

C. E. W. GARDNER.
RECORDING MECHANISM.
APPLICATION FILED JULY 27, 1908.

955,789.

Patented Apr. 19, 1910.

3 SHEETS—SHEET 1.

Fig. 6

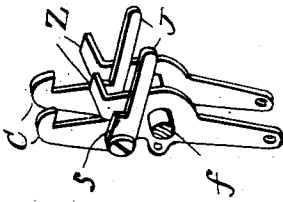
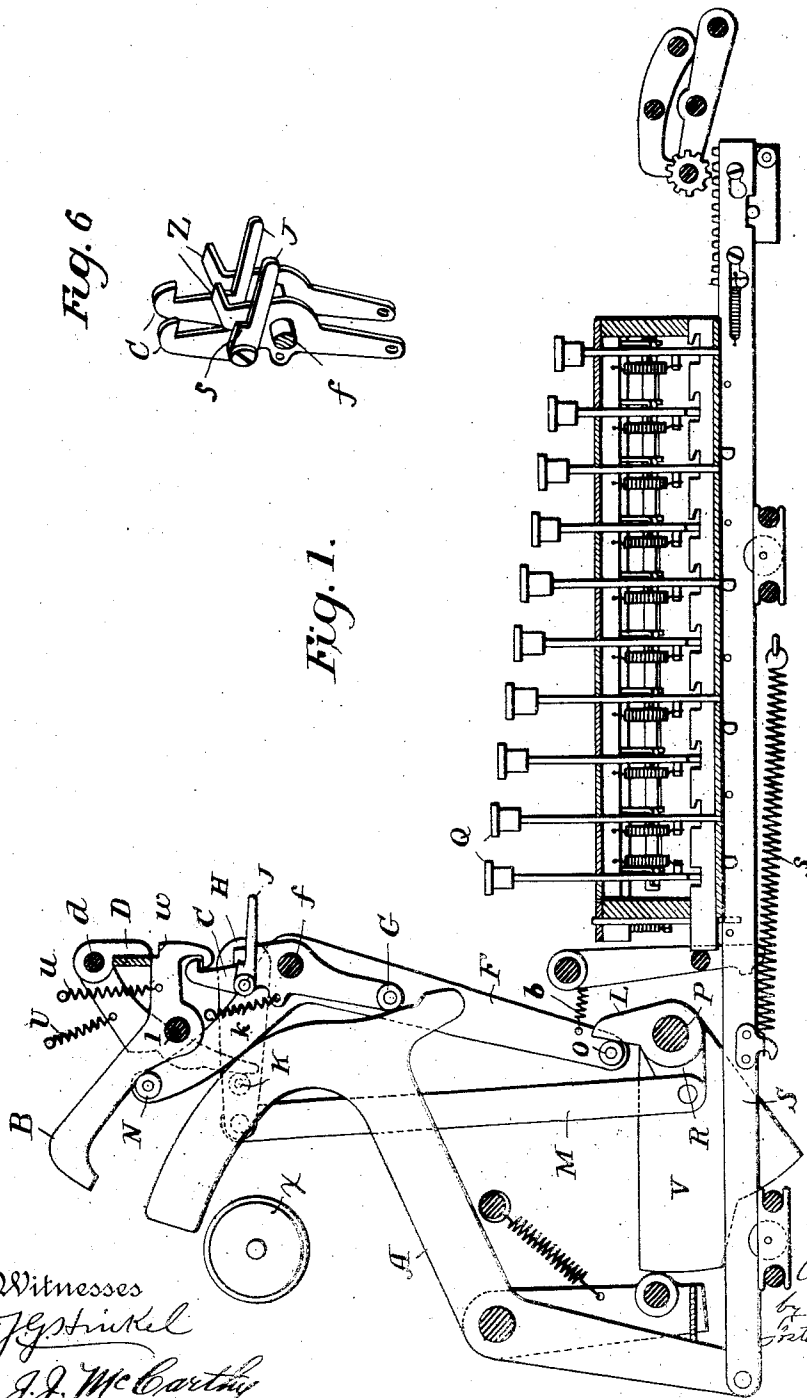


Fig. 1.



