(No Model.) 2 Sheets—Sheet 1.

# W. T. JENKINS.

## TICKET PUNCH AND REGISTER.

No. 533,903. Patented Feb. 12, 1895.

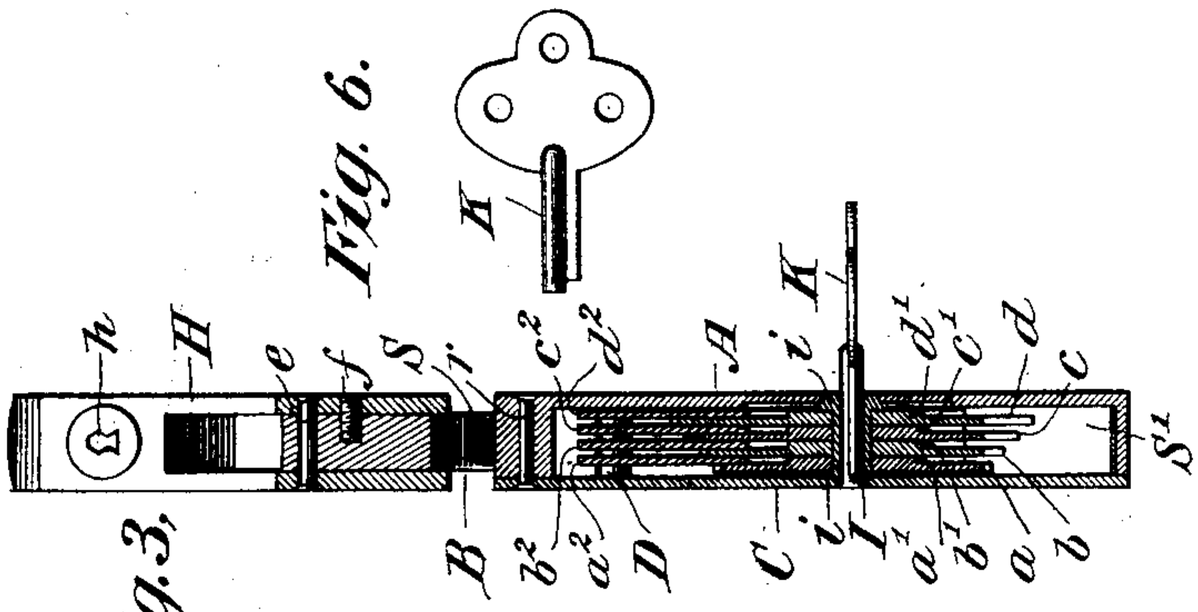


Fig. 3.

