

No. 693,205.

Patented Feb. 11, 1902.

F. W. WRIGHT.
CASH REGISTER.

(Application filed Mar. 27, 1901.)

(No Model.)

5 Sheets—Sheet 1.

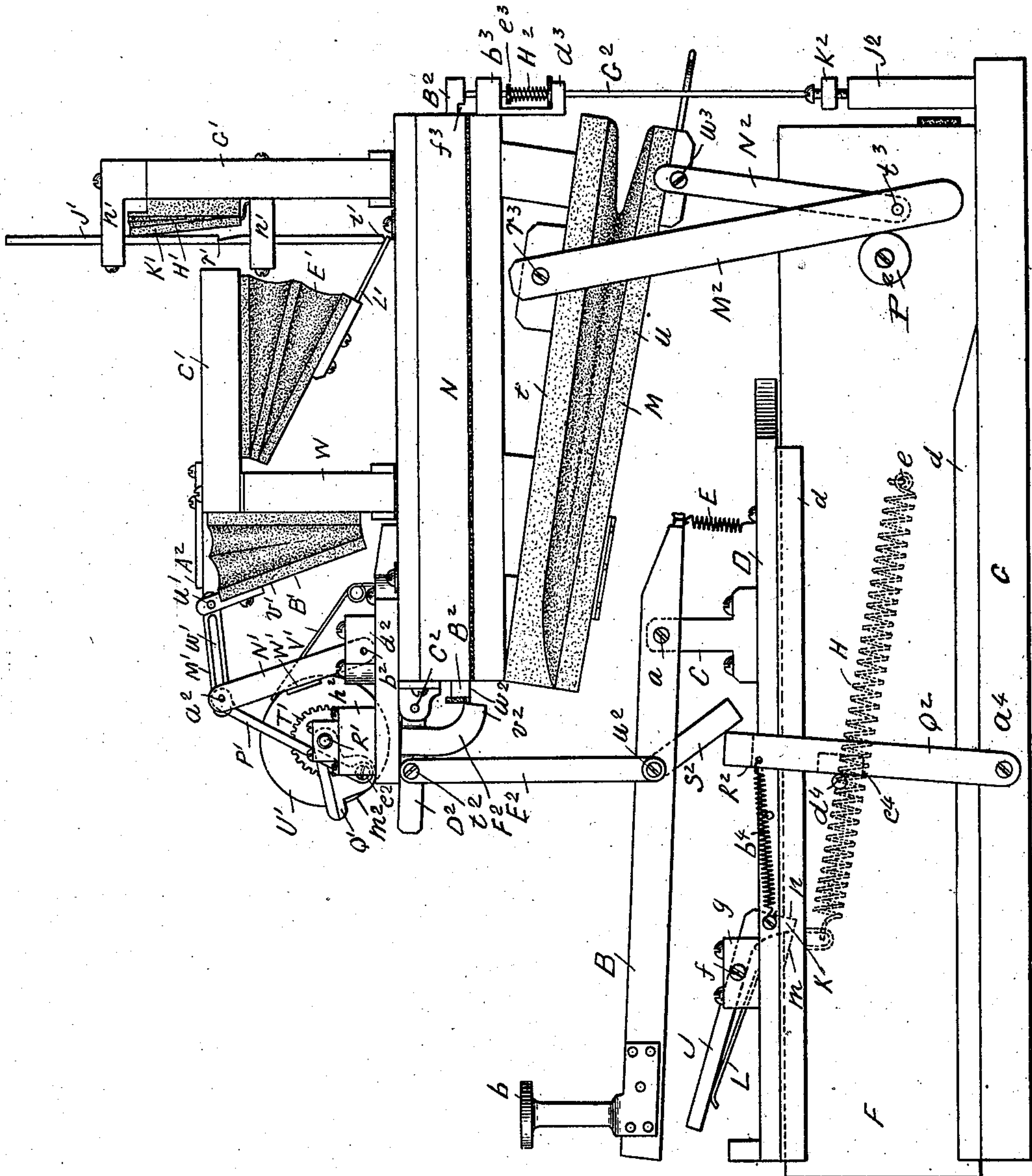


FIG. 1.

