No. 756,902. PATENTED APR. 12, 1904.

G. A. SHOEMAKER.

PUNCHING MACHINE.

APPLICATION FILED NOV. 13, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

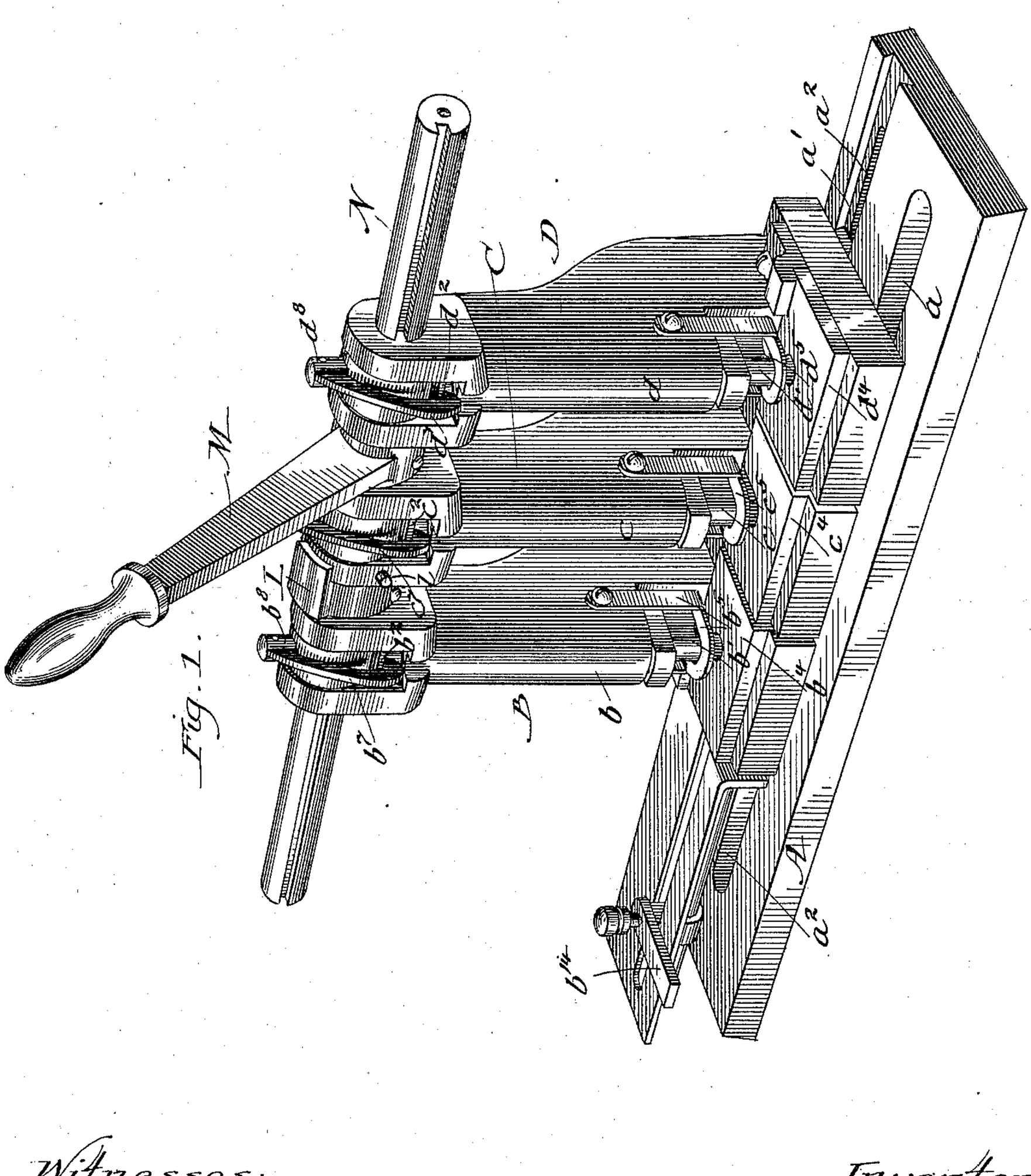

Fig. 1.

Witnesses:
Frank L. Blanchard
Allyn A. Packard.

Inventor:
George A. Shoemaker
By Hugh M. Bradley
Attorney

No. 756,902. PATENTED APR. 12, 1904.

G. A. SHOEMAKER.

PUNCHING MACHINE.