Witnesses
J. J. Stinkel
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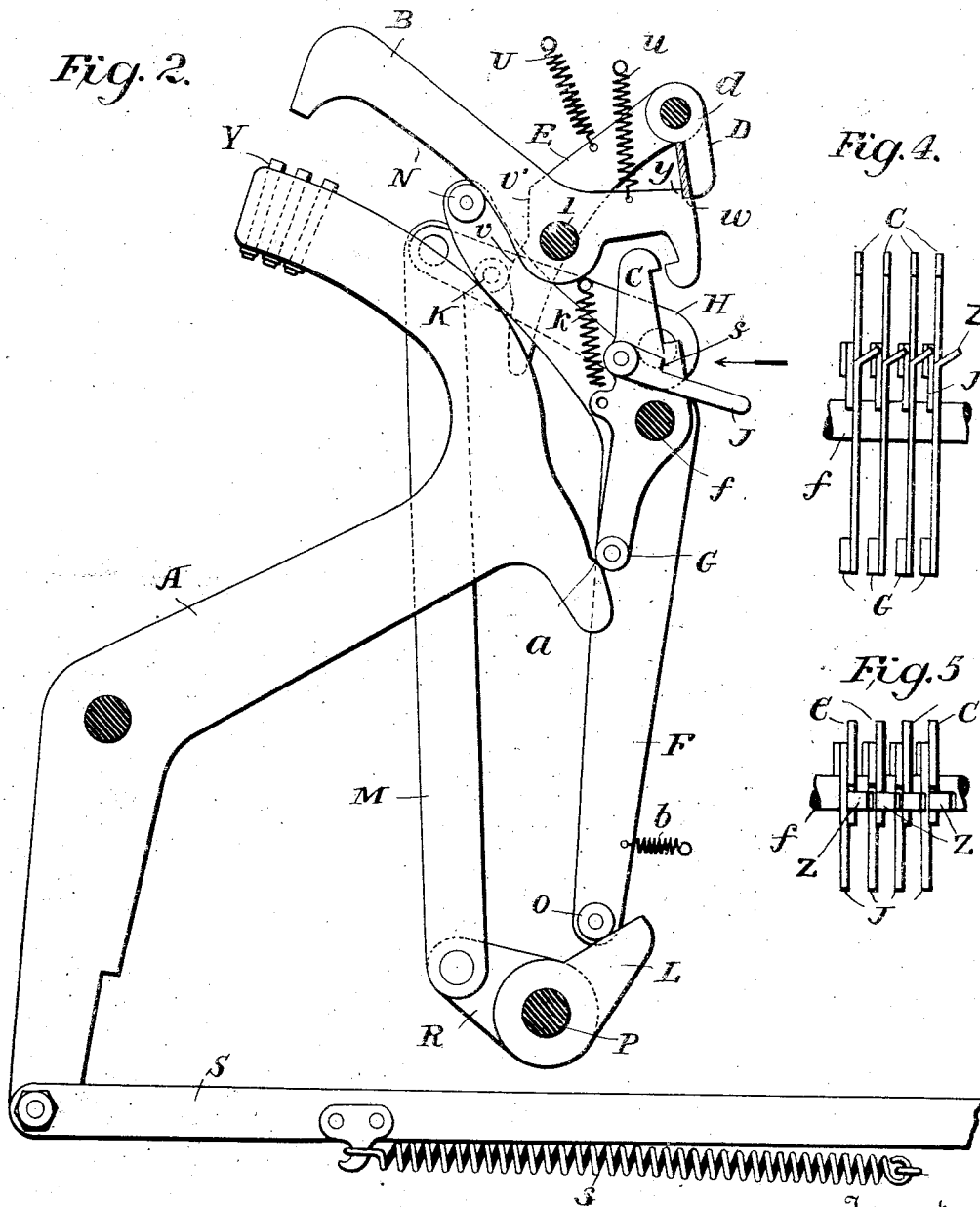
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3 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

CLYDE E. W. GARDNER, OF ORANGE, NEW JERSEY, ASSIGNOR TO PIKE ADDING MACHINE COMPANY, OF ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

RECORDING MECHANISM.

