

No. 629,076.

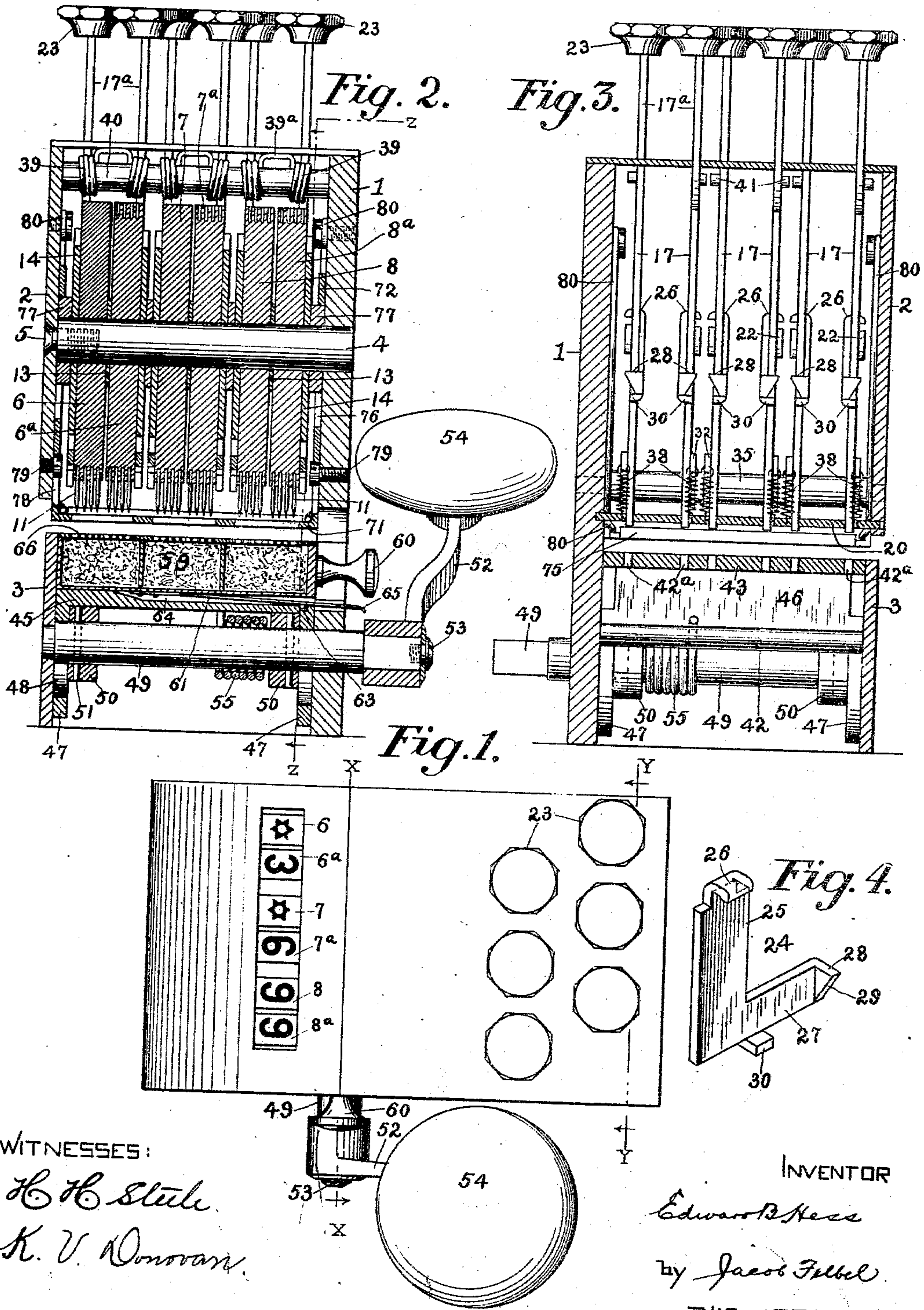
Patented July 18, 1899.

E. B. HESS.
PERFORATING AND INKING MACHINE.

(No Model.)

(Application filed Feb. 17, 1899.)

3 Sheets—Sheet 1.



WITNESSES:

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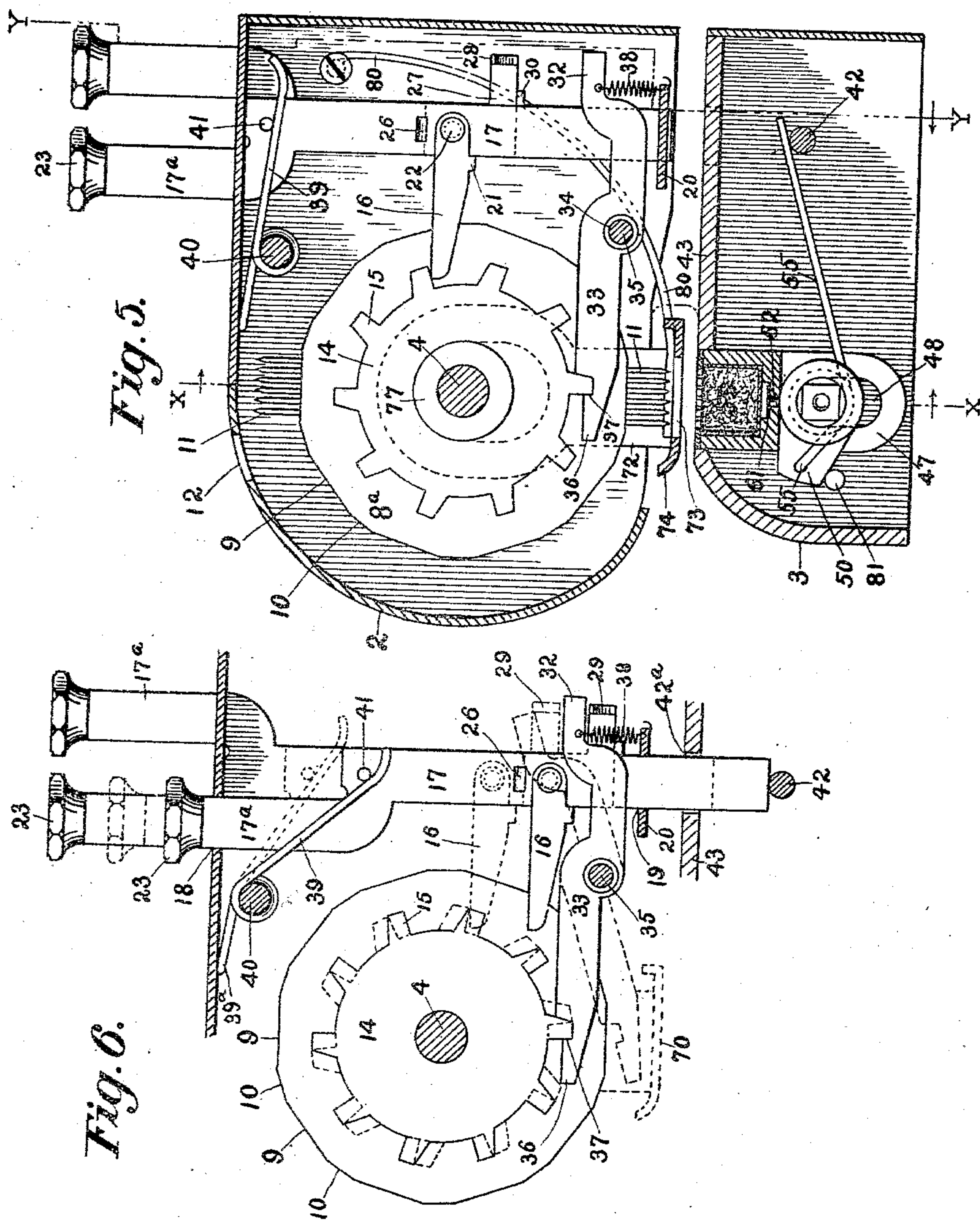
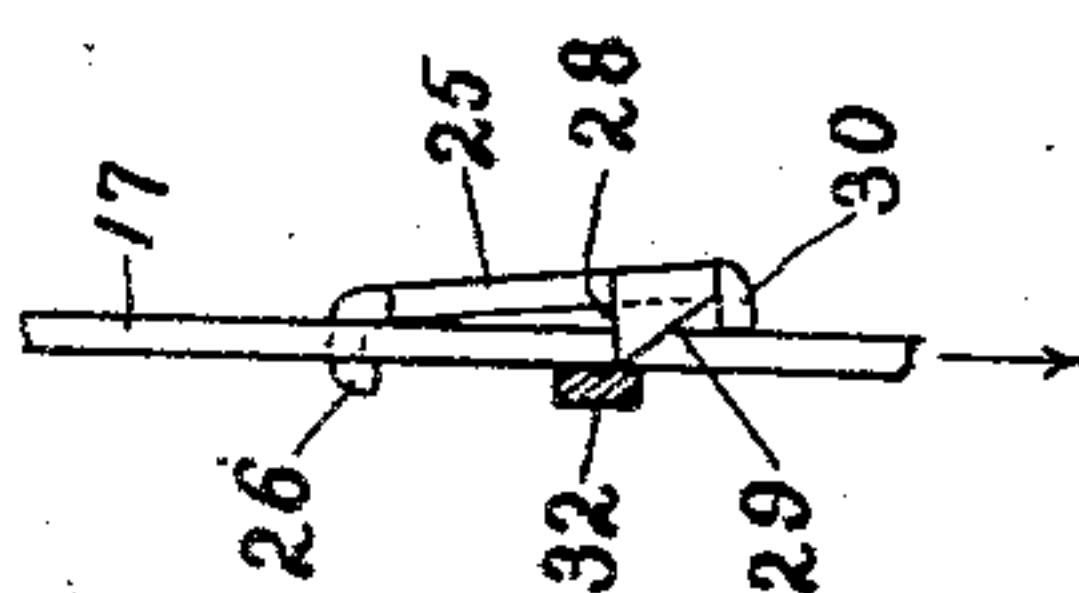


