

No. 621,455.

Patented Mar. 21, 1899.

E. B. HESS & A. S. GRANGER.

CHECK PERFORATOR.

(Application filed Mar. 23, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 2.

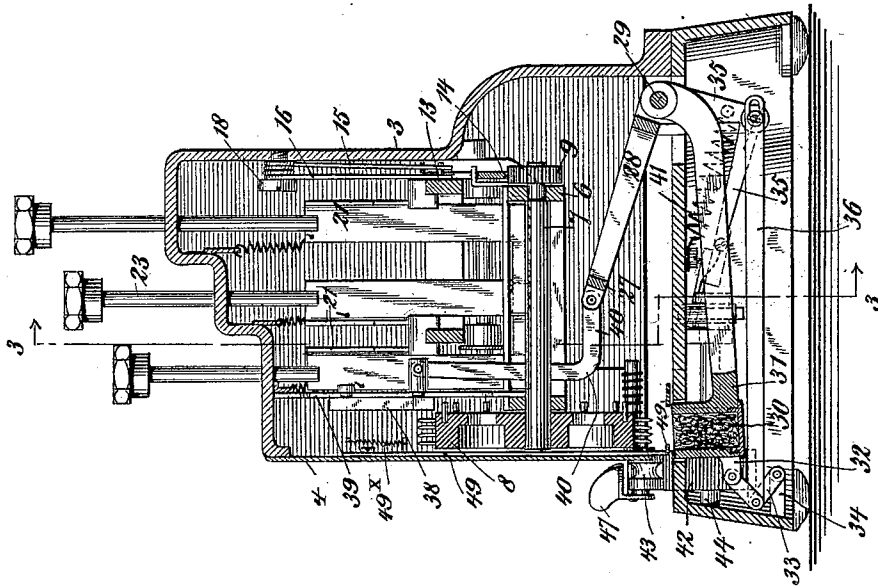
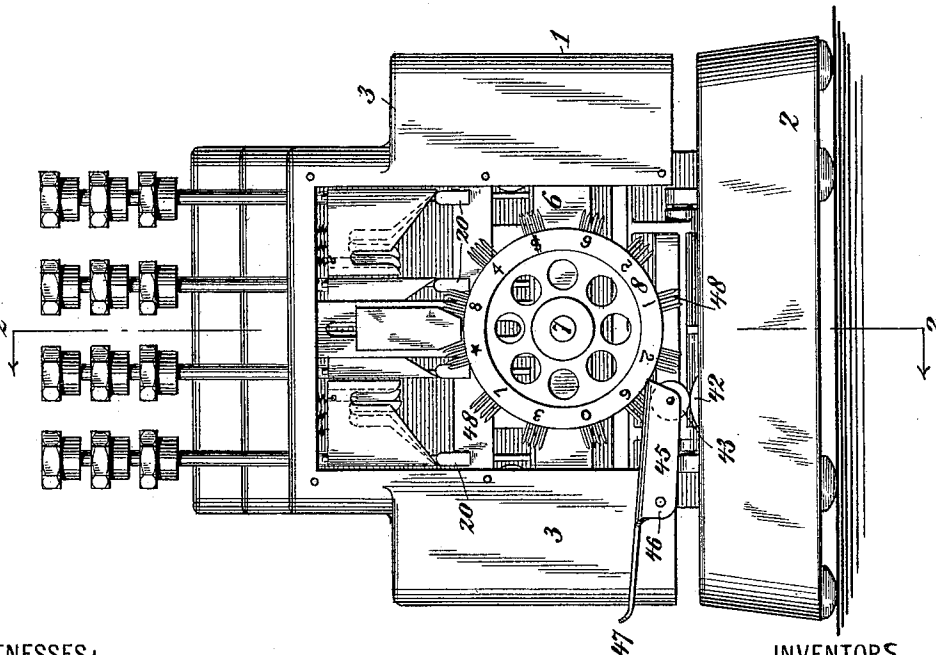


Fig. 1.



