

H. GOLDMAN.  
REGISTERING DEVICE.

(Application filed Jan. 7, 1901.)

(No Model.)

2 Sheets—Sheet 1.

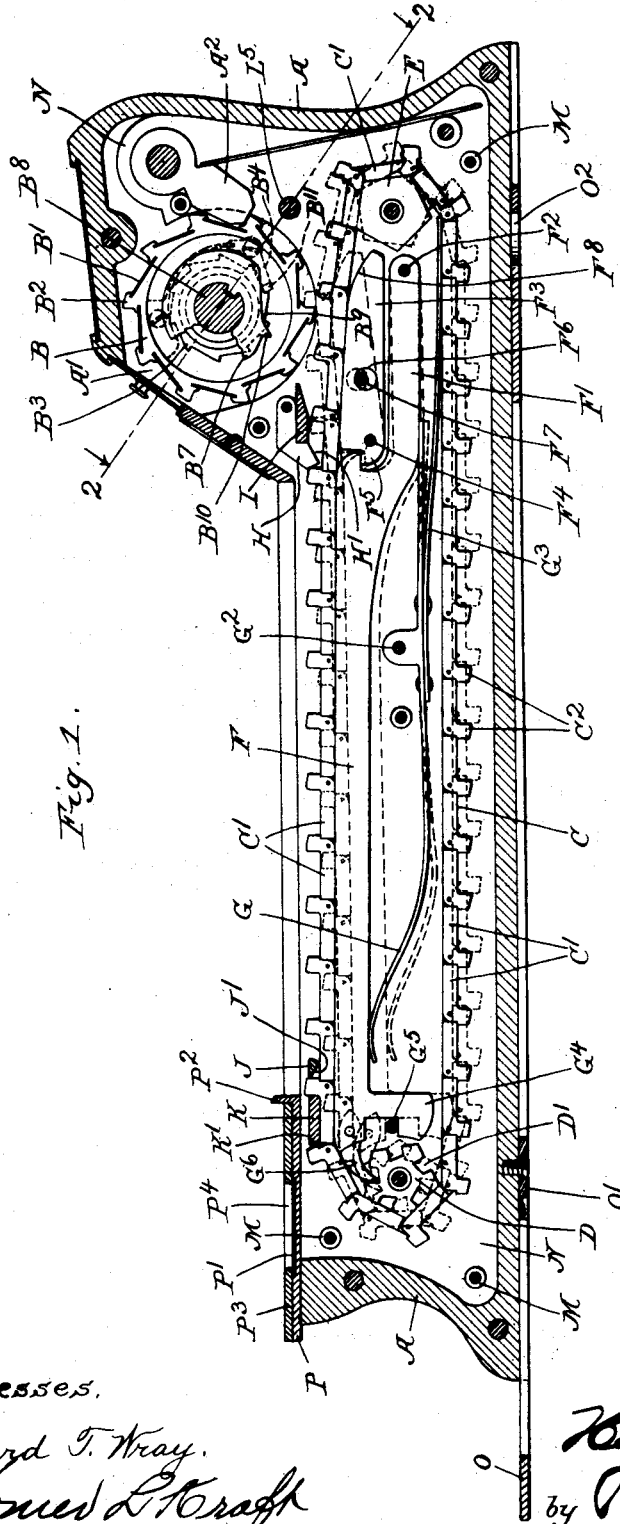


Fig. 1.

Witnesses,

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Homer L. Kraft

Inventor  
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2 Sheets—Sheet 2.

Fig. 2.

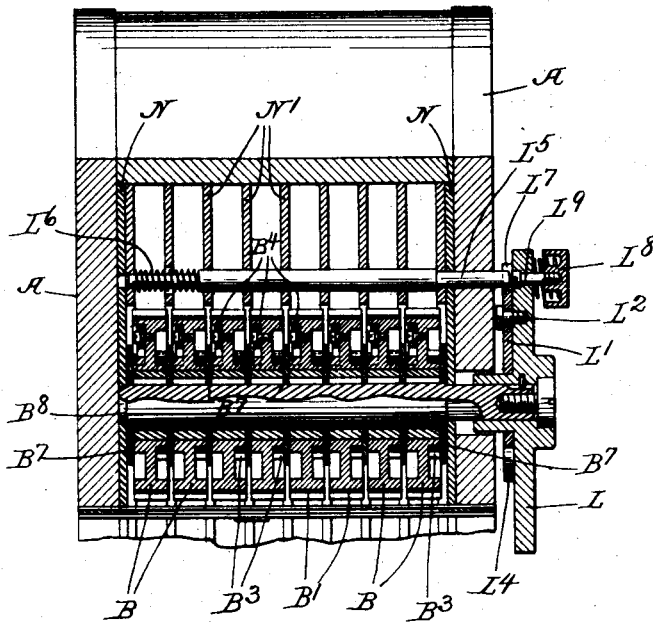


Fig. 5.

