No. 690,695. Patented Jan. 7, 1902

E. CHESHIRE.

MAIL MARKING MACHINE.

(Application filed Apr. 9, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

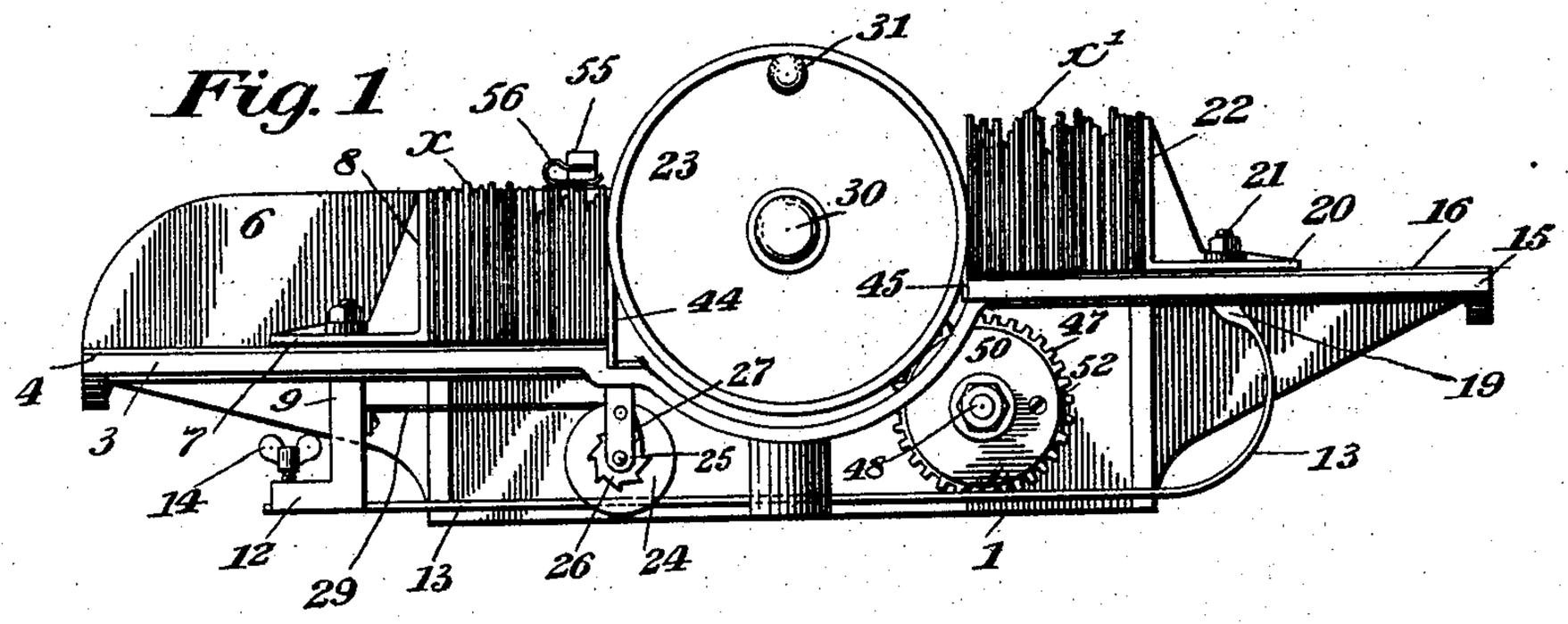


Fig. 2

