W. H. PIKE, Jr.

RECORDING MECHANISM.

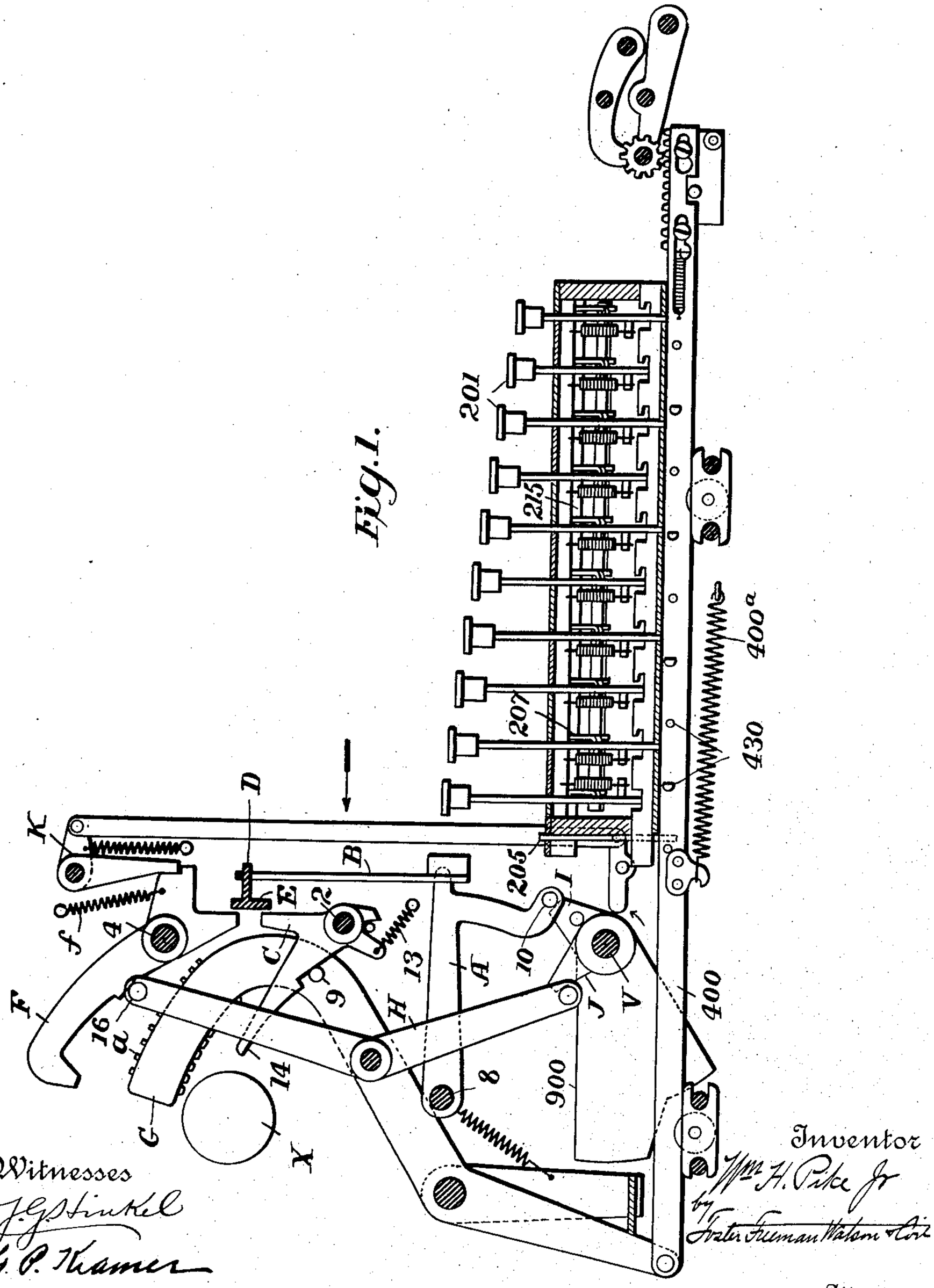
APPLICATION FILED SEPT. 19, 1908.

916,589.