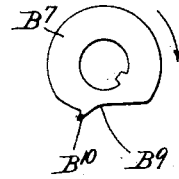


Fig. 3.

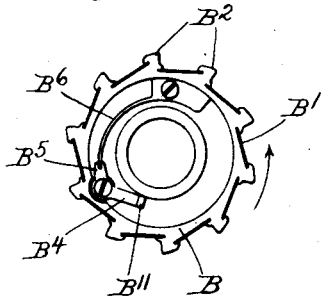


Fig. 4.

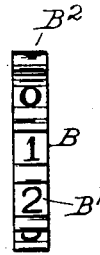
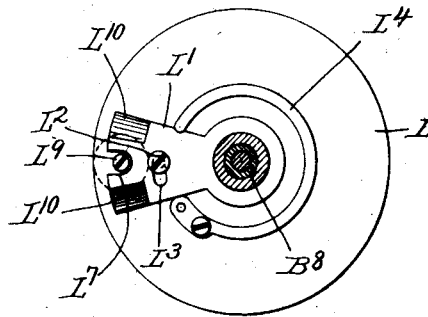


Fig. 6.



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# UNITED STATES PATENT OFFICE.

HENRY GOLDMAN, OF CHICAGO, ILLINOIS.

## REGISTERING DEVICE.

SPECIFICATION forming part of Letters Patent No. 681,781, dated September 3, 1901.

Original application filed August 1, 1900, Serial No. 35,483. Divided and this application filed January 7, 1901. Serial No. 42,313. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY GOLDMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Registering Devices, of which the following is a specification.

My invention relates to registers, and has for its object to provide a new and improved register, of which the following is a description.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a sectional view through a register embodying my invention. Fig. 2 is a section on line 2 2, Fig. 1. Fig. 3 is a view of one of the numeral-wheels of the register. Fig. 4 is a view of the periphery of the wheel shown in Fig. 3. Fig. 5 is a view of one of the carrying and resetting disks. Fig. 6 is a view of the inner face of the resetting-wheel.

Like letters refer to like parts throughout the several figures.

This application is a division of application Serial No. 35,483, filed August 1, 1900, and includes the registering device shown in said application in connection with a calculating mechanism.

It is of course evident that this register can be used in connection with many devices, and I have herein shown it in connection with a calculating-machine. I have not described in detail the calculating mechanism, as a description of such mechanism can be had by referring to my application hereinbefore described.

Referring now to the drawings, I have shown a series of numeral-wheels B, inclosed in a suitable casing A. Associated with these wheels are suitable devices for actuating them. In the present case I have shown the chain C associated with each wheel, the chains being movable and being provided with projections which engage the teeth of the wheels. A spring-pressed stop-pawl A<sup>2</sup> is associated with each numeral-wheel. These pawls prevent the backward movement of the numeral-wheels, and also insure their proper alinement. Said pawls are also preferably formed so as not to injure the plates or faces B'. The numeral-wheels B are provided on

