

C. ABELE.

Cash Controlling Printing Apparatus.
No. 225,203.

Patented Mar. 9, 1880.

Fig. 1.

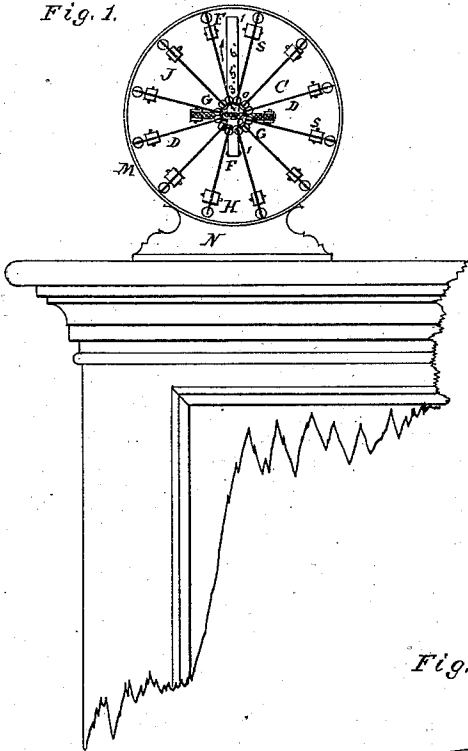


Fig. 2.

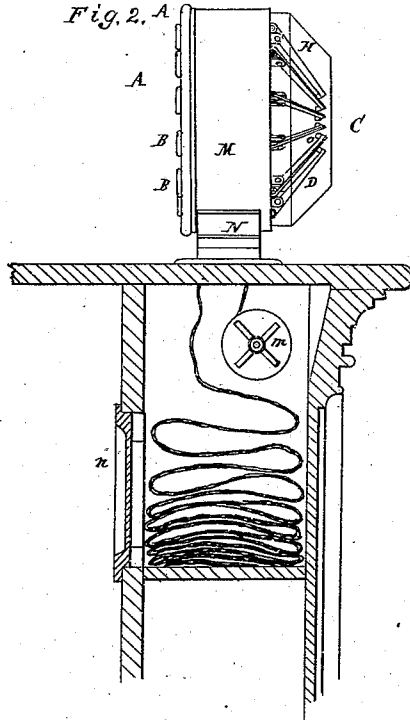
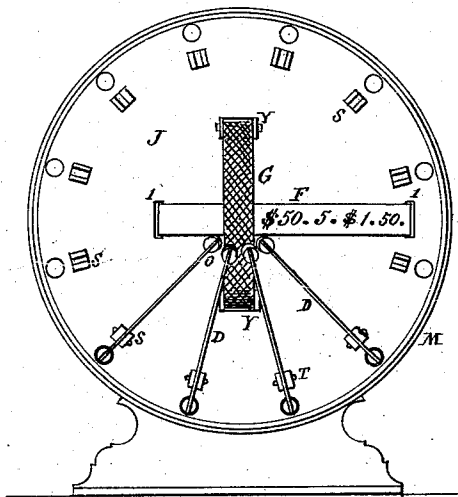


Fig. 8,



Witnesses.

R. Backlin
Chas Longneuf

Inventor.

Charles Abele

C. ABELE.
Cash Controlling Printing Apparatus.
No. 225,203. Patented Mar. 9, 1880.

Fig. 3.

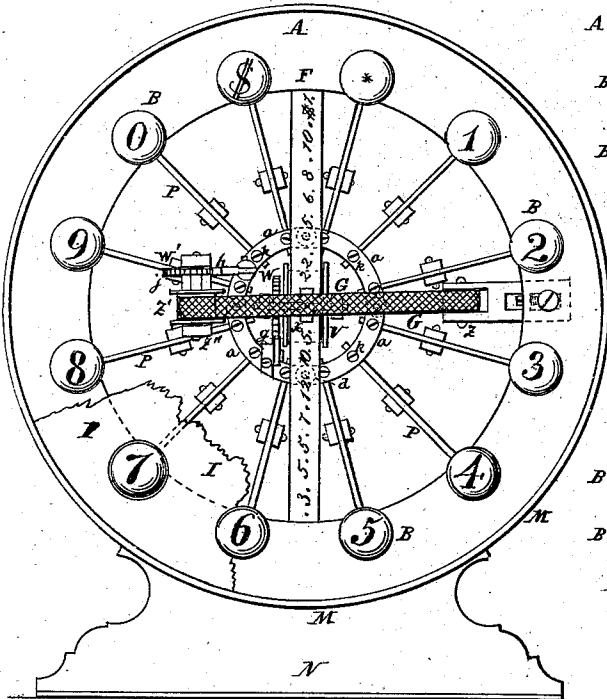


Fig. 4.

