

No. 848,546.

PATENTED MAR. 26, 1907.

A. E. GRAPP.
ADDRESSING MACHINE.
APPLICATION FILED MAY 28, 1906.

2 SHEETS—SHEET 1.

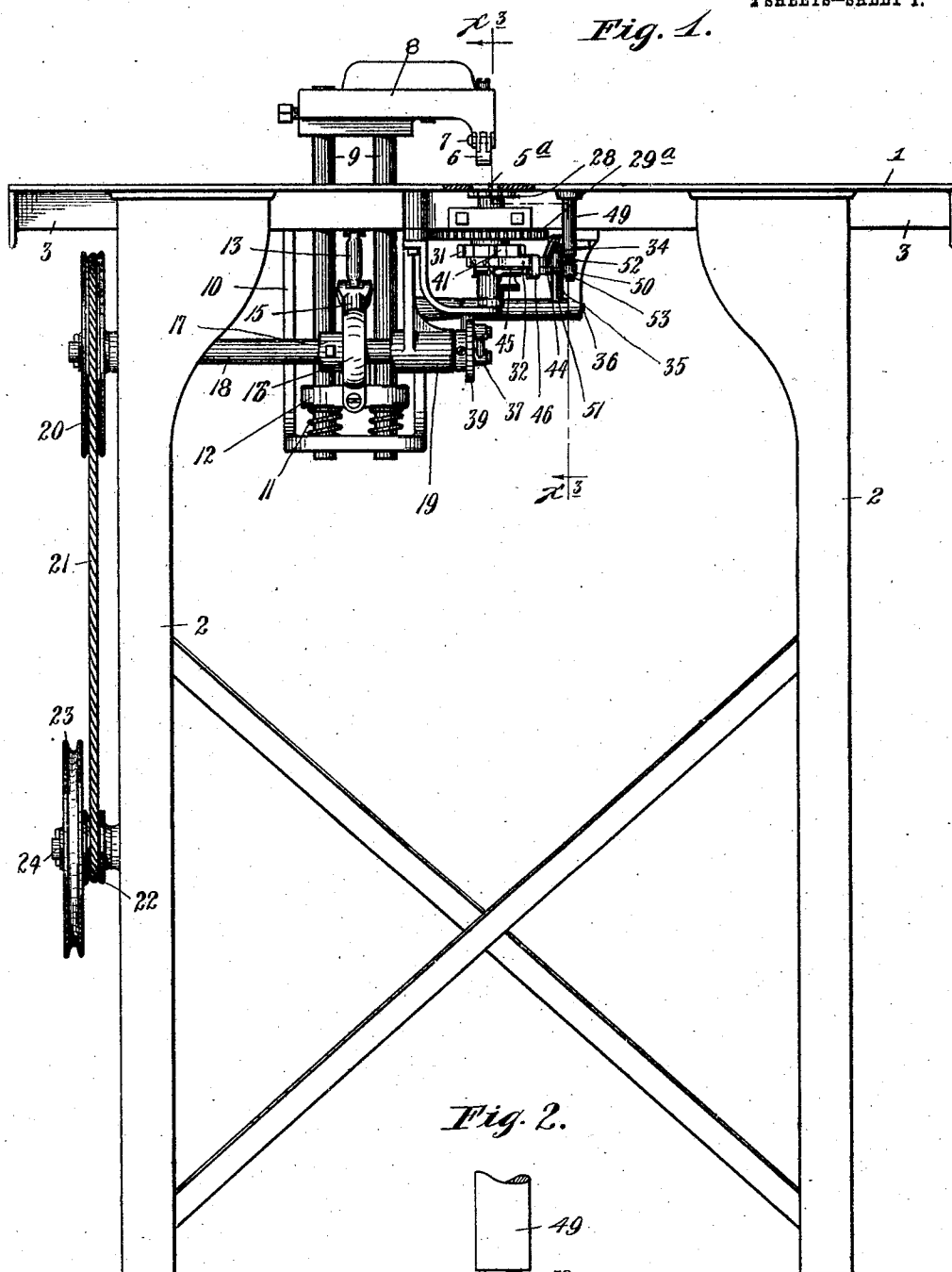
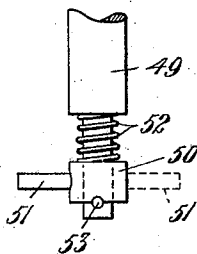


Fig. 2.