955,789.

Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed July 27, 1908. Serial No. 445,538.

To all whom it may concern:

Be it known that I, CLYDE E. W. GARDNER, a citizen of the United States, and residing at Orange, New Jersey, have invented certain new and useful Improvements in Recording Mechanism, of which the following is a specification.

My invention relates to recording apparatus, and more especially to that class of recording apparatus in which series of carriers support series of numbered type which are brought into printing line by the proper adjustment of the carriers and then operated by suitable strikers or hammers to secure the desired imprint, and my invention consists in certain features combined with the carriers and hammers to insure the proper operations of the hammers at the proper time, the printing of ciphers automatically at the right of the figures indicating any desired item, and when desired to enable the mechanism to be divided so as to print in independent sections, all as set forth hereinafter and as illustrated in the accompanying drawing, in which:

Figure 1 illustrates one form in which my improved recording mechanism may be made and showing the same arranged in respect to the keys in an adding machine; Fig. 2 shows the parts arranged in a different position; Fig. 3 is a modification; and Fig. 4 is a view of the detents looking in the direction of the arrow, Fig. 2; Fig. 5 a plan view of Fig. 4; Fig. 6 is a detail perspective view of the parts shown in Figs. 4 and 5.

While the parts of my apparatus may be constructed in different ways, I have illustrated them in the accompanying drawing as especially constructed and adapted for use in adding machines of the character illustrated in Letters Patent to W. H. Pike, Jr., No. 763,692.

The carriers A, as shown, are pivoted levers each provided with a series of numbered type Y, which are movably supported in the carriers, as in the Pike adding machine, and the carriers may be set in different positions by the adjustment of keys Q, that limit the movement of blades S, connected with the carriers and which are carried in one direction by springs s, and in the other direction by a cam V, as in the said Pike machine, the springs s acting to shift the carriers only after the keys are set, and

the type being brought into printing line above a platen X.

Coacting with each carrier is a hammer B, swinging upon a shaft 1, and coacting with each carrier and hammer is a detent C, the detent having a hook adapted to engage a hook on the hammer to hold it in its position away from the type, toward which it may be thrown when released by the action of a spring u.

The release of each hammer is effected after the carrier has been moved to position to bring the proper type to printing line and, while the detents may be swung or shifted to effect this result from any moving part of the apparatus, I have shown each detent as provided with a lower extended arm having a roller G, adapted to make contact with a shoulder a, on the carrier, upon sufficient movement of the latter to carry a figure type to position, whereby the release of the engaging hooks of the detent and hammer is effected.

Inasmuch as it is not desirable that the hammers B should descend during the movements of the carriers, I provide an additional detent or retainer D, in the shape of a blade, carried by arms hung to a shaft d, which blade extends across all of the hammers and is only shifted out of retaining position after all of the carriers have been set to printing position, and when the retainer is then shifted such hammers as have been released by the withdrawal of their detents will be allowed to descend and effect the desired imprint in connection with the type that are in printing line.

While the detents C are swung at the time of the movement of the carriers to printing position, the retainer is not shifted until after such movement, and therefore when the detents are operated directly from the carriers the retainer is operated from a working shaft P. One means of thus operating the retainer consists of a roller K, bearing upon an arm E, connected to the shaft d, said roller carried by an arm H, pivoted to the side frame of the apparatus and connected by a link M to an arm R on the shaft P, these parts being so arranged and timed that after the carriers have been moved to printing position, the roller K will be brought against a swell or shoulder v', and will thereby move the arm E to rock

the shaft *d* and carry the retaining blade away from the hammers.