Fig. 6.

Fig. 7.



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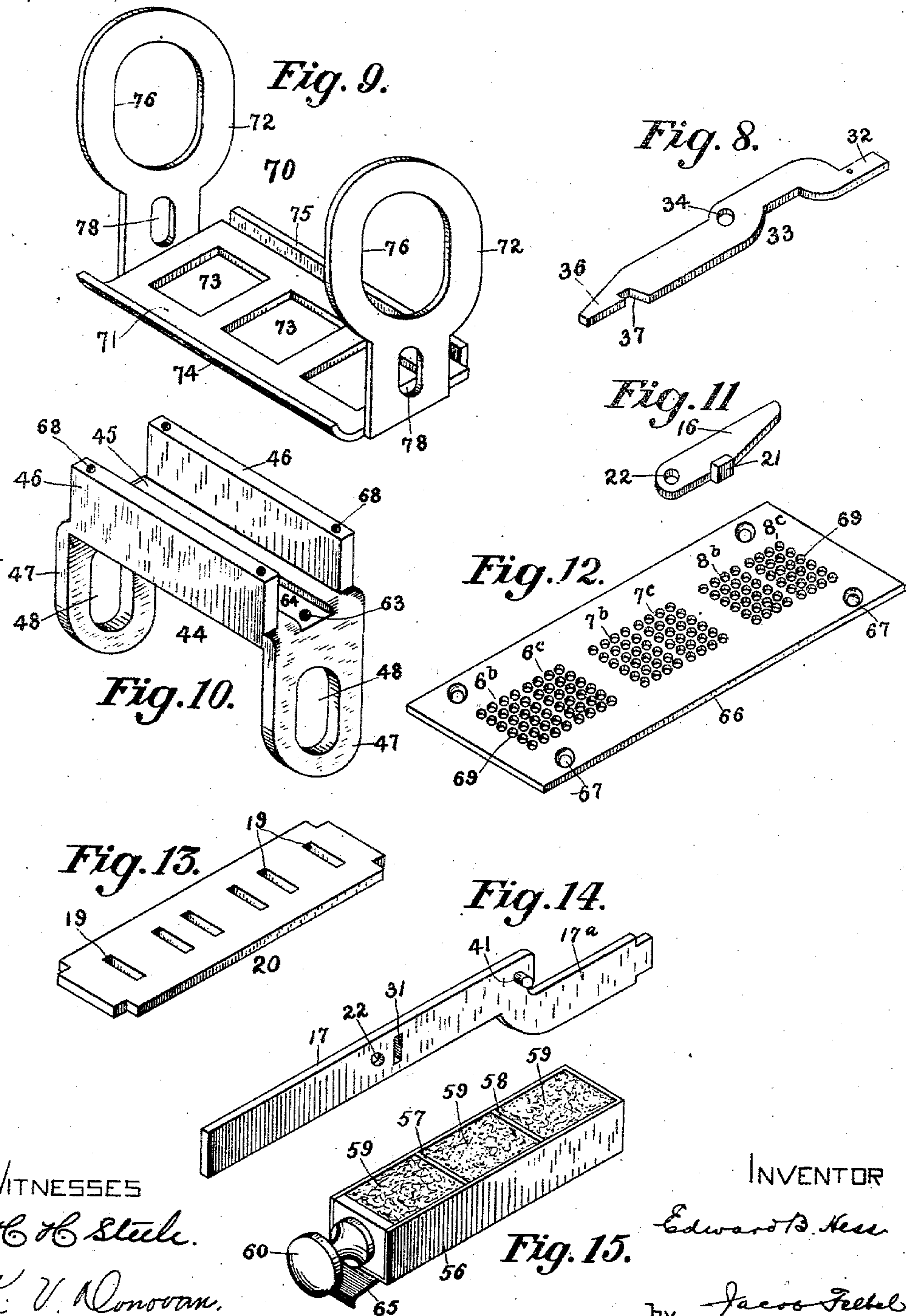
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

EDWARD B. HESS, OF NEW YORK, N. Y., ASSIGNOR TO THE CENTURY MACHINE COMPANY, OF SAME PLACE.

PERFORATING AND INKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 629,076, dated July 18, 1899

Application filed February 17, 1899. Serial No. 705,814. (No model.)

To all whom it may concern:

Be it known that I, EDWARD B. HESS, a citizen of the United States, and a resident of the borough of Manhattan, in the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Perforating and Inking Machines, of which the following is a specification.

My invention has for its main object to provide a simple, durable, and effective machine for dating railroad-tickets by means of perforations which are inked, so as more effectually to guard against any fraudulent alteration of the ticket.

Heretofore it has been the common practice in railroad ticket-offices to impress the date of sale of the ticket upon the back of the ticket by means of a hand-stamp provided with ordinary printing-types and a suitable pad or inking ribbon for imparting the requisite ink or coloring-matter to the types. Many tickets are sold at reduced rates with the proviso that the ticket be used within a given number of days from the date or stamp thereon. Frequently such time-limit tickets are not used within the period fixed for their use, and in many instances heretofore the dates printed upon such tickets have been altered by the holders or purchasers thereof, so as thereby to extend the time of the ticket, which was quite easy of accomplishment in consequence of the universal practice of dating the same by means of a type-printing hand-tamp.

It is therefore one of the principal objects of my invention to provide a machine whereby the ticket may be so dated as that such unauthorized or fraudulent alteration thereof may be prevented.

To the ends and objects above noted my invention consists in various features of construction and combinations of devices hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a top plan view of a machine embodying my improvements. Fig. 2 is a vertical cross-section taken on the lines X X of Figs. 1 and 5. Fig. 3 is a vertical cross-section taken on the

lines Y Y of Figs. 1 and 5. Fig. 4 is a detail perspective view of one of the actuators for the locking-levers. Fig. 5 is a vertical cross-section taken on the line Z Z of Fig. 2. Fig. 6 is a detail view showing more particularly the key mechanism for actuating the perforating-wheel and the locking mechanism therefor. Fig. 7 is a detail edge view of part of one of the keys and its actuating-piece for vibrating its associated locking-lever, which latter is shown in section. Fig. 8 is a perspective view of one of the locking-levers. Fig. 9 is a perspective view of the stripper-plate and its suspending-arms. Fig. 10 is a perspective view of the ink-pad support or bed and its connected parts. Fig. 11 is a perspective view of one of the wheel-actuating pawls. Fig. 12 is a perspective view, enlarged, of the perforated needle-plate which supports the ticket over the ink-pad and also carries it up upon the needles of the overhanging perforating-wheels. Fig. 13 is a perspective view of the bottom guide-plate for the key stems or shanks. Fig. 14 is a perspective view of one of the key-stems or keys without its button or head, and Fig. 15 is a perspective view of the ink-pad box or holder and of the ink pad or pads therein.

