

(No Model.)

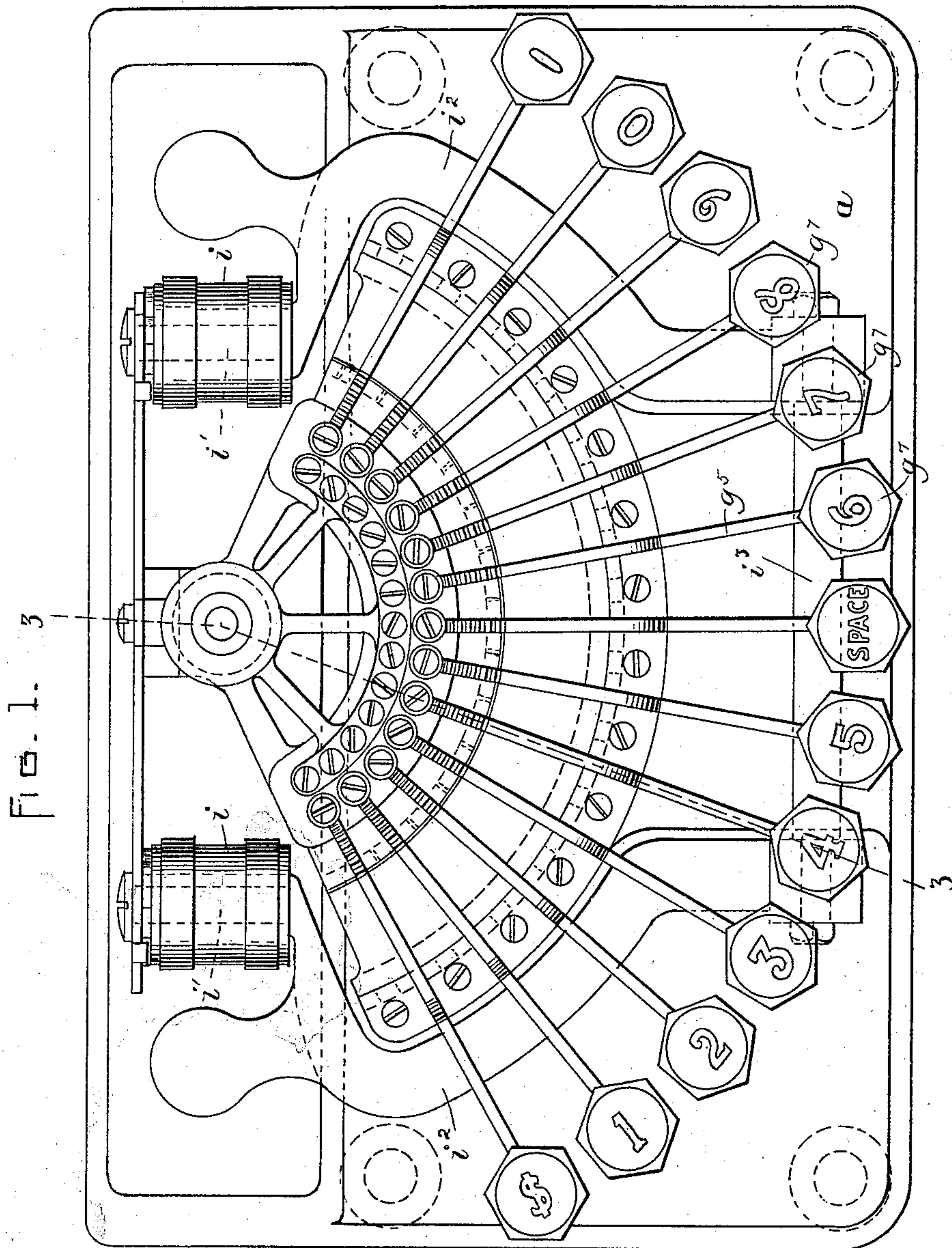
3 Sheets—Sheet 1.

