(No Model.) 2 Sheets—Sheet 1.

W. GROTH.

STAMP CANCELING AND POSTMARKING MACHINE.

No. 416,674. Patented Dec. 3, 1889.

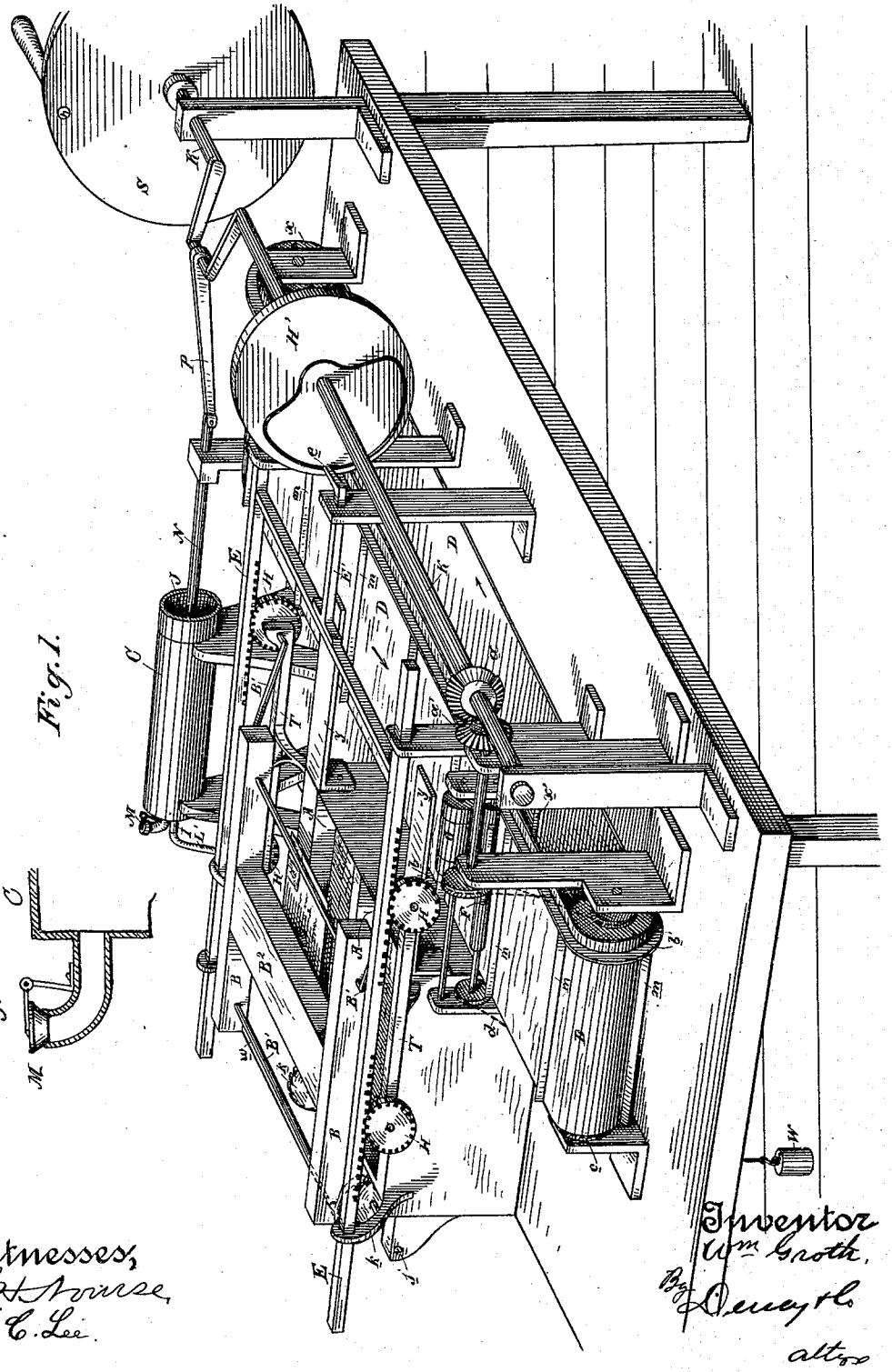


Fig. 1.