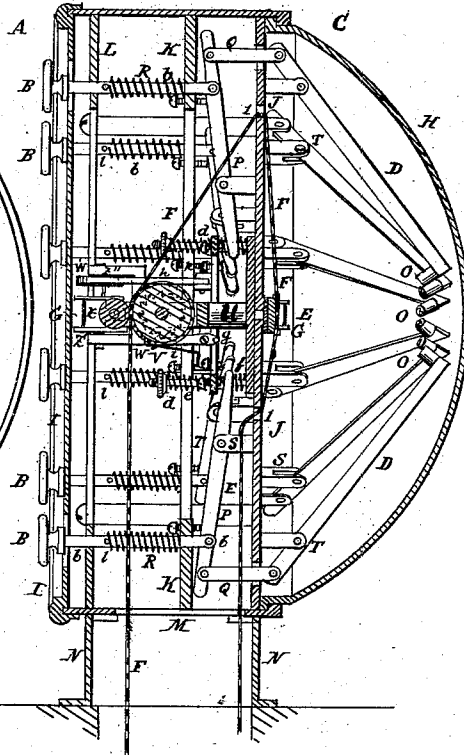


Fig. 5.

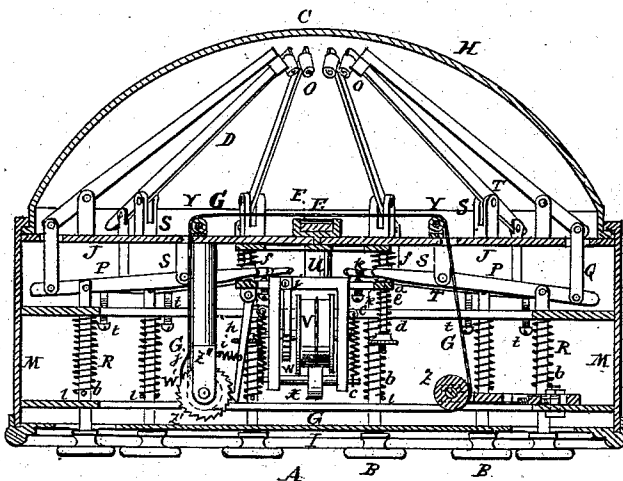


Fig. 7.

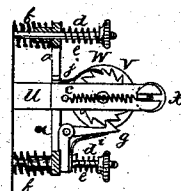
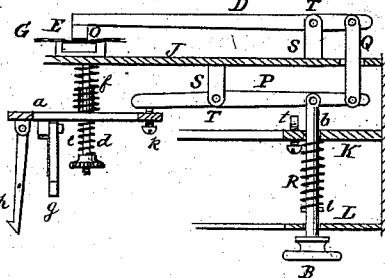


Fig. 6.



Witnesses.
D. Backus
Chas. Langneß

Inventor.
Charles Abele

UNITED STATES PATENT OFFICE.

CHARLES ABELE, OF NEW YORK, N. Y.

CASH-CONTROLLING PRINTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 225,203, dated March 9, 1880.

Application filed November 21, 1878.

To all whom it may concern:

Be it known that I, CHARLES ABELE, of the city, county, and State of New York, have invented an Improved Cash-Controlling Printing Apparatus, of which the following is a specification.

Heretofore the printing devices for registering the cash accounts as received have always been made to operate by electricity, requiring, therefore, the electric battery, the person with proper intellect to attend the battery and instrument, and the expense of the acid for the battery; and said instruments heretofore do not present for ready view to the payer the figures registering.

The object of this invention is to obviate the above objections and to have a simple, durable, and readily-operating instrument for the purpose above stated, which may be easily and successfully operated by persons of common intellect.