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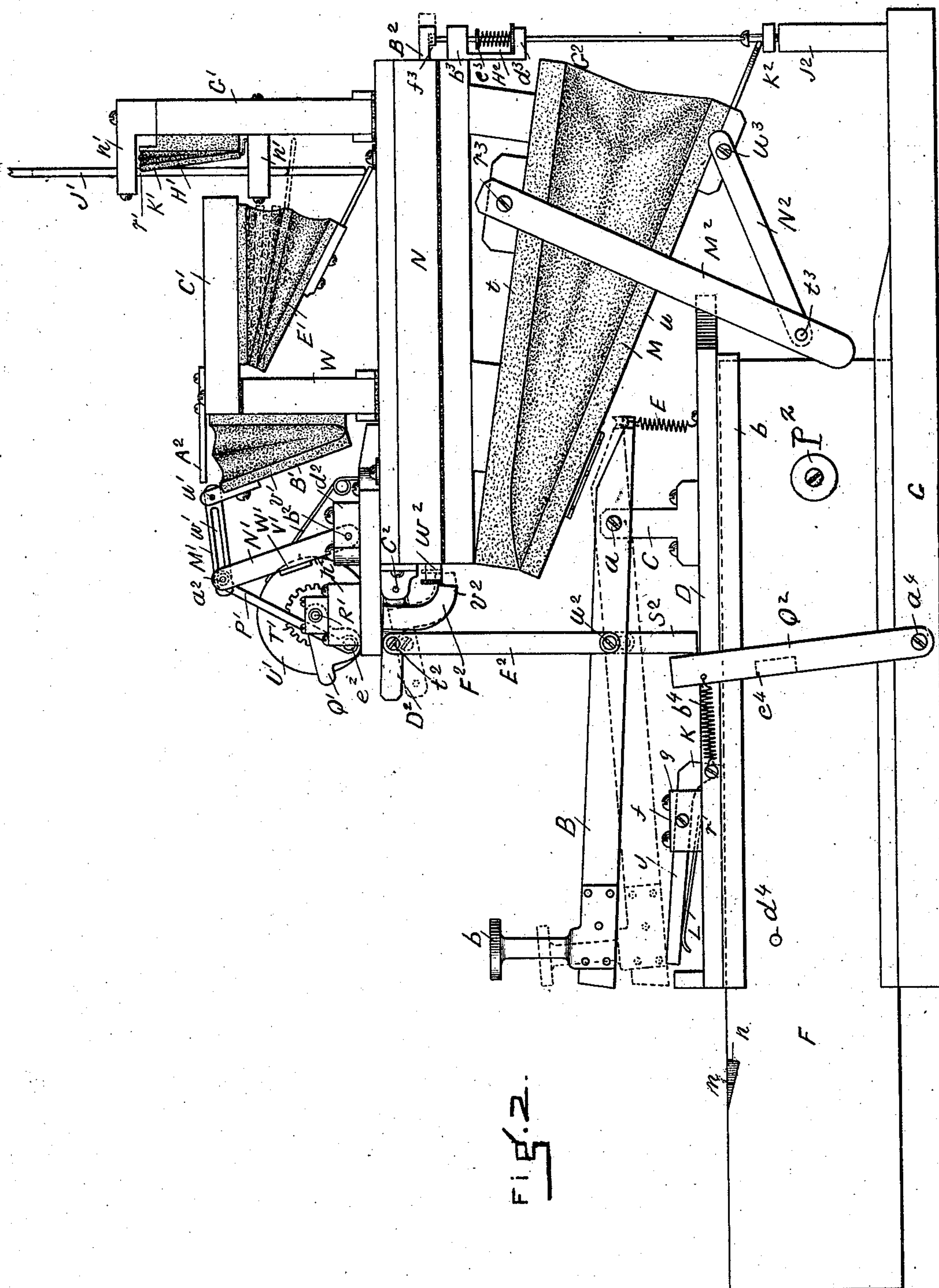
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(Application filed Mar. 27, 1901.)

(No Model.)