Witnesses.

E. W. Jepsen.

H. D. Kilgore

Inventor.

Albert E. Grapp.

By his Attorneys.

William M. Muehler

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2 SHEETS—SHEET 2.

Fig. 3.

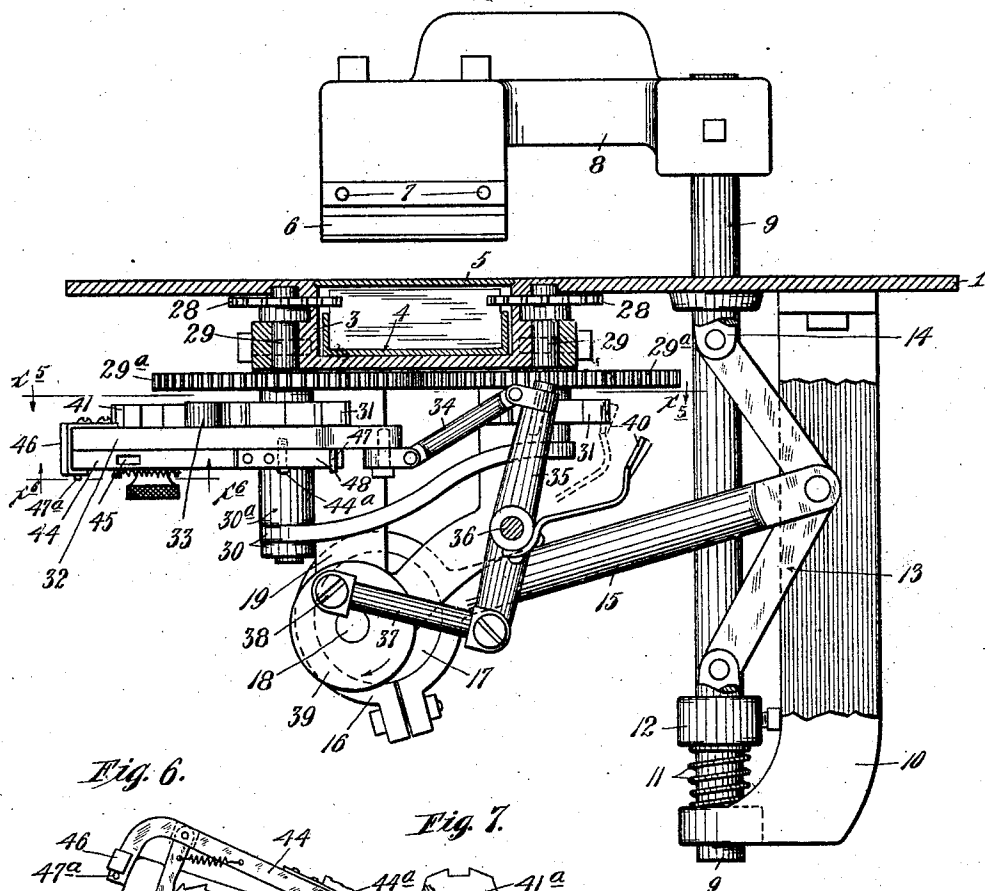


Fig. 6.

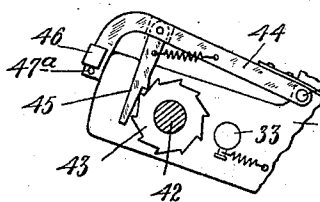


Fig. 7.