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Fig. 4,

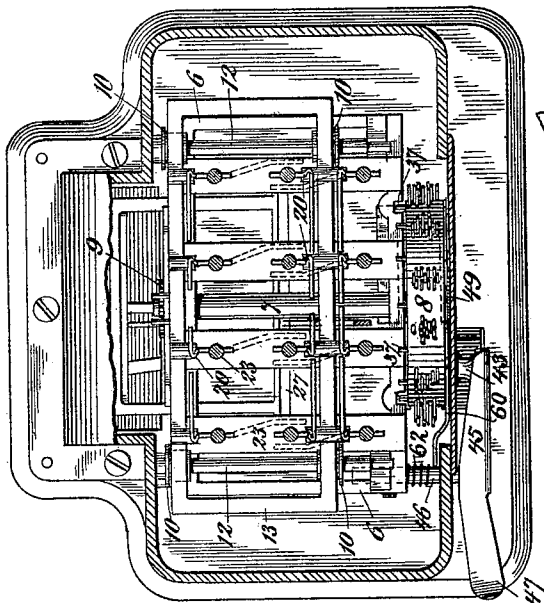


Fig. 9,

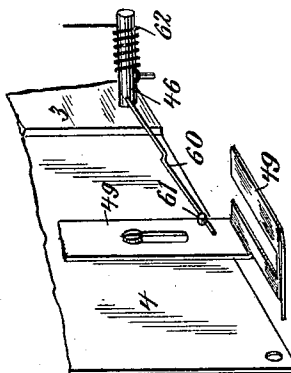
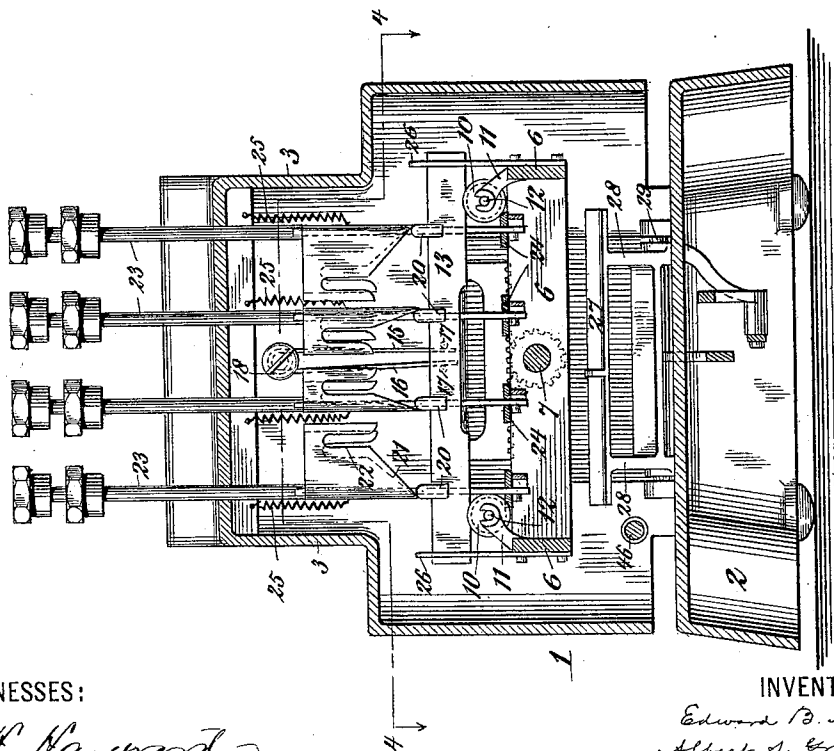


Fig. 3,



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3 Sheets—Sheet 3.

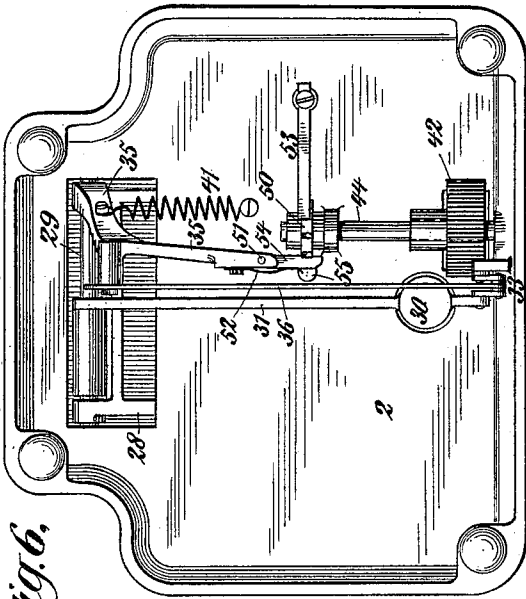


Fig. 6.