5 Sheets—Sheet 2.



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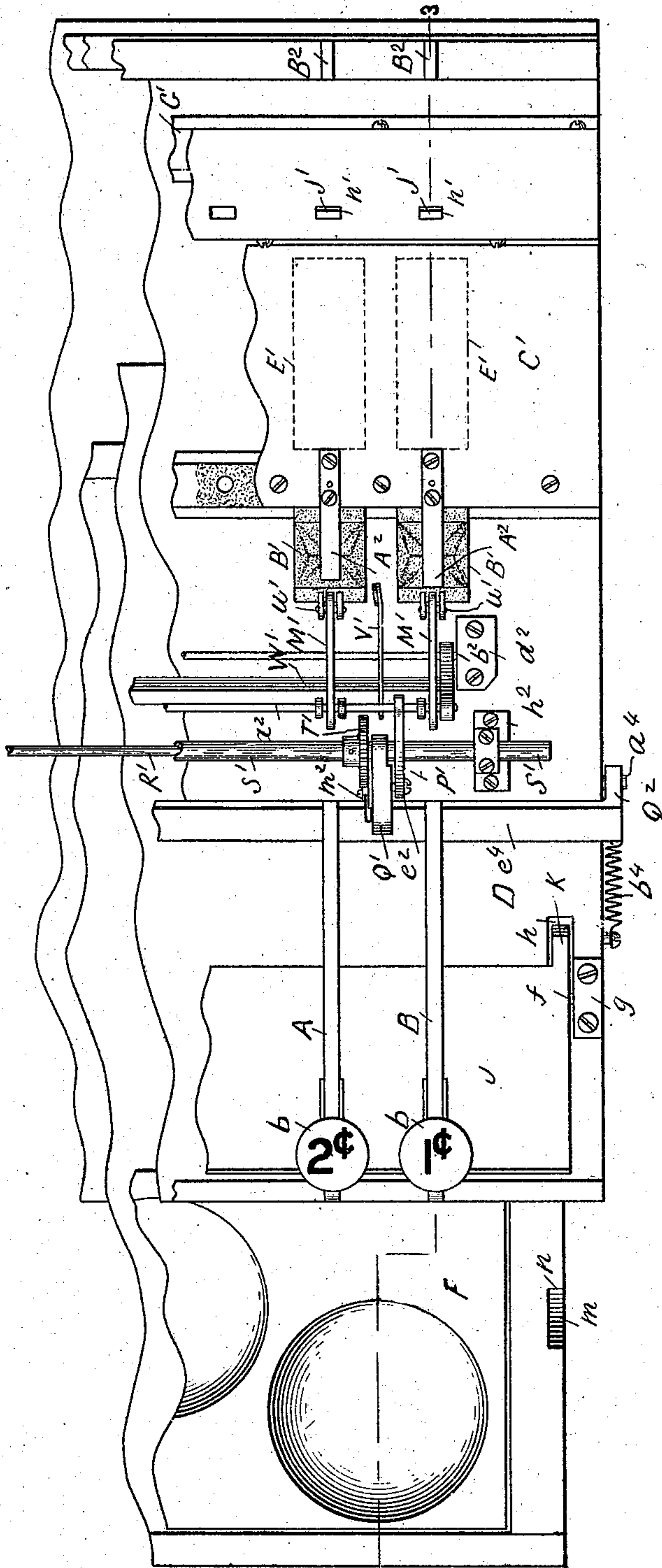
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F. W. WRIGHT.
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(No Model.)

5 Sheets—Sheet 4.



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(No Model.)

