J. POWERS.

CARD VERIFYING MACHINE.

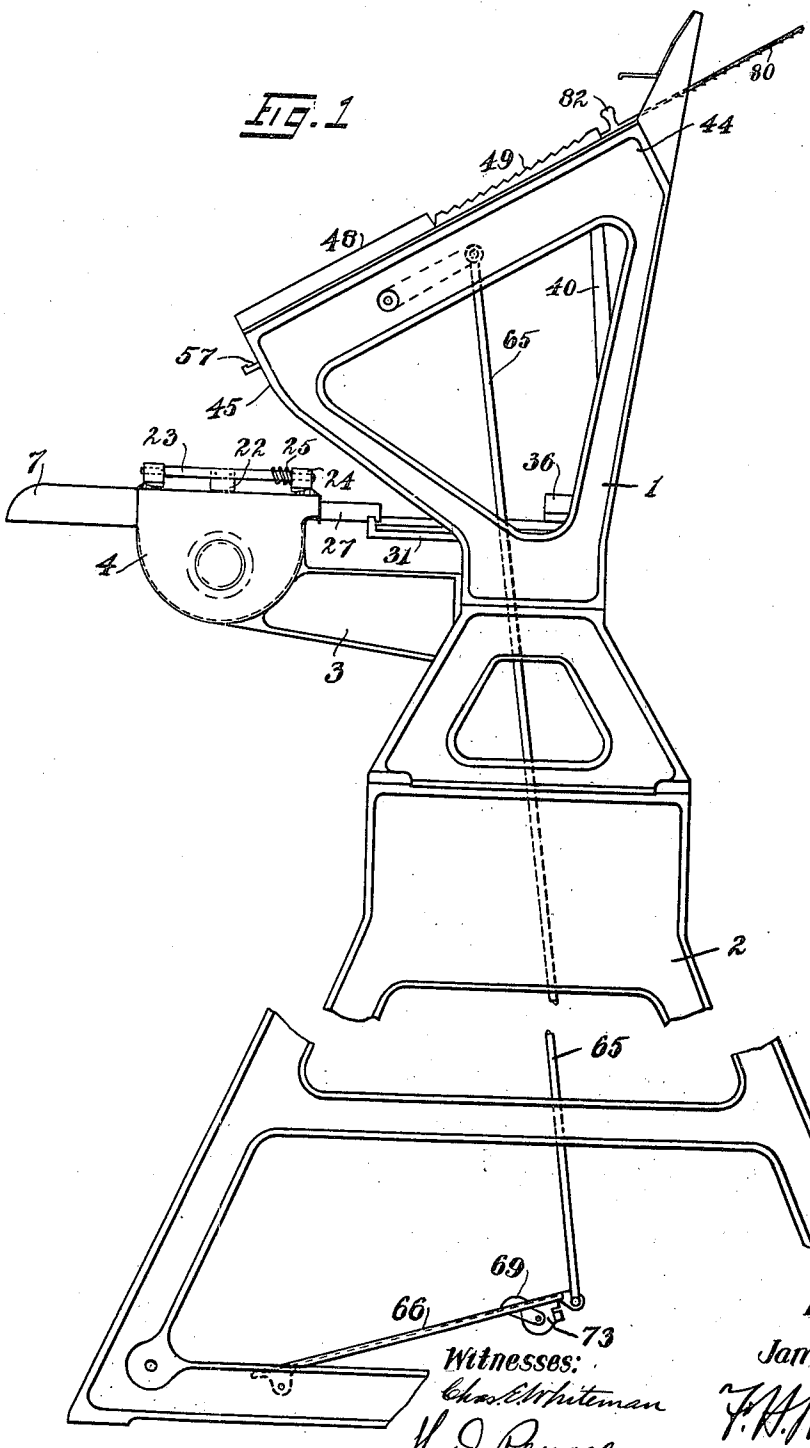
APPLICATION FILED MAY 26, 1915.

1,245,765.

Patented Nov. 6, 1917.

6 SHEETS—SHEET 1.

Fig. 1



Witnesses:

Chas. E. Whiteman

H. D. Penney.

Inventor:

James Powers,

F. H. Richards.

His Atty.

J. POWERS.

CARD VERIFYING MACHINE.

APPLICATION FILED MAY 26, 1915.

1,245,765.

Patented Nov. 6, 1917.