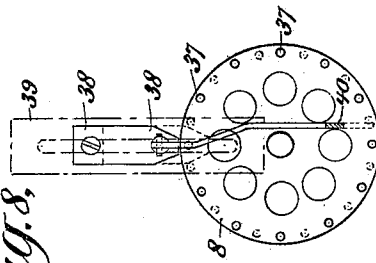


Fig. 8.

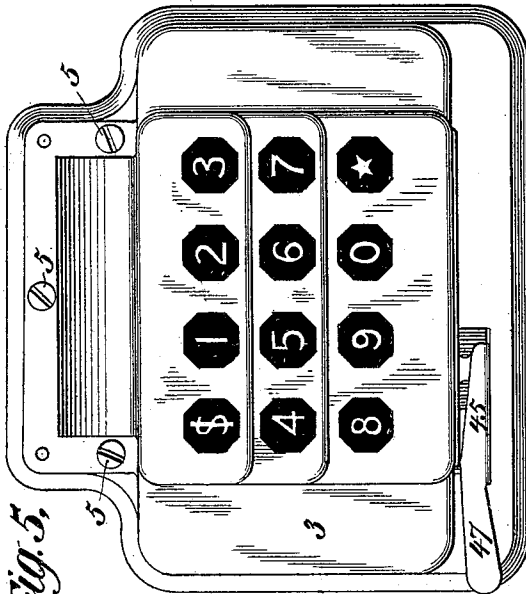


Fig. 5.

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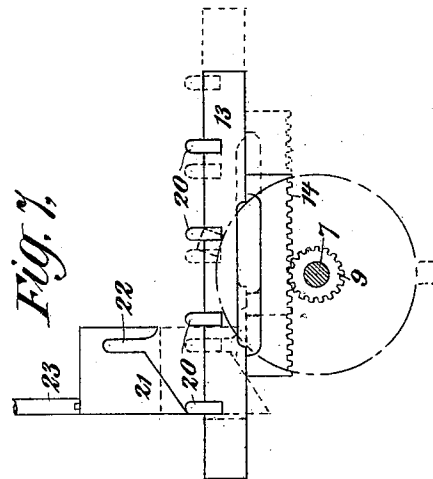


Fig. 7.

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UNITED STATES PATENT OFFICE.

EDWARD B. HESS AND ALBERT S. GRANGER, OF NEW YORK, N. Y., AS-
SIGNORS TO THE CENTURY MACHINE COMPANY, OF SAME PLACE.

CHECK-PERFORATOR.

SPECIFICATION forming part of Letters Patent No. 621,455, dated March 21, 1899.

Application filed March 23, 1898. Serial No. 674,861. (No model.)

To all whom it may concern:

Be it known that we, EDWARD B. HESS and ALBERT S. GRANGER, citizens of the United States, and residents of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Check-Perforators, of which the following is a specification.

This invention relates to simple and effective mechanism designed to protect checks and the like against fraudulent alterations as to the amounts thereof by providing the check or other instrument with inked perforations or marks indicating the amount for which it is drawn.

To these ends the invention includes, essentially, a plurality of sets of needles or perforating characters adapted each to be arbitrarily brought to a given point, a to-and-fro-movable inking-pad coacting with the character at said point to perforate and mark the check or instrument, and a reciprocating stripper for the purpose of removing the paper from the perforators. In the preferred form of the organized mechanism we employ sets of perforating characters corresponding in number to the number of keys, mechanism for bringing each character to a given position on operating the corresponding key, a to-and-fro-movable inking-pad, and connections between said pad and said keys, and we also employ a stripper and mechanism for automatically feeding the paper forward step by step to obtain the required spacing between successive perforated characters. Preferably the perforating characters are upon the periphery of a rotatory wheel which is turned by a key-actuated mechanism to bring any character opposite the impression or printing-pad and hold it there, and by the continued motion of the key the paper is forced over the needles or perforators by means of an inking-pad movable to and fro, such pad being formed of fabric or other suitable material penetrable by the needles or perforators. We prefer to employ an auxiliary centering device coacting with suitable parts upon the needle-wheel to insure that the characters are properly positioned and held in front of the pad.