G. WRIGHT.

CHECK PUNCHING AND MARKING MACHINE.

No. 485,444.

Patented Nov. 1, 1892.



WITNESSES:

A. D. Harrison

B. A. McShane

INVENTOR:

Wright
by Wright & Son, London
Atty.

(No Model.)

3 Sheets—Sheet 2.

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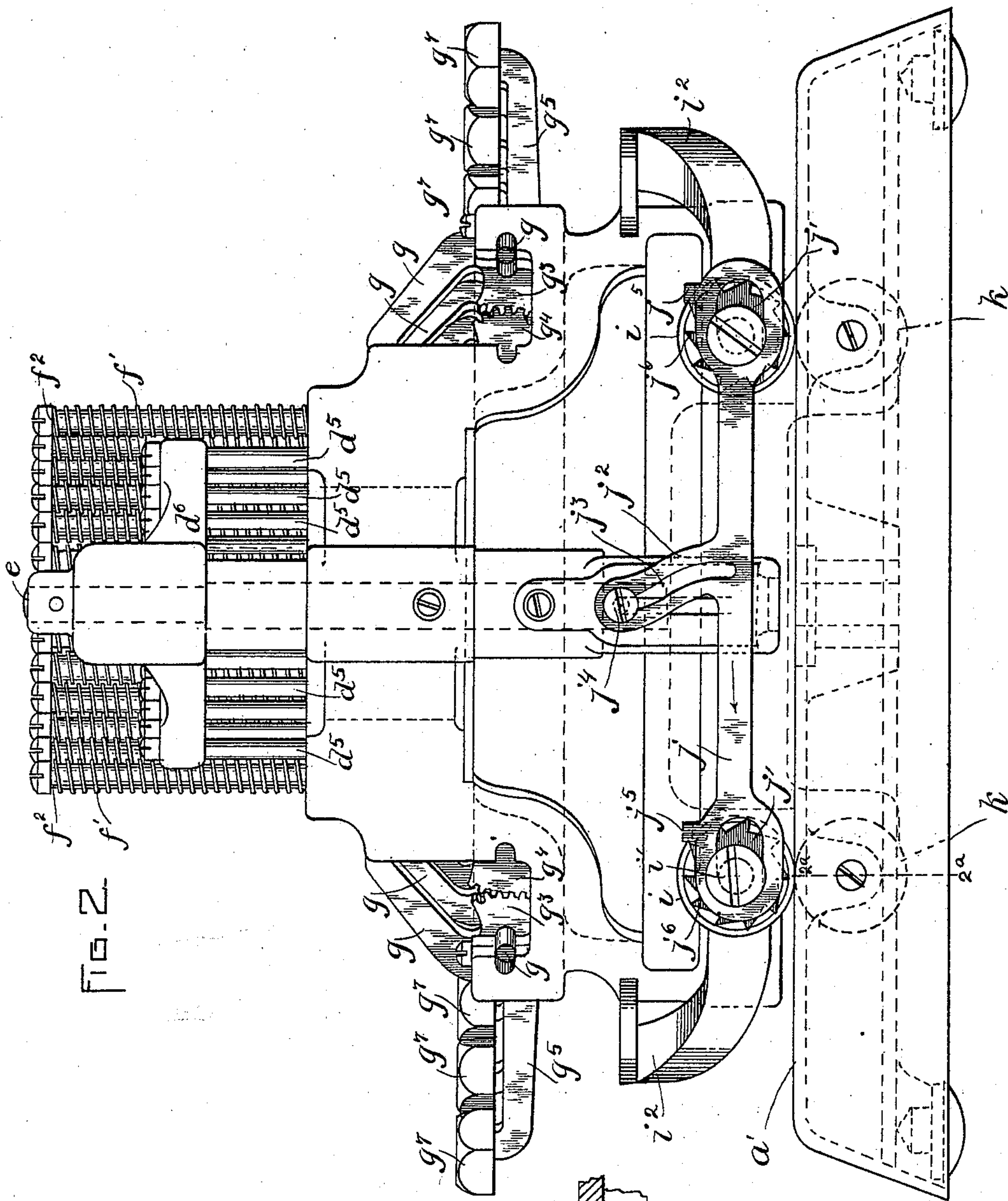


FIG. 2.