Fig. 6.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

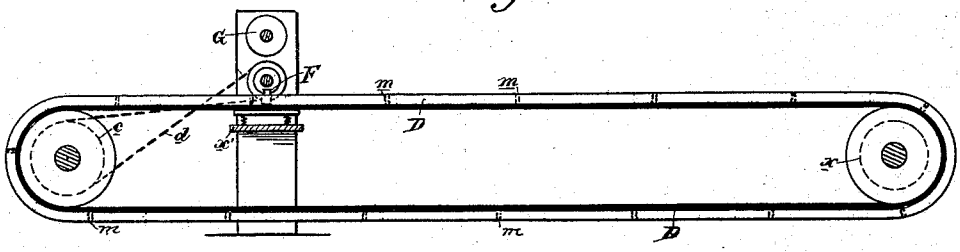


Fig. 3.

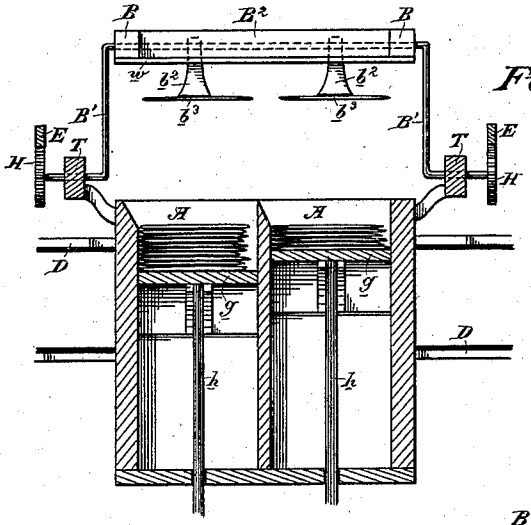


Fig. 5.

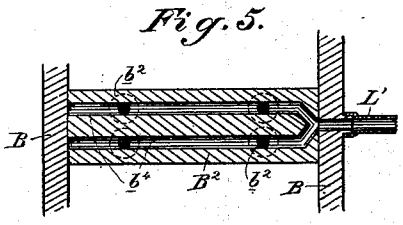
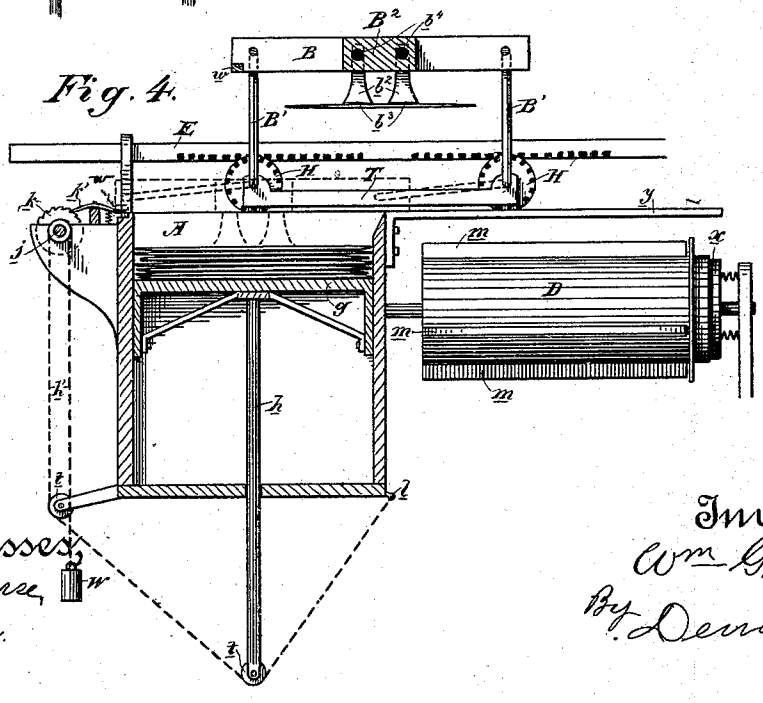


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM GROTH, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-THIRD TO THOMAS S. CONSTANTINE, OF NEW YORK, N. Y.