In the drawings annexed, forming part of this specification, Figure 1 represents a face view of the printing-instrument according to my invention, as seen by the payer of the cash, and shown on a considerably-reduced scale and mounted on a counter before the payee. Fig. 2 is a side elevation of the same, the counter shown bisected to exhibit the case under the counter in which the figure-record is saved. Fig. 3 represents a rear view of the instrument. Most part of the rear face-plate is shown removed, to exhibit more fully the working parts of the instrument, as presented to the side of the payee, and shown on a scale considerably larger than in the figures before mentioned. Fig. 4 is a vertical central longitudinal section of the same. Fig. 5 is a central horizontal section of the same. Fig. 6 is a detached side view of one set of printing-levers as provided for each type, and shown in connection with the paper-feeding device. Fig. 7 is a detached view from the side of the paper-feeding device. Fig. 8 represents a face view of the instrument with a number of the type-levers removed to exhibit the inking and printing strip clearly.

A represents the rear side of the instrument, which is mounted in erect position facing the payee, and having the keys B B B arranged in a circle before him.

C represents the front side of the instrument. It is presented to the payer in erect position and facing him. Upon it are arranged the type-levers D, in radial order from the central printing-cushion, E, over which the record paper strip F passes, and over said paper strip passes the ink-band G, which is arranged to travel across over the paper strip. The front side is covered with a suitable glass or other transparent convex cover, H. The face of the rear is covered by a plate, I, which has for each key a proper opening, to allow the key to pass freely. The front side has a strong face-plate, J. To it are secured two guide-plates, K and L, which are located between the plate I of the rear and said face-plate J of the front, and in which the keys are guided. The periphery of all said plates is circular, of about the same diameter, and a circular case, M, is employed to cover them all on their periphery. The lower portion of said case has a base, N, either formed, cast, or secured to it, and is made with a flange or flanges to meet the top of the counter, so that the instrument may be properly secured upon the counter or place where it is used.

Three acting elements are used in this instrument, which consist of a type-action, of a paper-feeding device, and the ink-band-forwarding mechanism. They are all combined to operate automatically by the operation of the keys, so that by the operation of any one of the keys the corresponding type makes its impression or print, and by the retreat of the type the paper is fed for the succeeding impression, and also the ink-band is forwarded to provide for inking the succeeding type. Each type-action is arranged to act clear and independent of any of the others; but they all act alike upon the paper feeding and inking devices, which are common to all types and their keys.

Each type-action consists of the type-lever D, the key B, and on the lever the type O, corresponding with said key, and of an intermittent or secondary lever, F, between said type-lever and the key B, and a connecting-link, Q, from one lever to the other on their outer ends, and, finally, a spiral spring, R, arranged upon the stem b of the key B, by means of which the action is retracted after printing.

The lever P is arranged in nearly the same radial plane with the type-lever, but is employed on the rear side of the face-plate J, and the stem *b* is slotted to admit the lever in its end, and, by means of a pin through both, they are connected. The type-lever has its type O secured or formed on the inner end of it, so as to meet and print upon the paper strip on the central part of the cushion E, at which part all the type-levers meet the cushion to print the paper strip. Both levers D and P are guided in slotted posts S, to which they are pivoted by the fulcrum-pins T. The posts S, to which the type-levers are pivoted, are arranged in a circle not far from their outer ends and the periphery of the plate J. The posts S for the levers P are arranged in a circle nearly half the diameter of those for the type-levers. For the passage of the links Q the plate J has proper openings through it.

The paper-strip-feeding device is arranged centrally on a standard, U, which is secured to the rear side of the plate J, and consists of a large rough roller, V, which has upon its arbor a fixed ratchet-wheel, W, and of a small pressing or spring roller, X. Both these rollers are carried on said standard U, for which purpose the standard has two arms with arbors, in and between which they are placed. The large roller has flanges on its ends to guide the paper strip between. The small roller presses the strip upon the rough periphery of the large roller by means of the springs *c*, attached to the ends of the arbor on the small roller, and attached to the arms of the standard U. Said arms are slotted for the arbor ends of the small rollers shown in Fig. 7.

The ink-band G is made endless. It passes over two small rollers, Y Y, arranged nearly equidistant from the cushion E on the front side of the plate J, and over two felt rollers, Z and Z', arranged in rear of the standard U. The rollers Y are made of proper dimension to carry the band a little above the paper strip, which passes closely over the cushion E, being caused by the friction in passing through the openings 1 1 in the plate J.

The roller Z is mounted on a slide secured to the plate L, and the plate is provided with a slot for the purpose of tightening the band G. The roller Z' is carried in a forked standard, Z'', which is secured to the rear side of the plate J. The roller Z' has upon its arbor a fixed ratchet-wheel, W', and the ends of the arbor turn freely in the standard Z''. The roller Z' has flanges on its end to guide the ink-band properly.

