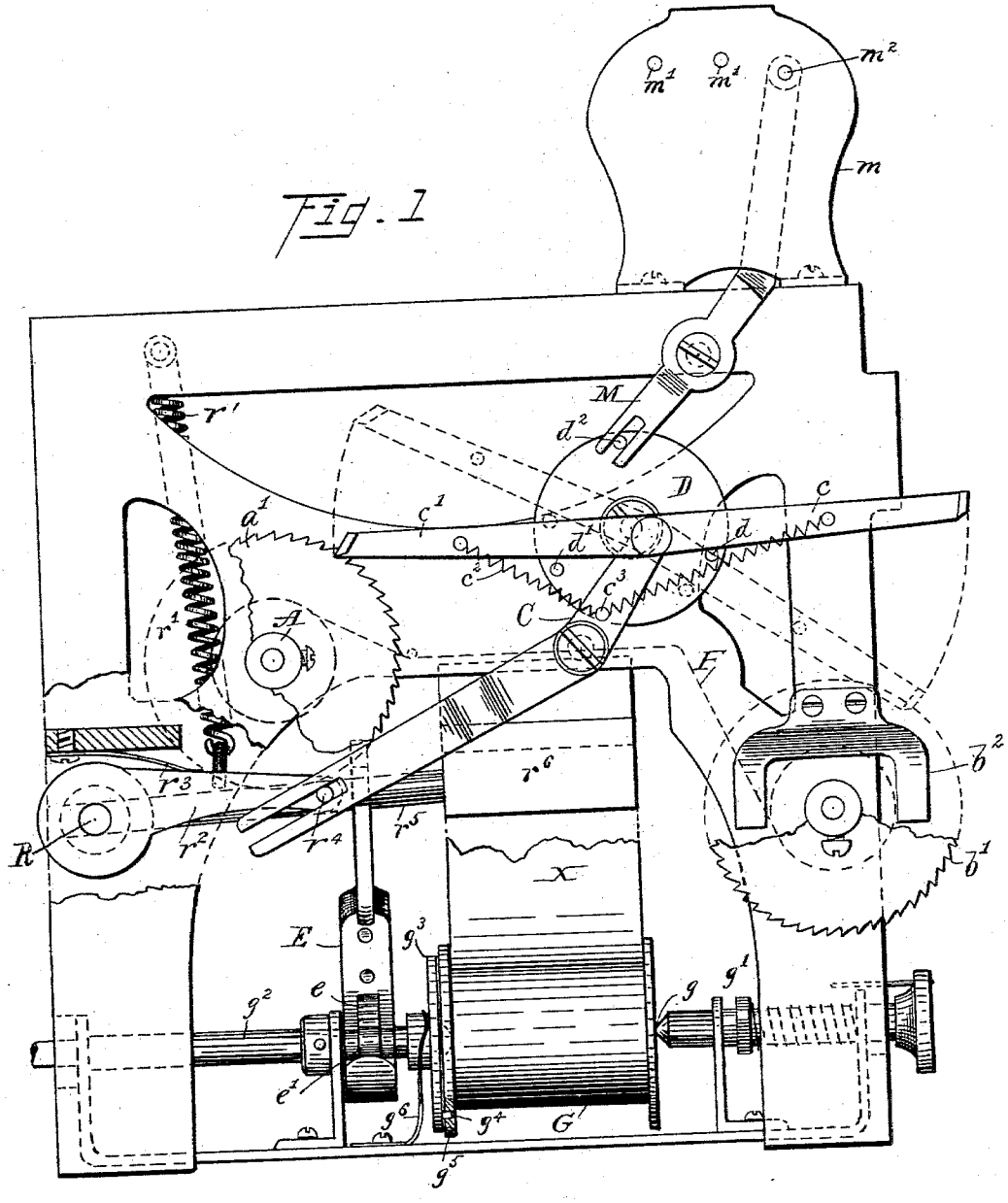
(No Model.) 3 Sheets—Sheet 1.

G. W. HEENE.

PRINTING MACHINE.

No. 569,826. Patented Oct. 20, 1896.