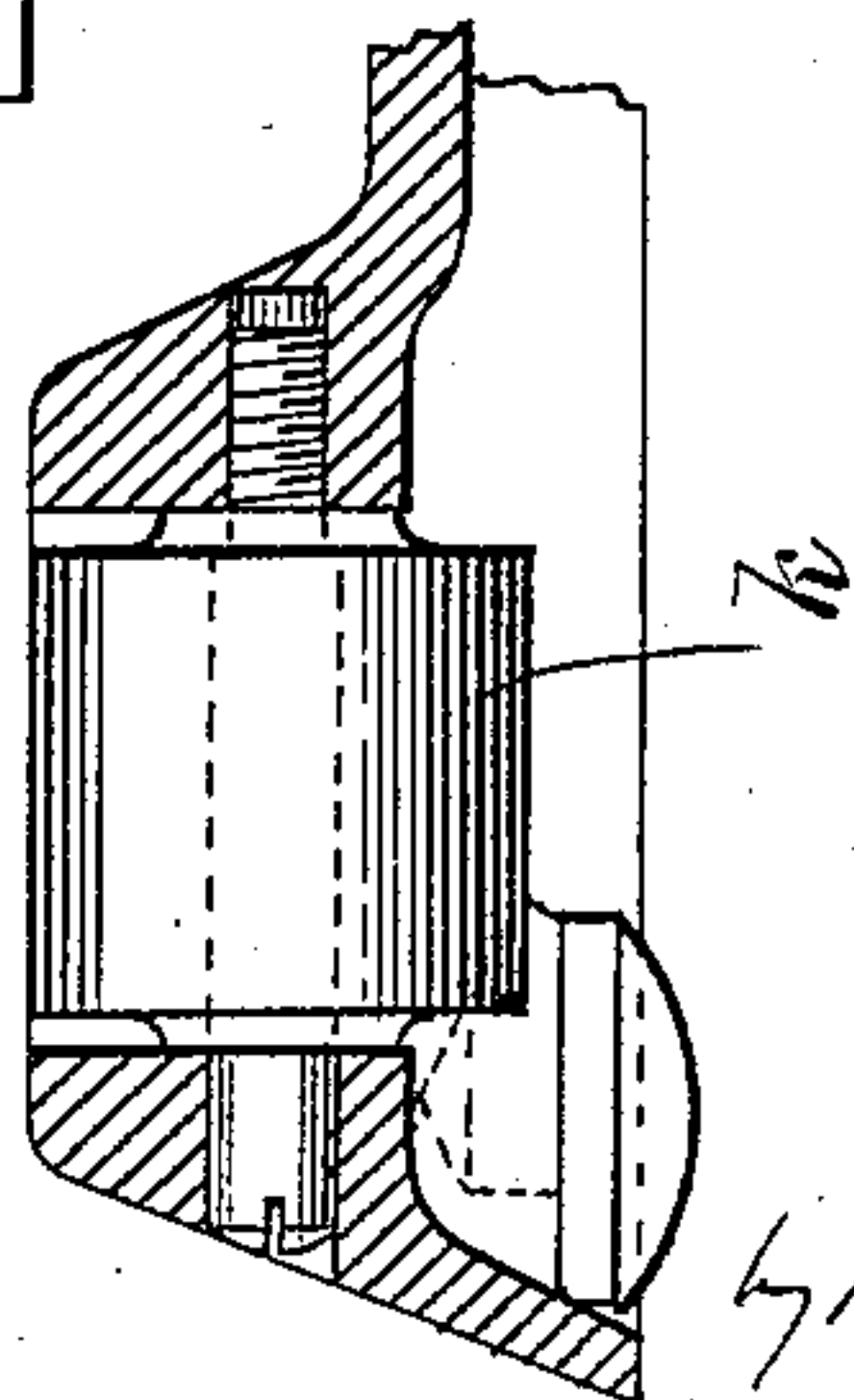


FIG. 2a.