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

Before describing the construction of the machine in detail I will first refer generally to some of its more important parts and to their mode of operation.

In the machine shown there are six perforating wheels or carriers arranged in three pairs, one pair to denote days, another to denote months, and the third pair to denote years, and each wheel of each pair is provided with a plurality of groups of radially-disposed needles arranged in the forms of numerals and some of them, if desired, also with a star or other arbitrary device. Each wheel is independently rotatable, and hence by the adjustment of the pairs of wheels of each group any desired day of the month, as "1" to "31" may be composed or brought into operative position. Likewise any desired month of the year, as the first month or the twelfth month, (represented by

the numerals "1" to "12,") may be composed or brought into alinement with the day of the month, and any desired year from one to ninety-nine (omitting the particular century, which is not important) may also be composed or brought into the same line with the characters forming the month and the day of the month. When the entire date has been thus composed, the wheels remain in their adjusted positions until again reset, there being provided for each wheel a locking-lever that is notched to engage one of a series of teeth on the side of the wheel. The wheels are adapted to be adjusted or composed by means of finger-keys, there being a finger-key for each wheel and a pawl-and-ratchet mechanism between said key and said wheel, whereby for each reciprocation of the key the associated wheel is moved around one step. Each wheel is marked or engraved between the perforating-needles with numerals or characters corresponding to those formed on the wheel by said needles, and the said marking or engraving of said numerals is relatively such to the perforating-needles as that when the marked or engraved numerals are brought to view in front of a slot or sight-opening in the casing their corresponding characters formed by the needle-points are in their lowermost positions or are in operative relation to the ink-pad, which is arranged below the several sets of needles and in the vertical plane of their common axis of revolution. The ink-pad is contained within a box or holder which is detachably supported upon a vertically-movable bed-plate. A hand-lever and suitable cams are adapted to cause said bed-plate and said pad to move upwardly, so as to carry the ticket, placed upon a perforated plate secured to the bed-plate, up upon the series of perforating-needles, whereby the ticket is perforated with the desired date, and during the operation of perforating the ends of the needles pass through the perforated plate and into the ink-pad, so as to obtain therefrom a certain quantity of ink or coloring-matter, which they subsequently impart to the perforations in the ticket. A stripper is employed to remove the ticket from the needles upon the return movement of the ink-pad, which is effected automatically by a coiled spring that operates simultaneously to restore the ink-pad support and the hand-lever to their normal positions on release of the pressure upon the latter.

In the adjusting or selecting operation the keys preferably work or turn the wheels on their upstrokes only under the force of the keys' returning-spring. The holes in the plate lying above the ink-pad are preferably slightly larger than the diameter of the needles, so that the portions or fibers of the ticket carried down by the needles will form on the back of the ticket a series of short tubular projections, which will afford a larger wiping-surface for the needles, so as thereby to avoid a deposit of too much ink at the sur-

face of the card or ticket and which might before drying soil the hands or gloves of the user. The said perforated plate is provided with a series of transverse holes and a series of longitudinal holes, and the needle-points are so disposed on the wheels relatively to said holes in the plate that any numeral or other character on the wheel will register with a set of the holes in the plate and in consequence will pass therethrough and into the ink-pad.

I will now describe the machine more minutely, referring by numerals of reference to the accompanying drawings.

1 designates a side plate which is adapted to support the upper casing 2 and also the lower casing 3. The support and the casings may be of any desired form or construction; but I prefer to so make and mount the parts as that there shall be a clear passage-way from front to rear between the upper and lower casings.

In the side plate 1 and in the side plate of the casing 2 opposite said side plate is supported a shaft 4, one end of the shaft fitting in a hole in the plate 1 and the other end of the shaft being supported by a screw 5, that enters a perforation in the plate 2 and whose shank engages a threaded hole in the shaft 4. Upon said shaft are mounted the several series or sets of needle-wheels, (marked, respectively, 6, 6^a, 7, 7^a, 8, and 8^a.) These wheels are adapted to turn freely and independently on the shaft 4, and the face or edge of each wheel in the example shown is formed with ten flattened faces 9 and with ten other shorter flattened faces 10. The flat faces 9 are perforated or otherwise constructed to hold a group of needles 11, comprising enough in number to form in outline or configuration a numeral or other character, and each flat face 10 is marked or engraved with a numeral corresponding to one of the numerals formed by the needles or pins, as aforesaid.

In the curved front of the casing 2 is a slot or sight-opening 12, opposite which a row of the engraved or marked flattened faces 10 always stands, and the numerals there exposed to view indicate to the user that the corresponding numerals made up of the pins are in a similar line on the lower side of the set of wheels and are in position for operation. Between the wheels or disks of each pair may be placed a washer 13, so as to slightly separate the wheels and thus prevent one from turning accidentally with the other by frictional engagement.

In the machine shown the wheels 6 and 6^a may represent the month-wheels, the wheel 6^a being the units-of-months wheel and the wheel 6 the tens-of-months wheel. Also the wheels 7^a and 7 may represent, respectively, the units-of-days wheel and the tens-of-days wheel, while the wheel 8^a may represent the units-of-years wheel and the wheel 8 the tens-of-years wheel. Each wheel of the three pairs is formed or provided with a ratchet-wheel 14,

which may be formed integral with the wheel itself or attached thereto.

Referring to Fig. 2, the ratchet-wheel on the left of the needle-wheel 6 is associated with that wheel, the ratchet-wheel on the right of the needle-wheel 6^a is associated with the latter, the ratchet-wheel on the left of the needle-wheel 7 is arranged to control the latter wheel, the ratchet-wheel on the right of the needle-wheel 7^a is provided for turning said wheel 7^a, the ratchet-wheel on the left of the needle-wheel 8 is provided for the wheel 8, and the ratchet-wheel on the right of the needle-wheel 8^a is associated with said wheel 8^a. Each ratchet-wheel has the same number of teeth 15, and the said teeth correspond in position and number with the plane faces 9 of the needle-wheel. For each ratchet-wheel of each needle-wheel there is provided a driving-pawl 16, that is pivotally attached to the shank of a key 17, which is adapted to slide vertically in slots 18 and 19, respectively, in the top of the casing and in a cross-bar 20, secured transversely and horizontally at the lower end of the upper casing 2. The pawl 16 is provided with a lug or projection 21, that bears against the inner edge of the key 17, and thus limits the descending swing of said pawl around its pivot 22 and parallel with the key to about the horizontal position shown. The upper end of the sliding key is preferably provided with a button or head 23 for convenience of manipulation of the key. These heads or buttons may be inscribed, according to their association with the needle-wheels, as "Units of days," "Tens of days," "Units of months," "Tens of months," "Units of years," and "Tens of years." The buttons or heads shown are arranged in two rows or lines; but the stems or bar portions 17 are arranged in a single line. This is accomplished by forming each stem or bar portion with an offset portion 17^a, which branches laterally from the bar portion 17 and then upwardly parallel therewith. The key-bars being all made alike and of the same size, by disposing the offset or branch portions 17^a alternately on the right and left hand sides of the bar portions 17 the bar portions 17 may all be brought or arranged in the same line, while their upper exterior offset portions are disposed in two lines or rows, with ample room for the key buttons or heads. But for this construction of the key-bars a very much wider machine would be necessary in order to bring all of the key-bar portions 17 in alignment and have their upper outer ends provided with buttons or heads arranged in line with the vertical centers of said bars. In other words, if the key-bars are made straight from end to end and arranged parallelly in line and provided at their upper ends with buttons a machine of greater width would be required than is here shown and which would be objectionable.