5 Sheets—Sheet 5.

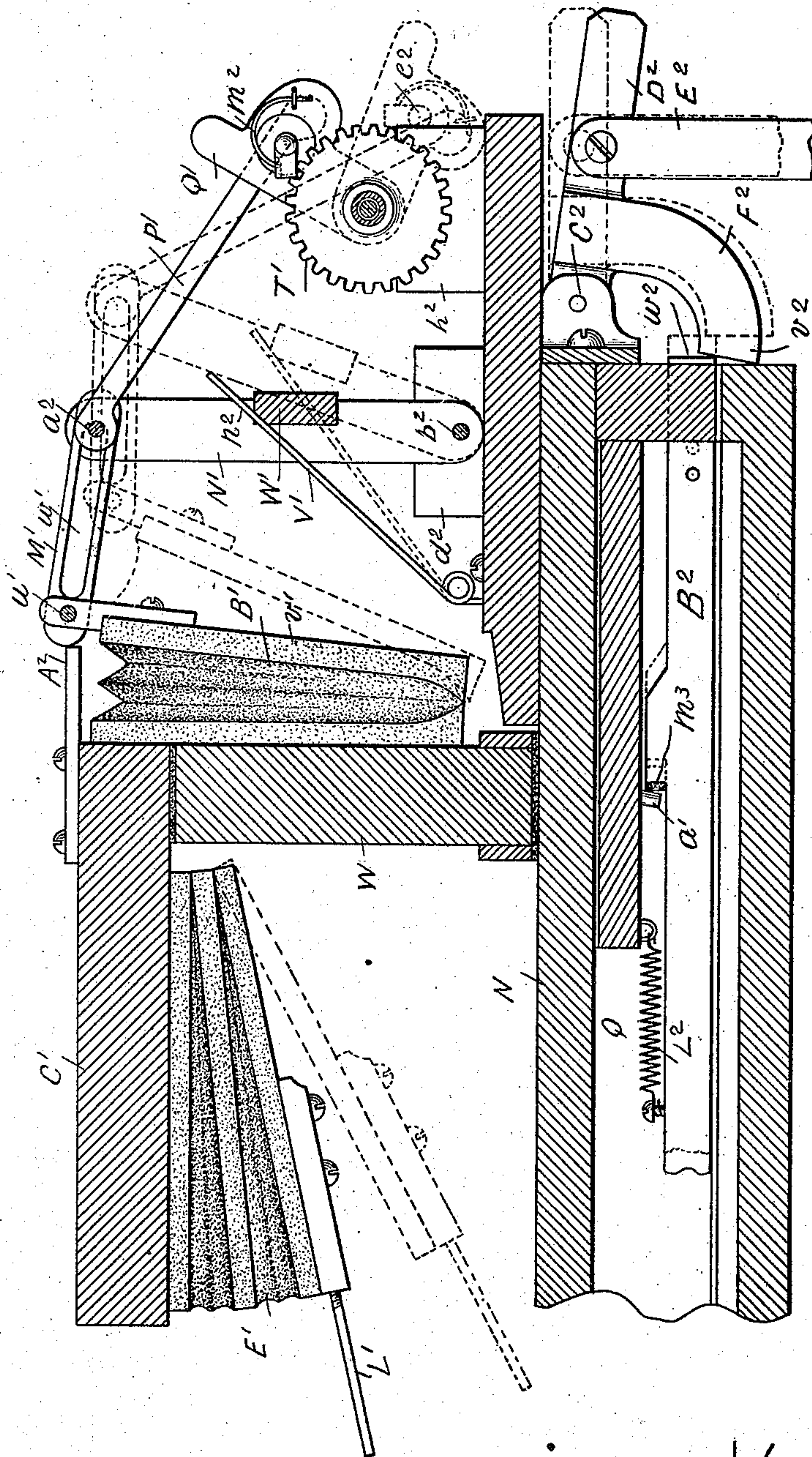


FIG. 5.

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UNITED STATES PATENT OFFICE.

FLINT W. WRIGHT, OF WORCESTER, MASSACHUSETTS.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 693,205, dated February 11, 1902.

Application filed March 27, 1901. Serial No. 53,105. (No model.)

To all whom it may concern:

Be it known that I, FLINT W. WRIGHT, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Cash-Registers, of which the following is a full, clear, and exact description.

This invention consists in a cash-register, in combination, an operating-key, a bellows, pneumatics, valves, and an indicating device, all constructed and arranged together for operation, all substantially as hereinafter fully described; and the invention also consists in a cash-register, in combination, an operating-key, a bellows, pneumatics, valves, and a registering device, all constructed and arranged together for operation, all substantially as hereinafter fully described; and the invention also consists in a cash-register, in combination, an operating-key, a bellows, pneumatics, valves, an indicating device, and a registering device, all constructed and arranged together for operation, all substantially as hereinafter fully described; and the invention also consists in the combination and arrangement of other parts for the carrying out of this invention, all substantially as hereinafter fully described, reference being had to the accompanying sheets of drawings, in which is illustrated a cash-register constructed and arranged for operation in accordance with this invention.

In the drawings, Figure 1 represents in side view the cash-register, with the various parts of the invention in their normal positions ready for operation when desired to deposit in the drawer any money to register the amount and indicate the same. Fig. 2 represents in side view the same parts as in Fig. 1, but after a key has been depressed and the drawer moved outward or opened for the deposit of the money therein, with the indicator in position showing the amount and the registering device moved to register the same. Fig. 3 represents in central longitudinal vertical section the parts as located and shown in Fig. 2, showing the air-passages through which the air travels to and operates the several valves and pneumatics. Fig. 3^A is a detail sectional view like Fig. 3, but showing some of the parts in changed positions. Fig. 4 is a plan view of Fig. 2. Fig. 5 is a detail cen-

tral vertical section of some of the parts from the opposite side, with such parts in their positions after being moved by the operation of the key, with the drawer moved outward or open. Fig. 6 is a detail sectional view of a modification of the valves, to be hereinafter referred to.