WITNESSES:

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INVENTOR:

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(No Model.)

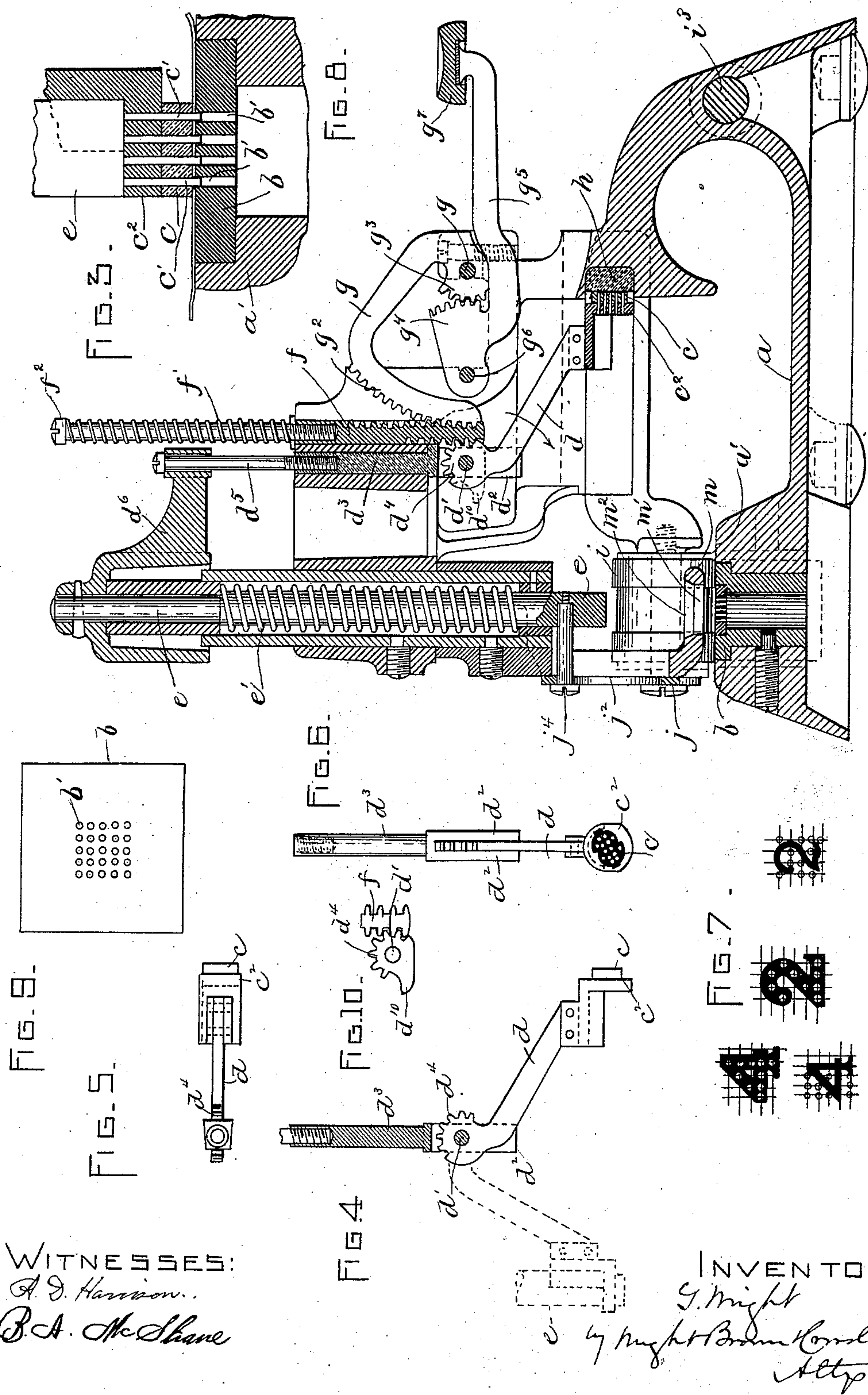
3 Sheets—Sheet 3.