In addition to the pawl 16 each key-bar is provided with another pawl or actuating device 24, (shown in detail at Fig. 4,) com-

prising a vertical arm 25, having at its outer end a hook-like device 26, and a horizontal arm 27, provided at its free end with a lifting-toe 28, that is beveled along its vertical edge, as at 29. The device 24 is also provided with a lug 30 at its lower side, which is adapted to bear against the rear edge of a key-bar and prevent any side twisting of the said device when it is lifting the locking-lever. The hook-like portion 26 is seated in a slot 31, formed in the key-bar, (see Fig. 14,) and by this construction the actuating device 24 is adapted to swing or have a pivotal motion in a direction to and from the broad side of the key-bar, against which it lies or hangs parallel when in normal position. The lifting toe piece or lug 28 is adapted on the upstroke of the key to engage with the under side of the rear arm 32 of a lever 33, pivoted at 34 upon a cross pin or axis 35, supported in the side frame 1 and in the casing 2. The forward arm 36 of the lever 33 is formed with a notch or cut-away 37 of suitable shape to receive one of the teeth 15 of the ratchet-wheel with which it is associated, and connected at one end to the arm 32 and at its opposite end to the guide-plate 20 is a coiled spring 38, which serves to maintain said notch normally in engagement with the lowermost ratchet-tooth of the ratchet-wheel, and thereby prevent it from turning as well as the needle-wheel to which it is connected. The locking-lever 33 is adapted to be disengaged from the ratchet-tooth when the square face or toe 28 of the actuating device 24 vibrates the arm 36 downwardly against the tension of the spring 38, and, as before stated, this occurs on the upward movement of the key and which is effected by means of a returning-spring 39, which may be coiled about a cross-pin 40, supported in the framework, and bear at one end on the under side of the top of the casing and at its free end against a lateral pin 41 on the key-bar.

When the key-bar is depressed, the beveled or cam portion 29 of the actuating device contacting with the upper edge of the arm 32 of the locking-lever causes a lateral swinging or pivotal motion of the device 24 about the pivot 26, as represented at Fig. 7, until the square or horizontal edge of the toe-piece 28 has descended below the lower edge of the locking-lever, whereupon by gravity the portion 28 swings under the said lever and gets into a position to vibrate it when the pressure upon the key is relieved and the returning-spring 30 is permitted to act. Thus it will be seen that on the downstroke of the key the actuating device 24 does not disturb the locking-lever 33, but simply gets into a position to actuate it on the return movement of the key. The reason for this is that the driving-pawl 16 is so arranged relatively to the ratchet-wheel that it shall turn the ratchet-wheel and the associated needle-wheel on the upstroke of the key, and thus avoid this objection that exists to turning the needle-wheel

on the downstroke of the key—namely, the liability of not moving the key down far enough to turn the ratchet-wheel and the needle-wheel the full distance required to bring the group of needles in register with the ink-pad or to the operating position—and if this be not done it will be seen that when operating the machine there will be great danger of breaking or otherwise destroying the set of needles. Hence I have found in practice that it is almost essential that the mechanism be so arranged that the needle-wheel will be operated on the upstroke of the key under the influence of the returning-spring. In the arrangement here shown it will be observed that if the key be not pressed down far enough the driving-pawl 16 will fail to engage with the next succeeding tooth on the ratchet-wheel, and hence on the upstroke of the key no movement of the needle-wheel will occur. As shown at Fig. 5, the driving-pawl in its normal position stands behind and directly in contact with the back face of a ratchet-tooth, and in order for the said pawl to engage the next succeeding tooth the key-bar must be moved down its full distance, and which may be determined or limited by a transverse stop-rod 42, fixed in the lower casing and common to all of the keys. The upper plate of the said casing is slotted at 42^a to accommodate the lower portions of the key bars or shanks when depressed. From this view it will also be seen that if the key-bar be not moved down its full distance the pawl will simply travel idly in the space between the two teeth that it now occupies, and hence neither on the downstroke nor on the upstroke will it turn said ratchet-wheel, and the actuating device 24 is so constructed and arranged relatively to this driving-pawl that in case of only a partial depression of the key there will be no unlocking of the ratchet-wheel and the associated needle-wheel. Hence there is no liability to disarrangement of the latter. When the key is depressed for its full distance, the pawl 16 is adapted to tilt as it strikes against the front of the tooth below and which it is next to drive, and at near the completion of the key movement the pawl will slip off of said tooth and take a position in rear of the same and with the lug 31 resting against the edge of the key-bar. When the pressure of the finger is released, the key-bar will ascend and the pawl, working rigidly at this time against the face of the tooth, will operate to carry the same and turn the ratchet-wheel and the needle-wheel the exact distance, so as to bring the next set of needles in a vertical or working position. At Fig. 6 are indicated in dotted and full lines the operations of the key, the pawl 16, the wheels, the locking-lever, and the pawl or actuating device 24 for the latter. These parts are in their normal positions of rest at Fig. 5, and at Fig. 6 one of the keys is shown as depressed to its full extent in full lines, and the parts carried by said key are also

shown in depressed or abnormal positions in full lines. When the key has risen about half-way, as shown by the dotted lines, the actuating device 24 will have vibrated the locking-lever out of engagement with the ratchet-wheel and the driving-pawl 16 will have turned said wheel and the needle-wheel connected therewith to the extent indicated by the dotted lines. During the completion of the rise of the key the pawl 16 will finish the rotation of the ratchet-wheel and needle-wheel, and at about the completion of said movement the actuating device 24 will slip off of or part company with the locking-lever and the latter will return into engagement with the next tooth of the ratchet-wheel. A full reciprocation of the key causes a turning movement of the needle-wheel one step or a distance equal to that between the centers of adjacent groups of needles. Therefore the adjustment of the needle-wheels or the composition of the date-line to be perforated is effected by a step-by-step movement of each wheel through the key mechanism described.

Glancing at Fig. 1, it will be observed that at the sight-opening the wheels 6 and 6^a exhibit, respectively, a star and the numeral "3," that the wheels 7 and 7^a show, respectively, a star and the numeral "6," and that the wheels 8 and 8^a show each the numeral "9," the line thus reading "3rd month, 6th day, 99th year." According to the marking of the needle-wheels and the arrangement of the groups of needles thereon at this time, then, the group of needles on the wheel 6, disposed in the form of a star, is at the operating-point, also the group of needles forming the numeral "3" on the wheel 6^a is at the operating-point, also the group of needles in the form of a star on the wheel 7 and the group of needles in the form of the numeral "6" on the wheel 7^a are likewise at the operating-point, and also the groups of needles in the form of the numeral "9" on the wheels 8 and 8^a are likewise at the operating-point, and the said several groups of needles are all in the same horizontal line. I prefer to use groups of needles in the forms of stars on the wheels 6, 7, and 8 in place of needles grouped in the forms of 0's; but of course this is immaterial so long as a group of needles on each said wheel is employed to prevent the alteration of the date when the figures of the wheels 6^a, 7^a, and 8^a only are to be perforated. For example, it will be seen that but for the star or like checking device on the wheel 7 a "1" or "2" might be subsequently inserted in the blank space which would otherwise be left, thus advancing the date so many days. The wheels 6^a, 7^a, and 8^a are provided with groups of needles running consecutively from "0" to "9," and the wheel 8 may be provided with similar groups of needles, thus substituting a "0" for the star above referred to.

Preferably the wheel 6 is provided with only two groups of needles, one group in the form of a star and the other in the form of the nu-

neral "1," the remainder of the wheel being left blank, excepting where the faces are inscribed or engraved with a star and a "1" to register with the sight-opening. Preferably, also, the wheel 7 is likewise provided with only four groups of needles, one group in the form of a star, another in the form of the numeral "1," another in the form of the numeral "2," and the last in the form of the numeral "3." If desired, however, the remaining spaces of the wheels 6 and 7 may be filled up with duplicates of the series or groups of needles employed. Both of these wheels 6 and 7 are preferably provided with as many ratchet-teeth as the wheels 6^a, 7^a, and 8^a, so that there is a similar or uniform step-by-step motion of all of the wheels.

For the purpose of simplifying the drawings I have entirely omitted the needles in Fig. 6. In Fig. 5 I have shown only two groups of needles on the wheel 8^a, and in Fig. 2 I have also omitted the needles from the upper portions of the wheels 6^a, 7^a, 8, and 8^a, so as more clearly to show the preferred construction of the returning-springs for the actuating-keys. The springs for the units and tens keys of each set of wheels may be made of a single piece of wire formed with two coils surrounding the shaft 40 and with two free ends, as 39, adapted each to a pin 41 on one of the key-bars, and with a U-shaped portion or cross-bar 39^a, which bears against the under side of the top of the casing. By this construction each key is provided with its individual spring, although two springs are made from the same piece of wire. However, if desired, a separate piece of spring-wire may be provided for each key.