6 SHEETS—SHEET 2.

Fig. 2

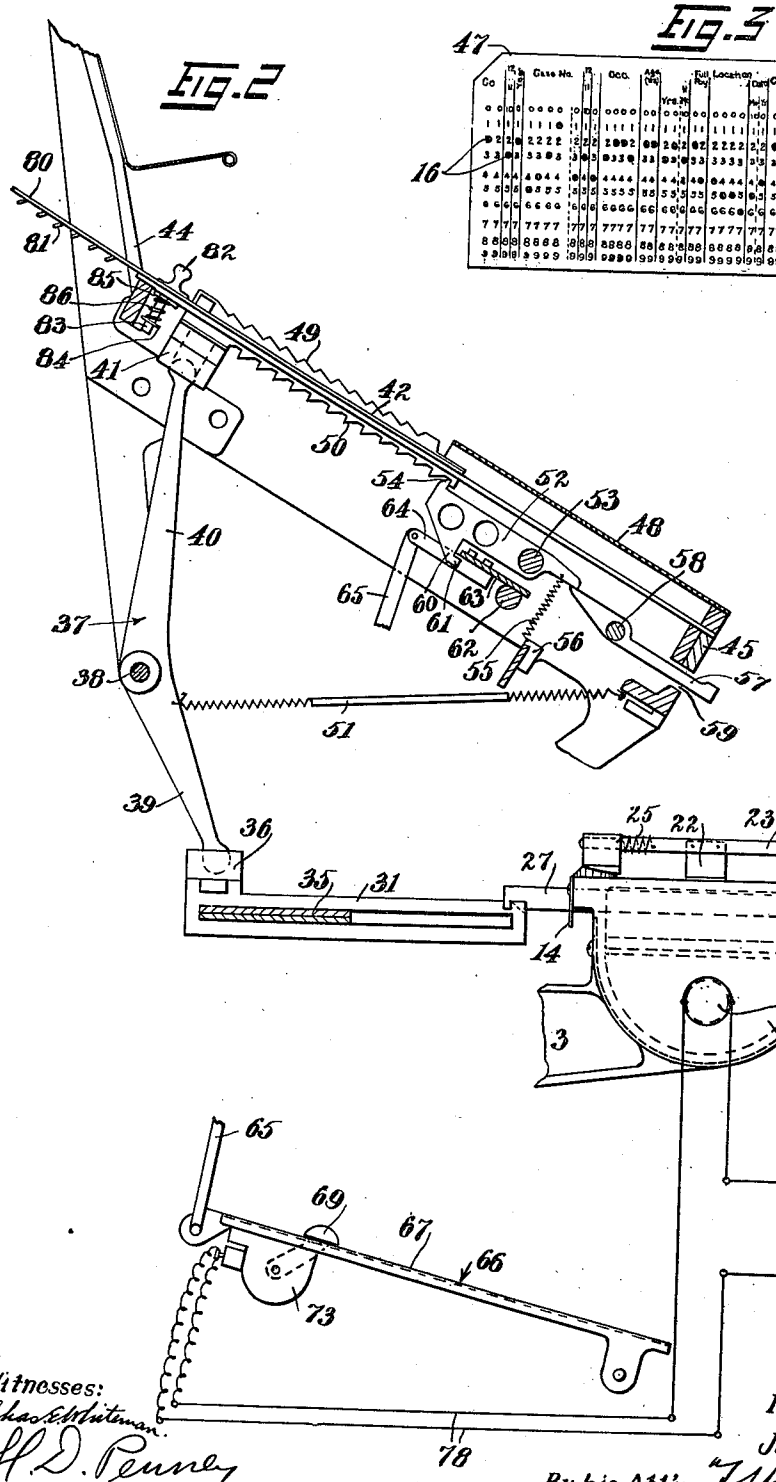


Fig. 3

Witnesses:

Chas. E. Whiteman.

H. D. Penney

Inventor:

James Powers,

By his Atty, H. H. Richards.

J. POWERS.

CARD VERIFYING MACHINE.

APPLICATION FILED MAY 26, 1915.

1,245,765.

Patented Nov. 6, 1917.

6 SHEETS—SHEET 3.

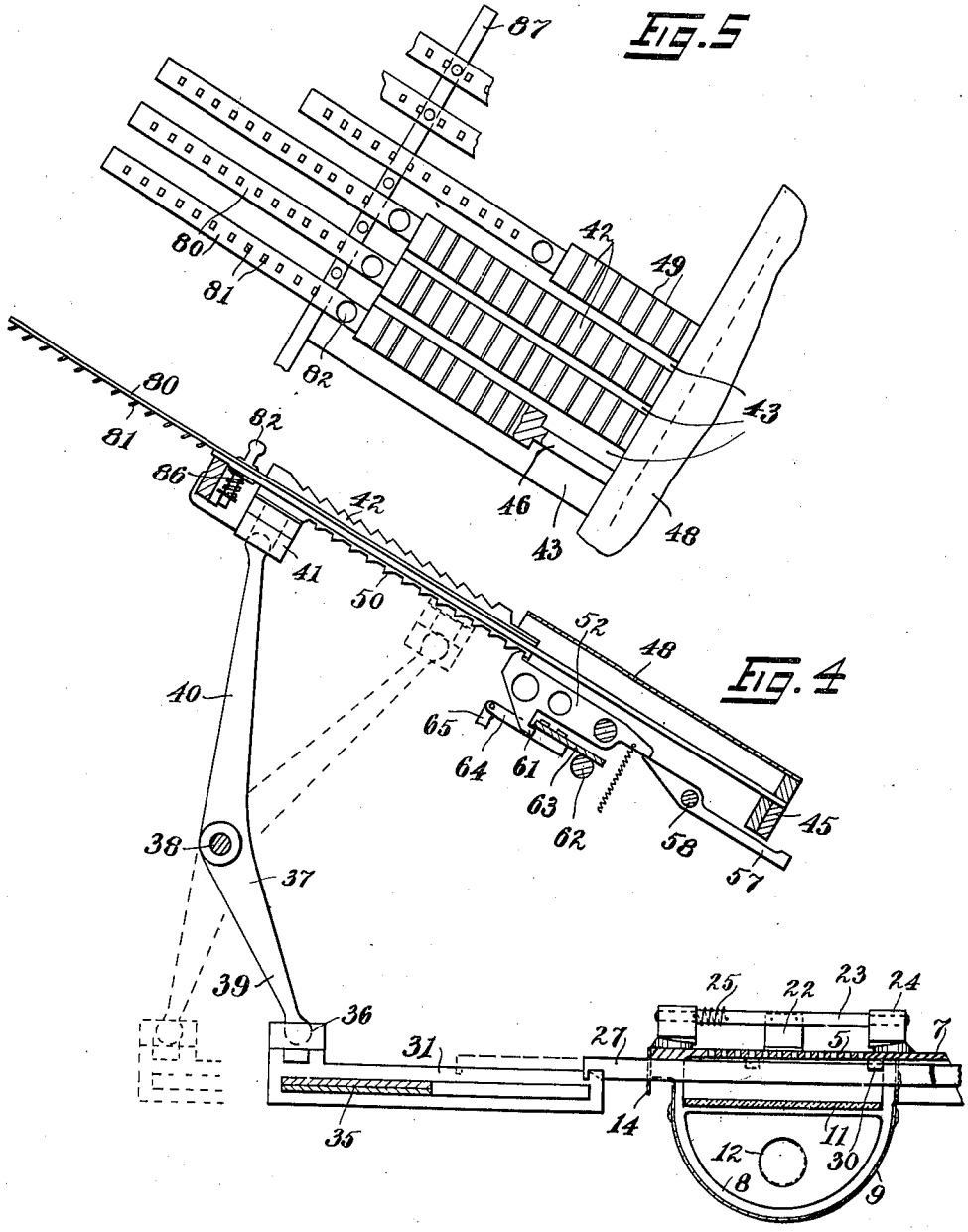


Fig. 5

Fig. 4

Witnesses:
Chas. E. Whiteman.
H. D. Penney

Inventor:
James Powers,
By his Att'y: Wm. N. Richards.

J. POWERS.

CARD VERIFYING MACHINE.

APPLICATION FILED MAY 26, 1915.

1,245,765.

Patented Nov. 6, 1917.