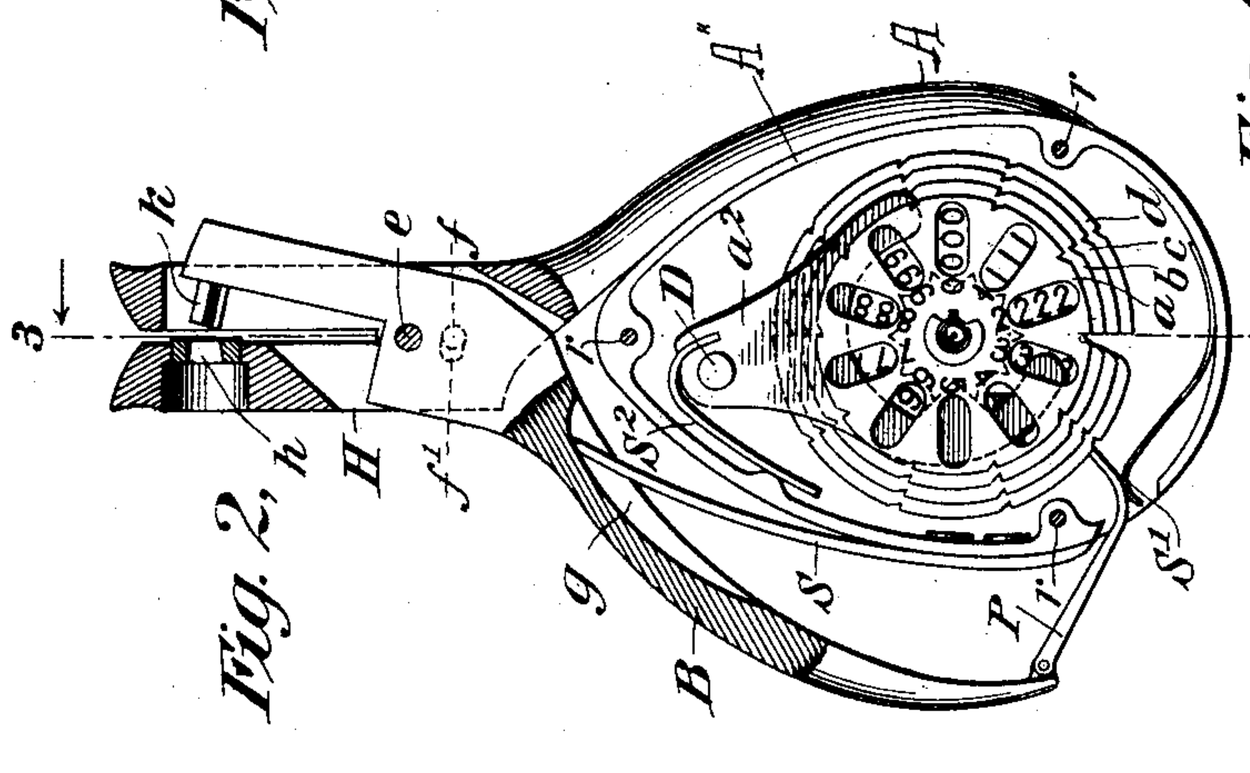


Fig. 2.

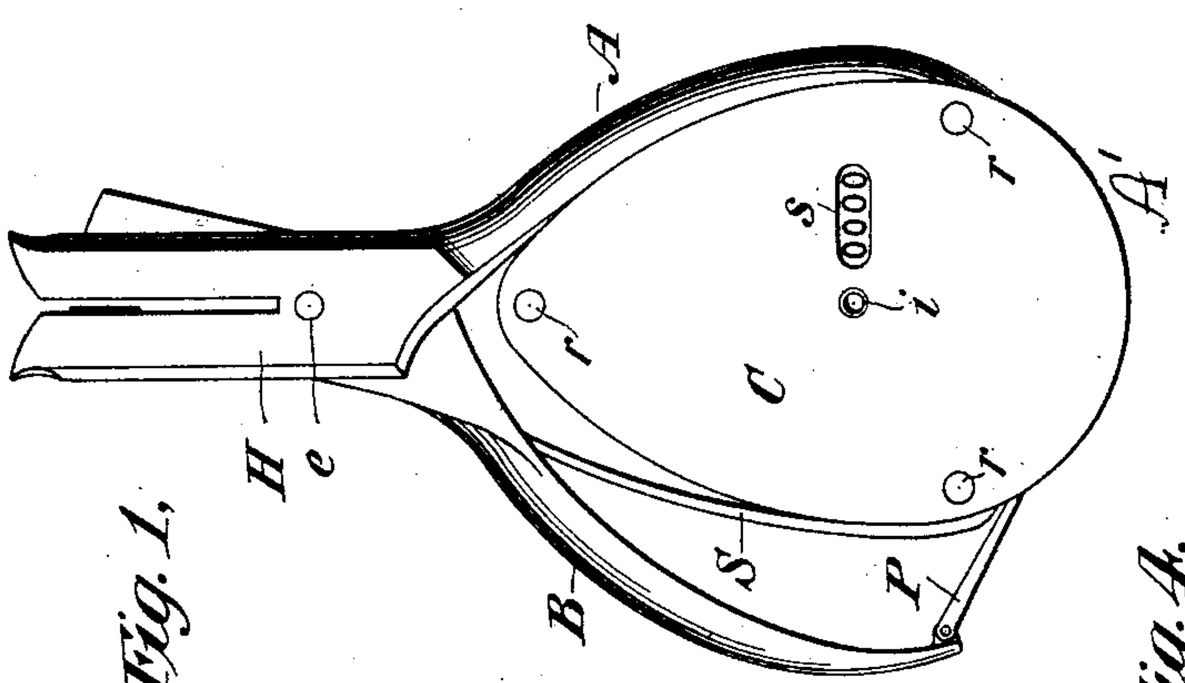


Fig. 1.