Fig. 1



Witnesses.
L. Griswold
J. E. Erf

Inventor.
George W. Heene
By his attorney
E. L. Thurston

3 Sheets—Sheet 2.

(No Model.)

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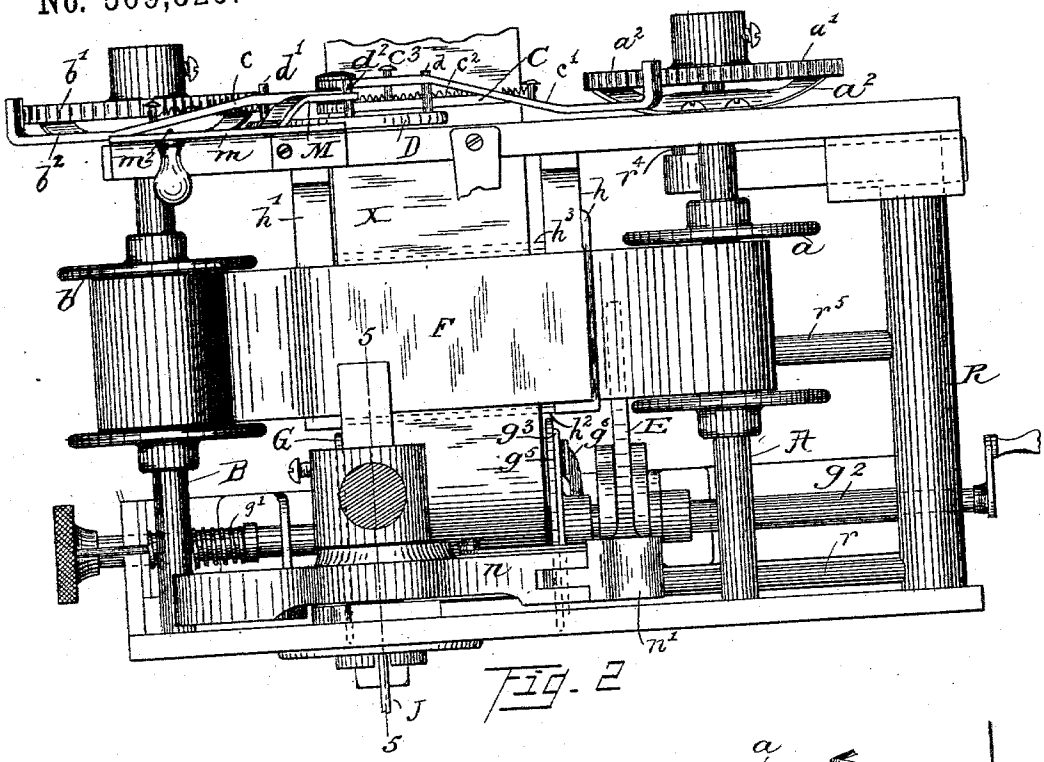