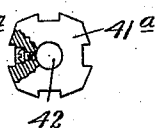


Fig. 5.

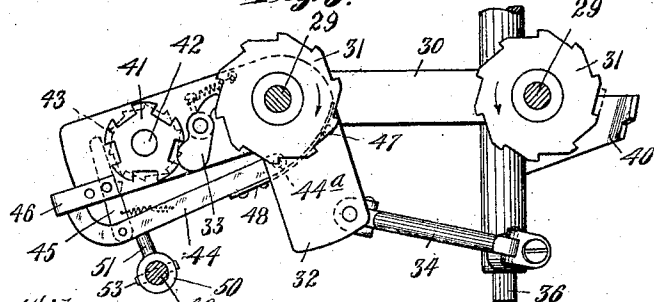
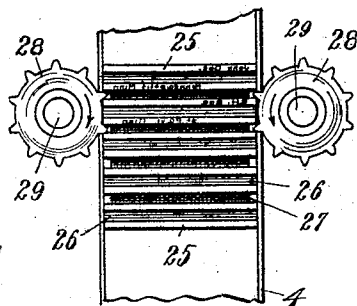


Fig. 4.



Witnesses: 49
E. W. Jefferson.

H. D. Kigore.

Inventor:
Albert E. Grapp.
By his Attorneys.

Williamson & Merchant

UNITED STATES PATENT OFFICE.

ALBERT E. GRAPP, OF MINNEAPOLIS, MINNESOTA.

ADDRESSING-MACHINE.

No. 848,546.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed May 28, 1906. Serial No. 319,019.

To all whom it may concern:

Be it known that I, ALBERT E. GRAPP, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Addressing-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 has for its object to provide a simple and highly efficient machine for addressing envelopes, papers, magazines, and other articles and for printing names, addresses, or other matter on bills, monthly statements, and the like.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The improved machine is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in front elevation, showing the improved machine. Fig. 2 is a detail in elevation, showing an adjustable pawl-actuated pin forming part of the feed-intercepting device. Fig. 3 is a view, on an enlarged scale, taken on an irregular line $x^3 x^3$ of Fig. 1, some parts being broken away. Fig. 4 is a plan view showing a part of a galley and feed device therefor. Fig. 5 is a horizontal section taken on the line $x^5 x^5$ of Fig. 3. Fig. 6 is a horizontal section looking upward and taken on the line $x^6 x^6$ of Fig. 3, some parts being broken away; and Fig. 7 is a detail in plan with some parts broken away, showing a modified form of a pawl-tripping disk.

The numeral 1 indicates a smooth-top table, which, as shown, is supported by leg-brackets 2. Extending longitudinally thereof and set below the table-top is a channel-shaped runway 3, which, as shown, is formed integral with the table-top. A long galley 4 is mounted to slide in said runway 3. The opening formed in the table-top by the runway 3 is normally closed, except for a short distance, by a pair of longitudinally-alined slides 5, that lie flush with the table-top and work in suitable grooves formed therein. The abutting ends of the slides 5 are separated at 5^a (see Fig. 1) to afford an opening, which may be designated as the "printing-

point." Mounted directly over and adapted to move through the open space 5^a is a vertically-movable platen in the form of an elongated block 6, which, as shown, is detachably secured by screws 7 to a plunger-head 8, which in turn is rigidly secured to a pair of vertical plungers 9, mounted to work through suitable bearings in the table-top 1 and in the bearing-bracket 10, depending from said table-top. The plungers 9 and parts carried thereby are yieldingly pressed upward, as shown, by coiled springs 11 on the lower ends of said plunger, which springs are pressed between the lower portion of the bracket 10 and a tie-bar 12, which rigidly connects the lower ends of the said two plungers. The lower member of a toggle-lever 13 is pivoted to the intermediate portion of the tie-bar 12, and the upper member of said toggle is pivoted to a bearing-lug 14, depending from the table 1. The arrangement is such that when the toggle 13 is buckled, as shown in Fig. 3, the platen 6 will be raised, and when the said toggle is straightened out the said platen will be forced downward to the printing-point in the space 5^a, between the ends of the slides 5.