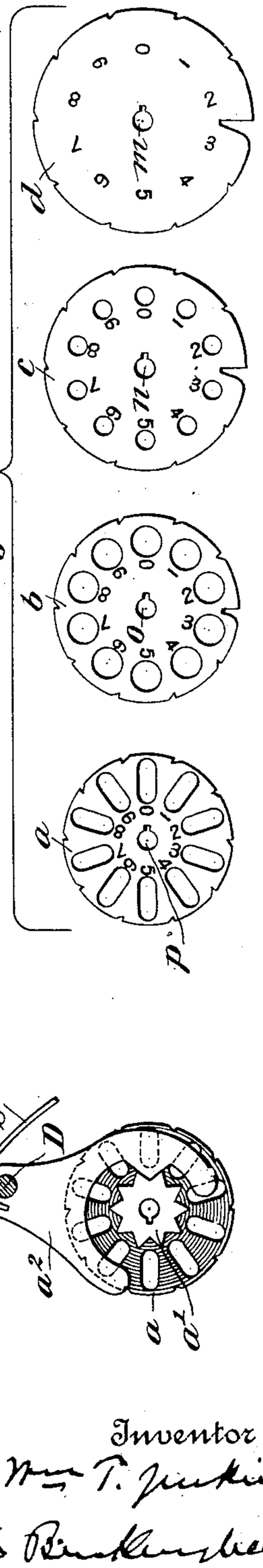


Fig. 5.


Fig. 4.

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(No Model.) 2 Sheets—Sheet 2.

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## TICKET PUNCH AND REGISTER.