The top plate 43 of the lower casing 3 is cut away to accommodate a movable ink-pad piece or support 44, which, as shown at Fig. 10, is composed of a horizontal platform or bottom 45, two parallel upright bar portions 46, and two downwardly-extended arms or wings 47, having each a longitudinal slot 48. Passing through the vertically-arranged slots 48 is a cross-shaft 49, having a suitable bearing in the framework and provided at points adjacent to said arms or wings 47 with cams 50, which are secured to said shaft by pins 51 or otherwise. The under side of the bottom plate 45 of the device 44 rests upon the upper straight edges of the cams 50 in the normal condition of the machine, and hence the said cams serve to support the said device 44 and the ink-pad carried thereby, as presently to be described. One end of the shaft 49 is prolonged and made angular to receive the hub of a lever or handle 52, which is secured to said shaft by a screw 53, and at the outer end of said lever or handle is a knob 54 for convenience of manipulation.

Surrounding the shaft 49 is a coiled returning-spring 55, one end of which is attached to one of the cams 50 and the other end of which bears upon the stop-bar 42.

The bottom plate 45 and the upright side

plates 46 46 form or constitute an open-ended receptacle for an ink-pad box or holder 56, which, as shown, preferably comprises a bottom plate, two side plates, and two end plates, and in addition two transverse partitions 57 58, thus dividing or separating the box into three parts or compartments, in each of which is arranged an ink-pad 59. The partitions may be omitted and one continuous pad placed within the box, if desired; but I prefer to divide the box, as shown and described, and insert into each compartment a separate ink-pad, which may be composed of felt or any other suitable material provided or impregnated with indelible ink or other satisfactory coloring-matter. At one end of the box is provided a knob 60 for facilitating the introduction of the ink-pad box into and its removal from its support or housing. The ink-pad box is of a length about equal to the length of the parallel side bars 46 and of a depth about equal to the width of said bars. For the purpose of holding the said ink-pad box firmly within its housing there is provided on the under side of the box a spring-plate 61, that is riveted at its inner end to the under side of the ink-pad box and at near its forward end is provided with a pin 62, adapted to a hole or seat 63 in the bottom plate 45 of the device 44, and which bottom plate is cut away or depressed, as at 64, to accommodate the spring-plate 61, which, as will be noted, has a downward spring-tension, so as to cause the pin 62 automatically to engage the hole 63 when the box has been fully inserted into its housing, as shown at Fig. 2. By this construction a catch mechanism or lock is provided whereby the box is unable to work out sidewise of the machine or become disarranged. For the purpose of unlocking said box and enabling its convenient removal the spring-plate is prolonged and fashioned into a finger-piece 65, which projects beyond the side frame of the machine, where it may be readily lifted to the slight extent necessary to disengage the pin from its hole, so that the box may be conveniently pulled out by means of the knob 60 at one end thereof. By this construction an ink-pad box may be quickly removed and another one substituted therefor, which is one of the objects of the present construction. In the practical use of the present machine the ticket-seller will have at hand always extra pads within boxes or containers, so that immediately the ink becomes exhausted in the pad in use or fails sufficiently to ink the perforations in the ticket the said pad in use may be instantly removed and a fresh boxed pad inserted in its place, thus obviating any material loss of time, which, as is well known, is valuable in railroad ticket-offices and which would otherwise have to be spent if the machine were so constructed that the user were depended upon for reinking the pad when its supply of ink should have become exhausted or insufficient for practical purposes. It also avoids any han-

dling of the pad itself and in consequence soiling of the fingers.

One advantage of the division of the ink-pad into three parts is that each part covering one set of wheels may be provided with ink of a different color from the remaining pads, so as variously to ink the tickets for the months, days, and years, and thus bring out their perforations more prominently by reason of the contrast of the ink employed. However, as far as the main feature of my invention is concerned the ink-pad may be undivided and may be provided uniformly with one colored ink only.

Upon the upper edges of the side bars 46 is arranged a cover-plate 66, having screw-holes 67, whereby it may be attached to the side bars 46 by screws, which pass downwardly through said holes and engage threaded holes 68 in the upper edges of the bars 46. As shown, the under side of the cover-plate 66 rests upon or comes close to the upper surface of the ink-pad.

Referring to Fig. 12, it will be observed that the cover-plate 66 is provided with groups of perforations and that there are two sets of perforations for each group. The several sets of perforations are all made alike, and, as shown, comprise each twenty-four perforations, which are arranged in parallel rows both longitudinally and transversely, there being four holes in each row viewed lengthwise of the plate and six holes in each row viewed crosswise of the plate. The first set of twenty-four holes 6^a are employed in connection with the several sets or groups of needles on the wheel 6, the second set 6^c are employed in connection with the groups of needles on the wheel 6^a, the third and fourth sets 7^b and 7^c are employed, respectively, in connection with the groups of needles on the wheels 7 and 7^a, and the fifth and sixth sets 8^b and 8^c are employed, respectively, in conjunction with the groups of needles on the wheels 8 and 8^a.

As will be understood, the various figures or characters formed by the groups of needles on the needle-wheels are so made or so disposed with reference to the perforations 69 in the plate 66 as that the said needles will all pass through a certain number of said holes or perforations, it being possible to construct or describe any numeral as well as the naught or star from each square or group of perforations. Therefore whatever may be the date-line composed all of the needles of the various groups are adapted to pass through those perforations of the various groups which register with or are in alinement with the needles in use. I denominate this plate 66 a "universal perforated needle-plate," since its groups of perforations are adapted to receive any and all needle-made figures that are contained upon the needle-wheels. The perforations 69 in the universal needle-plate are preferably made of a diameter slightly greater than the diameter of the shanks or unpointed portions

of the needles, the enlargement being about equal to the thickness of the cardboard or paper used for the tickets to be perforated. In consequence of this construction the needles and the perforations in the plate are adapted conjointly to form or produce short tubular burs or projections within the said perforations, which are desirable since the ink which must be wiped off of the needles is thereby rubbed over a longer surface, which prevents an undue accumulation of the ink at the face or back of the ticket, which is objectionable because of the danger of soiling the hand or glove of the purchaser of the ticket, the ink not always having time to dry in or be absorbed by the fibers of the paper before the ticket is handled after the perforating operation. The said universal plate is provided principally as a support for the ticket to be perforated and as a shield to prevent the under side of the ticket from being inked or smeared by the underlying pad, it being necessary in this class of machines to cover over the ink-pad as fully as possible to prevent the smutting or soiling of the ticket, as above referred to. Of course in cases where it is of no consequence whether the ticket be smeared on the back or not the plate 66 may be formed with rectangular openings instead of the series of perforations arranged in a rectangle, so as to allow any and all groups of needles to pass through such openings; but I have found in practice that the best results may be obtained with the construction shown and described and that by making the perforations slightly larger in diameter than the diameter of the pins or needles I am enabled to secure a better wiping effect.

At Fig. 9 will be found illustrated in detail a novel construction of stripper device 70, which is also shown in Figs. 2, 5, and 6. The said device comprises a horizontal plate 71 and upturned arms or wings 72. The plate 71 is formed with three rectangular openings 73, each of a size adapted to admit two adjacent groups of needles on contiguous wheels—that is to say, one opening is large enough for the two composed groups of needles of the wheels 6 and 6^a, the next large enough to admit the two composed groups of needles of the wheels 7 and 7^a, and the third of a size suitable to contain the two composed groups of needles of the wheels 8 and 8^a. The forward edge of the plate 71 is preferably upturned, as at 74, to form with the front curved plate of the casing 3 a tapering or flaring mouth to facilitate the introduction of the tickets to be stamped. The rear edge of the stripper-plate may be provided with an upturned rib or bar portion 75. The arms 72 may be formed integral with the stripper-plate or may be attached thereto. Each arm is provided with a large longitudinally-formed slot 76, that embraces a washer or collar 77 on the needle-wheel shaft 4, and each said arm is also formed with a narrower longi-

itudinally-arranged slot 78 nearer the stripper-plate, which embraces a screw 79 in the framework. The elongated openings or slots 76 and 78 in the arms carrying the stripper-plate permit the stripper-plate to rise and fall, and owing to their encircling the collars 77 and the heads of the screws 79, which fit their respective slots, the device as a whole is guided so as to move substantially vertically in its up and down motions.