Fig. 2

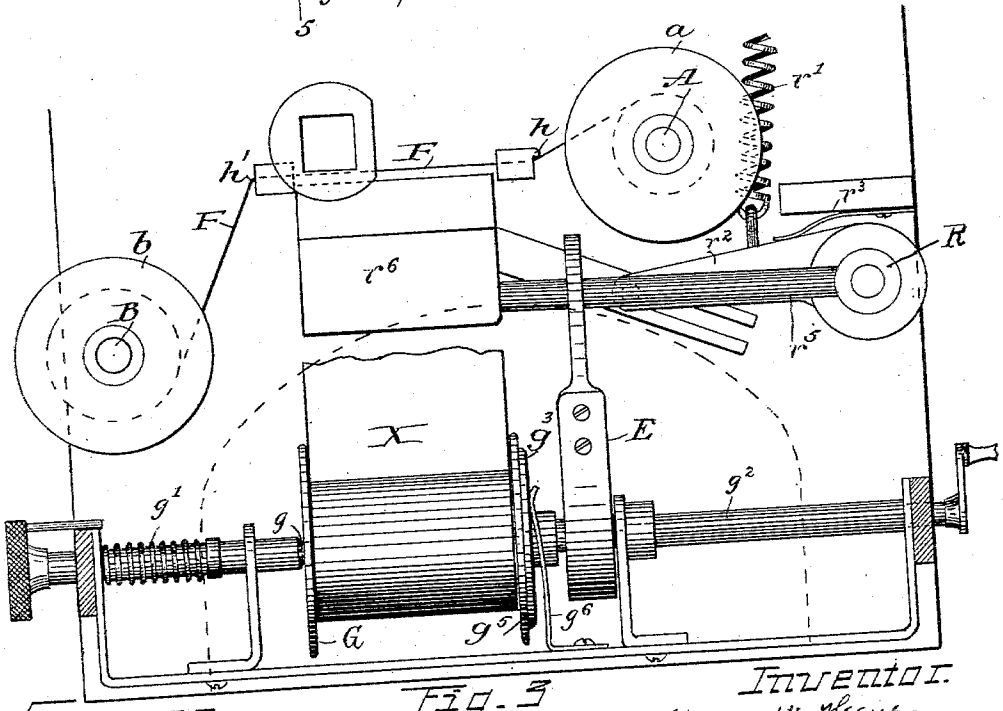

Fig. 3

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(No Model.) 3 Sheets—Sheet 3.

G. W. HEENE.

PRINTING MACHINE.

No. 569,826. Patented Oct. 20, 1896.

Fig. 5

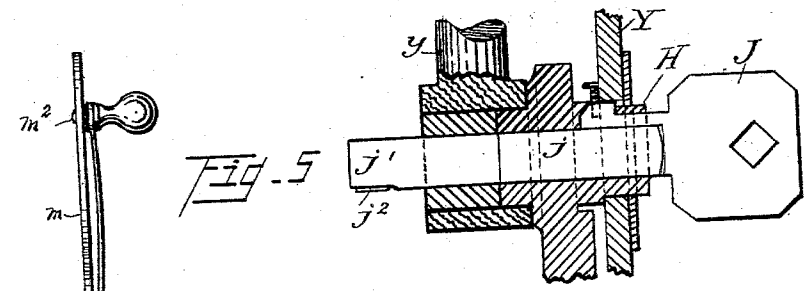
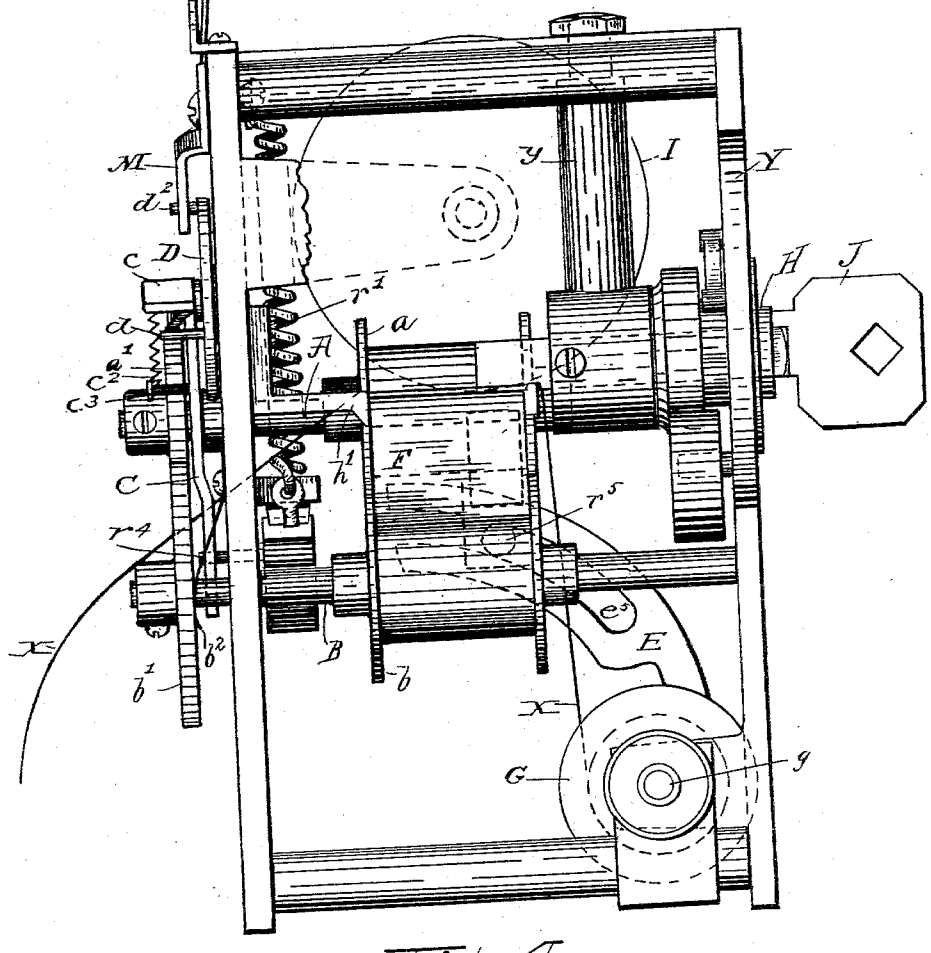