6 SHEETS—SHEET 4.

Fig. 6

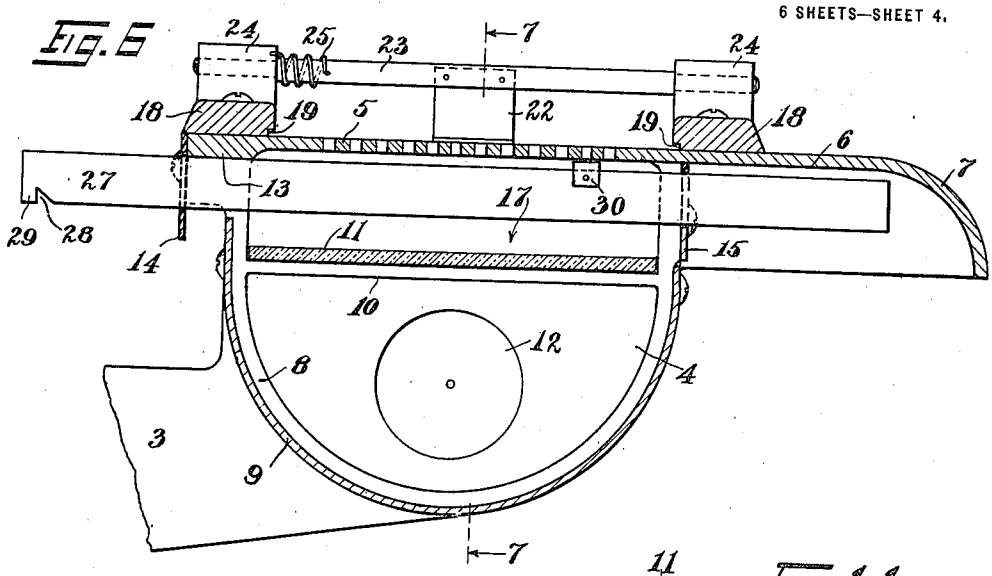


Fig. 10

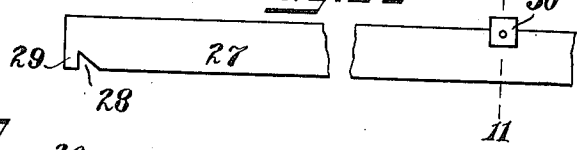


Fig. 11



Fig. 7

Fig. 8

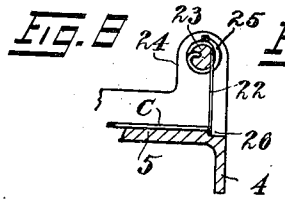
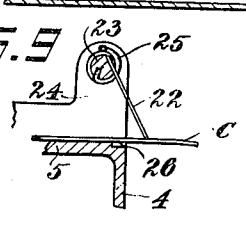


Fig. 9



Witnesses:

Chas. E. Whitman.

H. D. Penney

By his Atty,

Inventor:

James Powers,

F. W. Richards.

J. POWERS.

CARD VERIFYING MACHINE.

APPLICATION FILED MAY 26, 1915.

1,245,765.

Patented Nov. 6, 1917.

6 SHEETS—SHEET 5.

Fig. 12

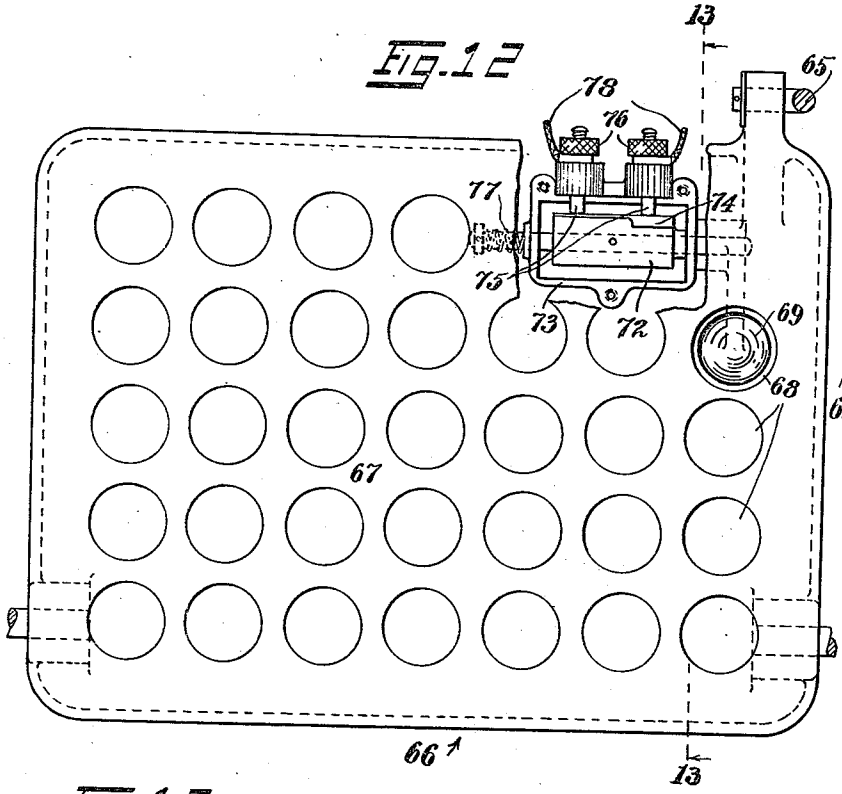


Fig. 13

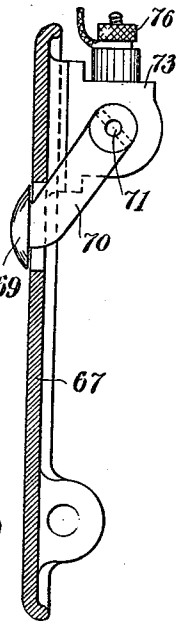


Fig. 15

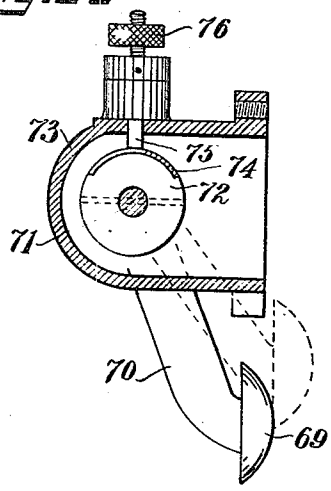
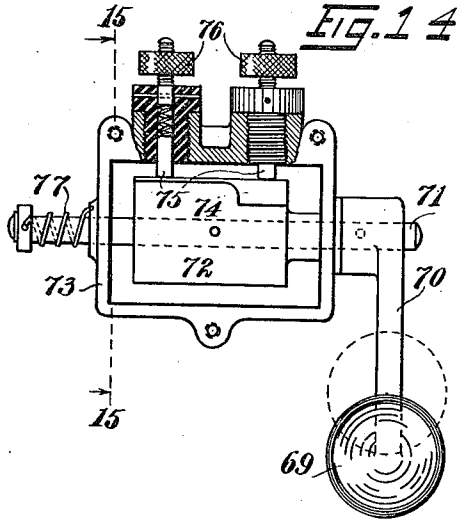


Fig. 14



Witnesses:

Chas. E. Hutchinson

H. D. Penney

Inventor:

James Powers,

By his Atty,

F. A. Richards

J. POWERS.

CARD VERIFYING MACHINE.