Our improvements consist in the various features of construction and combinations of devices hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a front view, the front cover-plate of the casing being removed to show the mechanism behind the same. Fig. 2 is a vertical sectional view upon the plane indicated in Fig. 1 by the line 2 2, looking in the direction of the arrows, and showing the parts to the left of said plane. Fig. 3 is a vertical sectional view on the plane indicated in Fig. 2 at the line 3 3, looking in the direction of the arrows, and showing the parts to the rear of such plane. Fig. 4 is a sectional plan view on the planes indicated in Fig. 3 by the broken line 4 4 and showing the parts beneath. Fig. 5 is a plan view of the machine. Fig. 6 is a bottom view thereof, showing the mechanism under the casing. Fig. 7 is a detail view of the actuating mechanism for the needle-carrier, showing one key and its cam. Fig. 8 is a rear view of the auxiliary wheel centering and locking device, and Fig. 9 is a perspective view of the connection between the stripper and the shaft of the paper-pressing lever.

In the several views the same part will be found designated by the same numeral of reference.

The operating parts of the mechanism are protected by a casing 1, which is made in three parts. The base 2 is hollow to receive certain parts of the mechanism and forms a cover therefor, as will be understood, and is provided with suitable openings for some of the operating parts. Attached to the top of base 2 at its rear is an overhanging part 3 of the casing, which incloses the principal parts of the operating mechanism. The front of the casing 3 is open, as shown in Fig. 1, and this opening may be closed by a suitable cover-plate 4.

The reference-numerals 5 indicate screws by which the overhanging casing 3 is rigidly attached to the base 2.

Within the casing 3 and at a suitable distance above the space separating the said cas-

ing from the base is a fixed horizontal frame or carriage-support 6, which is rigidly attached to or formed with the said casing 3. The said frame 6 is provided with bearings for the shaft 7, upon which the needle-carrier 8 is suitably fixed at the front end thereof. At its rear end the shaft 7 is provided with a pinion 9, fixed thereto. In the instance illustrated in the drawings the pinion 9 lies behind the frame 6 and is fixed upon a reduced cylindrical portion of the shaft 7, forming, in conjunction with the shoulder of the shaft and the frame 6, a locking device for preventing endwise motion of the shaft.

The frame 6 is provided with suitable bearings 11 to receive the shafts 12, upon which guide-wheels 10 are secured, the shafts 12 being parallel to shaft 7, above named. A movable frame or carriage 13 rests upon wheels or rollers 10, being thus capable of motion from side to side of the machine, and is provided with a rack portion 14, which meshes with the pinion 9 aforesaid. The frame or carriage 13 is held in a central position with relation to the casing by means of a spring or springs, as by the springs 15 16, which are fast at one end to a screw 18 on the casing 3 and bear against the pins 17 upon the frame 13 at their other ends. The frame 13 is provided with three sets of lugs, arms, or pins 20, having semicircular or rounded tops, and these pins or lugs 20 extend in a direction parallel with the shaft 7. For each device 20 we employ a key-actuated cam 21, the cam for each arm being of such length as will give a definite throw or motion to the frame 13. The cams are provided with slots or dwells 22 for slipping over the arms or lugs 20 when the frame 13 shall have been moved the predetermined distances, thus locking the frame against further motion. Half of the cams are arranged to move the frame 13 in one direction, and the remainder of the cams are arranged to move the frame 13 in the opposite direction, and all are so placed with respect thereto that the said frame may be moved in either direction when the cams are in their normal or raised positions. The cams are carried by key-stems 23, which slide in and are guided by holes in the top of the casing 3 and by suitable slotted guide-bars 24 on the frame 6. Springs 25, attached to the keys and to the casing 3, maintain the keys in their upper positions except when pressed down during the operation of the machine. Locking-lugs 26, attached to the frame 6, extend over the frame 13 and hold it from displacement from the rollers 10. The keys 23 include an upper round rod and a lower flat plate or toe, the latter being more clearly shown in Fig. 2. The cams 21 are attached to or form part of the said flat portions. Such flat portions in the middle row of keys 23 come directly over a universal bar 27, while the toes of the front and rear rows of keys are respectively extended backward and forward, as shown in Fig. 4 in dotted lines,

to bring them over the said universal bar. The universal bar 27 is carried by arms 28, extending forwardly from the shaft 29, which is journaled horizontally at the rear of the casing. There is sufficient lost motion between the bottoms of the toes and the top of the universal bar to allow the cams 21 to shift the frame 13 and cause the described mechanism to rotate the wheel 8 to bring the selected character to the under side of said wheel before the universal bar 27 begins to move. The universal bar and parts operated thereby are normally retained in the positions shown in Fig. 2 by means of the spring 41, which is attached at one end to the arm 35 and at the other end is secured on the under side of top plate of the base 2.