Fig. 4



Witnesses.
J. E. Erf

Inventor.
George W. Heene
By his attorney
E. L. Thurston

UNITED STATES PATENT OFFICE.

GEORGE W. HEENE, OF CLEVELAND, OHIO, ASSIGNOR TO THE CLEVELAND TIME REGISTER COMPANY, OF SAME PLACE.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 569,826, dated October 20, 1896.

Application filed October 1, 1895. Serial No. 564,338. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. HEENE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Printing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention is particularly applicable to time-registering machines which are operated by keys and organized to print upon a paper tape, the figures indicating the times when operated; but the invention is susceptible of use with any kind of printing-machines using an inking-ribbon.

The main purpose of the mechanism embodying my invention is to draw the inking-ribbon along slowly in either direction. Another purpose is to draw along evenly the paper tape which receives the impressions.

The invention consists in the construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a rear elevation of part of a time-registering machine containing my invention. Fig. 2 is a plan view. Fig. 3 is a front elevation of the lower part of the machine. Fig. 4 is an end elevation; and Fig. 5 is a vertical sectional view on line 5 5, Fig. 3, of the mechanism with which the key directly engages.

Referring to the parts by letter, A and B are two transverse shafts upon which are respectively secured the inking-ribbon spools a and b. On the rear ends of these shafts are respectively secured the ratchet-wheels a' and b', to one of which the power is applied to turn the corresponding spool, with the result of winding the ribbon thereon and drawing it from the other spool. Springs a^2 and b^2, secured to the frame or other fixed support, press against the respective ratchet-wheels and act as brakes. The ends of the ribbon F are wound upon both spools, and the ribbon extends and lies between the type and paper. The ribbon passes over the fixed guide-bars h' h, whereby it is held in proper relation to the type and paper.

In the machine illustrated in the drawings the type are upon the printing-wheels I (indicated by the circle in Fig. 4) and upon the key J. The paper is in the form of a tape, which is drawn over the guide-bars h^2 h^3 and wound upon the spool G. The impression is made by the operation of the hammer i^6. So much of the mechanism as is above explained is of the common and well-known construction, and is shown and described merely for the purpose of illustrating the operation of the parts constituting the invention.

A lever C is pivoted to a suitable point between the two ratchets a' and b'. To the upper end of this lever are pivoted two pawl-arms c and c', which are adapted to engage, respectively, with the said ratchets. Springs c^2 exert their power to draw the pawl-arms toward the ratchets. A single coil-spring c^2 may be employed for this purpose, as shown in the drawings, wherein the spring is shown to be attached at its ends to said pawl-arms, while its middle part engages beneath a pin c^3 on the lever C. Pivoted to the frame of the machine is a rocker D, having two pins d d', which lie beneath the pawl-arms c c', respectively. This rocker is shown in the form of a disk, but the form is immaterial. The pins are so placed that when the rocker is rocked in one direction one pin, d', for example, engages with the pawl-arm c' and lifts it out of engagement with the ratchet a', while the other pin, d, moves down and permits the pawl-arm c to engage with the ratchet b', and when the rocker is moved in the opposite direction the action of the pins is reversed. The lever C is rocked back and forth once every time an impression is made, whereby when the pawl-arm c is engaging with ratchet b' said ratchet and the spool b on the same shaft are moved a short distance upon their axis in the direction to wind up the ribbon thereon. When the pawl-arm c' is engaging with the pin d', the ratchet a' and spool a are turned with a like result. Obviously the ribbon may be drawn in either direction.