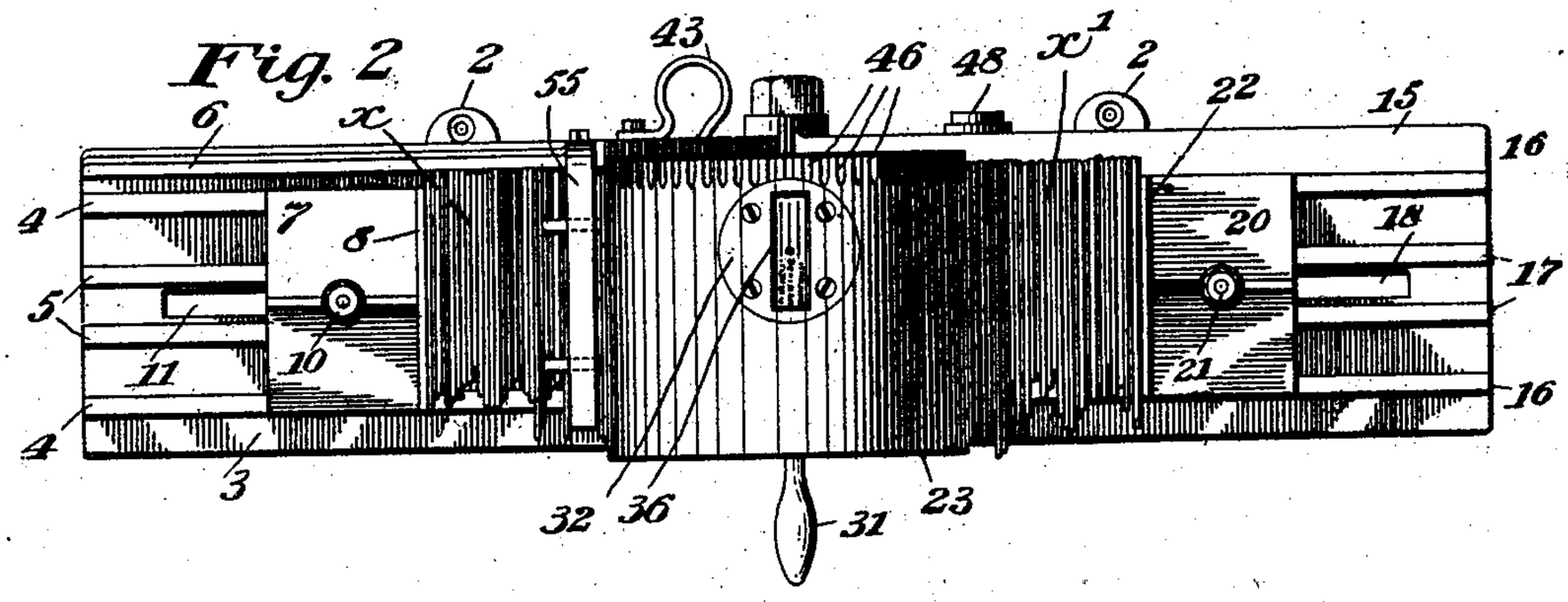
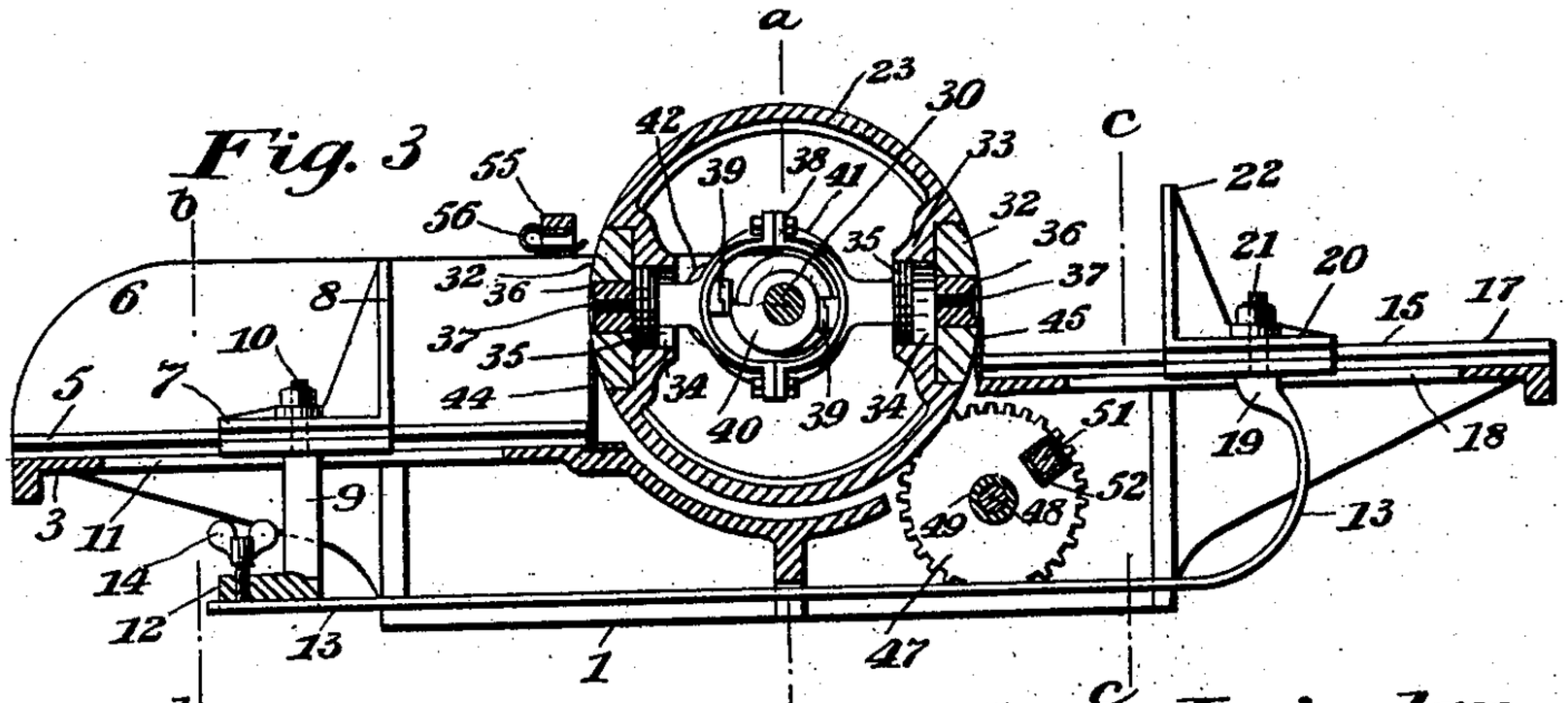


Fig. 3



Witnesses
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Inventor
Edward Cheshire,
by John Elias Jones,
his attorney.