The intermediate joint of the toggle 13 is pivotally connected to an eccentric-rod 15, having at its other end an eccentric-strap 16, that works on an eccentric 17, carried by a counter-shaft 18, journaled in one of the leg-brackets 2 and in a bearing-bracket 19, that depends from the table-top 1. At its outer end the counter-shaft 18 is, as shown, provided with a grooved pulley or sheave 20. A round driving-belt 21 runs over the sheave 20 and over a smaller driving-sheave 22, which latter is, as shown, secured to rotate with a larger driving-sheave 23, the two sheaves 22 and 23 being loosely mounted on a stud 24, that projects from the adjacent leg-bracket 2. In practice power may be transmitted to the running parts of the machine by a belt (not shown) and which will run over the sheave 23. Any suitable driving mechanism may, however, be employed for transmitting motion to the counter-shaft 18.

The lines of type which print the addresses are preferably cast in the bars or linotypes 25, and these are secured within the galley 4 in parallel arrangement, being spaced apart by spacing-strips 26 and 27. Usually two linotypes 25 are required to print a name and the address thereof, and these sets or pairs, as shown, are separated by the spacing-strips

27, while the spacing-strips 26 are placed between the members of a given pair or set.

The feed mechanism for the galley preferably comprises a pair of sprocket-like wheels 28, located on opposite sides of the galley and above the same, with their teeth arranged to engage the pairs of linotypes 25, as best shown in Figs. 3 and 4. These feed-wheels 28 are secured to short vertical shafts 29, mounted in suitable bearings on the sides of the galley-runway 3, also in a spider-like bearing-bracket 30, secured to said galley-runway. The two shafts 29 carry large intermeshing spur-gears 29^a, that cause the two shafts to rotate synchronously in reverse directions—to wit, in the directions indicated by the arrows marked on Fig. 4. Each shaft 29 also carries a ratchet-wheel 31, the purposes of which will presently appear.

A vibratory pawl-carrier, which, as shown, is in the form of a bell-crank lever 32, is pivoted on a sleeve 30^a of the bearing-bracket 30 for movements around the axis of the left-hand shaft 29, directions being taken with respect to Fig. 3. One arm of this bell-crank 32 carries a spring-pressed driving-pawl 33, that coöperates with the left-hand ratchet-wheel 31. The other arm of said bell-crank is pivotally connected by a jointed link 34 to the upper end of a lever 35, that is intermediately pivoted to a stud 36 on the bearing 19. The lower end of this lever 35 is connected by a link 37 to the crank-pin 38 of a disk 39, carried at the inner end of the counter-shaft 18.

With the driving connections so far described the pawl-carrying bell-crank 32 will be given one complete vibration for each rotation of the shaft 18 and will cause the driving-pawl 33, acting on the coöperating ratchet-wheel 31 and through the gears 29^a and wheels 28, to move the galley a distance equal to the space between adjacent pairs of type-bars or linotypes 25.

The lever 35 carries a lock-arm 40, the free end of which is arranged to engage the teeth of the right-hand ratchet-wheel 31 (see Figs. 3 and 5) at the completion of the galley movement, and thereby hold the said galley in a stationary position, with the desired linotypes positioned under the platen 6 while the imprint or impression is being made.

The mechanism above described is all that is required when the machine is to be used to print but once with any given linotype or pair or group of linotypes representing one name and address. In many kinds of work, however, such as making out duplicates addresses or printing in duplicate any other matter, means should be provided for causing the linotype or linotypes representing a given name and address or like matter to remain stationary while the platen 6 is given several complete downward and return movements.