At each end of the stripper-plate is provided a downwardly-acting spring 80, (shown more clearly at Fig 5,) and one end of the spring is attached by a screw to the casing, and curving therefrom downwardly and forwardly and passing under and in contact with the cross-pin 34 the other end of the spring is attached to the stripper-plate at its end adjacent to the arm 72.

The cover-plate 66 is of a width and length such that when it is caused to ascend with the ticket it will force upwardly the said stripper-plate against the tension of its springs, which springs on the descent of the said cover-plate will return the stripper-plate to normal position and cause it positively to remove the ticket from the needles.

In view of the general description which has heretofore been given of the mode of operation of the various devices comprising this machine, in connection with the description of the construction and arrangement of such devices and the various functions which they perform, little, if any, further explanation of the use or mode of operation of the machine appears to be needed.

It will be readily understood that when the needle wheels or carriers have been adjusted by the step-by-step rotation imparted to them by their respective actuating-key and pawl-and-ratchet mechanism and have been locked with their selected groups of pins in line a ticket to be perforated may be laid upon the cover-plate 66 and the handle or hand-lever forced downwardly for the purpose of causing the ticket to be lifted and impaled upon the various groups of aligned and now stationary needles. During the descent of the handle the cams 50 are swung upwardly and acting upon the under side of the support or device 44 cause it and the ink-pad and the cover-plate carried thereby all to rise together, and when the stripper-plate is met it likewise is caused to rise in advance of the ticket. The cams are of such length as that the ticket is forced up upon the needles beyond their sharpened or beveled points and to such an extent as that the lower portions of the cylindrical shanks and the tapering points of the needles pass through the perforations in the plate 66 and into the ink-pad therebelow, so that the said needles may take on a supply of ink to ink the perforations in the ticket. When the pressure upon the handle is released, the spring 55 acts to return it, the cams, and the device 44 all to normal position, while the stripper returns to normal position

independently under the action of its individual springs, and the ticket is thereby stripped off or withdrawn from the needles. The device 44 and its appendages are moved vertically up and down by reason of the guide-slots 48 and the slotted opening in the top plate 43, which is exactly filled by the upright side pieces 46 of the device 44. The returning movement of the cams and their associated parts under the influence of the spring 55 may be limited by one or more stop-pins 81.

Although I have devised the present machine more especially for dating railroad-tickets, it will be understood that some or all of its novel features may be used for other purposes.

For some purposes it may be desired merely to perforate the paper or ticket, in which case the ink-pad may be removed or omitted.

It will be apparent to those skilled in the art that various changes in detail construction and arrangement may be made, and for this reason I do not wish to be limited precisely to the machine as shown and described nor to a machine containing all of the various improvements devised by me.

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

1. In a perforating-machine, the combination of a plurality of needle-wheels each having a ratchet-wheel, a plurality of finger-keys each having a pawl adapted to turn one of said ratchet-wheels, a plurality of spring-actuated locking-levers one for each ratchet-wheel, and a second series of pivoted pawls carried by said finger-keys for actuating said plurality of locking-levers.

2. In a perforating-machine, the combination of a needle-wheel, a finger-key connected thereto to turn the same step by step, and means for automatically locking and unlocking said wheel.

3. In a perforating-machine, the combination of a needle-wheel, a pawl-and-ratchet mechanism, a finger-key connected thereto to turn the needle-wheel step by step, locking means arranged normally to hold said wheel, a pivoted actuating device carried by said key and disconnected from the pawl-and-ratchet mechanism for unlocking said locking means, and means for automatically restoring said locking means to normal position and again holding said needle-wheel in its new or adjusted position upon release of the pressure upon the finger-key.

4. In a perforating-machine, the combination of a needle-wheel, a finger-key connected thereto through a pawl-and-ratchet mechanism to turn the same step by step, a locking-lever adapted to hold said wheel, and means connected to the said finger-key but independent of the pawl-and-ratchet mechanism for actuating said lever to release said wheel, and a spring for restoring said locking-lever to normal engaging position upon release of the pressure upon said key.

5. In a perforating-machine, the combination of a needle-wheel, a finger-key for said wheel, a pawl-and-ratchet mechanism for turning said wheel step by step when said key is actuated, a locking-lever for said needle-wheel, a second pivoted pawl for moving said lever in one direction to release said needle-wheel and a spring for moving said lever in the opposite direction to relock said wheel.

6. In a perforating-machine, the combination of a needle-wheel, a finger-key for said wheel, a pawl-and-ratchet mechanism for said wheel and key, a spring-actuated lever for engaging said ratchet-wheel, and a second pivoted pawl or actuating device connected to said key for unlocking said lever.

7. In a perforating-machine, the combination of a needle-wheel, a ratchet-wheel attached thereto, a key for said wheel provided with an actuating-pawl adapted to said ratchet-wheel, a locking-lever also adapted to said ratchet-wheel, a second pivoted pawl on said key for moving said lever in one direction to disengage said ratchet-wheel, and a spring for restoring said lever to normal engaging position.

8. In a perforating-machine, the combination of a needle-wheel, a ratchet-wheel connected thereto, a vertically-moving finger-key for said wheel, a pawl pivoted upon said key so as to work yieldingly in one direction of movement of said key and rigidly in the opposite direction of movement of said key, and thus to turn the ratchet-wheel and the needle-wheel one step upon a complete reciprocation of said key, a locking-lever normally in engagement with said ratchet-wheel, a second pawl pivotally or loosely mounted on the said finger-key and adapted to swing by said locking-lever on a movement of said key in one direction and to catch and work rigidly upon the movement of said key in the opposite direction and thus to vibrate said locking-lever and release said ratchet-wheel, and means for restoring said locking-lever to normal position upon release of said finger-key.

9. In a perforating-machine, the combination of a needle-wheel, a ratchet-wheel connected thereto, a vertically-sliding finger-key for said needle-wheel, a pawl pivoted to said finger-key and constructed to have a hinged motion in one direction and to work rigidly in the other, a spring-actuated locking-lever adapted to engage said ratchet-wheel, a second pawl pivotally or loosely mounted upon said finger-key and provided with a beveled edge whereby it may pass the said locking-lever in one direction of movement but may engage the same rigidly and vibrate it in the other direction of movement.

10. In a perforating-machine, the combination of a needle-wheel, a ratchet-wheel connected thereto, a finger-key for said wheel, a spring for returning said key, a pawl for turning said ratchet-wheel and needle-wheel step by step, a spring-actuated locking-lever adapted to engage a ratchet-tooth to hold said needle-wheel, and a pawl or actuator for said locking-lever; the whole being so organized and arranged as that on the downstroke of the key the first-mentioned pawl passes behind the next succeeding tooth of the ratchet-wheel without moving the same and the second-mentioned pawl passes behind the locking-lever without affecting the same, but that upon the upstroke of the key the said two pawls operate the one to vibrate the said locking-lever and disengage it from its ratchet-teeth and the other to turn the said ratchet-wheel and the said needle-wheel.

11. In a perforating-machine, the combination of a needle-wheel, a ratchet-wheel connected thereto, a finger-key for said wheel having a vertical movement in suitable guides, a returning-spring for said finger-key, a driving-pawl for said ratchet-wheel pivoted to vibrate in a plane parallel with said key, a locking-lever for said ratchet-wheel, a spring therefor, and an actuating-pawl for said locking-lever also pivoted or hinged to said key and so as to swing in a path at right angles to that of the ratchet-wheel driving-pawl.

12. In a perforating-machine, the combination of a needle-wheel, a ratchet-wheel connected thereto, a vertically-sliding key having a driving-pawl pivoted thereto so as to actuate said ratchet-wheel, a notched locking-lever, a spring therefor, and a second pawl pivoted or hinged to said key to actuate said locking-lever and formed or provided with a beveled edge and an engaging toe.

13. In a perforating-machine, the combination of a needle-wheel, a ratchet-wheel connected to turn therewith, a finger-key having a vertical movement in guide-slots in the framework, a returning-spring therefor, a pawl pivoted to said key for turning said ratchet-wheel step by step, a locking-lever having a notch to engage said ratchet-wheel and having a returning-spring, and an actuating device 24 for said lever comprising an arm 25, a hook 26 seated in a slot in the key, an arm 27, a toe-piece 28, beveled edge 29, and stop 30.