In the drawings, A B represent two keys pivoted at *a* to a support C of the board or frame D and each having on its operating end a finger-piece or knob *b*, one for the key A being marked 2° and the other for the key B marked 1°. Each key extends back of its pivot and has connected to its end a spiral spring E, also connected to the board D, to hold the key in and return it to its normal position (shown in Fig. 1) after being operated. Under these keys is a drawer F, arranged to slide forward and backward in suitable guide-ways *d* of the board D and lower board G, and connected to this drawer at *e* by one end is a spiral spring H, its other end being connected to the frame and which when the drawer is free to move acts to force the drawer outward from its closed position (shown in Fig. 1) into its open position. (Shown in Figs. 2, 3, and 4.) Under the keys and above the board D and extending transversely thereover is a board or lever J, pivoted at *f* between supports *g* of the board D, its free side extending toward the front, its rear end having at one side a downwardly-projecting arm K, which extends freely through an opening *h* in the board D into position to be disposed in a notch *m* in the upper edge of one side of the drawer when the drawer is closed for the shoulder *n* of the notch to abut against the arm K of the lever J to lock the drawer in its closed position, the arm K being held by a flat spring L, secured to the board at *r* and bearing by its free end against the under side of the board, as shown more particularly in side view in Figs. 1, 2, and 3. As a key is pressed down to register a sale it bears upon and presses down the lever J against its spring, moving its arm K up and out of the notch *n*, releasing the drawer, leaving it free to be acted upon by its spring H, which forces it out into its open position. (Shown in Figs. 2, 3, and 4.)

M is a main bellows arranged horizontally and secured by its permanent board *t* to the under side of a wind-chest N, secured to a

board of the frame, its movable board u being arranged to move downward and acted upon by a spring P inside of the bellows, connected by one end to its movable board and bearing by its free end against the inner side of the permanent board, this bellows being for the purpose of exhausting air from the several passages, channels, and pneumatics, as will be described. A passage v opens from the chamber Y of this bellows through the permanent board and into a chamber Q of the wind-chest N , and from this wind-chest chamber Q a passage w opens into a small chamber R above the wind-chest chamber.

S is a valve in the chamber R , held to its seat over the passage w by a spring y and having a downwardly-projecting pin or arm a' , which projects through the passage w a short distance into the wind-chest chamber Q . b' is another passage from the other end of the wind-chest chamber into another small chamber T above the wind-chest chamber and having a valve U , held to its seat over the passage b' by a spring d' and having a downwardly-projecting arm e' , extending through the passage b' a short distance down into the wind-chest chamber, all as shown in Fig. 3 more particularly. These passages w and b' are flaring on their under sides to allow room for the movements of the arms of the two valves.

Leading from the small chamber R and communicating therewith is a channel V , which extends upward in an upright board W , a side extension f' thereof communicating with the chamber g' of a vertical pneumatic B' , secured to the upright board W , and at its upper end opens into a horizontal passage A' in a horizontal board C' , secured to the board W , and communicating at h' with the chamber D' of a horizontal pneumatic E' , secured to the under side of the board C' .

Communicating with the small chamber T , in which is the valve U , is a vertical channel F' in an upright board G' , secured to the top board of the wind-chest, and at its upper end it turns at an angle and opens at m' into a small vertical pneumatic H' , secured to the board G' . In front of this pneumatic is a vertical flat bar J' , adapted to slide up and down in guideways n' of the board G' and having in the side next to the pneumatic H' a cross-notch r' , which when the bar is in its upper position and the pneumatic is open will rest upon the upper end of the movable board K' of the pneumatic, which will hold it in such position. This bar J' is arranged when in its normal position to rest by its lower end t' upon the end of a projecting rod or bar L' from the end of the movable board of the pneumatic E' , as shown more particularly in Fig. 3. Pivoted at u' to the upper end of the movable board v' of the pneumatic B' is a bar M' , having a longitudinal slot w' therein freely disposed over a cross-rod a^2 of a vertical arm N' , pivoted at b^2 to a support d^2 of the wind-chest. Connected to this rod

a^2 , to swing thereon, is a pitman-rod P' , pivoted by its lower end at e^2 to an arm Q' , adapted to swing vertically at f^2 upon a horizontal rod R' within a sleeve S' , secured in supports h^2 , one only being shown on the frame, the arm Q' having on one side a spring-pawl m^2 , adapted to engage with the teeth of a gear T' , secured to the rod R' , forming a shaft or support for the gear, the rod projecting beyond its support at one end and having secured on such end a wheel U' for registering the amount, although any suitable registering mechanism can be used.

V' is a spring secured on top of the wind-chest and bearing by its free end n^2 against a cross-board W' of the swing-arm N' to hold it in its outward position. (Shown in Figs. 2, 3, and 5.)

A^2 is a stop secured to the horizontal board C' , against which the slotted arm M' of the pneumatic B' abuts when it is opened, by which the length of movement of the pneumatic is regulated and controlled. The exhaustion of the pneumatic B' causes it to close, and through its bar M' , the pitman-rod P' , and arm Q' , with its spring-pawl m^2 , engaging with the gear T' , the gear is swung on its shaft, moving the registering device, the stop A^2 , against which the bar M' abuts, limiting the movement of the bar and registering device. The stops A^2 are arranged to be of varying length to adjust the movements of the registering device in accordance with the various amounts to be registered, two different lengths of stops being shown in plan view in Fig. 4, the longer one representing "1" and the other or shorter one "2," and so on, as many as desired.

