-plate which carries the punch a spring extending backward from the end of the said spring-plate and having its free end bearing on the first plate and means for actuating the punch. 45
4. In a paper-punch the combination with a plate having a hole for the punch of a second spring-plate which carries the punch and is fastened at one end to the first plate and whose other end is bent back so as to form a spring which bears on the first plate and means for actuating the punch. 50
5. In a paper-punch the combination of a stationary punch-plate with hole therein, a second plate fastened to the punch-plate, a spring extending backward from the end of the said plate and having its free end bearing on the first plate, a punch on the second plate and means for operating the punch, substantially as described. 55
6. In a paper-punch the combination of a sole-plate a hollow punch-plate forming a receptacle for punched paper, a spring punch-carrier fastened to the punch-plate and having a rearwardly-bent spring having its free end bearing on the punch-plate, a punch adapted to work through holes in the spring and the punch-plate, and means for operating the punch, substantially as described.
7. In a paper-punch, the combination of a sole-plate having some of its edges turned upwardly, a punch-plate with turned-down edges and adapted to form in conjunction with the sole-plate a receptacle for punched-out paper, a spring punch-carrier arranged above the punch-plate, a punch, and means for operating the punch, substantially as described.

Signed at Helsingborg, in Sweden, this 24th day of February, 1904.

ANDREAS TENGWALL.

Witnesses:

M. ANDERSON,
H. GANSSAN.