APPLICATION FILED MAY 26, 1915.

1,245,765.

Patented Nov. 6, 1917.

6 SHEETS—SHEET 6.

Fig. 16

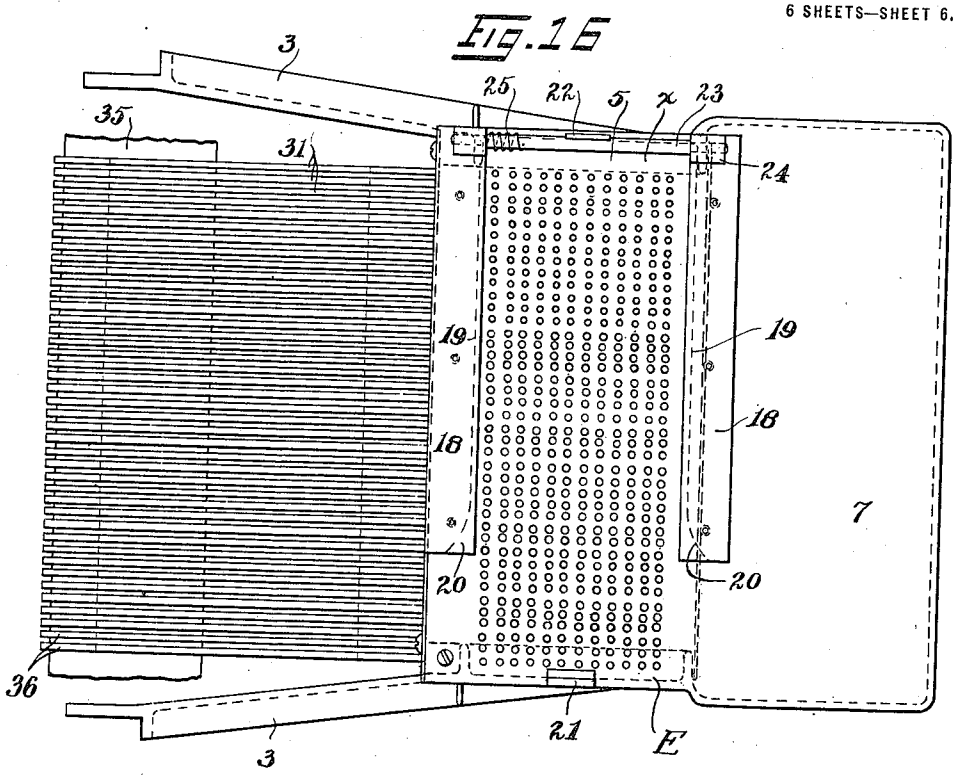


Fig. 17

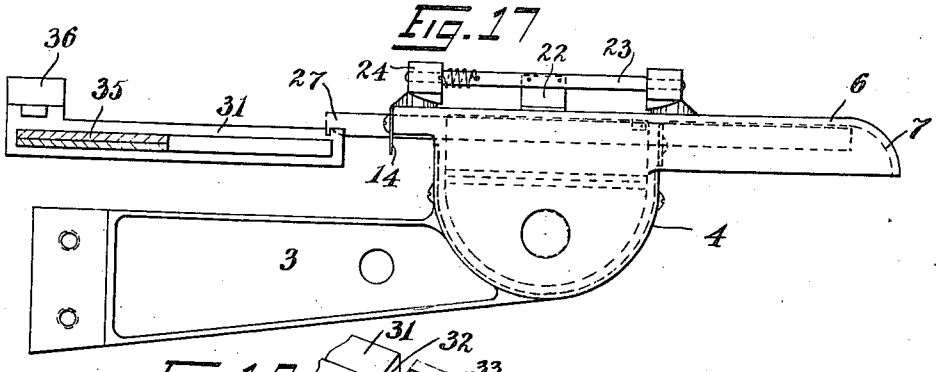


Fig. 18

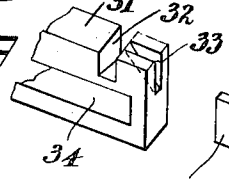
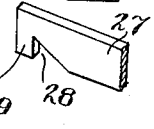


Fig. 19



Witnesses:
Chas. E. Whiteman.
H. D. Penney

Inventor:
James Powers,
By his Att'y, F. A. Richards.

UNITED STATES PATENT OFFICE.

JAMES POWERS, OF NEW YORK, N. Y., ASSIGNOR TO POWERS ACCOUNTING MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

CARD-VERIFYING MACHINE.

1,245,765. Specification of Letters Patent. Patented Nov. 6, 1917.

Application filed May 26, 1915. Serial No. 30,684.

To all whom it may concern:

Be it known that I, JAMES POWERS, a citizen of the United States, residing in New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Card-Verifying Machines, of which the following is a specification.

My present invention relates to improvements in verifying machines for record bearing cards and the like and is more especially intended to be used in conjunction with perforated statistical record bearing cards of the well known type.

Among the objects of the present improvements, it is aimed to provide a means whereby the proving box and main frame of the apparatus may be quickly attached and detached when desired to which end the slide bars connecting the levers of the key slides of the verification machine with the proving box are each formed in two parts, one part to remain permanently with the proving box and the other part to remain permanently with the lever by which it connects up with a key slide, the two parts being conveniently hooked into one another.

Other objects of the invention are to provide a simple means for lighting the proving box whereby an electric button is disposed in position to be engaged by the operator's foot, which engagement will connect a circuit to light the proving box; to provide a treadle the depression of which will release the key slides to permit them to be restored; to provide a duplex treadle arrangement having an electric switch button the depression of which button by the foot of the operator will light the proving box and the depression of which treadle either simultaneously with or independent of the depression of the button, will release the key slides to be restored; to provide a card positioning means for the proving box so that the card will automatically be properly positioned thereon; and to provide an improved switch button especially adapted for the treadle of such a card verifying machine.

These and other features, capabilities and advantages of the invention will appear from the subjoined detailed description thereof illustrated in the accompanying drawings in which—

Figure 1 is a side elevation of the complete machine partly broken away.

Fig. 2 is a fragmentary view showing the keyboard partly in section, and also showing the connection with the treadle schematically.

Fig. 3 is a plan view of one of the record cards.

Fig. 4 is a fragmentary view showing a part of the keyboard and the proving box in section.

Fig. 5 is a fragmentary plan view of the keyboard.