In order to set the rocker D, I employ a lever M, pivoted to the frame of the machine and having a forked lower end which embraces a pin d^2 on the rocker. The upper arm of the lever M is made of spring-steel, and it

passes up in front of a plate m, having three holes m', into either of which a pin m^2 on the lever-arm may enter. The movement of this lever moves the rocker, and the engagement of the pin m^2 in either of the holes m' serves to fix it. When the pin is in the middle hole m', both pawl-arms are held away from the ratchets.

The spool G is mounted between two tapered points on the ends, respectively, of a longitudinally-movable shaft g (which is forced by the spring g' toward said spool) and on shaft g^2, which is mounted in fixed bearings. A disk g^3, secured on the shaft g^2, is provided with a pin g^4, which enters a hole in the flange g^5 of the spool. A spring g^6 presses against the disk g^3 and acts as a brake.

Secured to the shaft g^2 is a ratchet e, and loosely mounted on the shaft is a lever E, carrying a pawl e', which engages with the ratchet. The upper end of the lever is slotted, and an arm r^5 on the rock-shaft R enters the slot and operates the lever every time an impression is made, thereby drawing the paper tape along and winding it upon the spool.

The machine in connection with which my invention is shown in the drawings is a time-registering machine which is operated by a key. I do not, however, intend to make claim in this application to any part of said machine except the mechanism for feeding the ribbon. I will, however, briefly describe the operation of the said machine in order that a clear understanding may be had of the manner in which my present invention operates. The key employed consists of a square shank j and an end piece j', which is swiveled to said shank, said key being substantially like the key which is described at length in my prior patent, No. 530,340, dated December 4, 1894. On the under side of the key is a distinguishing-number j^2, which will be printed on the paper tape X every time the machine is operated. The square shank j of the key enters a square hole in a hub H, which is mounted at its ends in suitable bearings in the front plate Y of the frame and a depending fixed hanger y. An arm n is rigid with this hub, and on one end of this arm is a tripping-piece n', which engages with an arm r, which is rigidly connected with the rock-shaft R. When the key is turned, it turns the hub H, wherefore the arm n moves and presses down upon the arm r, thereby rocking the rock-shaft R until the tripping-piece n' slips off of the end of said arm r. A spring r', which is connected with another arm r^2 of the rock-shaft and with a fixed part of the machine-frame, then returns said rock-shaft to its normal position, said arm r^2 striking a buffer-spring r^3, which stops it and takes up the jar. A pin r^4, projecting from the arm r^2, enters a slot in the lower end of the lever C, whereby motion is transmitted from said arm r^2 to said lever. A third arm r^5, which is rigid with the said rock-shaft R, carries the impression-hammer, by means of which the figures on the type-wheel and key are printed upon the paper tape. This arm passes through a slot e^5 in the arm E, whereby motion is at the same time communicated from the rock-shaft R to the paper-spool G, as before described.

Having described my invention, I claim—

1. In a printing-machine, the combination of two ribbon-spools, and ratchet-wheels rigidly connected thereto, with a pivoted lever, mechanism for operating it, two spring-actuated pawl-arms pivoted to said lever, a rocker, three pins secured to the rocker, two of said pins being adapted to engage with the pawl-arms, an operating-lever having a slot which receives the third pin in the rocker, substantially as and for the purpose specified.

2. In a printing-machine, the combination of two ribbon-spools, and two ratchet-wheels rigidly connected thereto, a pivoted lever, having a slot, a rock-shaft, an arm secured thereto, a pin on the arm entering said slot in the lever, two spring-actuated pawl-arms pivoted to said lever, a rocker, two pins carried thereby which are adapted to engage with the pawl-arms, and means for holding the rocker in different positions, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. HEENE.

Witnesses:
E. L. THURSTON,
J. E. ERF.