Patented Mar. 30, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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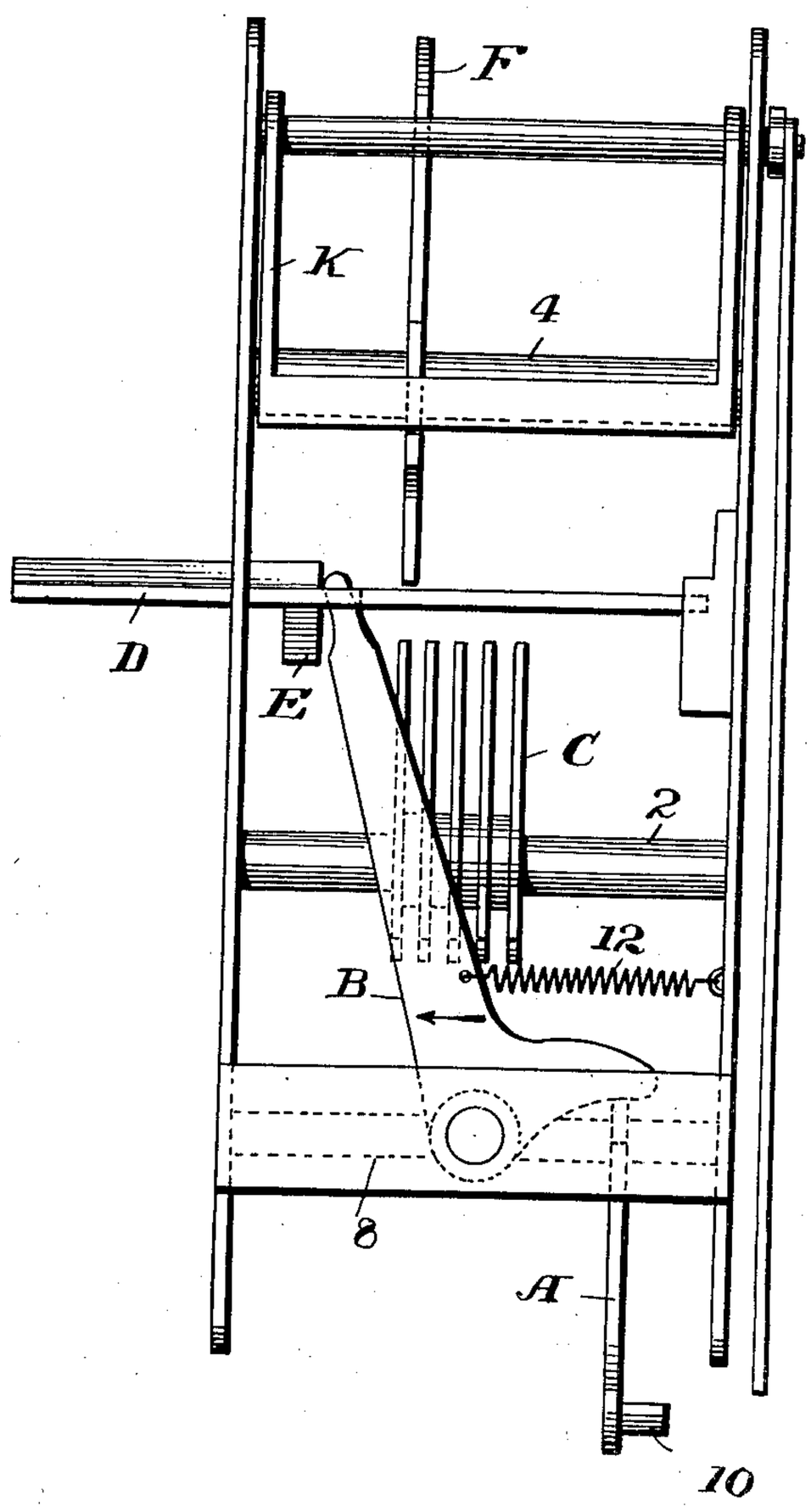
2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM H. PIKE, JR., OF LONDON, ENGLAND.

RECORDING MECHANISM.

No. 916,589. Specification of Letters Patent. Patented March 30, 1909.

Application filed September 19, 1908. Serial No. 453,789.

To all whom it may concern:

Be it known that I, WILLIAM H. PIKE, Jr., a citizen of the United States, formerly residing at Orange, New Jersey, now residing at London, England, have invented certain new and useful Improvements in Recording Mechanism, of which the following is a specification.

My invention relates to recording apparatus which, while adapted for use with different styles of recorders, is especially adapted for use with adding machines such, for instance, as that patented to me June 28, 1904, No. 763,692, and my invention consists in certain means for controlling the action of the hammers or strikers, or other devices, for acting upon type supported by movable carriers, as fully set forth hereinafter and as illustrated in the accompanying drawing, in which:

Figure 1 is an elevation of a recording apparatus embodying my improvement and showing it in connection with such parts of an adding machine as is necessary to enable its application to adders to be understood; Fig. 2 is a front view looking in the direction of the arrow, Fig. 1.

The type carriers G may be of any suitable construction and support movable type *a* which, by the movements of the carriers, may be brought above a platen X, and those which are in printing line will be struck by hammers F, under which term I include any kind of device which is the means of causing the type in printing line to make the desired impression.

As shown there is a series of hammers F mounted upon a cross-shaft 4 and combined with suitable actuating means, as a spring *f*, which tend to throw the hammers against the type, and a retainer K is set in position to engage shoulders of the hammers to hold them out of operating position. The retainer K is operated from a working shaft V, so as to release the hammers after the carriers G have been set in printing position.

As shown the carriers are moved in one direction each by a spring 400[a] connected to a slide 400 pivoted to the lower ends of the carriers, and are restored to normal inoperative position by the action of a restoring cam 900 of the shaft V, and the extent to which each carrier is moved is determined by stops 430 on the strips 400, making contact with the stems of keys 201, the parts being so arranged that the depression of any key having a figure thereon will permit the carrier to be moved to a position to bring the type imprinting said figure in printing line opposite the platen X.