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CHECK PUNCHING AND MARKING MACHINE.

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UNITED STATES PATENT OFFICE.

GILBERT WRIGHT, OF NEWTON, MASSACHUSETTS.

CHECK PUNCHING AND MARKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 485,444, dated November 1, 1892.

Application filed January 4, 1892. Serial No. 416,991. (No model.)

To all whom it may concern:

Be it known that I, GILBERT WRIGHT, of Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Check Punching and Marking Machines, of which the following is a specification.

This invention has for its object to provide a machine for simultaneously printing and punching bank-checks or other like articles of paper, so that the check may be provided with characters indicating the value of the check, &c., which characters shall be formed both by printing and punching, the printed portions of the characters making them clear and legible, while the punched portions prevent the possibility of alteration of the characters.

The invention consists, first, in a marking device comprising a printing character or surface of elastic material formed to impress or print a figure, number, or other character upon a piece of paper, and a series of punches arranged to act simultaneously with the printing-surface in forming a plurality of holes in the paper, which holes may be either in the body of the printed character or outside of the same, the holes in either case serving to prevent the possibility of alteration of the characters without detection.

The invention also consists in certain improvements in the organized machine, including a series of said marking devices, all of which I will now proceed to describe and claim.

Of the accompanying drawings, forming part of this specification, Figure 1 represents a top view of a check punching and marking machine embodying my invention. Fig. 2 represents a rear elevation of the same. Fig. 3 represents a section on line 3 3, Fig. 1. Fig. 4 represents a side view of a portion of the machine. Figs. 5 and 6 represent, respectively, a top and a front view of the construction shown in Fig. 4. Fig. 7 represents different forms of combined printing and punching devices embodying my invention. Fig. 8 represents an enlarged sectional view showing the position of one of the printing and punching devices when it is acting upon a check. Fig. 9 represents an enlarged top view of the

punch-bed or die. Fig. 10 represents a sectional view hereinafter referred to.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents a supporting-frame, the base of which is preferably of rectangular form, as shown in Fig. 1.

b represents a fixed punch and impression-bed located on the frame *a* in position to co-operate with the radially-movable punching and printing devices hereinafter described, said bed having a series of orifices *b'*, which are arranged in parallel rows extending both crosswise and lengthwise of the bed, said orifices being at uniform distances apart and serving to co-operate with the punches hereinafter described, which constitute parts of the marking devices.

The machine is provided with a series of marking devices, which are preferably one for each of the numerals, one for the sign of dollars, and one to form a dash. Each marking device is composed of a printing type or character *c*, preferably made of an elastic material, such as rubber, and a series of punches *c'*, which are small steel rods arranged to coincide with certain of the orifices in the bed *b*, as presently described. The printing character *c* and punches *c'* are affixed to a block or plate *c²* of rigid material, which is formed on or attached to an arm *d*. Said arm is pivoted at *d'* to ears *d²* on a vertically-movable plunger *d³*, which is adapted to move in a guide formed in the supporting-frame. The pivotal connection of the arm *d* to the plunger *d³* enables said arm to oscillate from the position shown in full lines to that shown in dotted lines in Fig. 4, while the vertical movability of the plunger *d³* permits the arm *d* and the printing and punching device thereon to be depressed after the said arm reaches the position shown in dotted lines in Fig. 4, the arm being then in position to cause its printing and punching devices to descend upon a piece of paper supported by the bed *b*, so that the printing character *c* prints an impression upon the paper, punches at the same time co-operating with certain of the orifices *b'* in said bed in punching holes in the check. The printing and punching characters are all constructed and operated in the same man-