14. In a perforating-machine, the combination of a plurality of needle-wheels, a plurality of finger-keys therefor, equal in number to said wheels and comprising each a bar portion 17 and an offset portion 17^a provided with a button or head, the said bar portions 17 being all arranged in the same line or row while the said offset portions 17^a and the buttons or heads are arranged in two rows.

15. In a perforating-machine, the combination of a plurality of needle-wheels, a plurality of finger-keys having bar portions 17 and offset portions 17^a, the bar portions 17 being arranged in a single row and the offset portions 17^a in two rows, a ratchet-wheel for each needle-wheel, and a pawl for each ratchet-wheel mounted upon the bar portion 17 of each key.

16. In a perforating-machine, the combination of a plurality of needle-wheels, a plural-

ity of finger-keys having bar portions 17 and offset portions 17^a, the bar portions 17 being arranged in a single row and the offset portions 17^a in two rows, a ratchet-wheel for each needle-wheel, a driving-pawl therefor on the bar portion of each finger-key, a spring-actuated locking-lever for each ratchet-wheel, and a driving-pawl for said lever also mounted on the bar portion 17 of each finger-key.

17. In a perforating-machine, the combination of a plurality of needle-wheels, a plurality of finger-keys therefor comprising each a bar portion 17 and an offset portion 17^a so arranged that the bar portions 17 are disposed in a single row and the offset portions thereof are disposed alternately on opposite sides of the row of bars 17.

18. In a perforating-machine, the combination of a needle-wheel, a key, and suitable intermediate devices for turning said wheel step by step by the reciprocations of said key, means for locking said wheel and for unlocking the same controlled by the reciprocations of said key, a bed or support for the paper or ticket to be perforated, and means for raising the same and forcing the paper or ticket upon the needles.

19. In a perforating-machine, the combination of a needle-wheel, a key, and suitable intermediate devices for turning said wheel step by step, a bed or support for the paper or ticket to be perforated, a stripper above the same, and means for forcing the bed and the stripper upwardly and causing the paper or ticket to be impaled upon the needles.

20. In a perforating-machine, the combination of a needle-wheel, a key, and suitable intermediate devices for turning said wheel step by step, a bed or support for the paper or ticket to be perforated, a stripper above the same, means for forcing the bed and the stripper upwardly and causing the paper or ticket to be impaled upon the needles, a spring for returning the said bed or support to normal position, and a spring for returning the stripper and causing it to withdraw the paper or ticket from the needles.

21. In a perforating-machine, the combination of a needle-wheel, a key, and a pawl-and-ratchet mechanism for turning said wheel step by step, a locking-lever and a pawl therefor mounted to move with said key, a bed or support for the paper or ticket to be perforated, and means for forcing the bed upwardly and causing the paper or ticket to be impaled upon the needles.

22. In a perforating-machine, the combination of a needle-wheel, a key for turning said wheel step by step, a locking device acting automatically to hold said wheel at the end of each step-by-step movement, and a to-and-fro-movable bed adapted to support the paper or ticket to be perforated and to cause the same to be impaled upon the selected group of needles.

23. In a perforating-machine, the combination of a needle-wheel, a key for turning said

wheel step by step, a locking-lever for holding said wheel, and a to-and-fro-movable paper or ticket carrying bed or support.

24. In a perforating-machine, the combination of a needle-wheel, a key, a pawl-and-ratchet mechanism actuated thereby to turn said wheel step by step, a spring-actuated locking-lever adapted to engage said ratchet-wheel, a pawl for unlocking said lever, and a to-and-fro-movable paper or ticket bed or support adapted to force the paper or ticket upon the needles after the selection and locking of the desired group of needles.

25. In a perforating-machine, the combination of a needle-wheel, a ratchet-wheel connected thereto, a key having a driving-pawl for said ratchet-wheel, a spring-actuated lever adapted to lock said ratchet-wheel, a pawl carried by said key adapted to actuate and unlock said lever, a paper or ticket support or bed, and means for forcing the same upwardly and impaling the paper or ticket upon the selected and locked group of needles.

26. In a perforating-machine, the combination of a needle-wheel, means for turning the same step by step through the agency of a finger-key, means for locking said wheel, means for unlocking said wheel through the agency of said finger-key, and means for forcing the paper or ticket upwardly and impaling it upon the selected and locked group of needles.

27. In a perforating-machine, the combination of a needle-wheel, a key mechanism for turning the same step by step, a locking device controlled by said key, a vertically-movable paper or ticket bed or support, and a lever for forcing the same upwardly and causing the paper or ticket to be impaled upon the selected and locked group of needles.

28. In a perforating-machine, the combination of a needle-wheel, a key for rotating the same step by step, a locking device controlled by said key for holding the needle-wheel in its adjusted position, a paper or ticket bed or support guided to move to and from said needles in a vertical path, one or more cams and a hand-lever for lifting said bed or support, and a spring for returning said devices.

29. In a perforating-machine, the combination of a needle-wheel, a key for rotating the same step by step, a locking device controlled by said key for holding the needle-wheel in its adjusted position, a paper or ticket bed or support guided to move to and from said needles in a vertical path, a stripper also guided to move to and from said needles in a vertical path, a spring for returning said stripper, one or more cams and a hand-lever for lifting said bed or support, and a spring for returning the latter.

30. In a perforating-machine, the combination of a needle-wheel, a key for rotating the same step by step, a locking device controlled by said key for holding the needle-wheel in its adjusted position, a paper or ticket bed or support having vertically-arranged and lon-

gitudinally-slotted guide-arms, a pin or shaft within the slotted portions of said arms, and means for raising and lowering said bed or support.

5 31. In a perforating-machine, the combination of a needle-wheel, a key for rotating the same step by step, a locking device controlled by said key for holding the needle-wheel in its adjusted position, a paper or ticket bed or
10 support having vertically-arranged and longitudinally-slotted guide-arms, a pin or shaft within the slotted portions of said arms, one or more cams and a hand-lever on said shaft for lifting said bed or support, and a spring
15 for returning the latter.

32. In a perforating-machine, the combination of a needle-wheel, a key for rotating the same step by step, a locking device controlled by said key for holding the needle-wheel in
20 its adjusted position, a paper or ticket bed or support comprising a bottom plate, side bars, a top plate, through which the needles pass, and a pair of longitudinally-slotted arms, a shaft passing through the slotted portions of
25 said arms, one or more cams and a hand-lever on said shaft for lifting said bed or support, and a returning-spring for the latter.

33. In a perforating-machine, the combination of a needle-wheel, a key for rotating the
30 same step by step, a locking device controlled by said key for holding the needle-wheel in its adjusted position, a paper or ticket bed or support consisting of a bottom plate, a top plate, two side bars and downwardly-projecting slotted arms, a shaft coöperating with the
35 slotted portions of said arms, one or more cams and a hand-lever on said shaft for lifting said bed or support, a spring for returning the same, a stripper-plate having a pair of arms each of which is provided with two longitudinal slots, guiding devices on the framework coöperating with said slots, and a spring
40 or springs for returning said stripper-plate.

34. In a perforating-machine, the combination of a needle-wheel, a key for rotating the
45 same step by step, a locking device controlled by said key for holding the needle-wheel in its adjusted position, a paper or ticket bed or support, means for raising and lowering the same, a stripper-plate having side arms each of which is formed with an upper slot and a
50 lower slot, both arranged longitudinally on said arms, collars or hubs on the needle-wheel shaft fitting within the upper pair of slots, and fixed pins or screws fitting within the
55 lower pair of slots whereby the stripper-plate is guided to move vertically to and from the said needles.

35. In a perforating-machine, the combination of a needle-wheel, a key for rotating the
60 same step by step, a locking device controlled by said key for holding the needle-wheel in its adjusted position, a paper or ticket bed or support having a universal perforated plate, and means for raising and lowering the same.
65

36. In a perforating-machine, the combination of a needle-wheel, a key for rotating the

same step by step, a locking device controlled by said key for holding the needle-wheel in its adjusted position, a paper or ticket bed or
70 support provided with a universal perforated plate, a cam or cams and a hand-lever for raising and lowering the bed or support, a spring for returning said bed or support, and means for guiding the latter in a vertical path
75 in its movements to and from the selected group of needles.