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Fig. 4

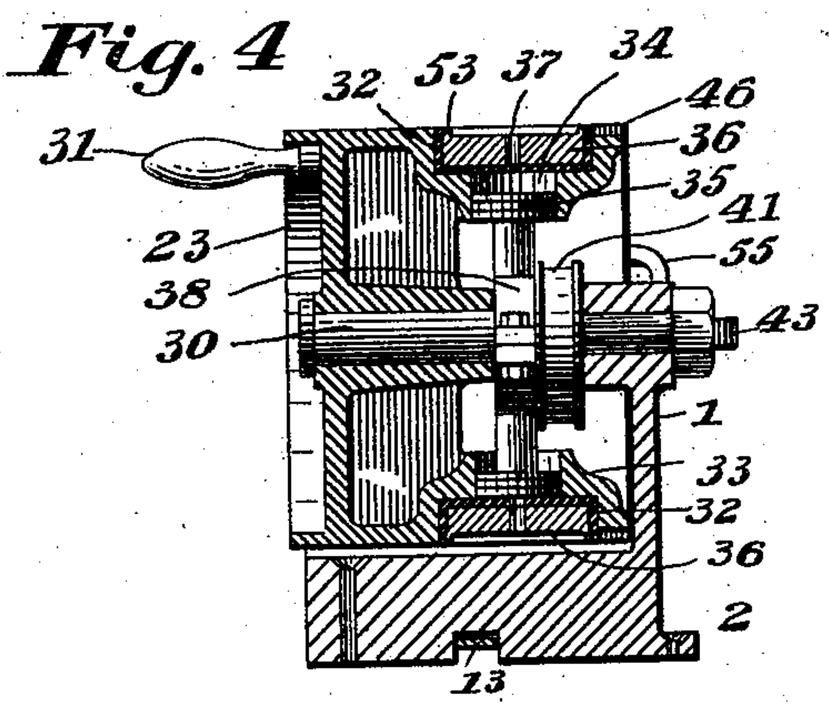


Fig. 5

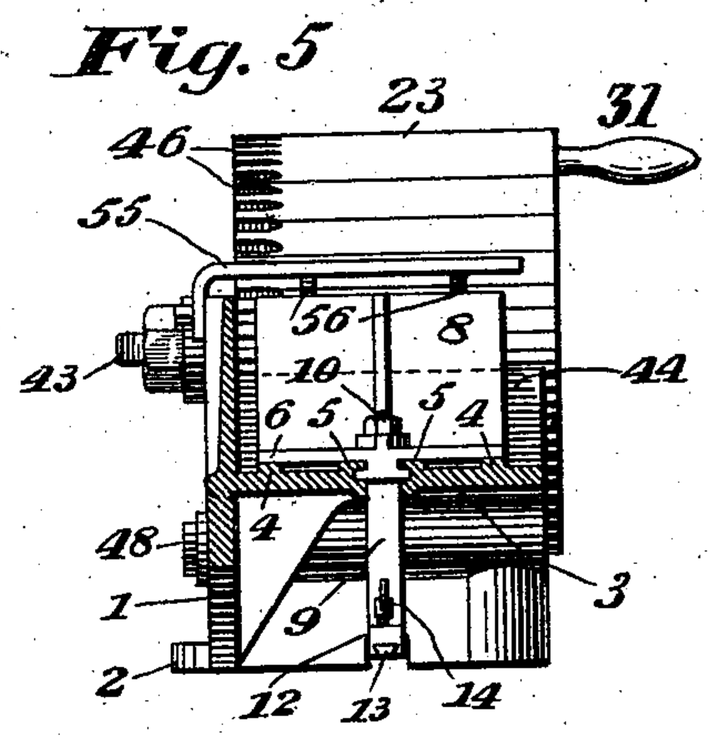


Fig. 7

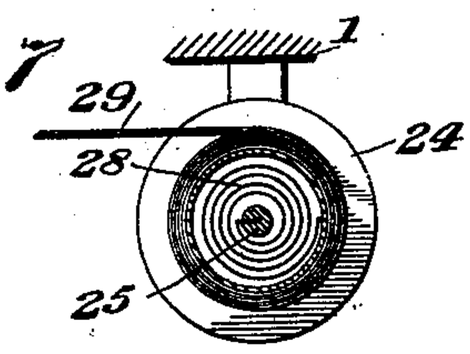