ner; hence a description of the operation of one of said devices will suffice for all, it being only necessary to remark that the arms d and their pivots d' are so arranged that the swinging motion of each arm from the position shown in full lines to that shown in dotted lines in Fig. 4 will bring the printing and punching device on said arm to a central point common to all the arms—that is to say, when each arm is swung to the position indicated in dotted lines its printing character will come under a plunger e , which gives the printing and punching device its downward movement, said plunger acting on each printing and punching device that is moved to the dotted-line position.

The preferred mechanism for operating the arm d and its printing and punching device is as follows: f represents a vertically-movable rack, which is fitted in a vertical guide in the supporting-frame and is provided with two series of teeth, as shown in Fig. 3, the teeth of one series meshing with a rack-segment d^4 on the hub of the arm d . g represents a curved lever, which is pivoted at g' to the supporting-frame and is provided at its swinging end with a rack-segment g^2 , which meshes with the other series of teeth on the rack f . The lever g is provided at its hub portion with a rack-segment g^3 , meshing with a similar rack-segment g^4 , formed on or affixed to a key-lever g^5 , which is pivoted at g^6 to the supporting-frame and has at its outer end a key g^7 . The rack f is normally held in the elevated position shown in Fig. 3 by means of a spring f' , which surrounds a rod f^2 , attached to the rack f , the upper end of said spring bearing on a head at the upper end of said rod, while its lower end bears on a portion of the supporting-frame. When the rack f is in the position shown in Fig. 3, it holds the lever d , with its printing and punching device, in contact with a segmental inking pad or surface h , which is arranged to serve for all the printing and punching devices, the key-lever g^5 being held at its highest position. A depression of the key g^7 will cause a downward movement of the rack-segment g^2 and rack f , thus causing the arm d to swing in the direction indicated by the arrow in Fig. 3, the arm d and the printing and punching device thereon being thus carried to the position shown in dotted lines in Fig. 4. When the lever d reaches the position shown in dotted lines in Fig. 4, the holder c^2 strikes the lower end of the plunger e , so that no further swinging movement of the lever d can take place. The rack-segment g^2 , however, continues to descend after the stoppage of the swinging movement of the lever d , and thus causes the rack f in its continued descent to impart a downward movement to the lever d , its printing and punching character, and the plunger d^3 , to which said lever is pivoted. The plunger d^3 is connected by a rod d^5 with an arm d^6 , which is affixed to the upper end of the plunger e .

The downward movement of the plunger d^3 therefore causes the plunger e to descend and bear upon the upper surface of the holder c^2 , to which the punches and printing character of the printing and punching device are affixed. The plunger e therefore acts conjointly with the rack f , the key-lever, and intermediate devices in imparting a positive downward movement to the lever d and its printing and punching device, causing the inked printing device c to print an impression upon the check and the punches c' to perforate the same at points suitably related to the printed impression, the printing and punching being effected during the latter part of the downward movement of the key-lever. When the key-lever is released, the plunger e and the connected plunger d^3 are raised by a spring e' , and at the same time the rack f is raised by the spring f' , so that the lever d is simultaneously elevated and swung back to the position indicated in full lines in Fig. 4, the printing character being thus brought into contact with the inking-pad and inked for the next operation.