Each detent C is connected with a spring *k*, which tends to carry the hook of the detent into engagement with that of the hammer, and it will be evident that where the detents are operated from the carriers A, the hooks of the detents would again be brought into engagement with those of the hammers after the carriers moved away from the rollers G, unless the tails of the carriers beyond the shoulders *a* were unduly prolonged. To avoid the necessity of thus lengthening these tails I provide means whereby after the detents are swung away from the hammers they cannot return until the printing operation is effected and the parts restored to position. For this purpose I provide each hammer with two bearings or shoulders *w*, *y*, the retaining blade being normally upon the shoulder *y*, but being moved onto the shoulder *w*, by the action of the roller K on a swell *v* of the arm E before the tail of the carrier passes from the roller G, so that the hammer is permitted to swing to a limited extent, but sufficient to carry its hook to such a height that the hook of the detent C cannot again engage the same when the carrier passes from the roller G, the subsequent movement of the retainer from the shoulder *w*, releasing the hammer. After the printing operation is effected the hammers must be raised to normal position, which is effected by means of a frame F swinging upon a cross-bar *f* and carrying a roller *o* at the lower end on which bears an arm L of the shaft P, and carrying a cross-bar N at the upper end which extends beneath the hammers and serves to elevate them when the frame F is swung in the direction of its arrow, Fig. 3. A spring U tends to hold the arm E against the roller K, and a spring *b* swings the frame F to maintain its roller *o* in contact with the arm L.

In order to record automatically ciphers at the right of the figures which are printed in an item (the term "figure" as herein employed not including the cipher) I make use of overlapping tails *z*, upon the detents C, so that when the detent is swung to release its associated hammer the tail of the said detent will act upon the next detent at the right, and this upon the next, and so on, to move all of the detents at the right of the one first adjusted to release all of the hammers at the right, the carriers in such case being normally set to bring the cipher type in position to print, or, as in the Pike machine, being moved one step from normal position to bring the cipher type into printing position on the first operation of the machine. Whatever may be the arrangement in this respect, I provide means whereby the transfer of movement

automatically from one detent to the other may be prevented at any desired point. To this end the overlapping tails *z* do not extend from one retainer to the other, but simply extend far enough to make contact with an adjustable bearing J frictionally secured upon the next detent, said bearing being shown in the form of a lever pivoted to the detent in such position that it may be swung out of position and when so swung will afford no contact point for the tail of the adjacent detent and no movement will therefore be imparted from one to the other.

It will be evident that an equivalent for the shoulders *v*, *w* on the hammers would be shoulders on the retainer to allow a preliminary short movement of the hammers before releasing them, see Fig. 3.

Without limiting myself to the construction and arrangement shown, I claim:

1. The combination in a recording mechanism of a series of movable type carriers, a hammer to each carrier, a detent to each hammer and carrier, and means for shifting the detent on the movement of its associated carrier, a retainer for all the hammers, and means for shifting it from retaining position after the carriers are in printing position, and adjustable bearings supported on the detents between the same for the purpose set forth.

2. The combination in a recording mechanism of a series of hammers, a detent for each hammer, a series of type carriers each provided with a projection arranged to make contact with and shift the associated detent on the movement of the carrier, and a single retainer for the hammers, and means for shifting it out of retaining position after the carriers are in printing position.

3. The combination in a recording mechanism and with series of movable type carriers, series of hammers and series of detents for said hammers, of means for shifting the detents out of retaining position on the movement of each carrier, a retainer, and two separated bearings therefor on each hammer, means for shifting the retainer from one bearing to the other to permit a movement of the hammer to carry it out of coacting position with its detent, and means for shifting the retainer away from the second bearing after the carriers are in printing position.

4. In a recording mechanism, the combination of a series of movable type carriers, series of hammers and series of detents, and a retainer for all of the hammers, and operating means, with bearings for the retainer arranged to permit the hammers to be carried to a position to obstruct the reengagement of the detents and hammers after the carriers have passed away from the detents.

5. In a recording mechanism, the combination of a series of movable type carriers,

series of hammers and series of detents, and
a retainer for all of the hammers, and op-
erating means and different bearings upon
the hammers all arranged to permit a limit-
5 ed movement of the hammers preventing re-
engagement of the detents therewith after
the carriers have passed from the detents
to permit a limited movement of the ham-

mers without releasing the same before the
movements of the carriers are completed. 10

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

CLYDE E. W. GARDNER.

Witnesses:

JOHN T. LANGHORNE,
EDMUND G. LANGHORNE.