Fig. 6 is a fragmentary enlarged view showing the proving box in transverse section, and Fig. 7 is a similar fragmentary enlarged view showing the proving box in longitudinal section.

Figs. 8 and 9 are fragmentary views in section showing the operation of the card guide.

Fig. 10 is a fragmentary side elevation of one of the slide bar sections permanently connected with the proving box, and Fig. 11 is a transverse section of the same along the line 11—11 of Fig. 10.

Fig. 12 is a fragmentary plan view of the treadle, and Fig. 13 is a transverse section of the same along the line 13—13 of Fig. 12.

Fig. 14 is an enlarged detail view of the switch for the treadle, and Fig. 15, is a transverse section of the same along the line 15—15 of Fig. 14.

Fig. 16 is a plan view of the proving box and its inherent parts.

Fig. 17 is an elevation of the same.

Figs. 18 and 19 are fragmentary perspective views of the coöperating ends of the two sections of a slide bar.

In the embodiment shown, the apparatus is illustrated as having an upper frame member 1 which is suitably mounted upon a lower frame member 2. Preferably, but not of necessity, there is attached to the upper frame 1 a pair of brackets 3 which are rigidly mounted in a suitable manner in order to support a card proving box generally denoted by the number 4. In Figs. 4, 6 and 7, there are shown sectional views of the proving box illustrating the improved details thereof, and in these views it will be noted that the brackets 3 are integral with one another being connected by the perforated plate 5 which forms the top of the proving box, and has a forward extension 6 which curves downwardly at its front end 7. The brackets on their opposing faces just

below the perforated plate 5 are each provided with a substantially semi-circular flange 8 terminating at each of its ends at the plate 5. A metal housing 9 is secured to these two flanges 8 forming a trough-shaped construction as shown. Between the upwardly extending ends of each of the flanges 8 there is provided a straight flange 10 extending across the side of the bracket, and by means of these flanges 10 there is supported a glass plate 11 composed of either clear or ground glass. Inside of the box just described and secured to each of the sides of the brackets 3 there is provided a lamp 12 of the usual electric incandescent type. At the upper end of the rear end of each of the flanges 8 there is provided a rear extension 13 to which there is secured a slotted plate 14, the slots of which are in alinement with the rows of perforations in the plate 5. At the upper end of the front end of each of the flanges 8 there is provided a similar slotted plate 15 whose slots are also in alinement with the perforations in the plate 5 and thus also with the slots of the plate 14. Thus there is formed between the glass plate 11 and the perforated plate 5 a chamber 17.

The card to be proved is positioned on top of the perforated plate 5, this card being illustrated in Fig. 3 as C and being of the usual type having a plurality of rows of numerals printed thereon, each row containing twelve figures, viz: 12, 11, 10 and 1 to 9 inclusive, as clearly indicated in the third column marked 47. Data is indicated on this card by perforating the portion of the card at the proper position in a row which perforation will appear instead of the numeral as indicated in Fig. 3 by the black dots 16. The perforations in the plate 5 correspond to the figure spaces of the several rows of the card C. Thus when any of the perforations in the plate 5 are blocked by some suitable means located in the chamber 17, this blocked perforation corresponds to the perforation in the card, and thereupon the lamps 12 in the proving box are illuminated, no light will shine through such perforation in the card C, whereas if the blocking means did not register with the perforation in the card C, the light from the lamps would appear and thereby indicate that the card being proved was wrongly perforated.

The means for receiving and holding the card on the plate 5 comprises two guides 18, 18 (Figs. 6 and 16) which guides are secured to the top of the plate 5 by any suitable means preferably being spaced from the entrance side E of the plate 5 and adjacent to the exit side X of the plate 5, and extending transversely of the rows of numerals. Each of the guides has a groove 19 formed in it adjacent to the plate 5 which groove flares outwardly at the entrance end of said guides 18 as shown at 20. The cards are fed into and located in these grooves 19 when in proving position, the flaring portions 20 directing the card to proper position when being fed into said grooves 19. At the entrance end of the plate 5, there is located a hook portion 21 comprising a plate bent back upon itself. At the exit end of the plate 5 there is positioned a limiting plate or stop plate 22 which is fixed to a shaft 23 journaled in the bearings 24 which, in the present instance, are integral with and extend up from the ends of the guides 18. The shaft 23 has mounted thereon a spring 25 fixed to one of the bearings 24 and the body of the shaft 23 tending to maintain the shaft in such a position that the stop plate 22 secured thereto will have its lower end bearing against the inner end of the recess 26 formed at the exit end of the plate 5. From the foregoing it will be seen that when the card is fed in from the entrance end of the plate 5, the card will pass over the hook 21 and be directed in the grooves 19 by means of the flaring portions 20 and strike against the stop plate 22 at the exit end of the plate 5. Upon striking the stop plate 22, the card will be released and the stop plate 22 by means of its spring tension will thrust back the card C and feed it into the hook 21 whereby the card will be positioned. When it is desired to discharge the card, it is only necessary to feed the same forward against the stop plate 22 (Fig. 9) and the card C will pass under said stop plate 22 and out from the plate 5.

Means for blocking the perforations in the plate 5 comprise slide bars each embracing two sections one series of sections being permanently connected with the proving box, and the other series of sections being permanently connected with the frame 1. The series of sections or slide bars permanently connected with the proving box are designated as 27 and are slidably mounted in the slots of the plates 14 and 15, such plates 14 and 15 supporting the sections 27. At the lower rear end of each of the sections 27 there is formed a notch 28 producing the hook portion 29. On the upper edge of each of these sections 27 there is formed a blocking member 30 preferably comprising a pad composed of a suitable substance such as felt. These blocking members 30 are positioned on the sections 27 between the members 14 and 15 and block any one of the perforations in the row under which the section 27 slides according to the position of the section 27.

The sections 27 connect with the series of sections or slide bars 31 permanently connected with the main frame 1 by means of the hook portion 29 engaging in the recess 32 of the several sections 31 respectively, such sections 31 each having a guiding slot 33 at

its front end provided with a lower inclined surface, so that the hook member 29 of a section 27 will engage in a recess 32 and the inclined portion of the section 27 at the bottom of the notch 28 will rest against the inclined surface of the slot 33 and the sides of such slot 33 will lock the section 27 against displacement.

The sections 31 are provided with transversely extending openings 34 all in alinement with one another and each of a width practically the entire length of a section 31 through which inclined openings 34 there extends a guide plate 35 secured to the main frame 1, whereby the sections 31 will be slidably mounted and yet locked to the main frame 1.