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Fig. 8,

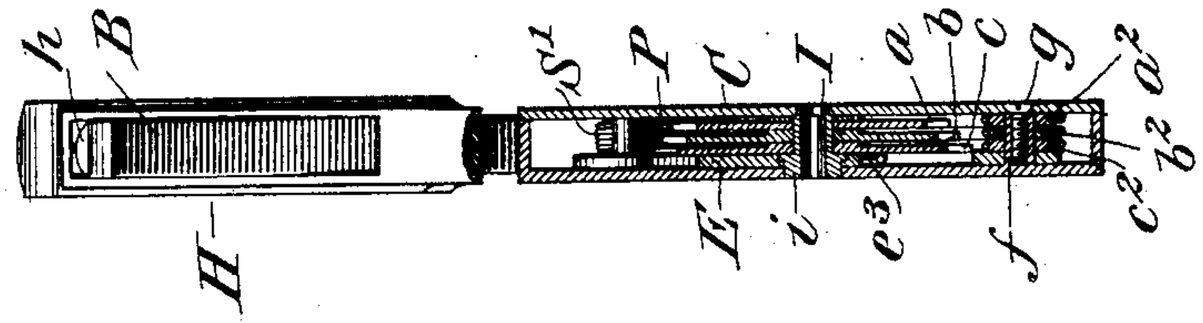



Fig. 7,

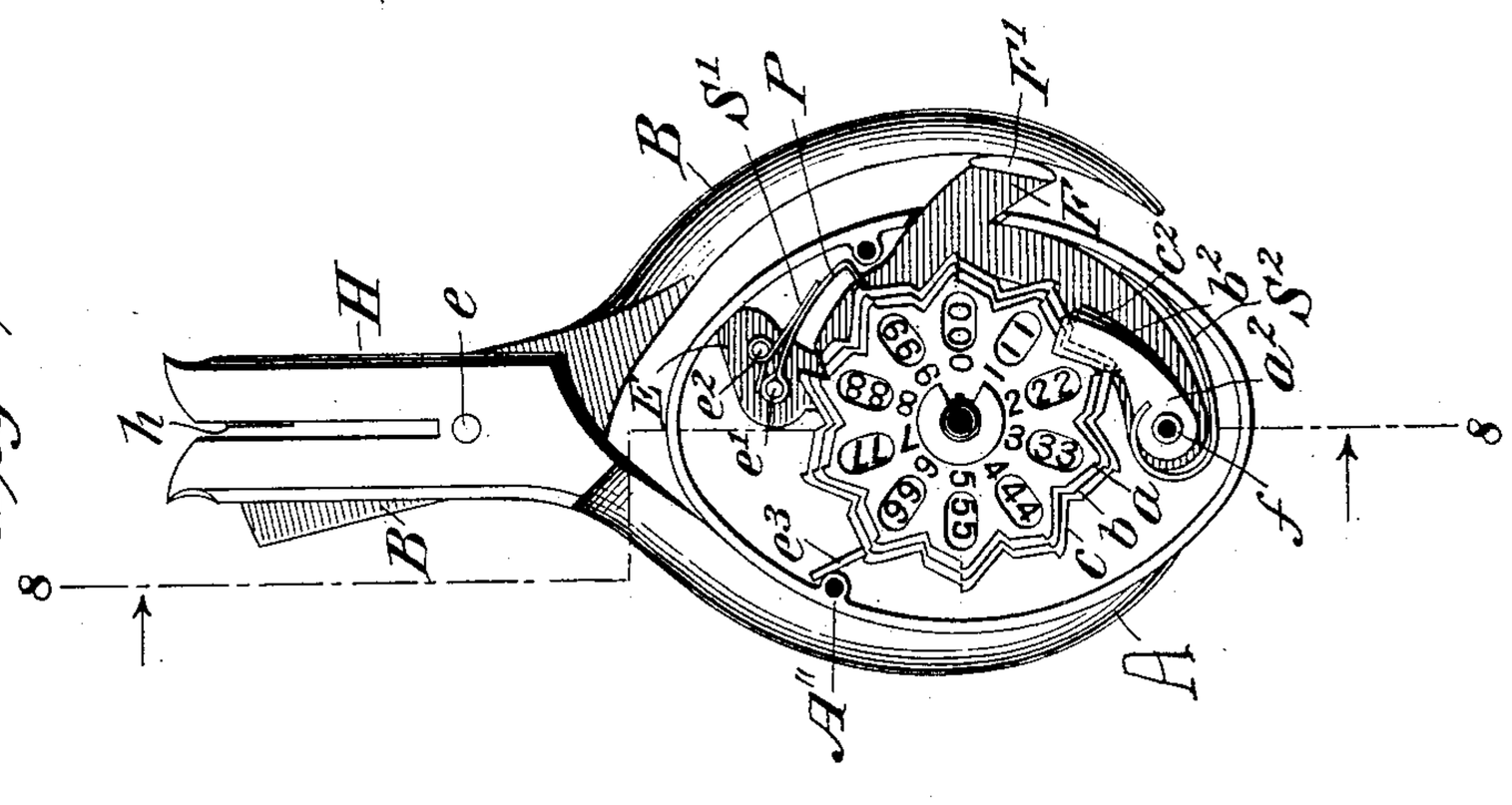
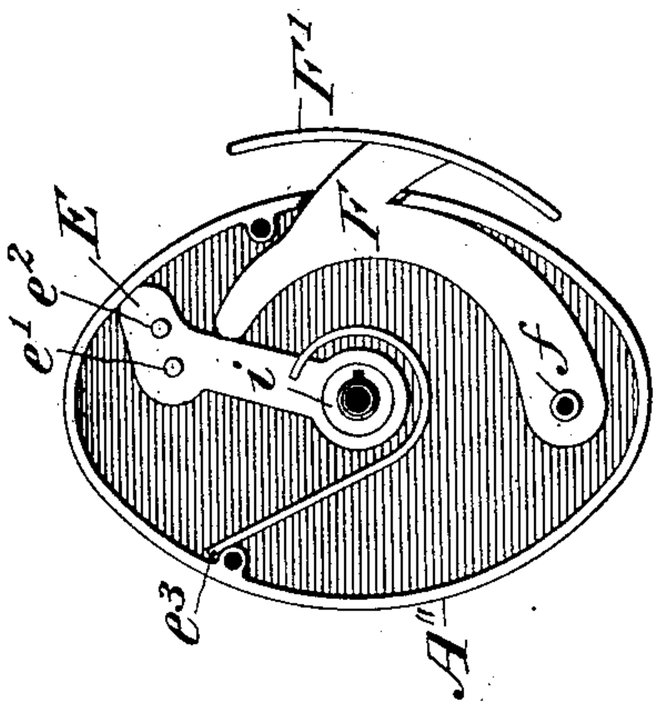



Fig. 9,

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# UNITED STATES PATENT OFFICE.