In connection with the mechanism above described I employ a feeding device adapted to feed the check after each printing and punching operation. Said feeding device comprises two feed-rolls $i i$, which are journaled upon studs $i' i'$, attached to or formed on arms $i^2 i^2$, which are mounted to swing vertically upon a stud i^3 , journaled in bearings on the supporting-frame, the rolls $i i$ being thus made vertically movable, so that they can be raised by the operator to permit the insertion of the check under them upon an elongated portion a' of the frame, which portion constitutes a check-supporting bed, with which the die-plate b is flush.

j represents a plate, which is provided with slots $j' j'$, which are movable both longitudinally and vertically upon the studs i' , which support the feed-rolls. Said plate is provided with an ear j^2 , having a cam-shaped slot j^3 , which receives a stud j^4 , affixed to the plunger e . The plate j is also provided near its ends with ears $j^5 j^5$, which are arranged to act as pawls to engage ratchets $j^6 j^6$, affixed to the feed-rolls $i i$. The depression of the plunger e causes its stud j^4 to act on the sides of the cam-shaped slot j^3 in such manner as to move the plate j in the direction indicated by the arrow marked thereon in Fig. 2, thus causing the pawls j^5 to engage the teeth of the ratchets j^6 and give a partial rotation to the feed-rolls $i i$, thus feeding the check along upon the bed a' just before the printing and punching devices act upon the check. When the plunger e rises after the printing and punching operation, the stud j^4 , acting on the walls of the slot j^3 , moves the plate j in the opposite direction and resets it for the next feed-roll turning operation, the pawls j^5 being permitted by the slots j' to rise during the backward movement of the plate j , and thus ride over one or more teeth of the ratchet j^6 , the slots j' being made es-

pecially wide to permit this motion of the ratchets.

k k represent antifriction-rollers, which are journaled in bearings in the supporting-frame and are arranged to support the portions of the check or other piece of paper that are in contact with the feed-roll, so that the rotation of the feed-rolls and the movement of the check are not resisted by friction exerted on the under surface of the check.

By reference to Fig. 1 it will be seen that one of the keys g^7 is marked "space." This key is designed to move the check or piece of paper without marking the same, and to this end the hub that is rotated by the depression of the lever g^5 , supporting said key, through the intermediate mechanism above described, is not provided with an arm d , carrying a printing and punching device, but instead is provided with a short arm or projection d^{10} , as shown in Fig. 10, which is a sectional view of a portion of the rack f that is operated by the space-key and its lever and of the hub engaged by said rack. The arm or projection d^{10} is arranged to strike a part of the plunger d^3 when the hub d^4 , on which said arm or projection is formed, has been given a partial rotation by the depression of the space-key, the hub and the rack f being thus interlocked, as it were, with the plunger d^3 , so that the further downward movement of the rack f causes the depression of the plungers d^3 and e and the operation of the feeding devices without operating a printing and punching device.

To insure the accurate register of each printing and punching device with the punch-bed b , I provide a guide m , which comprises a bracket or arm affixed to the supporting-frame by any suitable means and arranged to project over the bed b , as shown in Fig. 3. Said bracket or arm is separated from the bed by a space of sufficient height for the insertion of a check between it and the bed and is provided with an orifice m' , formed at its lower portion to exactly fit the exterior of the printing character c , the upper portion m^2 of said orifice being beveled, so that its upper end is larger than said character, the beveled sides of the opening guiding the character c during its downward movement into the lower portion of the opening, which portion insures the correct registering of the punches c' with the holes b' in the punch-bed. Each printing and punching device may have the punches arranged to perforate the paper either within or outside of the area printed upon, as shown in Fig. 7, which represents the impressions or marks that may be made in printing the numerals "2" and "4", the small circles on said figures showing the holes made by the punches. It will be noticed that in two of said figures the holes are within the body of the figure, while in the others the holes are outside of said body. In either case the holes prevent the possibility of altering the figure, as will be readily seen. It is obvious that to prevent the raising of the check the perforations, when

outside the body of the figure, must be in very close proximity thereto. The punches c' are arranged in rows corresponding to the arrangement of the holes b' in the bed b , the arrangement of said holes enabling the punches to be distributed in accordance with the form of the character which they accompany and in such manner as to insure their coincidence with the corresponding holes in the punch-bed.