their peripheries with a series of detachably-attached plates or faces B', separated by the teeth or projections B<sup>2</sup>. These faces are preferably made of material different from the wheels and may be attached in position in any desired manner. As herein shown, the wheels are provided with profiled recesses, into which are slipped the plates or faces B', the projections or teeth B<sup>2</sup> being provided with engaging parts which engage the plates to hold them firmly in position. These plates may be made of any desired material—such, for example, as celluloid or the like—and the figures or characters on the numeral-wheels may be painted, enameled, or otherwise affixed thereon. The casing A is provided with an opening A', through which the figures on the numeral-wheels are read. The plates B' may be completed before being attached to the wheels, and it will thus be seen can be readily slipped into place without injury to any of the parts. By this means the figures and the background upon which they are carried may be made of such different colors as to cause the figures to stand out clearly, so that they can be easily read. The plates on the different wheels may also be made of different colors, so as to form different-colored backgrounds, for the purpose of distinguishing columns and denominations. Each numeral-wheel B is recessed on both sides. In one of these recesses is the ratchet-wheel B<sup>3</sup>, which is connected to the wheel B, so as to rotate therewith, and in the other recess is located a spring-pressed pawl B<sup>4</sup>, provided with a recessed tailpiece B<sup>5</sup> for receiving the end of the spring B<sup>6</sup>, said spring being also connected with the numeral-wheel. Between the wheels B are located the carrying and resetting disks B<sup>7</sup>, connected with the shaft B<sup>8</sup>, so as to rotate therewith. These disks are provided with a depression B<sup>9</sup> and a projection B<sup>10</sup>. Each pawl B<sup>4</sup> is provided with a laterally-projecting part B<sup>11</sup>, which extends into the recess of the opposed wheel B and which normally rides upon the edge of the disk B<sup>7</sup>. This disk is of such diameter that it holds the projecting part B<sup>11</sup> out of contact with the teeth of the ratchet-wheel B<sup>3</sup> on the adjacent numeral-wheel, but permits it to engage one tooth when it reaches

the depression B<sup>9</sup>. It will thus be seen that when one of the numeral-wheels is given one complete rotation it will carry the adjacent wheel forward one tooth. Each numeral-wheel and each ratchet-wheel is provided with ten teeth, and hence this arrangement causes the numeral-wheels to be properly rotated. When the shaft B<sup>3</sup> is rotated, the projections B<sup>10</sup> of the carrying and resetting disks engage the pawls B<sup>4</sup>, so as to move all of the numeral-wheels back to the zero-point. The shaft B<sup>3</sup> passes through the casing and is provided with some suitable controlling means. As herein shown, said shaft is provided with a resetting-wheel L, rigidly connected therewith. This resetting-wheel is provided with some suitable holding mechanism for holding it against rotation while the machine is being used. As herein shown, this resetting-wheel is provided with a movable piece L', preferably mounted upon the hub of the wheel L. This movable piece is connected to the wheel by means of a screw or the like L<sup>2</sup>, which passes through an enlarged opening L<sup>3</sup> in the movable piece, so as to allow it a limited movement with relation to the wheel. A spring or the like L<sup>4</sup> is connected with the wheel L and bears against the movable piece L', so as to normally hold it against the screw L<sup>2</sup>. Some suitable engaging device is connected with the casing A or some stationary part and is adapted to engage the movable piece L', so as to hold it against rotation. Any desired construction for this purpose may be used. As herein shown, a movable lock-pin L<sup>5</sup> is located in the casing and is provided with a spring L<sup>6</sup>, which normally moves it outwardly. The movable piece L' is provided with a suitable opening L<sup>7</sup> to receive the end of this lock-pin, as shown in Fig. 6. Some suitable means is provided for disengaging the lock-pin from the movable piece L'. Any suitable construction for this purpose may be used, and as herein shown I provide the resetting-wheel with a spring-actuated push-button L<sup>8</sup>, which has a projecting part L<sup>9</sup>, adapted when the push-button is pressed to move the lock-pin out of engagement, as shown in Fig. 2. The movable piece L' is provided on each edge with beveled faces L<sup>10</sup>, which permits it to easily ride upon the end of the lock-pin L<sup>5</sup> when rotated in either direction, so that said lock-pin may pass into the opening L<sup>7</sup>. This lock-pin is provided with a suitable stop which limits its outward movement, the parts being arranged so that it will be stopped before it projects far enough to engage the face of the resetting-wheel. By having a spring-actuated or elastic intermediate part between the resetting-wheel and the holding mechanism therefor the shaft carrying the numeral-wheels is free to move a short distance when a predetermined pressure is applied thereto, the spring moving it back again when the pressure is released. This feature is of great