STAMP-CANCELING AND POSTMARKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 416,674, dated December 3, 1889.

Application filed July 14, 1887. Renewed April 25, 1889. Serial No. 308,641. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GROTH, of the city and county of San Francisco, State of California, have invented an Improvement in Stamp-Canceling and Postmarking Machines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of stamp-canceling and postmarking machines for use in post-offices; and my invention consists in the novel construction, arrangement, and operation of the hopper for containing the letters and other mail-matter, the traveling belt for receiving said letters and conveying them to the stamper and marker, the swinging suction-carrier by which the letters, &c., are taken from the hopper and deposited on the belt, the stamper and marker, and the operating mechanisms of the several parts, all of which I shall hereinafter fully describe by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my machine. Fig. 2 is a longitudinal vertical section through the belt. Fig. 3 is a vertical cross-section through the hopper. Fig. 4 is a longitudinal section through the same. Fig. 5 is a horizontal section through the cross-piece of the carrier. Fig. 6 is a detached view of the valve M.

A A are the hoppers; B B, the carrier; C, the exhauster or pump; D D, the belt; E E, racks for moving the carrier; F, marker or stamper, consisting of a roller carrying the marking and stamping dies; G, ink-roller for inking the dies of the marker.

The carrier B B is moved to and fro from the hoppers to the belt, and vice versa, describing a semicircle by the racks E E meshing with the pinions H. The arm E′, connected with the racks by a cross-bar, carries a tooth or stud *e*, which runs in the cam-shaped groove in the disk H′. A varying motion is given to the racks by the revolving of the disk. This motion allows the tubes of the carrier, hereinafter described, to enter and leave the hoppers very slowly, preventing any disarrangement of the letters, &c., in the hoppers, which would happen if the motion of the carrier was quick and abrupt. The carrier approaches and leaves the belt D slowly and remains stationary, when over the belt, long enough to allow the letters, &c., to be deposited. The travel of the carrier between the hoppers and the belt (after leaving the hoppers and before reaching the belt, and vice versa) is rapid; but the slowing up at both ends of the stroke prevents any jar.

The exhauster or pump C consists of an ordinary cylinder open at J, with a piston working to and fro, receiving its motion directly from the shaft K by means of the piston-rod N, working in a frame, and connecting-rod P.

I is a metal tube, (projecting from the cylinder-head,) on which is fitted a flexible rubber tube L′, connecting the exhauster with the tubes of the carrier.

M is a valve automatically opening and closing by the action of the air in the exhauster.

The belt D D travels in the direction shown by the arrow, and is moved by the miter-gears *a a′* and the pulleys *b* and *b′*, connected by a strap.

The marker F is connected with the roller *c*, from which it receives its motion by the band or strap *d*, running on suitable pulleys.

Each of the crank-arms B′ B′, working in the brackets T, consists of one piece and passes through the carrier B B, allowing it when describing a semicircle to maintain a horizontal position. The center or cross-piece B^2 of the frame carries four bell-shaped tubes b^2, Figs. 3, 4, 5, arranged in pairs, the dotted lines in Fig. 4 showing the position of the tubes when in the hoppers. The lower ends of the tubes are open and, being encircled by rubber bands b^3, readily adapt themselves to the face of the letters. The upper ends open into the channels b^4, Fig. 5, in the cross-piece B^2. The two channels form into one, and are connected with the exhauster by the flexible tube L′.

In Figs. 3 and 4 the letter-supporter *g* rests on the rods *h*, which passes through an opening in the bottom of the hoppers. A cord *h′* is fastened at *l*, passes around the pulleys *t* and *t* to the shaft *j*, on which it is wound sev-

eral times, and then passes downward with the weight W fastened to its end. On the shaft j is a ratchet-wheel k, engaged by a pawl k'. When said pawl is released from the ratchet-wheel, the weight W will cause the supporter and letters to ascend. Each hopper has an independent weight, shaft, ratchet-wheel, and pawl.

y is an extension of the hoppers A, and acts as a support for the carrier when over the belt, Fig. 4.