The printing character c (shown in Fig. 6) is intended to represent the sign of dollars, (\$) but it will of course be understood that the other keys have characters formed to print the desired figures, &c.

The bed b may, if desired, be an imperforate bed or pad of a suitable yielding material, which will support the paper around the punches and yet yield sufficiently to permit the punches to pass through the paper. I believe it to be possible in some cases to dispense with the bed b and clamp the paper tightly around the point upon which the character is to be printed, the paper being clamped so tightly as to enable the punches to be forced through it without the co-operation of a perforated or other bed below.

It is obvious that a printing and punching device substantially such as that above described may be operated by hand or by any other suitable means. Hence I do not limit myself to its use in connection with the above-described mechanism.

I claim—

1. A check printing and marking device comprising a printing type or character, a series of punches connected with said type and arranged to penetrate the paper while the type is printing the same, said punches being formed to cut out pieces of the paper and arranged in such relation to the printing-type as to identify the holes made by their action with the character printed and prevent alteration of the latter, and a bed adapted to co-operate with the punches in cutting out pieces of the paper, as set forth.

2. The combination of a fixed punch-bed having a series of holes and a printing and punching device comprising a printing type or character and a series of punches connected with said type and movable with the latter toward and from the bed, the punches being formed and arranged to co-operate with the holes in the punch-bed in cutting out pieces from a slip of paper on said bed while the piece is being printed by the type, and thereby forming ineffaceable holes which are identified with the character printed, as set forth.

3. In a check-marking machine, the combination of a fixed punch-bed having a series of holes, a printing and punching device comprising a printing type or character and a series of punches connected with said type and adapted to co-operate with the holes in the punch-bed in cutting out pieces from a slip of paper, and thereby forming inefface-

able holes, means for forcing said device against a check on the bed, and a fixed guide arranged to insure the proper position of the printing and punching device relatively to the holes in the bed when said device is approaching the bed, as set forth.

4. In a check-marking machine, the combination of a movable support, such as a plunger d^3 , an arm or bar pivotally connected to said support and provided with a printing and punching device at its swinging end, a plunger e , connected with said support, a movable device, such as the rack f , whereby said arm may be given first an independent swinging motion and then a rectilinear motion with its support, and means for operating the said rack, as set forth.

5. In a check-marking machine, the combination of a check-supporting bed or table, a plunger movable toward and from said bed, feed-rolls arranged to move a check along the bed, a series of printing and punching devices, each having a swinging movement radially toward and from said plunger and a rectilinear movement with the plunger, means for depressing the plunger to force it downwardly with a printing and punching device, and feed-roll-operating mechanism actuated by the movements of said plunger, as set forth.

6. In a check-marking machine, the combination of a pivoted lever or bar carrying at its swinging end a printing and punching device and at its pivoted end a series of

gear-teeth, a plunger d^3 , to which said lever is pivoted, a rack-bar engaged with said teeth, a key-lever and connections between it and said rack-bar whereby the latter may be depressed, the depression of said rack-bar first swinging the lever, then giving it and the plunger d^3 a rectilinear movement, and a plunger e , connected with the plunger d^3 and moved thereby, the printing and punching device being presented to the plunger e by the swinging movement of the lever and caused to operate by the said plunger e during the said rectilinear movement, as set forth.

7. In a check-marking machine, the combination of a pivoted lever or bar carrying at its swinging end a printing and punching device and at its pivoted end a series of gear-teeth, a plunger d^3 , to which said lever is pivoted, a rack-bar engaged with said teeth, a pivoted key-lever having a gear-segment, and a pivoted intermediate lever having at one end a gear-segment engaged with the gear-segment on the key-lever and at the other end a gear-segment engaged with said rack-bar, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 24th day of December, A. D. 1891.

GILBERT WRIGHT.

Witnesses:

C. F. BROWN,

A. D. HARRISON.