importance in reducing the pressure necessary to operate the numeral-wheels. If, for example, the numeral-wheels are moved to a position where several of them show the figure "9" through the opening in the casing, a further manipulation of the machine necessitates the simultaneous movement of all of these wheels. Under these conditions the pressure applied to the chain must be sufficient to overcome the frictional resistance of all of the wheels. This often requires quite a good deal of force. If, however, the construction shown in Fig. 6 is used, the parts can be so adjusted that the shaft B<sup>3</sup> will itself move slightly when the pressure applied to the chain is somewhat greater than is necessary to rotate any one wheel, and thus all the wheels will be rotated simultaneously. This may therefore be accomplished with much less force than would be necessary to rotate all of said wheels independent of the shaft, and the strain upon the parts is thus greatly reduced. It will further be seen that by this means the chains can always be operated by a substantially uniform pressure, regardless of the number of nines to be carried over. The reason for this yielding or dipping of the shaft or arbor when a series of nines are being carried over will be made clear by referring to Fig. 1. It will be remembered that there is associated with each wheel one of the disks B<sup>7</sup> and that all of these disks are connected with the shaft or arbor, so as to rotate therewith. When the numeral-wheel is in a position to expose a "9" through the opening in the casing, the pawl B<sup>4</sup> and its projecting part B<sup>11</sup> are in the position shown in this figure, the projecting part B<sup>11</sup> engaging one of the teeth on the ratchet-wheel B<sup>3</sup>, connected with the associated numeral-wheel. It will be seen that the next move of the numeral-wheel carrying the pawl B<sup>4</sup> will cause the projecting part B<sup>11</sup> to ride along the depression B<sup>9</sup> and up the incline over the projection B<sup>10</sup>. This engagement produces considerable resistance to the movement of the parts, and this resistance is reduced by the yielding of the shaft or arbor. When two or more nines are to be carried over, the parts are so arranged that the friction at this point causes the arbor to dip or yield, thus moving the disks and the projections B<sup>10</sup> slightly and changing the incline, as it were, so as to permit the projecting parts B<sup>11</sup> to readily pass the projections B<sup>10</sup>. The pressure is then relieved and the arbor automatically returns to its normal condition. It will thus be seen that this construction produces a simultaneous yielding or dipping of all the disks and greatly reduces the internal friction and yet permits the arrangement of the parts in a small space, so as to produce a compact machine.

I have shown in detail a particular construction embodying my invention and have illustrated it as used in connection with a particular mechanism. It is of course evident that

the device may have various uses and may be changed in many particulars. I therefore do not limit myself to the construction shown.

I claim—

5 1. A numeral-wheel for registers, comprising a wheel proper provided with a series of projecting teeth, a series of plates or faces carrying the characters and adapted to be inserted between the teeth after the wheel is  
10 formed.

2. A registering device, comprising a series of numeral-wheels movably mounted upon a shaft, means for independently rotating said wheels, a connecting device adapted to connect the wheels together when they are in a predetermined position, a holding device for holding the shaft against rotation, and an elastic connection between said holding device and the shaft, whereby the shaft is free  
15 to give when a predetermined pressure is applied thereto.

3. The combination with a shaft of a series of disks mounted thereon so as to rotate therewith, a holding device for holding said shaft  
25 against rotation, a yielding device for the shaft, which yields when a predetermined pressure is applied to the periphery of said disks, so as to produce a simultaneous yielding or dipping of said disks.

4. A registering device, comprising a series of numeral-wheels movably mounted upon a shaft, a ratchet-wheel connected with each numeral-wheel so as to rotate therewith, a disk associated with each ratchet-wheel and connected with the shaft so as to rotate therewith, a pawl connected with each numeral-wheel and adapted to ride on the periphery of the associated disk, so as to be normally out of engagement with the ratchet-wheel, said  
30 35

disk provided with a depression which permits the pawl to engage the ratchet-wheel when opposite said depression, and means associated with said shaft which permit it to yield when two or more pawls are to be simultaneously moved past said depression.  
40 45

5. A registering device, comprising a series of numeral-wheels movably mounted upon a shaft, a resetting-wheel connected with said shaft, a movable piece attached to said resetting-wheel, so as to have a limited movement with relation thereto, and a spring interposed between said wheel and movable piece.  
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6. A registering device, comprising a series of numeral-wheels movably mounted upon a shaft, a resetting-wheel connected with said shaft, a movable piece attached to said resetting-wheel, so as to have a limited movement with relation thereto, a spring interposed between said wheel and movable piece, and a stationary holding device adapted to engage  
55 60 said movable piece so as to hold it against rotation.

7. A registering device, comprising a series of numeral-wheels movably mounted upon a shaft, a resetting-wheel connected with said shaft, a movable piece attached to said resetting-wheel, so as to have a limited movement with relation thereto, a spring interposed between said wheel and movable piece, a stationary holding device adapted to engage said  
65 70 movable piece so as to hold it against rotation, and means for disengaging the holding device when it is desired to reset the mechanism.

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Witnesses:

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