The belt D D is divided into an equal number of spaces by the strips m. The distance between said strips is equal to the width of each hopper plus the thickness of the central partition. A part of the miter-wheel a is cut away, causing the belt to travel the width of both hoppers plus the thickness of the central partition at each revolution of the actuating-wheel S, and to remain stationary for a short time. The belt stops when the carrier is over and within a short distance of it, and does not move until the letters have been deposited and the carrier has begun its return to the hoppers. A circular strip of wood x, faced with leather, is pressed against the head roller of the belt by springs, and acts as a brake to prevent the belt from moving when the miter-wheels a and a' are not meshing. It will be seen that at each revolution of wheel S two empty spaces take the place of the spaces on which the letters have been deposited and which are carried to the marker F. If the apparatus had five hoppers, then the belt would travel the distance of five spaces plus the sum of the thickness of the dividing-partitions at each revolution. When the belt is stationary, the strips m are parallel and almost in a straight line with the sides of the hoppers. They should come a little back of the sides, so as not to hinder the letters, &c., when brought onto the belt. The belt and marker F (the dies) run at the same speed. The stamping-dies are arranged to come in contact with the letters, &c., a little in front of each of the strips m, the marker making one revolution while the belt is traveling the distance between two of the strips m. The marker can carry two or more dies, if preferred, it only being necessary that the dies and belt should travel at the same speed, and that each space of the belt should be entered by a die and at the same relative place.

The stamping-dies may be of any suitable pattern.

The inker G consists of a roller running in bearings and faced with several thicknesses of cloth or felt for absorbing the ink. It is placed directly over the marker F, which moves it a short distance at each revolution, bringing the dies in a fresh spot. The roller can easily be reinked by hand without removing. Any suitable inking apparatus, however, can be used.

In Fig. 2 I show a support or bed x' for the letters while being stamped. It consists simply of a thin board placed on the inside of the belt, as shown, and mounted on springs, adapting itself to the thickness of the letters, &c., stamped.

The operation of the machine is as follows: The letters, postals, &c., are placed in the corners of the hoppers. The stamps of the letters (if they are to be canceled) should also come in the same corner and facing upward. The carrier B B, coming into the position indicated by the dotted lines in Fig. 4, brings the rod w into contact with the pawls k', raising them from the ratchet-wheels. The weights W, descending, bring the top letter of each hopper against the tubes b^2. The pawls are forced back by springs against the ratchet-wheels when the carrier leaves the hoppers. This causes the letters and supporter to remain stationary and leave the letters in the correct position for the next trip of the carrier. The piston of the exhauster begins the stroke which causes the suction in the tubes at the same time as the carrier begins to leave the hoppers. The tubes of the carrier slowly leave the hoppers, carrying the top letters with them and bring them directly over the belt, the letters almost touching the belt when the carrier is resting on the support y. At this time (when the carrier has just reached y) the piston has not quite finished its stroke. When it is beginning its return-stroke the letters, &c., fall upon the belt, the suction in the tubes having then ceased. The carrier then returns to the hoppers, and the belt, when the carrier has left it, moves toward the marker, which brings the stamping-dies successively into each space and upon each letter as it passes under it. The piston of the exhauster works to and fro continually. The valve M opens by the air-pressure when the piston begins its stroke and when the carrier is finishing its stroke to the hoppers, the letters, &c., then close the tubes. The carrier remains stationary when over the belt while the piston is finishing the stroke and beginning the return-stroke. The belt stops before the arrival of the carrier at y, and does not move until after the carrier has begun its return to the hoppers. The marker only moves when the belt does. The tubes b^2, Figs. 3 and 4, should be arranged to enter the hoppers, bringing their lower ends wholly within the surface of the smallest of the letters or postals placed in the corners of the hoppers, and the machine should be so set as to throw the hoppers at such an inclination that the corners of the letters which bear the stamps will fall into the proper corners of the hopper.

The machine described stamps two letters or postals during each revolution of the wheel S. Increasing the number of hoppers increases the capacity of the machine, which is constructed and geared according to the capacity desired.

