

No. 778,196.

PATENTED DEC. 20, 1904.

M. C. INDAHL.

DETACHABLE KEYBANK FOR PUNCHING OR OTHER MACHINES.

APPLICATION FILED MAY 20, 1903.

NO MODEL.

Frö. 1.

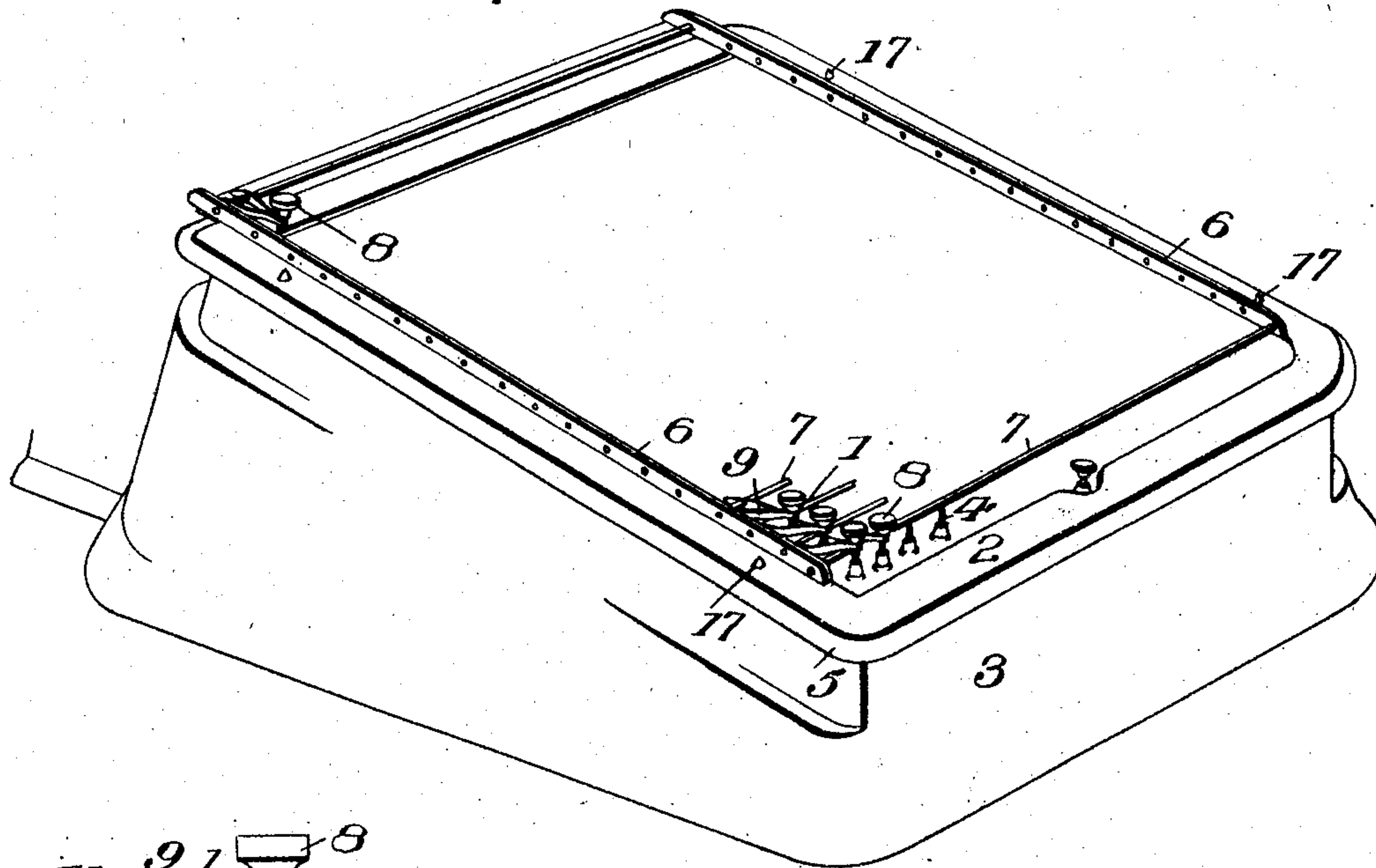