Fig. 6

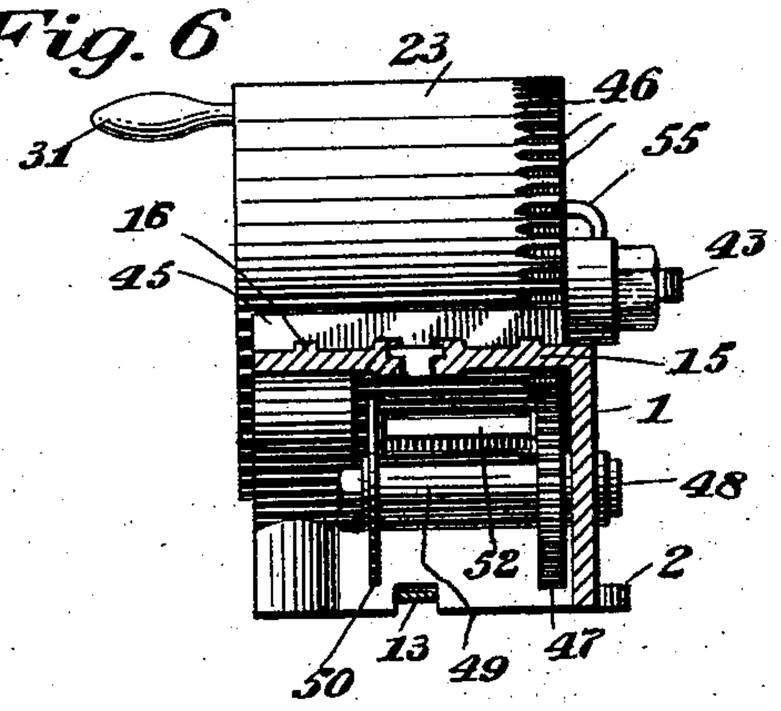


Fig. 8

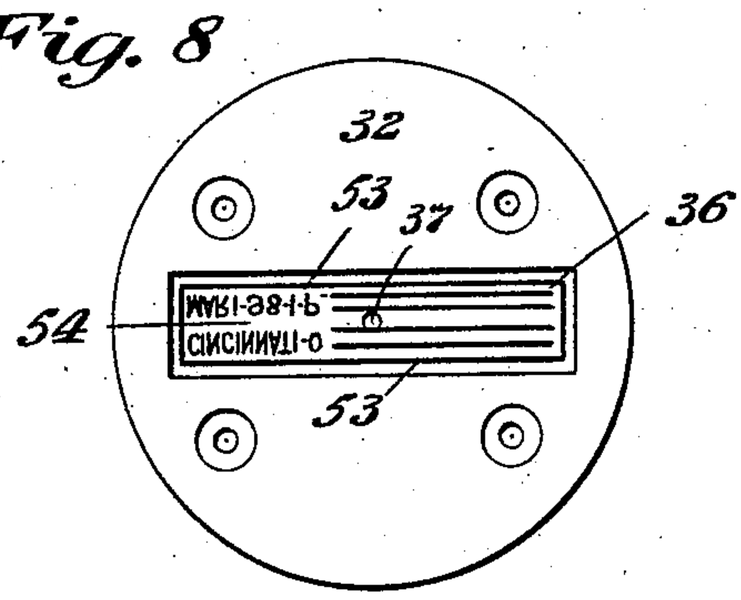


Fig. 10

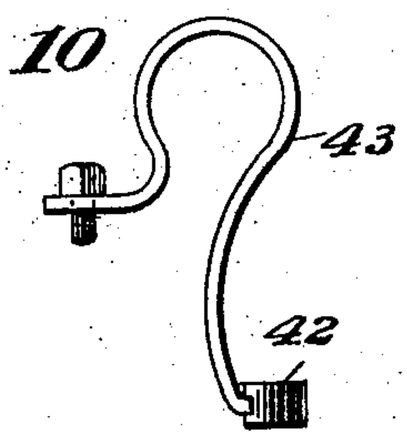
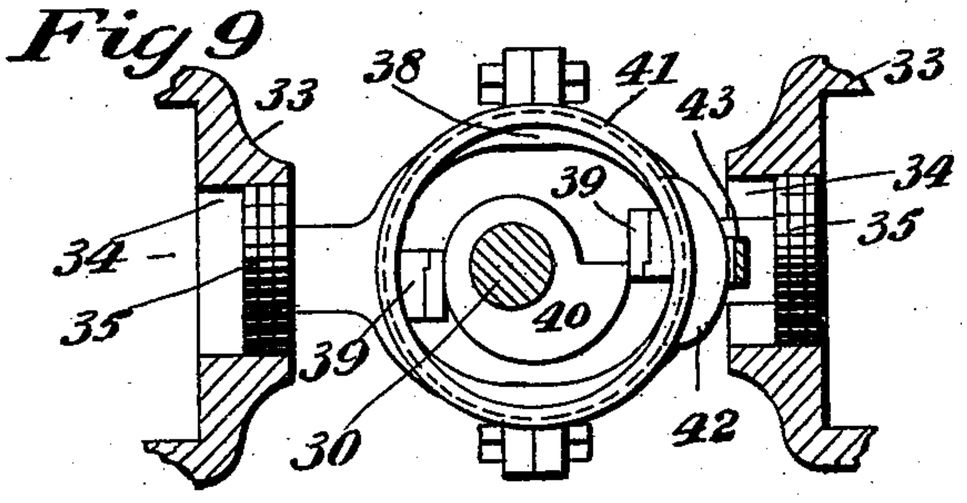