Each of the sections 31 is provided at its rear end with a socket member 36 to be engaged by one of the series of levers 37, in the present instance, these levers being pivoted on a common shaft 38 and each having a lower arm 39 rounded at its end to engage in a socket member 36. Each of the levers 37 is also provided with an upper arm 40 similarly rounded at its end to engage in one of a series of socket members 41 respectively, each of which socket members 41 is connected to a key slide 42.

There are a plurality of these key slides 42 one for each row of a card and having graduations thereon to correspond with the figures 12, 11, 10 and 1 to 9 inclusive, of a row in a card C.

The key slides 42 are mounted to slide on the top of the frame and are so mounted and held in position by means of metal strips 43 spaced apart from one another and extending from the upper extension 44 to the lower extension 45 of the frame 1 and having their ends fastened to such extensions 44 and 45. The key slides are mounted to travel between such strips 43 and are each provided with grooves 46 in their sides into which the strips 43 extend and thereby confine the key slides to a sliding movement.

Fastened to the lower extension 45 of the frame 1 and extending up from the strips 43 for a certain distance, there is secured a plate 48 on which the hands of the operator may rest while manipulating the key slides 43. The key slides are each provided with a series of transversely extending notches 49 on their upper surface, of which there are twelve corresponding to the number of figures in a row of the card C, and are also each provided on their lower surfaces with a like number of notches 50. The notches 49 are numbered 12, 11, 10 and 1 to 9 inclusive, similarly to the rows of a card, and when the finger is introduced into any one of the notches 49 of a key slide 43 and such key slide moved forward until the finger touches the plate 48, the lever 37 connected to such key slide 49 will by said movement slide the thereto connected sections 31 and 27 to move a pad or blocking member 30 under the corresponding perforation in the plate 5.

The levers 37 are each provided with a spring 51 connecting their lower arms 39 to the lower extension 45 of the main frame whereby such levers 37 are normally maintained in a position where they hold the key slides in initial or uppermost position and likewise return such key slides 42 to such uppermost position when the key slides are released. To lock the moved key slides 42 in their advanced or lower positions, there are provided a plurality of ratchets 52 pivoted on a common shaft 53 fixed to the main frame 1 below the plate 48. Each of these ratchets 52 is provided with a tooth 54 extending upwardly from its rear end to engage in the notches 50, the front end of which ratchets is connected by a spring 55 to the cross bar 56 whereby the rear end of the ratchet is normally maintained in raised or notch engaging position. For individually releasing any one of the ratchets 52, a plurality of levers 57 are provided loosely mounted on the common shaft 58, their rear ends each contacting with the lower surface of the front arm of a ratchet 52, and their front arms projecting through an opening 59 formed in the extension 45 below the plate 48 in which position the operator can easily depress any one of the levers that may be desired.

For releasing all of the ratchets simultaneously which may be desired when resetting the machine for proving the next succeeding card, the ratchets are each provided with a downwardly extending portion 60 having a forwardly extending tooth 61. Forwardly of these downward extensions 60 there is located a shaft 62 to which there is fixed a plate 63 having its rear end extending over and onto the teeth 61, thus when the rear end of plate 63 is depressed, it will therewith depress the rear ends of the ratchets 52 and simultaneously release all of the ratchets. For so depressing such rear end of the plate 63, the plate 63 is provided with an extension 64 to the rear end of which there is pivoted a link 65 the lower end of which is pivotally connected to a treadle 66 pivotally connected to the lower frame 2 so that the depression of the treadle 66 will in turn depress the rear end of the plate 63 to release the ratchets 52.

On the treadle is arranged the means whereby the illumination of the lamps can be effected. The foot-rest of the treadle is preferably a plate 67 having a plurality of openings 68. Through one of these openings preferably through one at the side of the plate, in the present instance, shown at the upper end of the right side of such plate 67, a button 69 projects which is fixed at the end of a lever 70 secured to a shaft 71 on

which a drum 72 is fastened, the shaft 71 being journaled in a housing 73 secured to the lower side of said plate 67, and the drum 72 being positioned in said housing. On one side of said drum 72 there is fixed an electric contact plate 74, the drum itself being composed of a suitable insulating material. Fixed in one side of the housing 73 and extending therethrough are two pins 75, 75 suitably insulated from the housing, having a screw-threaded connection with said housing, and a knurled nut 76 on each of said pins positioned outside of said housing. The pins extend into said housing and form contact points to be engaged by said contact plate 74. The drum 72 is normally positioned so that its contact plate 74 is out of contact with the pin 75, thus breaking the circuit, the drum being held in such normal position by a spring 77 fastened at one end to the shaft 71 which extends out of said housing and at its other end to the housing 73. By depressing the button 69 and thereby depressing the lever 70 to rotate the drum 72, the plate 74 at the depressed position of said lever 70 will be moved into position where it contacts with the pins 75. The pins 75 form the binding posts for the electric wires 78 (Fig. 2) which properly connect the lamps 12 with a source of electric power such as the battery 79 when the plate 74 is in contact with the pins 75.

The foregoing arrangement is such that when a card is properly positioned in the proving box 4 and the pads 30 properly set for a reading, the operator will move his foot over to the button 69 and depress the same, whereby the pins 75 and plate 74 will be moved into contact with one another to connect the battery with the lamps 12 and thereby illuminate the same. Upon such illuminations, the light will shine through any uncovered perforation and thus it may be seen whether the card has been properly perforated.

After the lamps have been illuminated, and the reading made, the pads 30 and key slides 42 may thereupon be reset for the next succeeding card which is done by depressing the treadle 66 itself, whereby the plate 63 will be depressed to release the ratchets 52 which in turn as already described will permit the key slides 42 and pads 30 to be returned to initial position by means of the levers 37. After the foot of the operator has depressed the button 69, and it is desired to depress the treadle itself, the operator may either shift his foot from the button 69 to extinguish the lamps before depressing the treadle or else depress the treadle without shifting his foot from the button and thus effect the restoration of the pads 30 while the lamps are illuminated.