In the wind-chest chamber Q is a bar B^2 , arranged to slide back and forth longitudinally therein and projecting at each end through openings r^2 in each end of the wind-chest, which serve as guides for the movements of the bar. Pivoted at C^2 to the wind-chest is a horizontal bar D^2 , in turn having a vertical bar E^2 pivoted thereto by its upper end at l^2 , which bar extends downward therefrom and at its lower end is pivoted at u^2 to the key. Secured to the short bar D^2 is a curved or angular piece F^2 , projecting backward, its end v^2 being in position to bear or abut against the outer end w^2 of the sliding bar B^2 . The other end of this sliding bar projects outward, and under such end is a vertical rod G^2 , adapted to move up and down in guide-blocks b^3 d^3 of the frame, and between these blocks is a spiral spring H^2 , bearing against the upper surface of the lower block d^3 and by its upper end against a shoulder e^3 of the rod G^2 to act by its tension to force the rod upward when it is free to move. In the under side of the end of the sliding bar is a notch f^3 , having a shoulder, into which notch the upper end of the rod is forced by its spring when the bar is moved outward and which then holds the bar in its outward position until it is released, as will be described. The

lower end of the rod G^2 passes freely through a horizontal bar K^2 , secured to a support J^2 , but so it can move up and down within certain limits, and has on its end under the bar a screw-nut g^3 , the bar resting thereon, and when the bar K^2 is pushed down it pulls down with it the upright rod G^2 , disengaging it from the notch in the sliding bar B^2 . The arm a' of the valve S is in position for a shoulder m^3 of the sliding bar to abut against it when moved to the right, and thus raise the valve from its seat and open the passage w for air to pass down therethrough. The arm e' of the other valve U is in position for a shoulder n^3 on the sliding bar to abut against it when the bar is moved to the left to raise and hold the valve open, as shown in Fig. 3.

M^2 is a bar pivoted by its upper end at r^3 to the permanent board t of the bellows M , its lower end being pivoted at t^3 to a link N^2 , pivoted by its upper end at u^3 to the movable board u of the bellows.

A side projection P^2 from the side of the drawer in line with the bar M^2 is arranged to abut and press against it when the drawer is moved back to close it, which moves the bar back and by its link connection raises the movable board of the bellows and holds it in its upper or closed position ready for operation again, as shown in Fig. 1, and when the drawer is moved out, the projection being moved forward, the spring of the bellows is free to act, which opens and moves down the lower board from the other, moving the arm M^2 and link N^2 into the position shown in Fig. 2, and when the drawer is closed the stop abuts against the arm and moves it back again, closing the bellows, as described.

Pivoted at a^4 to the lower board G is an arm Q^2 , which extends upward outside and has secured to it a cross bar or arm R^2 , which extends over the upper board D and is secured to another arm on the opposite side, the cross-bar being in position to bear against a short vertical arm S^2 , pivoted to the key at u^4 , hanging down therefrom. This arm Q^2 has a spiral spring b^4 secured to it and also secured to the upper board, which acts to pull the arm forward when free to move into the position shown in Fig. 2.

On the side of the drawer is a projecting pin d^4 , which when the drawer is moved back is in position to abut a shoulder or bar e^4 of the arm Q^2 and force it back into the position shown in Fig. 1, its cross-arm R^2 abutting against and pushing the swinging arm S^2 of the key backward into the position shown in Fig. 1, and when the drawer is opened the arm R^2 is moved back by its spring into the position shown in Fig. 2, which leaves the short arm S^2 free to swing down into its vertical position. (Shown in Fig. 2.) This arm S^2 is to prevent the key from being operated while the drawer is open or out, for when it is hanging down it will abut against the board D , preventing the key from being pressed down; but when the drawer is closed the arm

R^2 being swung back pushes the arm S^2 back into its inclined position, (shown in Fig. 1,) which allows the key to be again pushed down and operated.

Within the wind-chest chamber Q is a spiral spring L^2 , secured by one end to the sliding bar and by its other end to the wind-chest, which acts by its tension to hold the sliding bar in its position shown in Fig. 3 and to return it thereto when it has been moved to the right.