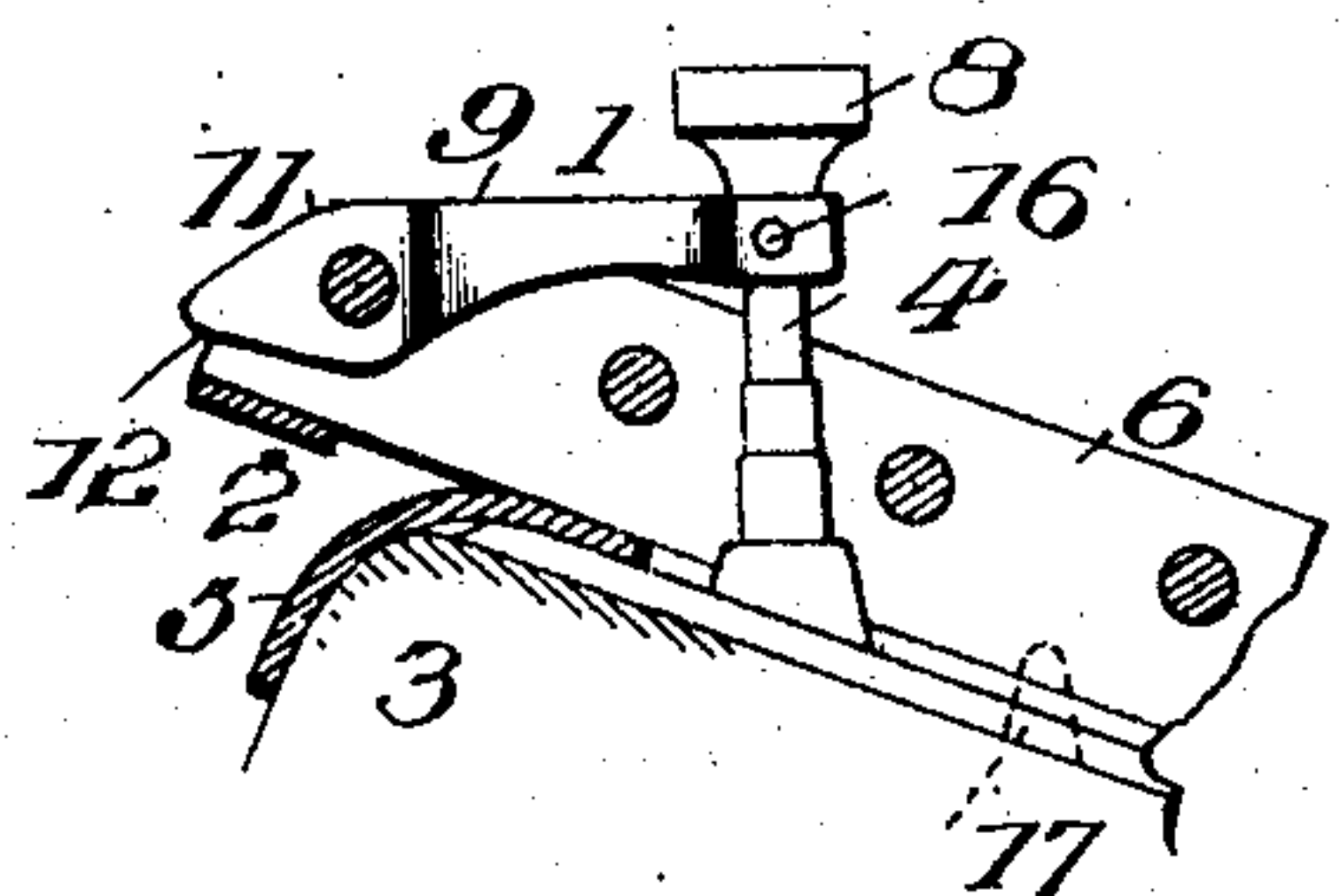
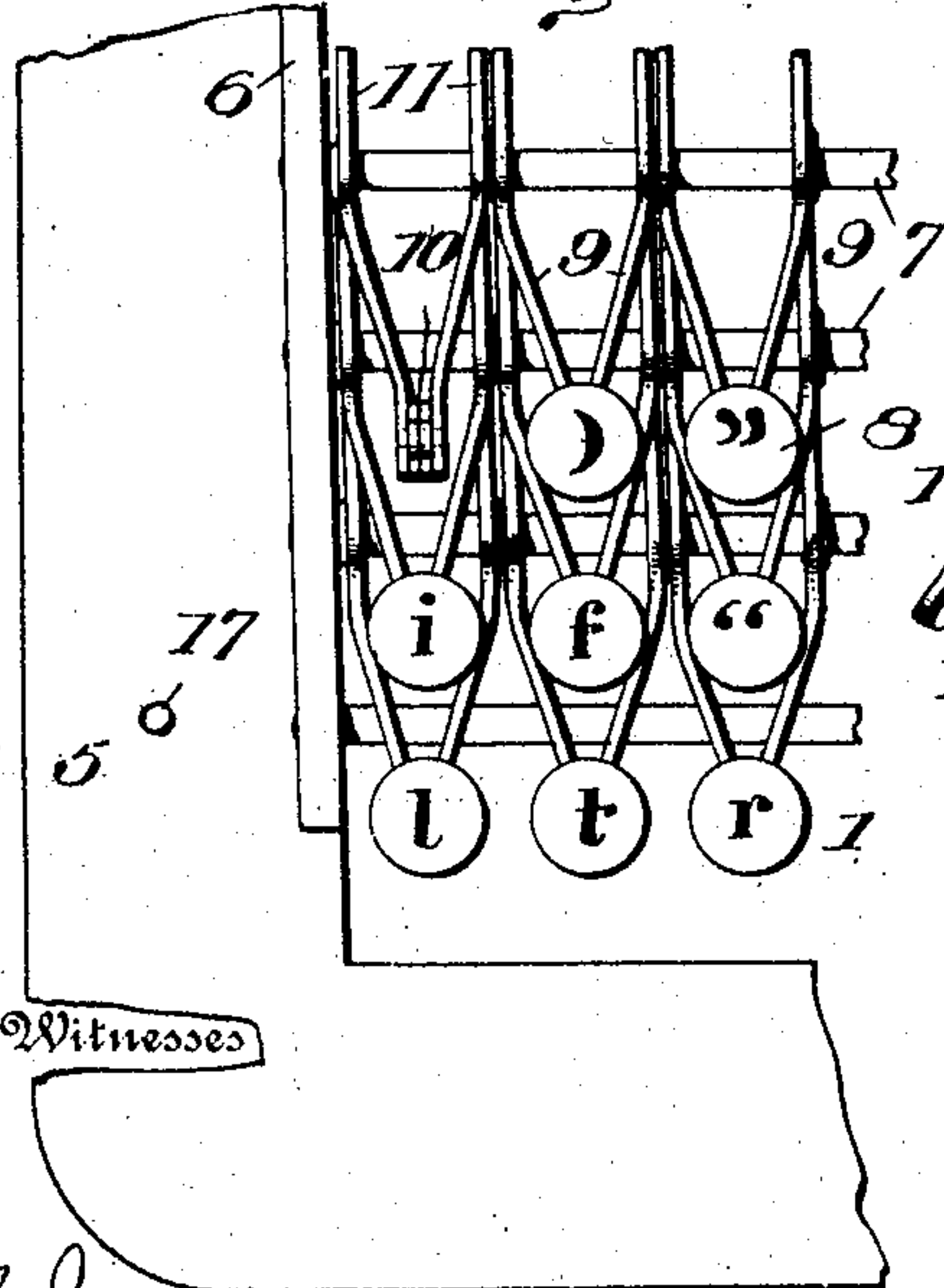