The wheel 8 does not move downward or toward the paper; but the latter is brought against and over the needles or perforators upon the wheel by means of a soft or penetrable pad 30, which moves to and fro. This pad 30 may be of fabric, composition, or other suitable material and is contained in a cavity in the head of a lever 31, which is loosely journaled upon the shaft 29 and is lifted at suitable times by means of mechanism connecting it with the shaft 29. In the instance shown the pad carrying the head of the lever 31 is provided with a lug 32, to which one end of the toggle 33 is pivotally connected, the other end of said toggle being pivotally connected to a lug 34 of the base 2. A link 36 is pivotally connected to the knuckle or toggle at one end and at the other end is loosely connected, by means of a slot and screw or pin, with the arm 35 of shaft 29 to allow of some lost motion and to cause the quick rise of the pad.

The auxiliary locking device referred to above comprises a series of pins 37 upon the rear face of the wheel 8, extending in a direction parallel to the shaft 7 and spaced at equal distances apart, and the reciprocating locking-tooth or centering-wedge 38. This locking-tooth 38 is attached to and slides upon a fixed plate 39, which is attached to the casing 3 and to the frame 6. The centering-wedge 38 is beveled at its lower end to facilitate its insertion between adjacent pins 37. The wedge 38 is moved to and fro by means of a bent link 40, which is pivotally attached thereto at one end and attached in like manner at its other end to the universal bar 27. The small full-line circles near the periphery of the wheel 8 in Fig. 8 indicate the normal positions of the pins 37, while the small dotted circles indicate their positions when the wheel 8 has been rotated to bring any character to the position in which it coacts with the pad 30.

The paper being operated upon is held in position by means of the milled rollers 42 43. The first of these rollers is borne by the shaft 44, which is suitably journaled in the base 2 or in lugs projecting downwardly under the top thereof. The roller 43 is journaled upon

a shaft carried by an arm 45, which is pivoted at 46 to the casing 3. The arm 45 is provided with a handle 47, by means of which the arm may be operated to swing the roller 43 away from the roller 42 to facilitate the insertion and removal of the paper.

For the purpose of stripping the paper from the needles or perforators 48 of the wheel 8 we employ a reciprocating stripper 49. This consists of a U-shaped metal plate which lies horizontally over the pad 30 with its branches arranged to straddle the needles 48, which form the various characters upon the wheel 8. The stripper has a vertical slotted shank supported and guided by screws or pins on the back of the plate 4 and is arranged to slide up and down, being forced up by the pad-arm and pulled down by means of a spring 49^x, attached at one end to the stripper-shank and at the other to the said cover-plate 4. The shaft or pivot 46 of the lever or arm 45 is provided with an extension or arm 60, which extends under a pin 61 of the said stripper 49, thus causing the lever to lift the stripper when the lever is operated in inserting or removing paper. A spring 62, attached at one end to the shaft 46 and bearing against the frame 6, is used to keep the roller 43 in contact with the roller 42 and give the requisite pressure between said rollers for properly feeding the paper.

The shaft 44 of the roller 42 is provided with a ratchet-wheel 50, fixed thereto. The arm 35 on the shaft 29 is bent forward, as shown in Fig. 2, and is provided with a pawl 54, pivoted thereto, as at 51, and pressed in the direction of the said ratchet-wheel 50 by means of a spring 52, attached to the arm 35 and bearing against the back of the pawl. A detent 53, attached to the base 2, engages with the said ratchet-wheel 50 to prevent reverse motion thereof. During the operation of the machine on the depression of a key the pawl 54 is moved out of contact with the ratchet-wheel, and on the release of the key it engages another tooth of the ratchet-wheel 50 and turns the wheel, shaft, and roller 42 a distance sufficient to feed the paper forward in position to receive the next perforation. A stud 55, extending downwardly in proximity to the ratchet-wheel 50, prevents the pawl 54 from being disengaged from the ratchet-wheel except by a downward motion. This secures that the feed-roller 42 is immovable except when a key is depressed. The automatic feed of the paper takes place on the upstroke of each key.