In order to permit gang setting of the key slides 42, whereby data which is common to a number of cards to be proved, need not be reset for each separate card, I have provided a gang locking plate 80 having a number of punched-out fingers 81 corresponding to the number of notches 49 on the key slides 42. At the front of the locking plate 80 there is provided a handle member 82 which is fastened to the plate 80 and has a lower extension 83 provided with a fixed washer 84 at its lower end and a movable washer 85 at its upper end between which washers there is strained a spring 86. The washer 85 is of greater diameter than the space between the strips 43, the lower end of the handle member 82 being disposed on the upper surface of the locking plate 80 and the washer 85 on the lower surface of adjacent strips 43, the spring 86 serving to clamp the strips 43 between the locking plate 80 and the washer 85. On the frame member 44 there is provided a transversely extending bar 87 of a thickness that is sufficiently small to permit the fingers 81 to engage around it. In the operation of this gang locking plate 80, the handle 82 is grasped and moved down to the notch in the keyboard corresponding to the data which is common to a number of cards to be proved, and thereby a corresponding finger 81 is engaged on the transversely extending bar 87, the handle member 82 released and the spring 86 permitted to clamp the locking plate in place. By this means, whenever the key slides are released to return to normal position, those key slides which have locking plates set in their path of movement are locked against being returned to normal position and thus ready for the next card to be proved without an independently and separate setting of such common data.

I claim:

1. In a device of the character described for proving cards, a frame having a perforated plate for holding a perforated card, means for covering the perforations in said card, and illuminating means disposed under said perforated plate so that its light will reflect through any uncovered perforations in said card and thereby indicate what perforations are incorrect.

2. In a device of the character described for proving cards, a frame having a perforated plate for holding a perforated card, covering means for covering the perforations in said card while disposed on said perforated plate, a key mechanism for manipulating said covering means, a lamp in said frame disposed under said perforated plate so that when lighted, its light will reflect through any uncovered perforations in said card and thereby indicate what perforations are incorrect, and reciprocating means comprising a treadle and a linkage connecting said key mechanism and said lamp with said treadle so that release of said treadle will re-

tract said key mechanism to normal position.

3. In a device of the character described for proving perforated cards, proving means comprising a plurality of pads, a card support through which light may pass, the pads coöperating with said support to cover the perforations in the card to be proved, illuminating means disposed under said support so that its light will reflect through any uncovered perforations in said card, arms connected to each of said pads, means for setting said arms and thereto connected pads comprising a frame, key slides operatively mounted in said frame to be moved into record reproducing positions, each of said key slides being operatively connected with one of said arms so that any movement of the key slides will be transmitted to said arms individually, said key slides each having notches on its lower edge, latches pivotally mounted in said frame and engaging said notches to lock said key slides in record reproducing positions, downwardly depending portions on said latches forming gaps between them and the latches proper, a rock shaft journaled in said frame, a universal plate fixed to said rock shaft and extending into said gaps, an extension on said rock shaft, a releasing lever fulcrumed in said frame and connected at one end to said extension, a treadle fulcrumed at the lower end of said frame, and a link connecting said extension with said treadle so that the depression of said treadle will release said latches.

4. In a device of the character described for proving perforated cards, proving means comprising a plurality of pads, a card support through which light may pass, the pads coöperating with said support to cover the perforations in the card to be proved, illuminating means disposed under said support so that its light will reflect through any uncovered perforations in said card, arms connected to each of said pads, means for setting said arms and thereto connected pads comprising a frame, key slides operatively mounted in said frame to be moved into record reproducing positions, each of said key slides being operatively connected with one of said arms so that any movement of the key slides will be transmitted to said arms individually, said key slides each having notches on its lower edge, latches pivotally mounted in said frame and engaging said notches to lock said key slides in record reproducing positions, springs for normally maintaining said latches in locking position, and releasing levers one connected to each of said latches to release a latch from its key slide to permit resetting of said key slide, downwardly depending portions on said latches forming gaps between them and the latches proper, a rock shaft journaled in said frame, a universal plate fixed to said rock shaft and extending into said gaps, an extension on said rock shaft, a treadle fulcrumed at the lower end of said frame, and a link connecting said extension with said treadle so that the depression of said treadle will release said latches.

5. In a device of the character described for proving perforated cards, proving means comprising a plurality of pads, a card support through which light may pass, the pads coöperating with said support to cover the perforations in the card to be proved, illuminating means disposed under said support so that its light will reflect through any uncovered perforations in said card, arms connected to each of said pads, means for setting said arms and thereto connected pads comprising a frame, key slides operatively mounted in said frame to be moved into record reproducing positions, intermediate levers fulcrumed in said frame and operatively connecting each of said key slides with one of said arms, springs for maintaining said intermediate levers in retracted position in which they will also hold said key slides and arms in retracted position, said key slides each having notches on its lower edge, latches pivotally mounted in said frame and engaging said notches to lock said key slides in record reproducing positions, tension means for normally maintaining said latches in locking positions, downwardly depending portions on said latches forming gaps between them and the latches proper, a rock shaft journaled in said frame, a universal plate fixed to said rock shaft and extending into said gaps, and means for actuating said rock shaft to release said latches.

6. In a device of the character described for proving perforated cards, proving means comprising a plurality of pads, a card support through which light may pass, the pads coöperating with said support to cover the perforations in the card to be proved, illuminating means disposed under said support so that its light will reflect through any uncovered perforations in said card, arms connected to each of said pads, means for setting said arms and thereto connected pads comprising a frame, key slides operatively mounted in said frame to be moved into record reproducing positions, intermediate levers fulcrumed in said frame and operatively connecting each of said key slides with one of said arms, springs for maintaining said intermediate levers in retracted position in which they will also hold said key slides and arms in retracted position, said key slides each having notches on its lower edge, latches pivotally mounted in said frame and engaging said notches to lock said key slides in record reproducing positions, tension means for normally main-

taining said latches in locking positions, downwardly depending portions on said latches forming gaps between them and the latches proper, a rock shaft journaled in said frame, a universal plate fixed to said rock shaft and extending into said gaps, an extension on said rock shaft, a treadle fulcrumed at the lower end of said frame, and a link connecting said extension with said treadle so that the depression of said treadle will release said latches.

7. A device of the character described for proving cards comprising a frame having a perforated plate on which the card to be proved is disposed, the perforations of said plate corresponding to the rows of figures on said card, means for covering certain of the perforations in said plate according to the data intended to have been perforated in the card being proved, and lighting means under said perforated plate so that light will reflect through any uncovered perforations in said card and thereby indicate what perforations are incorrect.

8. A device of the character described for proving cards comprising a frame having a perforated plate on which the card to be proved is disposed, the perforations of said plate corresponding to the rows of figures on said card, means for covering certain of the perforations in said plate according to the data intended to have been perforated in the card being proved, and means for indicating what perforations in said card have not been covered.