Fig. 2.



2 Fig. 3.



Witnesses

Thomas Surant

[illegible]

72 *Fig. 5.* 73

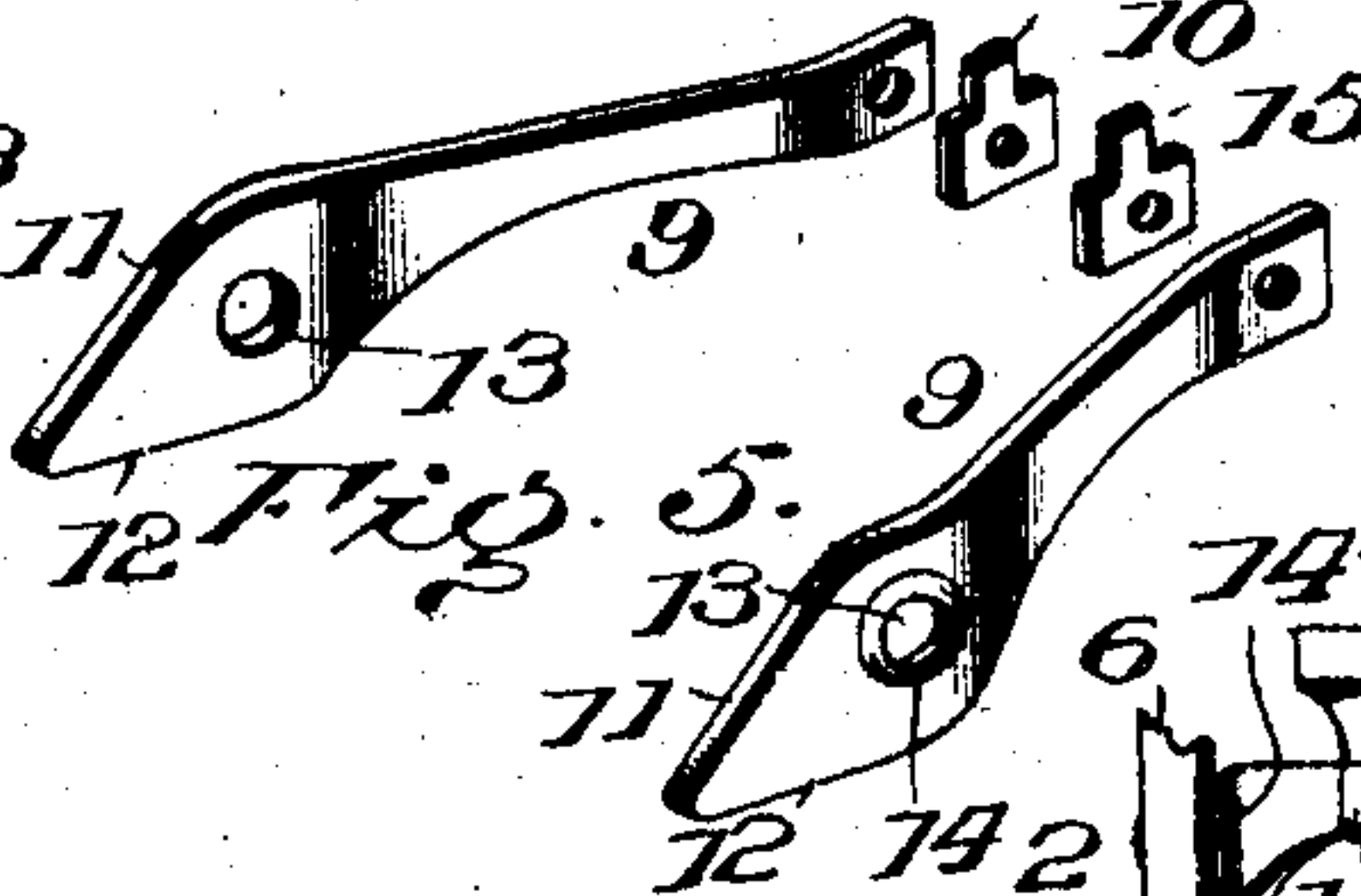
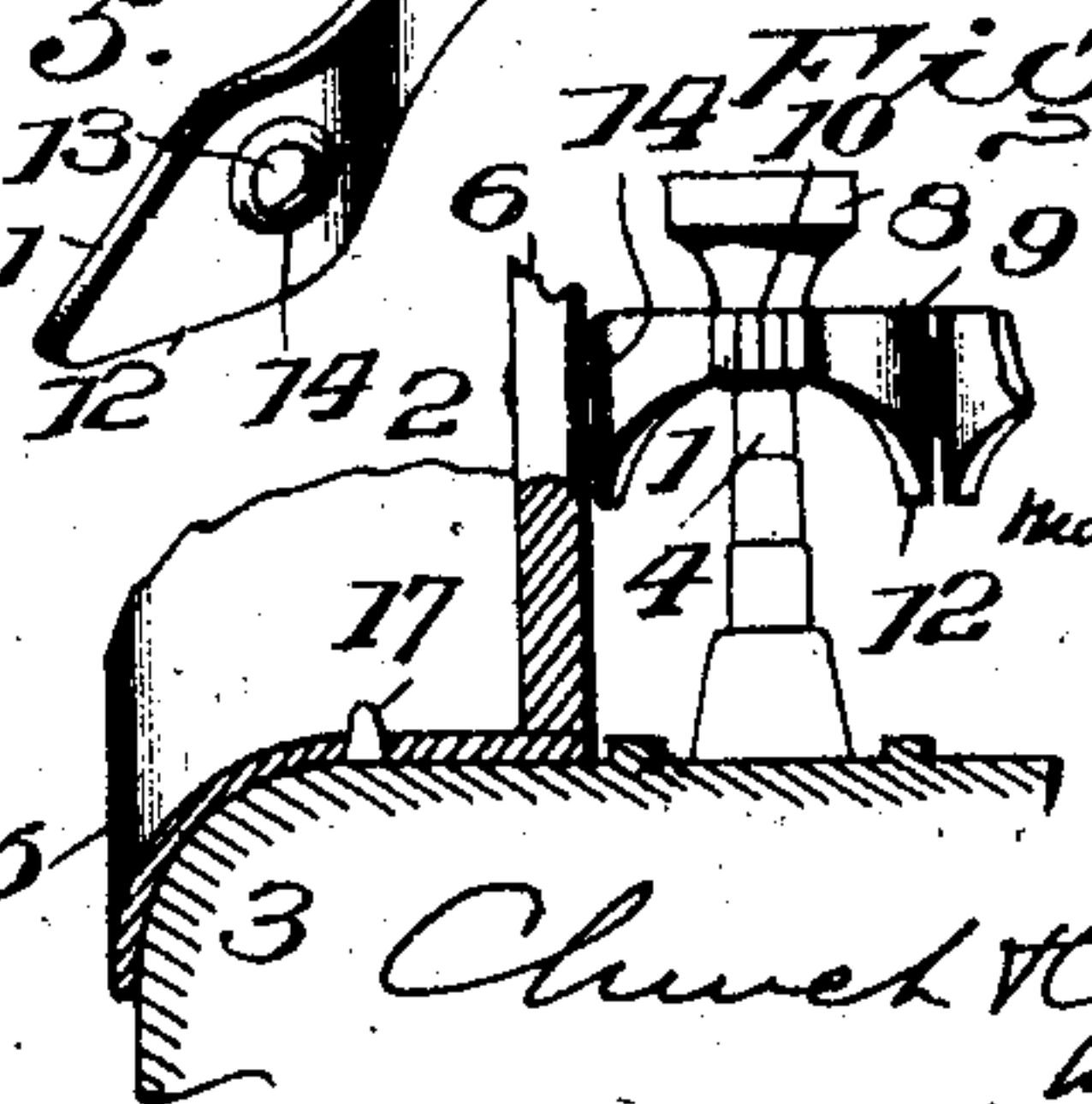


Fig. 4.