37. In a perforating-machine, the combination of a needle-wheel, a key for rotating the same step by step, a locking device controlled
80 by said key for holding the said needle-wheel in its adjusted position, a paper or ticket bed or support provided with a universal perforated plate, a cam or cams and a hand-lever for raising and lowering the bed or support, a spring for returning said bed or support,
85 means for guiding the latter in a vertical path in its movements to and from the selected group of needles, a stripper-plate adapted to be lifted by the said universal perforated
90 plate, a spring or springs for returning said stripper-plate, and means for guiding the latter in a vertical path during its up-and-down movements.

38. In a perforating-machine, the combination of a needle-wheel, a key, and pawl-and-
95 ratchet mechanism for rotating the same step by step, a ticket or paper bed or support, means for raising the latter to impale the paper or ticket upon the needles, means for re-
100 turning the bed or support, and a stripper for removing the paper or ticket from the needles.

39. In a perforating-machine, the combination of a needle-wheel, a key, and pawl-and-
105 ratchet mechanism for rotating the same step by step, a paper or ticket bed or support, a cam or cams and a hand-lever for raising the same, a spring for returning the bed or support, and a stripper.

40. In a perforating-machine, the combination of a needle-wheel, a ticket bed or support
110 comprising a bottom plate, a top universal perforated plate, side bars and longitudinally-slotted guide-arms, a shaft passing through the slots in said guide-arms, a cam or cams
115 and a hand-lever on said shaft, a returning-spring for the latter devices, and a spring-actuated stripper-plate.

41. In a perforating-machine, the combination of a needle-wheel, a key, a pawl-and-
120 ratchet mechanism between said key and said wheel, for rotating the latter step by step, a locking-lever, a pawl on said key for actuating said lever in one direction, a spring for actuating it in the opposite direction, and a
125 vertically-movable ticket or paper bed or support adapted in its upward movement to impale the paper or ticket upon the selected group of needles.

42. In a perforating-machine, the combination of a needle-wheel, a key, a pawl-and-
130 ratchet mechanism between said key and said wheel for rotating the latter step by step, a locking-lever, a pawl on said key for actuat-

ing said lever in one direction, a spring for actuating it in the opposite direction, a vertically-movable ticket or paper bed or support, a cam or cams and a hand-lever for raising said bed or support, and a spring for lowering the same.

43. In a perforating-machine, the combination of a needle-wheel, a finger-key connected thereto to turn the same step by step, means for automatically locking and unlocking said wheel, and a to-and-fro-movable ink-pad.

44. In a perforating and inking machine, the combination of a needle-wheel, a finger-key connected thereto to turn the same step by step, means for automatically locking and unlocking said wheel, an inking-pad, a cover-plate therefor, and means for raising the ink-pad and cover-plate and impaling the paper or ticket upon the needles and causing the needles simultaneously to enter the ink-pad.

45. In a perforating and inking machine, the combination of a needle-wheel, a finger-key connected thereto to turn the same step by step, locking means arranged normally to hold the said wheel stationary, an actuating device operated by said key for unlocking said locking means, means for automatically restoring said locking means to normal position to again hold said needle-wheel in its new or adjusted position upon release of the pressure upon the finger-key, and a to-and-fro-movable inking-pad provided with a cover-plate adapted to support the paper or ticket and carry the same up upon the needles during the upward movement of said pad, and cover-plate.

46. In a perforating and inking machine, the combination of a needle-wheel, a finger-key connected thereto to turn the same step by step, a locking-lever adapted to hold said wheel, a pawl connected to said finger-key for actuating said lever to release said wheel, a spring for restoring said locking-lever to normal engaging position, and a to-and-fro-movable inking-pad provided with a cover-plate.

47. In a perforating and inking machine, the combination of a needle-wheel, a finger-key and pawl-and-ratchet mechanism for turning said wheel step by step, a locking-lever for said needle-wheel, a pawl for moving said lever in one direction to release said needle-wheel, a spring for moving said lever in the opposite direction to relock said wheel, a vertically-movable bed or support, an ink-pad, a cover-plate carried thereby, and means for raising and lowering said bed or support and its appurtenances.

48. In a perforating and inking machine, the combination of a needle-wheel, a key and pawl-and-ratchet mechanism for rotating the same step by step, a bed or support, an ink-pad, a cover-plate therefor, a cam or cams and a hand-lever for raising the same, and a spring for restoring the same to normal position.

49. In a perforating and inking machine,

the combination of a needle-wheel, a key and pawl-and-ratchet mechanism for rotating the same step by step, a paper or ticket bed or support provided with guides to cause it to move in a vertical path, an ink-pad mounted upon said bed and provided with a cover-plate, one or more cams and a hand-lever, and a returning-spring.

50. In a perforating and inking machine, the combination of a needle-wheel, a key and pawl-and-ratchet mechanism for rotating the same step by step, a paper or ticket bed or support constructed to form a housing, an inking-pad within said housing, a cover-plate for said inking-pad, a cam or cams and a hand-lever for raising said bed or support and its appurtenances, and a spring for restoring it to normal position.

51. In a perforating and inking machine, the combination of a needle-wheel, a paper or ticket bed or support comprising a bottom plate, a cover-plate and side bars, and an ink-pad box adapted to be slid into and out of the space formed by said top and bottom plates and side bars.

52. In a perforating and inking machine, the combination of a needle-wheel, a bed or support comprising a bottom plate, top plate and side bars, an ink-pad box adapted to be slid in and out of the space formed by said members, and a catch mechanism for holding said box within said space.

53. In a perforating and inking machine, the combination of a needle-wheel, a ticket or paper bed or support comprising a bottom plate, a cover-plate and side bars, an ink-pad box adapted to be slid into and out of the space formed by said members and provided with a knob or finger-piece, and a spring-catch.

54. In a perforating-machine, the combination of a plurality of needle-wheels, a finger-key for each wheel, intermediate devices for rotating said wheel step by step, means for locking said wheels in their adjusted positions, a to-and-fro-movable ink-pad, and a cover-plate therefor adapted to support the paper or ticket and to impale the same upon the selected groups of needles while at the same time permitting the needles to enter the pad below.

55. In a perforating-machine, the combination of a plurality of needle-wheels arranged in pairs, and a partitioned ink-pad box, containing in each subdivision a pad adapted to each pair of wheels.

56. In a perforating-machine, the combination of a plurality of needle-wheels each provided with a separate key-actuating mechanism and also with a locking mechanism controlled by said key mechanism, a to-and-fro-movable inking-pad, and a universal perforated cover-plate movable with said pad.

57. In a perforating-machine, the combination of a plurality of pairs of needle-wheels, a key mechanism for rotating each wheel independently of its fellow, a locking mechanism for each said wheel, a vertically-movable

bed or support, an inking-pad fitted there-
upon and having a universal perforated cover-
plate, one or more cams and a hand-lever for
raising said bed or support, a spring for re-
5 turning it to normal position, and a stripper-
plate arranged between the needle-wheels and
the universal perforated cover-plate.

58. In a perforating and inking machine,
the combination of a plurality of needle-
10 wheels, a plurality of finger-keys adapted to
rotate said wheels individually and thus to
compose a date-line, a plurality of locking
devices for automatically locking said wheels
as they are composed, an inking-pad, a paper
15 or ticket support thereover, and means for
raising the latter and the inking-pad and im-
paling the paper or ticket upon the composed
line of needles and simultaneously causing
the needles to enter the pad.

20 59. In a perforating and inking machine,
the combination with a needle-wheel, of an
ink-pad and a universal perforated plate, the
perforations of which are slightly larger in
diameter than the diameter of the needles,

whereby the perforated portions of the paper 25
or ticket may be forced down into the per-
forations in the universal plate and form tu-
bular burs or elongated wiping portions for
the needles.

60. In a perforating and inking machine, 30
the combination with a plurality of groups of
needles, of an ink-pad and a universal per-
forated plate, the perforations of which are
slightly larger in diameter than the diameter
of the needles, whereby the perforated por- 35
tions of the paper or ticket may be forced
down into the perforations in the universal
plate and form tubular burs or elongated
wiping portions for the needles.

Signed at the borough of Manhattan, in the 40
city of New York, in the county of New York
and State of New York, this 15th day of Feb-
ruary, A. D. 1899.

EDWARD B. HESS.

Witnesses:

PAUL ARMITAGE,
K. V. DONOVAN.