Fig 9



Witnesses
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his attorney.

UNITED STATES PATENT OFFICE.

EDWARD CHESHIRE, OF CLEVELAND, OHIO, ASSIGNOR TO THE WHITE SEWING MACHINE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

MAIL-MARKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 690,695, dated January 7, 1902.

Application filed April 9, 1898. Serial No. 676,984. (No model.)

To all whom it may concern:

Be it known that I, EDWARD CHESHIRE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Mail-Marking Machines; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in machines for marking and canceling stamps upon mail-matter, and has for its object to provide a machine of this character of a simple and inexpensive nature which shall be strong and compact in construction and shall be adapted for use in a rapid and efficient manner for applying postmarks and canceling the stamps without danger of mutilation of the letters or other mail-matter being worked.

The invention consists in a machine of this character having a segregating device for segregating the letters or other pieces of mail-matter to be worked and means for marking said letters, &c., or canceling the stamps thereon while they are held by said segregating device.

The invention also contemplates certain novel features of the construction, combination, and arrangement of the several parts of the improved mail-marking machine, whereby certain important advantages are attained and the device is made simpler, less expensive, and is otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In order that my improvements may be the better understood, I have shown in the accompanying drawings a machine constructed according to my invention, in which—

Figure 1 is a side elevation of the machine, and Fig. 2 is a plan view thereof. Fig. 3 is a longitudinal section taken vertically through the machine. Fig. 4 is a vertical section taken transversely through the machine in the plane indicated by the line *a a* in Fig. 3. Fig. 5 is a vertical transverse section taken through the machine in the plane indicated by the line *b b* in Fig. 3. Fig. 6 is a transverse vertical section in the plane indicated by line *c c* in Fig. 3. Fig. 7 is an enlarged fragmentary sectional view showing the spring-actuated device for pressing the letters or other mail-matter toward the segregating device. Fig. 8 is a view showing the canceling or marking device upon an enlarged scale. Fig. 9 is an enlarged fragmentary sectional view showing the means for actuating the pistons of the segregating devices. Fig. 10 is an enlarged view showing the spring employed for shifting the pistons.

As shown in the drawings, the machine is constructed with a frame or bed-plate 1 of suitable form and dimensions, having perforated lugs 2, in order that it may be secured upon a table in position for convenient use. The bed-plate or frame is constructed at one end with a flat horizontal table or holder 3, having raised parallel guide faces or ribs 4, formed lengthwise along its upper surface, and also provided with undercut guides 5 5, centrally arranged between and parallel with said ribs 4 and adapted to receive a slide block or plate 7, the upper part of which rests upon said ribs 4 and is provided with a press-plate 8, projecting up at angles to it and adapted to engage the letters or other matter held upon the table or holder 3, as indicated at *x*. The frame is formed with a vertical wall 6, which rises above the table or holder 3, and against which the stamped ends of the letters *x* bear. The slide-block 7 is held upon the upper end of a bracket 9, which extends up through a slot 11, formed lengthwise in the table between the guides 5 and has a threaded upper portion passing through a perforation in said slide block or plate and provided with a nut 10, as clearly shown in the drawings. The bracket 9 is L-shaped, and its lower horizontal arm 12 is provided with a dovetailed groove or recess in its under side to receive one end of a tie-bar or yoke 13, the opposite side surfaces of which are beveled to fit in said dovetailed groove, (see Fig. 5,) and said arm 12 of the bracket carries a set-screw 14, by means

of which the bracket may be locked securely to said bar or yoke 13, while being capable of adjustment lengthwise along the same. The bed-plate 1 is also provided at its end opposite to the table 3 with a similar table or holder 15, also arranged in a horizontal plane, but at a higher level than the table 3, for purposes which will be hereinafter explained, and said table 15 is provided with outer longitudinal ribs 16 and inner undercut guides 17, whereon is guided a slide block or plate 20, held on the upwardly-bent end 19 of the tie-bar or yoke 13, said end 19 passing through a slot 18, formed in the table and having a threaded portion which passes through the block or plate 20 and is provided with a nut 21. The slide-block 20 has a press-plate 22 similar to the part 8 or slide-block 7, these parts being duplicates of each other, but being arranged in reverse positions upon the tables 3 and 15.