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## TICKET-PUNCH AND REGISTER.

SPECIFICATION forming part of Letters Patent No. 533,903, dated February 12, 1895.

Application filed August 5, 1893. Serial No. 482,421. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM T. JENKINS, a citizen of the United States of America, residing at the town of Southfield, county of Richmond, and State of New York, have made a new and useful Improvement in a Combined Ticket-Punch and Counting-Register, of which the following is a specification.

The object of my invention is to provide a suitable device for punching tickets and to place in operative combination therewith an automatic mechanism for registering the number of tickets punched. In carrying out this purpose I have not only combined a registering mechanism with the usual form of ticket punch in such manner that the operation of the punch will automatically operate the register, but I have also constructed a novel registering device of great simplicity which may be readily adapted to many other uses.

I will now describe several forms of apparatus for carrying out my invention by reference to the accompanying drawings.

Figure 1 is a side view showing a ticket punch with handles A, B, upon one of which is placed a case containing the registering mechanism. Fig. 2 also represents a side view of a ticket punch and case containing the registering mechanism with the top plate removed. Fig. 3 is a cross-section of the apparatus shown in side view by Fig. 2. Fig. 4 represents one of the counting wheels, *a*, with mechanism for retaining said wheel in a definite position. Fig. 5 shows a series of four counting wheels employed in a machine where it is desired to register numbers within four figures. Fig. 6 is a key which is employed to re-set the registering mechanism to a zero position. Figs. 7 and 8 represent side and sectional views respectively of a modified form which from its great simplicity of construction I prefer over that shown in Figs. 1, 2, 3, 4, and 5. Fig. 9 is a side view showing such modifications of the arrangement shown in Figs. 7 and 8 as are necessary when the registering mechanism is used independently of the punching devices.

Referring now to the form of apparatus shown on Sheet 1 of the drawings, A and B are the jaws and handles of an ordinary ticket punch, and upon the handle A is cast or otherwise suitably mounted an oval form A′ having a base plate and a peripheral rim shown, in Figs. 2 and 3, upon the upper edge of which a top plate, C, having a window, *s*, is fastened by screws or rivets *r*.

Figs. 1 and 2 show a longitudinal slot in the bar, H, of the punch, within which a ticket is inserted for perforation. The bar H is also provided with an opening or recess at right angles to the ticket slot within which is pivoted at *e* the second jaw of the punch, while upon its upper end is a male die, *k*, which works within the female die, *h*, of the other jaw. The relative movement of the jaw, of which handle B is a part, is limited by a pin, *f*, fastened to bar H, which, as shown in Fig. 2, projects upward within an elongated opening *f′*, thus preventing the separation of the jaws by a space greater than the play allowed by pin *f* within said opening.

Within the register case a hollow journal, I, is mounted between the base plate and the top plate C by means of bushings, *i*, *i*, and upon said journal I the counting wheels *a*, *b*, *c*, *d*, are loosely placed, and in such manner that each one may be turned independently of the others.

The tubular journal I is slotted throughout its entire length in such manner that a feathered key, K, may be inserted and mechanical connection thereof effected with the counter wheels. This result is accomplished by extending the feather of key K sufficiently to project not only through the slot of the journal I, but sufficiently far beyond that it may reach within radial openings in the counter wheels extending from the central openings, *m*, *n*, *o*, *p*, shown in Fig. 5. By this means if the counter wheels have been operated to indicate any number up to four figures and it is desired to re-set the register with the zero of each wheel opposite the window, *s*, shown in plate C, Fig. 1, or in any other desired position, the key K will be inserted under slight pressure within the hollow journal I and turned until the feather of the key is successively inserted within the radial openings of the counter wheels. The four wheels are thus brought into such relative position that the zero marks will be in the same radial line and can together be moved around so that the register will show the four zeros at the window *s*. The journal I remains stationary

when the wheels *a*, *b*, *c*, *d*, are advanced by the pawl; but when the key is inserted and turned, as just described, the journal and wheels turn together.