The operation of the device is substantially as follows: The parts as shown in Fig. 1 are in their normal positions, the drawer and bellows closed, the pneumatics open, the valve S closed, and the valve U open, as the position of the sliding bar is forward, as shown in Figs. 1 and 3. Pushing down the key presses down the board J , which raises its short arm K from the drawer-notch, releasing the drawer, which is forced immediately forward by its spring. As it moves outward its projection d^4 moves forward with it, releasing the arm R^2 , which is swung forward by its spring b^4 , allowing the swinging arm S^2 to drop from its position shown in Fig. 1 into its position shown in Figs. 2 and 3, in which position it prevents the key being operated again until the drawer is closed. It also moves forward the shoulder P^2 , against which the bellows-arm M^2 bears, allowing the bellows to open by its spring, which exhausts air from the several channels, pneumatics, and valves, &c. The key also, through the arm E^2 , pulls down the short arm D^2 , which swings the curved arm F^2 backward, forcing the sliding bar B^2 back into the position shown in Fig. 3^A, the rod G^2 rising and interlocking with its notch f^3 and holding the sliding bar in such position. As the sliding bar moves back its shoulder m^3 acts upon the arm a' of the valve S to raise and open it. At the same time its shoulder n^3 moves from the valve U , letting it close, all as shown in Fig. 3^A. The opening of the bellows exhausts air from the wind-chest chamber Q , and by the valve S being open through the passage V the two pneumatics B' E' are exhausted, and in the exhaustion of the pneumatic E' the rod L' pushes up the indicating-bar J' , on which is printed the amount indicated on the key or amount of purchase, and as it rises its notch r' passes sufficiently above the upper edge of the movable board K' of the pneumatic H' for it to move forward and engage therewith and hold the bar up. The closing of the valve U prevents this pneumatic H' from being closed by the bellows at this stage of the operation of the device, by which the indicating-bar is held up until the next key is pushed down. Air being exhausted from the pneumatic B' , its movable board v' is moved to close, and in such movement the arm N' is swung backward, which through the swinging arm Q' operates the spring-pawl m^2 to turn the shaft and its registering device the required distance. As the bellows reaches its lowest point its projecting

arm T^2 abuts against the cross-arm K^2 of the rod G^2 and pressing it and the rod down the rod is released from the notch f^3 of the sliding bar B^2 , which allows its spring to move it forward and return it to its normal position, the valve S closing and by its shoulder n^3 opening the valve U . Closing the drawer, the shoulder d^4 abuts against the arm Q^2 and swings it back and the stop S^2 out of the way, so that the key or another key can be operated, the shoulder Q^2 pushes back the bellows-arm M^2 and closes the bellows, when all parts are in their normal positions ready for operation again.

The description thus far substantially describes one key and the operating parts connected therewith, whereas in using the device having the necessary number of keys for a proper registering device some of the parts will be duplicated, while others will be enlarged or changed to take in all of the keys. For instance, the board that is operated by the key to release the drawer will extend under all the keys for any key to operate it; also, the arm which moves the swinging stop-arm back will extend across under all the keys and be secured to an arm to move in connection with the arm Q^2 . Each key has its own pneumatic B' , E' , and H' , valves S and U , slide-bar B^2 , while the bar a^2 of the arms N' , to which the slotted rod M' connects it with the pneumatic, can extend across, having a separate slotted connection with each pneumatic, the slot in each allowing any one of the pneumatics to operate to swing the arms N' , to which is connected the spring-pawl for the turning of the registering-shaft when a key is operated. The drawings, however, show two keys with the necessary valves and pneumatics for operation by each key. The valve U being open, air is exhausted from the pneumatic H' sufficiently to cause its movable board to move to release the indicator-bar, when it will drop into its normal position for operation again.

In Fig. 6 is shown a modification of the valves S and U , which in this view consist of balls V^2 , each of which falls to its seat by gravity to close the passage and is pushed out of the way or at one side to open the passage for air to pass therethrough. A^3 is a flat strip of metal secured at its middle portion at B^3 to the upper board of the wind-chest above the sliding bar, leaving two independent spring-arms C^3 and E^3 . In each valve-passage w and b' is a ball V^2 , which is arranged to close its respective passage by its gravity. Each spring-arm is bent downward to form a V-shaped shoulder D^3 and in such position in relation to the sliding bar B^2 that its shoulders m^3 and n^3 will act upon the spring-arms to raise them. On the upper side of each end of each arm is a pin F^3 , which projects up a short distance in the passages w and b' , respectively. In the position of the sliding bar B^2 as shown in Fig. 6 one spring-arm C^3 is down, leaving the ball free to rest on its seat

and close the passage w , while the other ball is raised from its seat by the shoulder n^3 pressing the spring-arm E^3 up, leaving the passage b' open. As the bar B^2 moves back in the operation of the key the shoulder m^3 presses against the V-shaped portion, raises the spring-arm C^3 , and consequently the ball V^2 , from its seat, opening the passage w to air, while at the same time the shoulder n^3 would pass from the V-shaped projection of the spring-arm E^3 , allowing it to fall from its tension, when the ball V^2 would close upon its seat in the passage b' , preventing air from passing through.