APPLICATION FILED NOV. 13, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

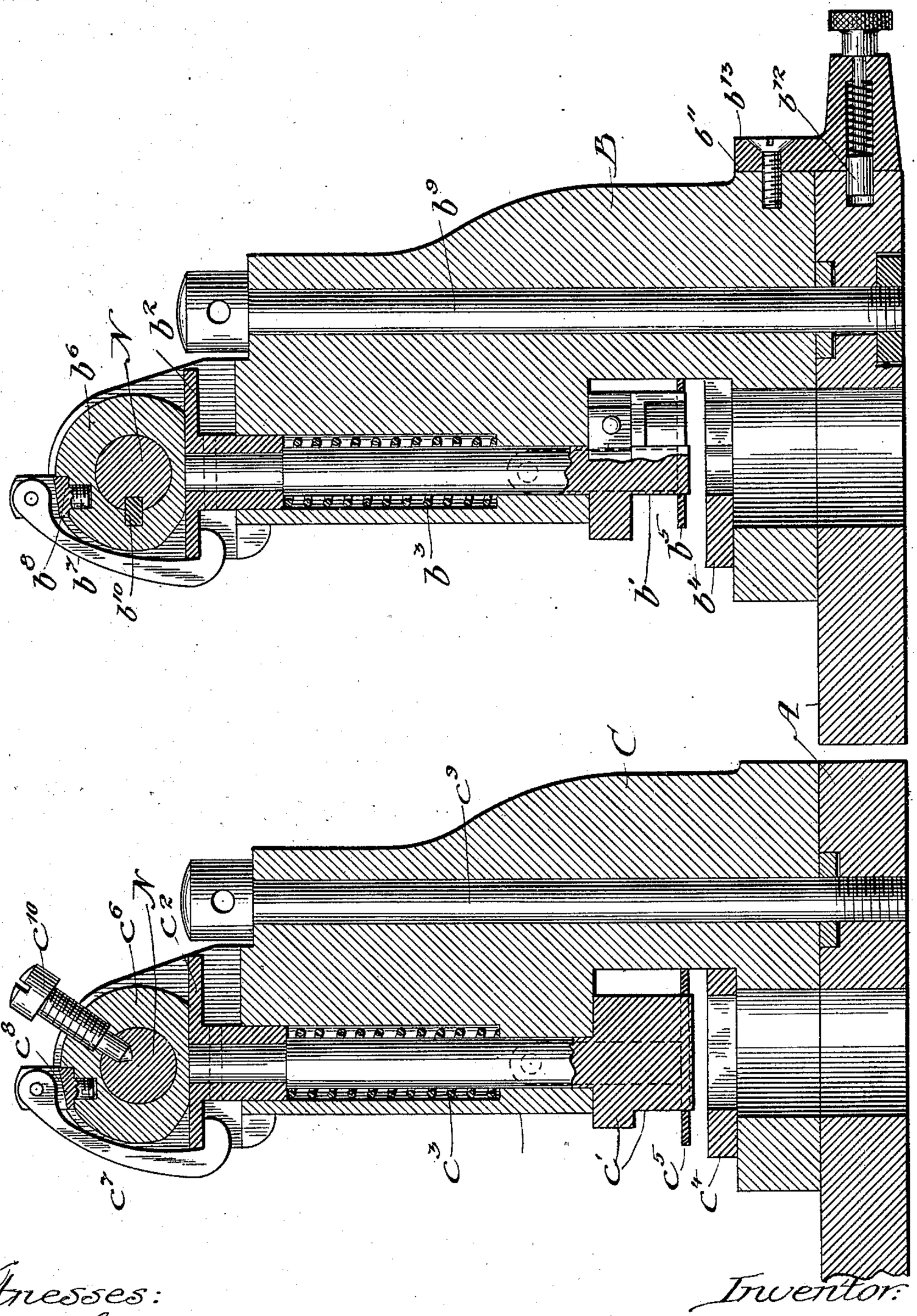

Fig. 2.

Witnesses:
Frank S. Blanchard
Allyn A. Packard.

Inventor:
George A. Shoemaker
By Hugh H. Hadley
Attorney.

No. 756,902. Patented April 12, 1904.

UNITED STATES PATENT OFFICE.

GEORGE A. SHOEMAKER, OF CHICAGO, ILLINOIS, ASSIGNOR TO BAKER-VAWTER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION.

PUNCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 756,902, dated April 12, 1904.