To the above end a notched pawl-tripping disk 41 is mounted on the pawl-carrier or bell-crank 32 in a position for action on the free end of the spring-pressed driving-pawl 33. This tripping-disk is, as shown, secured to a stub-shaft 42, that projects downward through the lever 32 and is provided with a ratchet-wheel 43, which ratchet-wheel has twice as many teeth as the tripping-wheel 41 has notches. A pawl-tripping lever 44 is pivoted at 44^a to the bell-crank 32, and is provided with a spring-pressed pawl 45, that acts upon the teeth of the ratchet-wheel 43. The free end of the lever 44, as shown, works loosely through a keeper-guide 46 on the projecting arm of the bell-crank 32. A leaf-spring 48, secured to the lever 44 and reacting against a pin 47 on the bell-crank 32, yieldingly forces the lever 44 away from the ratchet-wheel 43, the movement of said lever in that direction being limited by a pin 47^a in the free end thereof, which normally engages the keeper-guide 46.

A post 49 depends from the table 1 in the vicinity of the free end of the lever 44. On the reduced lower end of this post 49 is a collar 50, that is provided with a radially-projecting pin 51. A coiled spring 52 on the reduced end of said post 49 yieldingly presses the collar 50 downward against a pin 53 in the lower end of said post. Said collar 50 is provided with notches that are adapted to engage the pin 53 and yieldingly holds the said collar in either of the two positions shown in Fig. 2.

When the tripping-pin 51 is set in a position shown in Fig. 5, it stands in position to engage the free end of the lever 44 when the bell-crank 32 is given a vibratory movement in a direction toward the said post 49. When the said lever 44 is engaged with the tripping-pin 51, its movement is intercepted, while the bell-crank 32 and the ratchet-wheel 43 and other parts carried therewith are given further movement in a direction toward the said post 49. This causes the pawl 45 to impart one step of rotary movement to the pawl-tripping disk 41.

As long as the tripping-disk 41 stands in the position shown in Fig. 5 the driving-pawl 33 will operate on the coöperating ratchet-wheel 31 once for each complete vibration of the bell-crank 32, or, otherwise stated, once for each complete rotation of the shaft 18 and for each downward movement of the platen 6. When the tripping-disk 41 is given one step of rotary movement from the position shown in Fig. 5, one of its projecting lugs or portions will act upon the pawl 33 and throw the same into an inoperative position, so that the pawl-carrier or bell-crank 32 will then make one idle operative movement while the platen 6 is being given a second downward movement. The next step of rotary movement of said tripping-disk

41 will, however, permit the pawl 33 to return to its operative position. (Shown in Fig. 5.) Hence it is evident that under the condition just described the platen 6 will be given two downward movements for each step of forward movement of the galley and type-bars contained therein, so that duplicate printing of names and addresses or other matter may then be carried out. In this duplicate printing the same bill-head or other article may be moved once for each duplicate impression or print, or two such articles, one after the other, may be presented at the printing-point. The downward movement of the platen 6 is sufficient to tightly force the article to be printed against the type-face of the bars or linotypes 25. The timing of the parts is such that the galley will be given its movement while the platen 6 is being forced upward or making its return movement.

As above described, the galley-feeding device operates directly upon the type-bars or linotype-slugs that are held within the galley. This feature I believe to be broadly new. By such arrangement the said type-bars or linotype-slugs will always be brought to the proper printing-point and into proper alinement with the platen regardless of the relative positions of the said type-bars or slugs with respect to the galley. This is a result that is practically impossible of attainment in a device wherein the galley-feeding mechanism operates directly upon the galley itself.

For some work, such as the printing of gas-bills or statements, triplicate impressions or prints of name and address are required. For this purpose I provide a tripping-disk 41^a of the form shown in Fig. 7. In this modified form of the tripping-disk each duplicate segment thereof involves one notch and two flat surfaces or projecting points, and the said high points or portions represent two steps of movement of the said disk, while the said notch represents but one step thereof. This tripping-disk may be substituted on the shaft 42 for the tripping-disk 41 before described, and the mechanism previously described will properly actuate the same.