The operation of the devices above described is as follows: In order to insert the check or paper, the lever 45 is raised, thus raising the roller 43 and the stripper 49, when the paper may be inserted and adjusted to proper position, after which the lever 45 is released and the stripper and roller are automatically pressed down upon the paper. The key corresponding to the character desired to be punched in the paper is now de-

pressed. During the first motion thereof its cam 21 coacts with the corresponding arm 20 on the frame 13 and moves the said frame endwise, and through the medium of the rack 14, the pinion 9, the shaft 7, and the wheel 8 the selected character is brought to the under side of the wheel 8 and over the pad 30. The arm or lug 20 now enters the slot or dwell 22 at the end of the cam, thus locking the movable frame, and the toe of the key strikes the universal bar 27, whereupon the following mechanisms are operated: The centering-wedge 38 is drawn down between a pair of pins 37 at the upper side of the wheel 8. The pawl 54 is moved down out of contact with the ratchet-wheel 50. The pad 30 strikes upwardly. The paper is clamped between the pad and stripper, and the pad, the paper, and the stripper are moved upward until the needles 48 of the character shall have perforated the paper and entered the pad. In doing so the needles pass through the space between the arms of the stripper. On the release of the key the parts are returned to their normal positions by the described springs. The stripper during its downward movement pushes the paper from the needles or perforators on the wheel 8, after which the pawl 54, coacting with the ratchet-wheel 50, turns the feed-roller 52 and feeds the paper forward the distance necessary to properly space the perforations. The pad 30 may be charged with a suitable pigment, as an indelible or other ink, and the perforations in the check receive the coloring-matter during the operation of the machine.

While we have shown and described only one form of our invention, we do not wish to be wholly limited thereto, for we are aware that many modifications, inversions of parts, and substitutions of equivalents may be made without departing from the spirit of our invention.

In a separate application we show the main features of our invention carried out in still another form. This application bears date July 20, 1898, and Serial No. 682,399.

What we claim as new, and desire to secure by Letters Patent, is—

1. The combination of a set of keys, corresponding perforating characters, mechanism for bringing each character to a given position on operating the corresponding key, and a to-and-fro-movable inking-pad, substantially as described.

2. The combination of a set of keys, a perforator-carrier, mechanism for bringing any character on said carrier to a given position on operating the corresponding key, and a movable inking-pad coacting with the character at said position, substantially as described.

3. The combination of a set of keys, a rotatory perforator-carrier, mechanism for bringing any character on said carrier to a given position on operating the corresponding key, and a movable inking-pad coacting with the

character at such position, substantially as described.

4. The combination of a set of keys, perforating characters corresponding in number
5 with the number of said keys, a movable inking-pad, and mechanism for bringing each character to a given position on operating the corresponding key and for operating said pad, substantially as described.

10 5. The combination of a set of keys, a movable carrier provided with perforating characters, a movable inking-pad, and mechanism for operating said carrier and said pad, substantially as described.

15 6. The combination of a set of keys, a rotatory needle or perforator carrier, a movable inking-pad coacting with said carrier, and mechanism connecting said keys with said carrier and said pad, substantially as described.

20 7. The combination of a set of keys, a rotatory perforator or needle carrier, a movable inking-pad coacting therewith, mechanism including cams between said keys and said carrier for operating the carrier, and connections
25 between said keys and said pad, substantially as described.

8. The combination of a set of keys, perforating characters corresponding in number to
30 the number of said keys, mechanism for bringing any one of the said characters to a given position on operating the corresponding key, a movable inking-pad coacting with the character at such position, and a stripper, substantially
35 as described.

9. The combination of a set of keys, a carrier provided with perforating characters
40 equal in number to the number of keys, mechanism connecting said keys and said carrier, a movable inking-pad coacting with said perforators, and a stripper, substantially as described.

10. The combination of a set of keys, a rotatory perforator or needle carrier, a movable
45 inking-pad coacting therewith, mechanism connecting said keys and said carrier, and a stripper, substantially as described.