Between the tables 3 and 15 of the bed-plate is arranged a carrier or segregating device 23 for segregating the letters or other pieces of mail-matter arranged on the table 3, as indicated at x in Figs. 1 and 2, and carrying the segregated pieces over and depositing them successively upon the table or holder 15, as indicated at x' in the drawings, and said segregating device is provided with means for marking the pieces of mail-matter carried by it or for canceling the stamps thereon, the construction of which means will be hereinafter explained.

The press-plate 8 is designed for pressing the letters x upon the table 3 up against the segregating device 23, so that said letters will be held in proper position to be seized by said device for marking and canceling, and in order to impart movement to said press-plate for feeding the letters up against the segregating device as they are successively seized thereby I provide a spring-actuated feeding device (shown in Figs. 1 and 7) and comprising a drum 24, mounted on a shaft 25, held in arms depending beneath the bed-plate, in which drum is arranged, as shown in Fig. 7, a volute spring 28, one end of which is fixed to the shaft, while the other end is secured to the drum. The shaft is provided with a ratchet-wheel 26 at one side of the drum, with the teeth of which wheel engages a pawl 27, pivoted on one of the arms wherein the shaft is held. A tape or other flexible connection 29 is secured to and arranged to wind on drum 24 at one end, while its other end is connected to the bracket 9, as shown in Fig. 1. The pawl 27 by engagement with the teeth of the ratchet-wheel 26 serves to hold the shaft 25 against turning to unwind the spring 28, while permitting said shaft to be turned freely in the other direction to place the spring under increased tension, and the drum being connected by the tape 29 to the bracket 9, which carries the slide-block 7, it will be seen that the elastic tension of the spring is imparted to said slide-block and through the press-plate 8 to the letters x on table 3. Furthermore, it will be seen that when the press-plate is moved over toward the left, as the parts are shown in Fig. 1, to accommodate more letters x, placed upon the table 3, the tension of the spring will be increased, and as the letters are successively withdrawn from the table by the segregating device the tension of the spring will be gradually relaxed, so that it will be seen that the tension of the spring is made to vary in order to accommodate itself to the work to be done, and thereby the letters are held pressed against the segregating device 23 with a substantially uniform elastic force. The slide-block 20 on table 15 being connected by means of the yoke or tie-bar 13 with the slide-block 7, it will be seen that the two slide-blocks and the press-plates thereon are caused to move in unison, one receding from the segregating device as the other moves toward the same, and in this way it will be seen that upon the table 15 space is always provided to permit each letter withdrawn from the table 3 by the segregating device 23 to be deposited in the row of letters, as indicated at x', on table 15. The segregating device is so arranged as to seize the letters x on table 3 at or near the upper edge, and in the rotation of the device as the letter is carried over toward table 15 said letter will be inverted and said upper edge portion will become the lower edge portion of the letter. The table 3 is so arranged with respect to the segregating device 23 that the upper edge portions of the letters x are presented at the periphery of the segregating device, in position to be seized thereby, and, as stated above, the table 15 is arranged at a higher level than the table 3, so that the lower edge portions of the letters x' are adjacent to the periphery of the segregating device, while the upper edge portions of said letters x' are separated from the periphery of said device 23 by a space, as clearly shown in Fig. 1, adapted to permit the edge of the letter carried by the segregating device to be entered between said device and the letters x' on table 15, so that the letter held by said device may be conveniently drawn down and made to rest on the table as a part of the bunch of letters x' thereon. The adjustable connection of the bracket 9 on the tie-bar or yoke 13 permits the slide-blocks 7 and 20 to be drawn nearer together or moved farther apart, according to the thickness of the bunch of letters x placed on the table 3 before the marking is commenced, the press-plate 22 being adjusted in this position of the parts to stand closely adjacent to the periphery of the segregating device 23.

The segregating device 23 is, as herein shown, made in the form of a drum or cylinder mounted to turn on a stud or shaft 30, secured in the frame or bed-plate of the machine, and said drum or cylinder is provided with a crank-handle 31, whereby the device may be conveniently turned on said shaft or