To operate both ratchet-wheels W W', and thereby cause the forwarding of the ink-band and the feed of the paper strip, I employ a ring-shaped plate, *a*, which is arranged centrally on the rear side of the plate J, and is guided by a number of guide-posts, *d d*, which are equally distant from the center of the plate and each other, over which posts said plate *a* is properly fitted to slide readily by means of a hub provided on said plate *a* for

each of the posts *d* as a guide and to slide in. Each of said posts *d* is furnished with two spiral springs, *e* and *f*, of which the spring *f* is employed between the plates J and *a* around the post. The spring *e* is employed between the plate *a* and a screw-nut with which the posts are furnished on their outer ends, to adjust said springs *e*. The springs *e* are of superior force, and press the plate *a* home toward the plate J. Said plate *a* is furnished with two pawl-hooks, *g* and *h*, of which the pawl-hook *g* engages the ratchet-wheel W, and the pawl-hook *h* the ratchet-wheel W'. Each of the pawl-hooks *g* and *h* has a spring, *i*, pressing the hook into engagement, and the ratchet-wheels W and W' have spring-stops *j* engaging their teeth to prevent their turning back, so that they are obliged to follow the forward engagement of the pawl-hooks. Now, all the inner ends of the levers P extend beyond the ring-shaped plate *a*, which is furnished with a set-screw, *k*, for each of said levers to engage, but not while the instrument is at rest, and only after one of the keys has commenced to move. The plates K and L, which guide the stems *b* of the keys, have the greater part of their central portion cut out from them to leave the space open for a free passage of the paper strip and ink-band. The springs R, employed upon the stems *b*, rest with one end against the plate. Said stems have each a pin, *l*, secured through them, against which the other end of the spring bears.

The rollers Z and Z' are made of felt, and are impregnated with printing-ink, which is from them distributed on the ink-band. The paper strip is stored on the paper-roller *m*, which is located in a case under the counter, as shown in Fig. 2, for the purpose, or in a separate receptacle under the instrument. The same receptacle serves also to store the printed strip or record, and is made with a door, *n*, provided with lock and key for safe keeping.

The instrument herein shown has twelve keys, representing the numbers 1 2 3 4 5 6 7 8 9 0, and also the signs for a dot and a dollar-mark. Letters and other requisite signs may be employed. For ordinary use the numbers and signs are adequate for the purpose. The paper strip may be arranged, as shown in Figs. 3, 4, 5, in vertical direction, or, as shown in Fig. 8, in horizontal direction, or in any convenient direction to read the same with facility and add the figures conveniently.

When the instrument is operated the key representing the figure to record is pressed; the spring R and lever P are in consequence depressed, which depression causes the type to strike the ink-band and print in consequence the desired figure or number upon the paper strip. Simultaneously with the pressing of the key the inner end of the lever P is pressed against the plate *a*, and the springs *e* are caused to yield by the outward motion of said plate, and the pawl-hooks *g* and *h* drop each over a succeeding tooth on their respective ratchet-wheels W W'. By the retreat of the

key caused by the spring R and *e*, the lever P is drawn to the former position, the type-lever is withdrawn from the ink-band, and the plate *a* is forced with the hooks to its former position; the hooks in consequence turn the ratchets, and thereby feed the paper and forward the ink-band. The levers P when at rest bear against set-screws *t*, fitted in the plate K.

What I claim, and desire to secure by Letters Patent, is—

1. The printing-register case having on its front the types and paper strip or record and on its rear the operating-keys, and having the inking and paper-feeding and type-operating devices located within its case, in combination with a locked chamber under it containing the supply of paper and printed record, substantially as and for the purpose herein set forth.

2. The combination of the keys B and types O and levers D with the levers P and the plate *a*, with the pawl-hooks *g* and *h*, and with the ratchets W and W', substantially as and for the purpose herein stated.

3. The combination of the inking-band G, the paper strip F, with their rollers V and X and Z and Z', and ratchet-wheels W W', with the plate *a* and its pawl-hooks *g* and *h*, and the posts *d d*, and springs *e* and *f*, and the levers P and keys B, and type-levers D, substantially as and for the purpose herein mentioned.

CHARLES ABELE.

Witnesses:

JOHN E. BRODSKY,
R. BOEKLEN.