The apparatus for registering the number of times that the punch has been brought into action may be described as follows: The wheels, *a*, *b*, *c* and *d* are of increasing diameter, and each is provided with ten notches. Wheels *b*, *c*, and *d*, however, have each nine shallow notches and one deep notch, while all of the notches of *a* are of equal depth. By this arrangement as handles A and B are pressed by the operator, a pawl, P, pivoted to the handle or jaw B, is pressed within the notch of the larger wheel, *d*, and the latter is turned one-tenth of a rotation. In starting from a zero position of the register, by nine successive operations the deep notch of the larger wheel would be brought opposite the pawl P which may then be forced into a notch of wheel *c;* and upon next compressing the handles A and B not only is wheel *d* rotated to its tenth position, but the wheel *c* is given one step, thus indicating ten successive operations upon the register. By repeating this operation the wheel *d* may be given a second complete rotation and the wheel *c* a second step, and so on until *c* has been rotated nine steps. If, then, wheel *d* were given an additional nine movements, the deep notches of wheels *c* and *d* would be brought opposite one of the notches of wheel *b*, and a further action of pawl P would impart a movement of one step to the latter, thus indicating a hundred operations. In like manner after nine hundred and ninety-nine movements have been effected the one thousandth movement of the punch would cause wheel *a*, to move forward one step and the register by successive operations would be actuated to indicate a registration up to nine thousand nine hundred and ninety-nine.

The deep notches of wheels *b*, *c*, *d*, shown in Fig. 5, are so proportioned with reference to the diameter of wheel *a* that when they are in line the single pawl P is permitted to reach within one of the shallow notches of *a;* and, of course, if five counter wheels were employed instead of four, wheel *a* would also be provided with a deep notch, and there would still be a further wheel, of smaller diameter than *a*, required.

The figures on the counting wheels are placed at increasing distances from the center, as most clearly shown in Figs. 2 and 5, the figures on wheel *a* being in a small circle, on wheel *b* in a slightly larger circle, and so on for the other wheels. Preferably wheels *a*, *b*, and *c* are each large enough to extend beyond the circle of figures on the wheel following it in the series, and each of said wheels is provided with a circular row of holes, spaced like the figures, and adapted to register with the figures on the wheel or wheels following it. The holes in the wheel *c* need only be large enough to show the figures on wheel *d;* those in wheel *b* must be large enough to show the figures on wheels *c* and *d;* and those in wheel *a* must be large enough to show the figures on wheels *b*, *c*, and *d*. The notches in which the propelling pawl engages are preferably in the peripheries of the wheels outside of the said sight holes.

The utility of the arrangement of figures and sight holes described is not confined to counters or registers the counting wheels of which are of unequal or increasing diameter. While the members on the wheels are of substantially different distances from the center, the propelling pawl acts on all the wheels at nearly the same radial distance from the center.