Application filed November 13, 1902. Serial No. 131,115. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. SHOEMAKER, a resident of the city of Chicago, county of Cook, in the State of Illinois, have invented a certain new and useful Improvement in Punching-Machines, of which the following is a specification.

My invention relates to that class of punching-machines which are designed to punch a number or series of holes, and more particularly to that class of devices wherein the number of punches can be controlled and regulated.

My invention will fully appear in the following description, reference being had to the accompanying drawings.

In the drawings, Figure 1 presents a general view of my punch. Fig. 2 presents a sectional view of one of the adjustable punches, taken perpendicularly through the punch from front to back. Fig. 3 presents a sectional view of one of the permanent punches of my device, taken perpendicularly through the punch from front to back.

More particularly described, A presents the base or bed of my punch, surmounted by a number of studs or heads B C D. In the forward part of B C D are guides b c d, within which operate the punches b' c' d'. Each of these punches is supplied with a flat flange top plate b^2 c^2 d^2. Within the guides b c d and encircling the punches b' c' d' are placed coiled springs b^3 c^3 d^3, which hold the punches normally away from the dies b^4 c^4 d^4, which are secured to the bottom parts of B C D. The strippers b^5 c^5 d^5 are of usual style and are secured to heads B C D. The operation of the punches is secured by the action of cams b^6 c^6 d^6, secured to a shaft N, which passes through the heads B C D and is operated by the lever M. The cams b^6 d^6 are keyed onto the shaft N, as shown at b^{10}. The cam c^6 is adjustably secured to the shaft N by means of a release-screw c^{10}.

To aid in the withdrawal of the punches b' c' d' to their position after the operation of punching has been completed, I provide lifting-links b^7 c^7 d^7, which are secured at one end to the cams b^6 c^6 d^6 by means of studs b^8 c^8 d^8 and at the other or free end hooked under the flanged top plates b^2 c^2 d^2. The forward downward movement of the lever effects the punching operation, and upon the lifting of the lever the links b^7 c^7 d^7, hooked under the top plates b^2 c^2 d^2, insures the retirement of the punches b' c' d'. A stop-gage L is provided and is secured to the shaft N and engages in operation with the stop 1 of the face of the head C.

The heads B and D, by means of a plate secured to the bottom of each, slide along on bed A and within the groove a'. These heads are adjusted in their position upon said bed A by means of taper pins, one of which is shown at b^{12}, which are secured to heads B D by means of block b^{11}, and from which they may engage a series of holes in the face of base A.

All the heads B C D are firmly secured to the base A by means of bolts b^9 c^9 d^9, which pass perpendicularly through the heads and the base A and are secured by nuts from the under side of A. a^2 presents a long narrow aperture through which the bolts b^9 and d^9 may slide after being loosened while B and D are being placed in adjusted position.

a presents a slot in base A, corresponding with the dies b^4 c^4 d^4, and has for its purpose a means of providing for the escape of waste from the punching.

The heads B D are provided with some suitable back gage b^{13} d^{13}, and the head B is provided with some suitable form of adjustable side gage b^{14}.

By releasing the screw c^{10} the cam c^6 may be released from the shaft N and the punch c' be thrown out of gear, thus permitting the operation of b' and d' without c'.

My device will permit the use of any number of punches at the same time, and by means of release-screws, as described, the number may be increased or diminished, as desired.

What I claim for my invention is—

1. The combination in a punching-machine, with a series of punches, fitted within suitable heads adjusted upon a common shaft, of a series of link-bearing eccentrics adjustably secured upon said shaft, both eccentrics and links having engagement with said punches, and means for effecting said adjustments, and means for actuating said eccentrics substan-

tially as described and for the purposes herein set forth.

2. The combination in a punching-machine, with a series of spring-seated punches fitted within a like number of heads adjusted upon a common shaft, of a series of cams adjustably attached to said shaft and having engagement with said punches, and lifting-links secured to said cams and having engagement with said punches and means for effecting said adjustments and means for actuating said cams substantially as described.

3. A punching-machine consisting of a series of punches and heads for carrying the same adjusted upon a common shaft, together with a corresponding series of eccentrics adjustably connected with said shaft, a series of lifting-links fixed to said eccentrics and having engagement with said punches, and means for actuating said eccentrics.

GEO. A. SHOEMAKER.

Witnesses:
O. B. BARKER, Jr.,
ARLA R. BLACK.