9. A device of the character described for proving cards comprising a frame having a perforated plate on which the card to be proved is disposed, the perforations of said plate corresponding to the rows of figures on said card, means for covering certain of the perforations in said plate according to the data intended to have been perforated in the card being proved, a main frame, a plurality of key slides mounted in said main frame, a corresponding number of slide bars connected to said covering means, levers connecting said key slides with said slide bars so that the movement of said key slides will be transmitted to said slide bars, a plurality of ratchets, there being notches in said key slides in which said ratchets may engage to lock said key slides in a set position, there being a gap in each of said ratchets, a universal plate resting in said gaps and fixed to a shaft, and a treadle for actuating said plate when depressed to actuate and thereby to release all of said ratchets simultaneously.

10. A device of the character described for proving cards comprising a frame having a perforated plate on which the card to be proved is disposed, the perforations of said plate corresponding to the rows of figures on said card, means for covering certain of the perforations in said plate according to the data intended to have been perforated in the card being proved, a main frame, a plurality of key slides mounted in said main frame, a corresponding number of slide bars connected to said covering means, levers connecting said key slides with said slide bars so that the movement of said key slides will be transmitted to said slide bars, a plurality of ratchets, there being notches in said key slides in which said ratchets may engage to lock said key slides in a set position, there being a gap in each of said ratchets, a universal plate resting in said gaps and fixed to a shaft, a treadle, and a link connecting said treadle to said universal plate so that the depression of said treadle will actuate said universal plate and thereby release all of said ratchets simultaneously.

11. A device of the character described for proving cards comprising a frame having a proving box, a perforated plate forming the top of said proving box on which the card to be proved is disposed, the perforations of said plate corresponding to the rows of figures on said cards, means for covering certain of the perforations in said plate according to the data intended to have been perforated in the card being proved, a main frame, a plurality of key slides slidably mounted in said main frame, a corresponding number of slide bars connected to said covering means, levers connecting said key slides to said slide bars so that the movement of said key slides will be transmitted to said slide bars, said slide bars each comprising two sections, one section permanently connected to the main frame, and the other permanently connected to the proving box, the sections being hooked to one another when in connected position, and lighting means disposed in said proving box so that the light therefrom will deflect through any uncovered perforations in said card and thereby indicate what perforations are incorrect.

12. A device of the character described for proving cards comprising a frame having a proving box, a perforated plate forming the top of said proving box on which the card to be proved is disposed, the perforations of said plate corresponding to the rows of figures on said cards, means for covering certain of the perforations in said plate according to the data intended to have been perforated in the card being proved, a main frame, a plurality of key slides slidably mounted in said main frame, a corresponding number of slide bars connected to said covering means, levers connecting said key slides to said slide bars so that the movement of said key slides will be transmitted to said slide bars, said slide bars each comprising two sections, one section perma-

nently connected to the main frame, and the other permanently connected to the proving box, the sections being hooked to one another when in connected position, there being a transversely disposed notch on the lower end of one section having an inclined surface to form a hooked end, the other section having a transversely disposed notch in its upper surface and an inclined recess extending longitudinally of said latter section and disposed between said transversely disposed notch and the end of such section to form a guideway in which the first named section will be located against lateral displacement when hooked in position, and lighting means disposed in said proving box so that the light therefrom will reflect through any uncovered perforations in said card and thereby indicate what perforations are incorrect.

13. A device of the character described for proving cards comprising a frame having a perforated plate on which the card to be proved is disposed, the perforations of said plate corresponding to the rows of figures on said card, means for covering certain of the perforations in said plate according to the data intended to have been perforated in the card being proved, means for holding a card in position on said perforated plate, said means comprising two parallel guides, a hook member at the entrance side of said perforated plate, and a spring-pressed plate disposed at the exit side of said perforated plate and having a force directed toward the entrance side of said perforated plate so that when a card is fed onto said perforated plate between said guides and strikes the spring-pressed plate, the card may be released and the spring-pressed plate will move the card back into said hook member thus to position it, and means for reflecting light through any uncovered perforations in said card thereby to indicate what perforations are incorrect.

14. A device of the character described for proving cards comprising a frame having a perforated plate on which the card to be proved is disposed, the perforations of said plate corresponding to the rows of figures on said card, means for covering certain of the perforations in said plate according to the data intended to have been perforated in the card being proved, means for holding a card in position on said perforated plate and having grooves adjacent to the perforated plate in which the card rides when being fed into position, the grooves flaring outwardly at the entrance side thereof, thereby to direct the card into proper position, a hook member at the entrance side of said perforated plate, a spring-pressed plate disposed at the exit side of said perforated plate and having a force directed toward the entrance side of said perforated plate so that when a card is fed onto said perforated plate between said groove and strikes the spring-pressed plate, the card may be released and the spring-pressed plate will move the card back into said hook member thus to position it, and means for reflecting light through any uncovered perforations in said card thereby to indicate what perforations are incorrect.

15. A device of the character described for proving cards comprising a frame having a perforated plate on which the card to be proved is disposed, the perforations of said plate corresponding to the rows of figures on said card, means for covering certain of the perforations in said plate according to the data intended to have been perforated in the card being proved, a main frame, a plurality of key slides slidably mounted in said main frame, a corresponding number of slide bars connected to said covering means, levers connecting said key slides with said slide bars so that the movement of said key slides will be transmitted to said slide bars, gang locking means whereby when a plurality of cards have common data to be proved, the corresponding key slides may be locked against being reset while said cards are being proved, and means for reflecting light through any uncovered perforations in said card thereby to indicate what perforations are incorrect.

16. A device of the character described for proving cards comprising a frame having a perforated plate on which the card to be proved is disposed, the perforations of said plate corresponding to the rows of figures on said card, means for covering certain of the perforations in said plate according to the data intended to have been perforated in the card being proved, electric lamps for reflecting light through any uncovered perforations in said card thereby to indicate what perforations are incorrect, means for illuminating said electric lamps when it is desired to sort a card for proving the same, said illuminating means comprising a button to be depressed by the foot of the operator, and an electric switch connected to and actuated by said button.

17. A device of the character described for proving cards comprising a frame having a perforated plate on which the card to be proved is disposed, the perforations of said plate corresponding to the rows of figures on said card, means for covering certain of the perforations in said plate according to the data intended to have been perforated in the card being proved, a main frame, a plurality of key slides slidably mounted in said main frame, a corresponding number of slide bars connected to said covering means, levers connecting said key slides with said slide bars so that the move-

ment of said key slides will be transmitted to said slide bars, means for restoring said key slides to initial position for the next succeeding card to be proved, a treadle connected to said restoring means, the depression of which treadle will actuate said restoring means to restore said key slides to initial position, and means for reflecting light through any uncovered perforations in said card thereby to indicate what perforations are incorrect.

JAMES POWERS.

Witnesses:
GUSTAV DREWS,
HENRY J. SIEGEL.