Inventor

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UNITED STATES PATENT OFFICE.

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DETACHABLE KEY-BANK FOR PUNCHING OR OTHER MACHINES.

SPECIFICATION forming part of Letters Patent No. 778,196, dated December 20, 1904.

Application filed May 20, 1903. Serial No. 157,990.

To all whom it may concern:

Be it known that I, MAURITZ C. INDAHL, of Philadelphia, in the county of Philadelphia, State of Pennsylvania, have invented certain
5 new and useful Improvements in Detachable Key-Banks for Punching or other Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying
10 drawings, forming a part of this specification, and to the figures of reference marked thereon.

In many varieties of keyboard instruments the operating mechanism is so designed and arranged that different values or character-
15 istics may be assigned to each actuator, the prearranged plan of distribution being indicated by letters, numbers, or other symbols placed upon the keys to designate the assigned value or characteristic of each. This is true
20 of keyboard punching-machines, type-writers, and like machines where the character, value, quality, or other characteristics represented by each actuator is designated by a symbol placed upon the key, the relative arrangement
25 or distribution of the symbols being determined by considerations affecting convenience of manipulation and the relative capacities of the actuators, and when for any reason a redistribution of functional character-
30 istics is required or desired a corresponding change is made in the designating symbols. This is usually accomplished by the removal and rearrangement or substitution of the buttons or finger-pieces containing the symbols—
35 an operation consuming considerable time—and if the attachment of the buttons or finger-pieces is of a character to facilitate removal the consequent wear and distortion of the joint renders them unstable and liable to
40 displacement and loss.

Now according to the present invention it is proposed to form the key-bank proper as a separate and distinct structure and to equip it with a set of symbol buttons or keys corre-
45 sponding with the actuators of the machine or instrument and adapted to register there-

with, said symbols being distributed according to a prearranged plan, so that when it is desired to change from one arrangement to another it will only be necessary to remove
50 one key-bank and substitute another containing the arrangement of symbols required.

The invention is specially designed for use in connection with the record-strip-perforating machine of Patent No. 654,115, wherein
55 each column of actuators or valve-stems represents a different body width and the assignment of any given character to any given row is dependent upon the width of the character to be represented.
60

In the accompanying drawings, illustrating a preferred form of embodiment, Figure 1 is a view in perspective showing the base of a perforating-machine with a detachable key-
65 bank applied to the same, a few only of the key-pieces being illustrated. Fig. 2 is a longitudinal vertical section. Fig. 3 is a top plan view of one corner of the key-bank. Fig. 4 is a front elevation of one of the keys and a section of the frame. Fig. 5 is a detail view
70 showing the members of the keys separated.

Similar numerals in the several figures designate like parts.

The operating-keys 1, containing the designating symbols, are mounted and supported
75 upon a frame 2, which latter is of a form adapted to be readily applied to or removed from that portion of the machine or instrument containing the actuators. In the present instance the key-bank is shown applied to the
80 base 3 of a record-strip perforator, provided with actuators in the form of valve-stems 4, controlling the selection of the designating-punches and indicating devices, as described in Patent No. 654,115.
85

To obtain strength, lightness, and rigidity, the frame 2, in the form of a flat open square, is preferably constructed with integral ends and sides formed of sheet or plate metal and having the outer margin flanged, as at 5, to
90 overlap the edges of the supporting-base, the sides being formed or provided with parallel

supporting-bars 6 for the reception and retention of the rods 7, upon which the keys are pivoted.

Each key 1 comprises a furcated lever pivotally attached by its arms to a rod 7 and provided with a button or finger-piece 8, detachably secured to it at or near the junction of the arms, the several keys being properly spaced so that each will be maintained in position to engage one of the actuators 4 when the frame is applied in position upon the base 3.

The key-levers are constructed upon the interchangeable plan, and each is composed of two side bars 9 and one or more spacing-blocks 10, preferably struck or punched from sheet metal and united by a rivet or rivets to form a bearing for engaging the actuator 4 and to receive and retain the button or finger-piece 8.