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

1. In a stamp-canceling and postmarking machine, the mechanism for successively handling the letters and other mail matter, consisting of a carrier-frame provided on its under surface with open-mouthed tubes, pivoted crank-arms by which the carrier-frame is supported, pinions on said crank-arms, and reciprocating racks engaging the pinions, whereby the carrier-frame is moved through an arc of a circle to bring its tubes into contact with the letters and convey them away, a suction-pump, and a flexible tube connecting it with the tubes of the carrier-frame, whereby the letters are caused to adhere, substantially as herein described.

2. In a stamp-canceling and postmarking machine, a swinging carrier-frame provided with suction-tubes for causing the letters, &c., to adhere, in combination with the pivoted crank-arms supporting the carrier-frame, the pinions on the crank-arms, the racks engaging the pinions, and the rotating cam connected with the racks, substantially as herein described.

3. In a stamp-canceling and postmarking machine, a hopper for containing the letters and other mail matter, and a traveling belt for receiving and conveying them away, in combination with a swinging carrier-frame provided with suction-tubes on its under surface, and a rotating cam and connections whereby the carrier-frame is moved slowly into the hopper and over the traveling belt and more rapidly between, substantially as herein described.

4. In a stamp-canceling and postmarking machine, a hopper for containing the letters and other mail matter, and a traveling belt for receiving and conveying them away, in combination with a swinging carrier-frame provided on its under surface with suction-tubes, pivoted crank-arms for supporting said carrier-frame, pinions on the crank-arms, racks engaging the pinions, and a rotating cam connected with the racks, whereby the carrier-frame is moved slowly into the hopper and over the traveling belt and more rapidly between, substantially as herein described.

5. In a stamp-canceling and postmarking machine, the swinging carrier-frame by which the letters and other articles of mail matter are successively handled, said frame having a cross-piece with a longitudinal channel or channels, in combination with the bell-mouthed tubes fitted to the under side of the cross-piece and having their upper ends communicating with the channel or channels therein, the suction-pump, and the flexible tube connecting the pump with the channel or channels of the cross-piece, substantially as herein described.

6. In a stamp-canceling and postmarking machine, the hopper for containing the letters and other mail matter, and a periodically-traveling belt for receiving and carrying them forward, in combination with the swinging carrier-frame provided with suction-tubes, whereby the letters are taken from the hopper and deposited upon the belt, and a stamping and marking roller mounted above the belt for impressing the letters as they are carried beneath, substantially as herein described.

7. In a stamp-canceling and postmarking machine, a hopper for containing the letters and other mail matter, a periodically-traveling belt for receiving them and conveying them forward, a swinging carrier having suction-tubes for taking the letters from the hopper and depositing them upon the belt, a periodically-rotating stamper and marker for impressing the letters as they are carried under by the belt, and a suction-pump connected with the tubes of the carrier, in combination with a main drive-shaft, a pitman and crank connecting said shaft with the pump-piston, whereby it is operated, a cam on the shaft and connections whereby the carrier-frame is swung, mutilated gearing whereby the power of the shaft is transmitted to operate the stamper and marker, and pulleys and strap from said stamper and marker, by which the belt is caused to travel, substantially as herein described.

8. In a stamp-canceling and postmarking machine, an endless belt on which the letters and other mail matter are deposited and carried, and a rotating stamper and marker by which they are impressed, in combination with a spring support or bed for the letters while being marked and stamped, located beneath the stamper or marker and under the traveling belt, substantially as herein described.

9. In a stamp-canceling and postmarking machine, a hopper for containing the letters and other mail matter, and a swinging carrier having suction-tubes for taking the letters, &c., from the hopper, in combination with a support for the letters, &c., within the hopper, and having a downwardly-extending rod, a cord and weight for pushing said support upwardly and elevating the letters, a pawl and ratchet for controlling the movement of the weight, and a rod on the swinging carrier-frame for automatically coming in contact with and releasing the pawl, substantially as herein described.

In witness whereof I have hereunto set my hand.

WILLIAM GROTH.

Witnesses:
C. D. COLE,
J. H. BLOOD.