In order that pawl P may reliably engage with notches of the counter wheels, a spring, S′, is used for holding its point normally in contact with the periphery of wheel *d*, and in proper order to force it within the deep notches of the several wheels as handles A and B are pressed together. In operating the counter wheels, however, they being loosely mounted upon the journal I, there is danger that the pawl P may force the wheel or wheels too far, and to this end I have employed dogging devices, particularly shown in Figs. 2, 3, and 4, there being one such detaining mechanism for each wheel. In Fig. 3 the detaining devices are represented by dogging bars $a^2$, $b^2$, $c^2$, $d^2$, which are mounted upon a pivot, D, and respectively provided with a spring, $S^2$, one end of the latter being fixed to the dogging bar or lever near pivot, D, while the free end normally rests against a slight projection upon the interior of the rim of the case. By this means as a counter wheel is moved one step by pawl P, a star wheel rigidly fixed to said counter wheel is forced beneath the tooth of the detaining lever and against the force of said spring $S^2$, which is of sufficient tension to prevent an overthrow beyond the desired limit of action. Other devices for this purpose may be employed, as will presently be seen, but in this specific arrangement the respective wheels *a*, *b*, *c*, *d*, must each be provided with a star wheel, *a′*, *b′*, *c′*, *d′*, (see Fig. 4) and each star wheel must be provided with ten teeth, the number of steps to each rotation of the counter wheels. In Figs. 7 and 8, this arrangement is simplified, in that the pawl P is entirely disconnected from handle B of the punch. In this instance handle B is merely brought into contact with a projection, F′, forming part of an actuating lever, F, the latter being pivoted at *f*, which at its free end may impinge against a radial arm, E, which in turn is pivoted upon the axis of the counter wheels. Upon the outer end of the arm E is pivoted an actuating pawl P at *e′*, and the free end of the latter is pressed against the periphery of the counter wheels and within their notches by means of a spring, also fastened to arm E, at $e^2$. To actuate a counter wheel in this arrangement, as handles A and

B are pressed together, the end of arm F impinges against radial arm E and pawl P carries one or more of the counter wheels one step of rotation against the tension of the spring $e^3$, one end of the latter being rigidly fastened near the hub of the arm E while its free end presses against a projection upon the interior of the rim of the register case, whereby when the pressure of the hand is removed spring $e^3$ will return bar E and pawl P to their initial positions in readiness to register a further operation of the punch. In this case, in a manner somewhat similar to the plan described in connection with the form shown in the diagrams of Sheet 1 of the drawings, dogging devices are employed to prevent an overthrow of the counter wheels, and to this end I have employed for each wheel dogging catches $a^2$, $b^2$, $c^2$, each as before being provided with a spring $S^2$, of sufficient tension to prevent a movement of its wheel except under the positive action of actuating pawl P.

Fig. 9 shows a modification of the arrangement represented in Figs. 7 and 8, with the punching apparatus removed. In this modification a curved piece, F′, is attached to lever, F, the two parts forming one piece, and to operate the registering mechanism the part F′ is compressed by the hand toward the case A″, thus actuating radial bar E and a pawl P which is pivoted at $e'$ and held in contact with the counter wheels by a spring also pivoted to said arm at $e^2$. In this modification spring $e^3$ is attached to arm E and is of the same form as that employed in the forms shown in Figs. 7 and 8.

The several designs of the apparatus already specifically described will suggest other modifications of my invention, and it is my wish therefore not to limit my claims to these specific arrangements.

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

1. In a combined punch and register, perforating jaws and handles for actuating the same, a series of counter wheels placed within a case mounted upon one of said handles, a common tubular slotted journal upon which said counter wheels are loosely placed, said wheels having radial openings, whereby a feathered key, K, can be used for returning said wheels to their initial position and devices for operating or controlling said counter wheels, the latter being in operative connection with the second handle of said punch.

2. In a combined punch and register, the combination of perforating jaws, handles for actuating the same, a case containing a series of counter wheels mounted upon one of said handles, a slotted journal upon which said wheels are loosely mounted, said slotted journal being adapted to receive a feathered key, K, for returning said wheels to a zero position, said wheels having means engaged by the key, and a pawl or equivalent device placed upon the second handle of said punch for actuating said counter wheels.

3. In a registering device, the combination of a series of counting wheels all being provided with an equal number of teeth, and each, excepting one, having a deep tooth, a common journal upon which said wheels are loosely mounted, an actuating pawl mounted upon a radial bar common to said wheels, an actuating device, F, having a fixed pivot, its free end being in position to strike said radial bar to move it in one direction, and a returning spring, $e^3$, said actuating device also extending into the path of an operating device, as and for the purpose set forth.

4. In a registering device, the combination of a case, a series of counting wheels which are loosely and independently mounted upon a common slotted journal, and which have radial openings adapted to register with the slot of the journal so as to receive a feathered key for returning said wheels to a zero position.

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Witnesses:
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