stud. It is evident that a pulley and belt or other gearing may, however, be employed to drive said drum or cylinder from any source of power. The drum or cylinder 23 carries at diametically opposite points circular plugs 32, held by screws or otherwise in sockets 33 in the drum or cylinder, in which sockets, behind the plugs, are formed chambers 34, in which play pistons 35, connected together and arranged to move diametrically of the drum or cylinder to alternately exhaust the air from, so as to produce a vacuum in and to break said vacuum in the respective chambers 34 wherein the pistons play. The plugs 32 are also formed with marking and canceling devices 36 and with ducts or ports 37, communicating with the chambers 34 and serving to permit the formation and breaking of the vacuum therein to act upon the letters to segregate and mark the same and also to cancel the stamps thereon. The piston-rod which connects the pistons 35 together is provided with a central annular yoke or band 38, encircling the shaft or stud 30 and having diametrically opposite lugs 39, which engage opposite sides of a cam 40, fixed on the shaft or stud 30, so that as the drum or cylinder is turned endwise movement in alternately opposite directions is imparted to the piston-rod carrying the pistons 35, causing the air to be exhausted at each half-turn of the drum or cylinder from one of the chambers 34, so as to permit the vacuum thus produced to draw the letter against the canceling and marking device 36, whereby the letter is marked and segregated, and simultaneously to break the vacuum in the other chamber 34 to cause the letter held on the corresponding marking and canceling device 36 to be released. The cam 40 is so set upon the shaft or stud 30, as shown in Fig. 3, that the vacuum is produced in the chamber 34 when the corresponding device 36 is opposite the upper part of the letter x on table 3, and the vacuum is broken in the chamber 34 when the corresponding device 36 is opposite the lower part of the letters x' on the table 15. In order to insure the rapid action of the cam 40, I provide upon the piston-rod, which connects the pistons 35, an annular band or ring 41, (see Figs. 4 and 9,) which extends beyond the plane of the cam 40 and is externally grooved to receive a shoe 42, backed by a spring 43, secured to the frame 1 and made in the form shown in Fig. 10, said shoe having a socket in its rear surface to receive the end of said spring. The spring acts at each half-turn of the drum or cylinder to impart a quick endwise movement to the piston-rod to form a vacuum in one chamber 34 and to break the vacuum in the other chamber.

On the table 3 is arranged a transverse plate 44, extending tangentially to the drum or cylinder 23 and serving to hold the letters x on said table in proper erect position, and on the table 15 is arranged a similar though narrower plate 45 for a similar purpose with respect to the letters x' on said table and also to insure the proper detaching of the letters from the segregating device. The upper edges of said plates 44 and 45 are beveled to fit close against the periphery of the drum or cylinder, so as not to interfere with the proper action of the segregating device.

The drum or cylinder 23 is formed with an annular gear-face 46 at one end with which meshes a gear-wheel 47, formed on one end of an ink-pad carrier comprising a tubular body 49, turning on a stud or shaft 48, secured to the frame or bed-plate beneath the table 15 and having at its end opposite to said gear-wheel 47 a head or disk 50, between which and the adjacent faces of the gear-wheel is held a bar or rod 51, secured at its ends by screws or the like and having a pad or covering of felt or other absorbent and sufficiently-soft material, as indicated at 52, adapted to receive a supply of ink to be delivered, as the carrier turns, to the marking and canceling devices 36 of the drum or cylinder. The gearing is so proportioned that the carrier turns twice to each rotation of the drum or cylinder, so that each device 36 will be kept properly inked.

The canceling or marking device 36 is illustrated clearly in Fig. 8. As shown in said figure, the device is of an elongated form and fits in an opening in the plug 32, being formed with a raised edge wall 53, corresponding with the periphery of the drum or cylinder 23 and adapted for contact with the surface of the envelop to produce a part of the cancellation thereon, the port 37 opening within said raised edge wall so that the vacuum will be produced within the same when the piston 35 is moved. Within said raised edge wall 53 are arranged other marking and canceling surfaces 54, part or all of which may be removable, so that the date or hour of marking may be readily changed, as will be understood.

To prevent the letters x on table 3 from being disarranged by the action of the pneumatic segregating device, I arrange above the table, adjacent to said device, a transverse arm 55, having light spring-fingers 56 depending beneath it and in position over the end of the bunch of letters x adjacent to the segregating device. These fingers serve to permit the letter seized by the segregating device to be readily withdrawn, but by engagement with the edge of the next letter in the bunch prevent said letter from being drawn up out of place by frictional contact with the letter being removed.

In operation the letters are collected in a bunch and placed on the table 3 with their addressed faces adjacent to the segregating device 23 and their stamped ends adjacent to the raised wall 6 of the table, the connection of bracket 9 and yoke 13 being adjusted so as to cause press-plate 22 to stand close against the opposite side of the drum 23, as explained above. The cylindrical or drum-like segre-

gating device 23 is now turned, causing a vacuum to be alternately produced and broken in the respective chambers 34 therein, the vacuum being produced as the device 36 rises above the plate 44 and comes opposite the stamps upon the letters x and being broken as the edge of the letter is inserted between the plate 45 and the bunch of letters x' on the table 15. By means of the vacuum thus produced in the chambers 34 the letters x will be caused to adhere to the drum or cylinder, so as to be segregated from the bunch of letters on table 3, and the pressure of air which holds the letter to the drum or cylinder will also act to press the surface of the letter closely against the marking and canceling devices 53 and 54, so as to produce upon the letter a clearly-printed postmark and stamp-cancellation simultaneously with the segregation of the letter. The breaking of the vacuum when the drum or cylinder has made a half-turn enables the letters to be placed by the machine in a neat bunch or pile suitable for convenient working or sorting in the ordinary manner.