Each side bar 9 is formed with a straight rear portion having converging top and bottom edges 11 12 and a central opening 13, the margin of the latter slightly offset on one side, as at 14, Fig. 5, while the front portion of the side bar is somewhat reduced vertically and bent laterally to contact with the spacing block or blocks 10, the latter formed or provided with a vertical projection 15 to receive the finger-piece.

When the side bars 9 are secured together at their front ends upon the spacing-block, as by a rivet 16, there is formed a furcated lever whose rear or pivoted end affords widely-separated bearings for engaging the rod 7, a space for the passage of the front end of a similar lever in the next adjacent row, and a wide front bearing-surface for engaging the actuator.

Two spacing-blocks 10 are preferably inserted between the side bars 9 of each lever to provide a split bearing for the button or finger-piece 8, so that in the event the socket in the finger-piece becomes worn or enlarged the projections 15 can be bent laterally to enlarge the bearing. The bearings 14 at the opposite sides of the levers serve to space adjacent levers and prevent interference or friction at other points.

In equipping a key-bank a sufficient number of key-levers to fill the interval between the opposite bearings or bars 6 is strung upon each rod 7 and the latter secured in position in said bars 6. The rods 7 are set at such distance apart that the narrow or front end of each key-lever—the portion which contacts with the actuator—will stand opposite the open space between the two arms or side bars of the corresponding key-lever of the next succeeding row, so that when the key-bank is removed the rod 7 of one row will serve as a stop or support for the key-levers of the succeeding row to retain them in position and prevent their falling down and when the key-bank is in oper-

ative position the key-levers are prevented from being unduly displaced vertically by the engagement of their rear ends with the supporting-base or with the frame 2. The buttons or finger-pieces 8, each bearing a symbol, may be applied to the key-levers either before or after the latter are assembled in the frame; but it is designed that the key-levers of each key-bank shall be fully equipped ready for immediate application to the machine or instrument whose action is to be controlled thereby, a separate key-bank being provided and employed for each different arrangement of symbols.

To facilitate and insure the ready and accurate positioning of the key-bank to bring the several key-levers into operative relation with the actuators, suitable registering devices may be employed, such as register-pins 17, located on one member and engaging seats or openings on the other, as indicated in Figs. 1, 2, and 4.

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

1. A detachable key-bank such as described provided with a flat open frame flanged at the margin and provided with parallel bars serving as supports for the series of key-rods.

2. A detachable key-bank such as described provided with a frame, a series of pivot-rods mounted thereon, and a series of key-levers mounted upon said rods, each key-lever being furcated, with its limbs separated and pivotally mounted upon a rod, and provided at the junction of its limbs with a bearing for engaging an actuator and receiving a button or finger-piece.

3. A key-lever for keyboard instruments such as described comprising two oppositely bent or curved side bars each united at one end to a spacing-block the latter provided with means for receiving a designating-button or finger-piece, the opposite or rear end of said side bars being separated to form a wide bearing.

4. A key-lever for keyboard instruments such as described comprising two oppositely bent or curved side pieces, a plurality of spacing-blocks interposed between the proximate ends of the side pieces and provided with vertical projections forming a split bearing for the reception of the button or finger-piece.

5. A key-lever for keyboard instruments such as described comprising side bars united at one end to a spacing-block and curved or bent longitudinally on diverging lines to separate the opposite ends with bearings formed in said separated ends for the reception of a pivot-rod.

6. A key-lever for keyboard instruments such as described comprising two side bars united at one end to form a bearing for engaging an actuator and a support for the des-

ignating-button or finger-piece, and separated at the opposite end, to form a wide bearing, the separated ends of said side bars, each being furnished with a pivot-bearing and a side
5 bearing.

7. A furcated key-lever for keyboard instruments such as described comprising, oppositely curved or bent side bars united at

their converging ends to a spacing-block, the rear or diverging ends of said side bars being provided with converging edges and a lateral perforation for the reception of the pivot-rod.

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Witnesses:

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