All the parts are to be inclosed in a suitable casing, leaving the keys exposed for operation and an opening at the indicating-bars for them to be moved upward into sight for the amount printed thereon to be seen by the purchaser, all substantially as usual in cash-registers, and needing no more particular description herein.

Having thus described my invention, what I claim is—

1. In a cash-register, in combination, a key, a drawer arranged to be released by the operation of the key, a bellows operated by the movement of the drawer, a wind-chest, an indicating bar or device, a pneumatic for operating the indicating device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, means connected with said key for opening and closing the valve, and all combined and arranged together for operation substantially as described.

2. In a cash-register, in combination, a key, a drawer released thereby, a bellows operated by the movement of the drawer, a wind-chest, a registering device, a pneumatic for operating the registering device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, means connected with said key for opening and closing the valve, and all combined and arranged together for operation substantially as described.

3. In a cash-register, in combination, a key, a drawer released thereby, a bellows operated by the movement of the drawer, a wind-chest, an indicating bar or device, a pneumatic for operating the indicating device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, means for opening and closing the valve, a registering device, a pneumatic for operating the registering device, an air-passage leading from the wind-chest to the latter pneumatic, a valve to the latter air-passage, means connected with said key for opening and closing the latter valve, all combined and arranged together for operation substantially as described.

4. In a cash-register, a key, a drawer arranged to be released by the operation of the key, a stop pivoted to the key and arranged to swing forward and backward and means for moving the stop as the drawer is moved inward to be closed.

5. In a cash-register, a key, a drawer ar-

ranged to be released by the operation of the key, a downwardly-projecting arm pivoted to the key, an arm pivoted to a support in position to bear against the swinging arm and means attached to the drawer to abut against the arm as the drawer is closed to press the arm against the swinging arm and move it back out of the way to allow the downward movement of the key.

6. In a cash-register, in combination, a key, a drawer arranged to be released by the operation of the key, a bellows, an arm pivoted by one end to a support, a link pivoted by one end to the other end of the arm, and by its other end to the movable board of the bellows, an abutment or stop on the drawer in position to bear against the arm and move it back and close the bellows as the drawer is moved back into its closed position.

7. In a cash-register, in combination, a key, a bellows operated by the movement of said key, a wind-chest, an indicating device, a pneumatic for operating the indicating device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, a sliding bar in the wind-chest arranged to operate the valve and means connected with the key for operating the sliding bar all combined and arranged together for operation substantially as described.

8. In a cash-register, in combination, a key, a bellows operated by the movement of said key, a wind-chest, a registering device, a pneumatic for operating the registering device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, a sliding bar in the wind-chest arranged to operate the valve and means connected with the key for operating the sliding bar all combined and arranged together for operation substantially as described.

9. In a cash-register, in combination, a key, an indicating device, a pneumatic for operation of the indicating device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, a sliding bar in the wind-chest arranged to operate the valve, a swinging bar arranged to move and oper-

ate the sliding bar, and connected to the key for operation thereof.

10. In a cash-register, a key, a bellows, a wind-chest, an air-passage leading therefrom, a valve to the air-passage, a sliding bar in the wind-chest provided with means to open and close the valves, means connected to the key to operate the sliding bar, a vertical sliding rod controlled by a spring with which the sliding bar is arranged to engage, and means connected to the bellows for releasing the spring-rod.

11. In a cash-register, an indicating bar or device arranged to be moved up and down and a pneumatic arranged to engage therewith to hold the indicating device in its upper position and to be disengaged therefrom as air is exhausted from the pneumatic.

12. In a cash-register, a key, a bellows, a wind-chest, air-passages leading therefrom, a valve to each air-passage, a sliding bar in the wind-chest provided with means to open and close the valves, an arm pivoted to a support having one end in position to engage with the sliding bar, and an arm connecting the first arm to the key for operation thereof by the key.

13. In a cash-register, in combination, a key, a bellows, a wind-chest, a registering device, a pneumatic for operating the registering device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, an indicating device, a pneumatic for operating the indicating device, an air-passage leading from the wind-chest to the pneumatic, a valve to this air-passage, a sliding bar in the wind-chest arranged to operate the valves, a bar arranged to move and operate the sliding bar and connected to the key for operation thereof.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FLINT W. WRIGHT.

Witnesses:

WILLIAM C. MELLISH,
ERNST ZARDER.