From the above description it will be seen that the improved machine constructed according to my invention is not only compact, but is simple and inexpensive in construction and is adapted for operation by hand or other power, so as to be adapted for use in large and small post-offices and also in railway mail-cars, and it will also be obvious that it is adapted for use in marking mail-matter of different sizes within limits of width, the length and thickness of the different pieces being immaterial. It will also be obvious from the above description that the machine is capable of some modification without material departure from the principles and spirit of my invention, and for this reason I do not wish to be understood as limiting myself to the precise form and arrangement of the several parts herein set forth.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a mail-marking machine, the combination of an air-exhausting device, and a marking device for marking the letters or other pieces of mail-matter, said device having a wall surrounding its marking-surface and adapted to bear against the surface of the letter or other piece of mail-matter to be marked, said marking device having an air duct or port arranged within said wall and communicating with the air-exhausting device, substantially as set forth.

2. In a mail-marking machine the combination of two tables or holders for the mail-matter, a carrier for carrying the mail-matter from one table or holder to the other, a marking device, and parts to hold the letters or other pieces of mail-matter on the respective tables or holders in erect position, said parts being connected together and arranged for movement in unison, substantially as set forth.

3. In a mail-marking machine, the combination of two tables or holders for the mail-matter, a carrier for carrying the mail-matter from one table or holder to the other, a marking device, and parts to hold the letters or other pieces of mail-matter on the respective tables or holders in erect position, said parts being adjustably connected together and being arranged for movement in unison, substantially as set forth.

4. In a mail-marking machine, the combination of two tables or holders for the mail-matter, a carrier for carrying the mail-matter from one table or holder to the other, a marking device, parts to hold the letters or other pieces of mail-matter on the respective tables or holders in erect position, said parts being connected together and arranged for movement in unison, and means for moving one of said parts toward the carrier with a gradually-decreasing pressure, substantially as set forth.

5. In a mail-marking machine, the combination of a segregating device having a recess surrounded by a wall, a marking device secured in said recess, and means for creating a partial vacuum in said recess, substantially as specified.

6. In a mail-marking machine, the combination of a frame, a drum mounted to turn thereon, means to support the mail-matter, a cam connected to the frame, two devices connected together and arranged to act alternately and in unison, respectively, to seize and release the letters or other pieces of mail-matter, said devices being actuated by said cam, and means to mark the letters, substantially as set forth.

7. In a mail-marking machine in combination, a table adapted to support a pack of unmarked letters, means for maintaining the letters on said table in a substantially vertical position resting upon their edges, a movable device having in its face a recess constituting a vacuum-chamber, a marking-plate secured in said recess, mechanism for feeding the pack of letters toward said movable device, mechanism for moving said device to periodically present said recess and marking-plate toward and close to the foremost letter in said unmarked pack, means for then creating and subsequently breaking a partial vacuum in said chamber whereby the foremost letter in the unmarked pack is moved by atmospheric pressure over the mouth of said recess and against said printing-plate, substantially as and for the purpose specified.

8. In a mail-marking machine, in combination, a table adapted to support a pack of unmarked letters, means for maintaining the letters on said table in a substantially vertical position resting upon their edges, a movable device having in its face a recess constituting a vacuum-chamber, a marking-plate secured in said recess, mechanism for moving said movable device to periodically present said recess and marking-plate toward and

close to the foremost letter in said unmarked pack, means for then creating and subsequently breaking a partial vacuum in said chamber, whereby the foremost letter in the unmarked pack is moved by atmospheric pressure against said printing-plate and over so as to close the mouth of said recess and be temporarily attached to and carried by said movable device until the partial vacuum in said chamber is broken, thereby marking said letter and segregating it from the unmarked pack, substantially as and for the purpose specified.

9. In a mail-marking machine, in combination, a table adapted to support a pack of unmarked letters, means for holding said letters in a substantially vertical position resting upon their edges, a movable device having in its face a recess constituting a vacuum-chamber, a marking-plate in said recess, mechanism for moving said movable device to periodically present the mouth of said recess and the marking-plate contained therein toward and close to the foremost letter in said unmarked pack, means for then creating and subsequently breaking a partial vacuum in said recess whereby said foremost letter is moved by external atmospheric pressure against the marginal edges of said recess and against the printing-plate in said recess, and mechanism for inking said marking-plate in the intervals between its successive presentations to the pack of unmarked letters, substantially as and for the purpose specified.

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

EDWARD CHESHIRE.

Witnesses:
L. M. JONES,
JOHN ELIAS JONES.