Of course when the machine is used to print but once for each impressing movement of the platen 6 the tripping-pin 51 on the depending post 49 is turned into an inoperative position. (Shown by dotted lines in Fig. 2.)

The machine above described has been put in actual use for commercial purposes and in practice has been found highly efficient for the purposes had in view.

I claim as my invention—

1. The combination with a type-galley and a cooperating platen, of means for reciprocating said platen, and means for imparting intermittent feed movement to said galley, said latter means comprising a pair of toothed

wheels arranged to operate on type-bars or linotypes held in said galley, gears connecting said toothed wheels for synchronous movements in reverse directions, a ratchet-wheel movable with one of said toothed wheels, and a vibratory pawl-carrier having a driving-pawl operative on said ratchet-wheel, substantially as described.

2. The combination with a galley and type-bars or linotypes held therein, of a platen overlying the type-faces of said type-bars, means for imparting intermittent printing movement to said platen, and means for imparting intermittent feed movement to said galley, said latter means comprising a pair of toothed wheels on opposite sides of the galley, engageable with the ends of said type-bars, gears connecting said toothed wheels for synchronous movements in reverse directions, a ratchet-wheel rotatable with one of said toothed wheels, and a crank-driven vibratory pawl-carrier provided with a driving-pawl cooperating with said ratchet-wheel, substantially as described.

3. The combination with a type-galley and a platen, of means for imparting printing movement to said platen, and means for imparting intermittent feed movement to said galley comprising a ratchet-wheel, a vibratory pawl-carrier, a driving-pawl on said carrier cooperating with said ratchet-wheel, a rotary pawl-tripping device mounted on said pawl-carrier, and provided with a ratchet-wheel, a spring-pressed lever mounted on said pawl-carrier and provided with a pawl acting on the ratchet-wheel of said rotary pawl-tripping device, and a relatively fixed abutment or stop with which said spring-pressed lever engages under vibratory movements of said pawl-carrier, to throw said pawl-tripping device intermittently into and out of action on the said driving-pawl, substantially as described.

4. The combination with a type-galley and a cooperating platen, of means for imparting intermittent printing movement to said platen, and means for imparting intermittent feed movement to said galley, said latter means comprising a ratchet-wheel, a vibratory pawl-carrier, a driving-pawl on said carrier cooperating with said ratchet-wheel, a notched pawl-tripping disk rotatively mounted on said pawl-carrier and provided with a ratchet-wheel, a spring-pressed pawl-equipped lever mounted on said pawl-carrier and provided with a pawl that is operative on the ratchet-wheel of said tripping-disk, and a relatively fixed abutment or stop operative on said pawl-equipped lever, under vibratory movements of said pawl-carrier, to cause said pawl-tripping disk to intermittently throw said driving-pawl into and out of action, and which abutment or stop is movable into and out of operative position, substantially as described.

5. The combination with a type-galley and means for imparting an intermittent feed movement thereto, of a plunger provided with a platen, and means for intermittently
5 moving said platen comprising a toggle-lever, a shaft provided with an eccentric, and a rod connecting said eccentric to said toggle-lever, substantially as described.

6. The combination with a type-galley and
10 a cooperating platen, of means for moving one of said parts with respect to the other to produce the print, and means for imparting an intermittent feed movement to said galley comprising a ratchet-wheel, a cooperating

pawl-carrier, a pawl on said carrier engageable with said ratchet-wheel, and an automatically-actuated pawl-and-lever device for automatically rendering said pawl operative and inoperative on said ratchet-wheel at predetermined intervals, substantially as described.

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

ALBERT E. GRAPP.

Witnesses:

MALIE HOEL,
F. D. MERCHANT.