11. The combination of a set of keys, perforating characters corresponding in number
50 to the number of said keys, a movable inking-pad for coacting with said characters, mechanism connecting said keys with said pad and the said characters for operating the same, and a stripper, substantially as described.

12. The combination of a set of keys, a perforator-carrier, a movable inking-pad coacting
55 therewith, mechanism connecting said keys with said pad and said carrier, and a stripper, substantially as described.

13. The combination of a set of keys, a rotatory perforator-carrier, a movable inking-pad
60 coacting therewith, mechanism connecting said keys with said pad and said carrier, and a stripper, substantially as described.

14. The combination of a movable needle
65 or perforator carrier, a to-and-fro-moving ink-

pad, and a reciprocating stripper, arranged over the ink-pad and movable in one direction thereby, substantially as described.

15. The combination of a set of keys, a rotatory needle or perforator carrier connected
70 to and operated by said keys, a to-and-fro-movable pad, a universal bar operated by said keys, and connections between said bar and said pad, substantially as described.

16. The combination of a set of keys, a rotatory needle or perforator carrier connected
75 to and operated by said keys, a movable inking-pad, a toggle connected to said pad, and mechanism intermediate said toggle and said keys for operating the toggle through the action of the keys, substantially as described.

17. The combination of a rotatory needle or
80 perforator carrier, key mechanism for operating the same, a movable inking-pad coacting with said perforator, mechanism connecting said keys and said pad, and a reciprocating stripper movable in one direction by the pad and in the other direction by a spring,
85 substantially as described.

18. The combination of a rotatory needle or
90 perforator carrier, a reciprocating inking-pad for coacting with said perforators, a toggle connected to said pad, a set of keys, mechanism connecting said keys and carrier and said
95 toggle, and a stripper, substantially as described.

19. The combination of a rotatory needle-wheel, the guide-pins upon a face thereof, the
100 centering-wedge, the universal bar connected to such wedge, the keys and the to-and-fro-movable pad connected to such bar, substantially as described.

20. The combination of the needle-wheel, a
105 rack movable in either direction, connections between said rack and said wheel, a set of keys, a movable inking-pad coacting with the needles, and connections from the keys for operating the pad and rack, substantially as
110 described.

21. The combination of the needle-wheel,
115 mechanism for moving the same to bring any character thereon to a given point, means for holding it there, mechanism for forcing the paper over the then stationary needles of such character, and means for stripping the paper
120 from the said character, substantially as described.

22. The combination of the needle-wheel,
125 mechanism for positioning the same, a universal bar, a movable pad, a paper-feed, and connections for operating said parts, substantially as described.

23. The combination of keys, a needle or
130 perforator carrier, a to-and-fro-movable rack-frame connected to and operating said carrier, double-acting springs for returning said parts to normal position and a movable inking-pad actuated by said keys for coaction with said needles or perforators, substantially as described.

24. The combination of keys, each provided

with a cam terminating in a locking slot or dwell, a reciprocable frame provided with lugs or arms coacting with said cams, a needle or perforator carrier operated by said frame and a cooperating inking-pad, substantially as described.

25. The combination of the universal bar, a row of keys thereover for coacting therewith, a row of keys on each side of said first-named row provided with extensions or toes over said bar for operating the same, a needle-carrier, a movable inking-pad and connections between said keys, bar, carrier and pad, substantially as described.

26. The combination of keys, each provided with a cam terminating in a locking slot or dwell, a movable frame provided with lugs coacting with said cams and slots, a needle or perforator carrier connected to said frame and provided with pins or locking devices, a centering wedge or block for coacting with the same, and mechanism for connecting said

wedge or block with said keys, substantially as described.

27. The combination of the needle-wheel 8, provided with the pins 37, the reciprocable wedge or block 38, the universal bar 27, the link 40 and the keys provided with means for coacting with said bar 27, substantially as described.

28. The combination of the needle-wheel 8, the lever 31 provided with the inking-pad 30, the universal bar 27 connected to said lever 31, the keys, and mechanism connecting with the wheel and bar, substantially as described.

Signed at New York city, in the county of New York and State of New York, this 19th day of March, A. D. 1898.

EDWARD B. HESS.
ALBERT S. GRANGER.

Witnesses:

K. V. DONOVAN,
A. F. WARNECKE.