There are swinging arms 205, one to each strip 400, in position to contact with one of the stops 430, and on depressing any key of a series the arm 205, connected with that series is swung by a shoulder upon the key stem bearing upon an arm 207 on a shaft 215, supporting the arm 205, thereby carrying the latter out of position, and the arms 205 that are not thus carried out of position, where no key of a series is set, will limit the movement of the coacting strip 400 so that as the cam 900 rises the associated type carrier can move to a position to bring a cipher type into printing line. This insures the printing of ciphers wherever the keys are not operated to carry the carriers to position to print "figures", under which term I include the nine integers. It is however undesirable to print the ciphers at the left of the figures constituting any number or item to be printed, and in order to avoid the printing of ciphers at these points I provide a detent which may be progressively shifted into position to contact with the hammers and prevent them from operating upon the type, which detent is automatically shifted so as to occupy a position to obstruct the movements of those hammers which coact with the type carriers at the left of those which are set in position to print figures. The said detent may be differently constructed and operated so as to be shifted to a position to obstruct the movement of all of the hammers at the left of those which are to be operated to print the item, but, as shown, the detent is in the form of a slide D having a wing E, and a traversing movement successively past the hammers is suitably imparted to the said detent at each operation of the rock-shaft V. As shown this movement is imparted by means of a bell crank lever B, the one arm of the lever entering an opening in the slide and the other arm resting upon a lever A pivoted at 8 to the frame of the machine and having a roller 10 adapted to bear upon a cam I upon the shaft V, which cam elevates the lever A and swings the lever B in the direction of its arrow, as the working shaft is rocked in the direction of its arrow to restore the parts to normal position.

When the working shaft is rocked in the opposite direction a spring 12, connected with the lever B, will swing the latter and move the slide D to the extent determined by one of a series of stops C. These stops may be of any suitable character but as shown consist of arms projecting from the rock-shaft 2 swung in one direction by a spring 13, another arm 14 from said shaft projecting over a stud 9 at the side of the adjacent carrier G. These parts are so arranged that when a carrier is in its normal retracted position the detent arm C will be out of position to coact with the wing E of the detent D, but when any carrier is set far enough toward the platen to bring a type that will print a figure into printing line, the contact of the stud 9, with a shoulder of the arm 14, will swing the arm upward and rock the shaft 2 so as to bring the stop arm C in position to prevent the detent D from sliding past the stop arm C, and therefore the said detent will not affect the movement of the hammers coacting with the carrier thus set forward, nor can it move to a position to prevent the movements of any of the hammers at the right, while the hammers at the left will all be obstructed by their contact with the detent even after they are released by the shifting of the retainer K. The parts are so constructed and arranged however that this shifting of the retainer which releases all the hammers does not take place until the detent has been set in position, and the various carriers have been set in position, to bring their proper type to printing line.

After the desired imprint has been made, an arm J upon the working shaft V will make contact with a stud upon a rocking shaft H, having at the top a cross-bar 16 which is thus brought against the under edges of the hammers and restores the same to such a position that the retainer K can engage the shoulders thereof, and can hold them out of action.

Any suitable means may be employed for imparting movement to the retainer K after the parts have been properly set in position. As shown a stud upon an arm carried by the rocking shaft may operate upon a lever connected by a link with an arm upon the shaft of the retainer K, a spring serving to swing the latter toward the hammers.

Without limiting myself to the precise construction and arrangement of parts shown, I claim as my invention:

1. The combination in a recording mechanism of a series of movable type carriers and means for moving the same to carry their type to printing positions, a series of hammers and means for bringing them against the type in printing position, a detent movable to positions to obstruct the action of one or more hammers according to the extent of its movement, and means whereby to shift the detent to obstruct the action of all hammers beyond those for acting on the type carried to position to print figures.

2. The combination in a recording mechanism of a series of type carriers, a series of hammers and means for operating the same, and a detent, and means for moving it to prevent the movement of all hammers beyond those coacting with the carriers set to position to print figures.

3. The combination in a recording mechanism of a series of type carriers, a series of hammers and means for operating the same, and a sliding detent, and means for moving it to prevent the movement of all hammers beyond those coacting with the carriers set to position to print figures.

4. The combination in a recording mechanism of a series of type carriers, a hammer and stop devices for each carrier, a detent movable to positions to progressively obstruct the movements of the different hammers, and means for shifting the stops into position to limit the movement of the detent on the movement of the carriers to printing position.

5. The combination in a recording mechanism of a series of type carriers, a hammer and stop device for each carrier, a detent movable to positions to progressively obstruct the movements of the different hammers, and means connected with the carriers for shifting the stops into position to limit the movement of the detent.

6. The combination in a recording mechanism of a series of type carriers, a hammer and a stop device for each carrier, a sliding detent movable to positions across the series of hammers to progressively obstruct movements of the hammers, and means for shifting the stops to positions to limit the movements of the detent.

7. The combination in a recording mechanism of a series of type carriers and a series of stop devices, each arranged to be shifted on the initial movement of a carrier, a detent, and means for moving the same automatically to positions limited by the stop devices, and a series of movable hammers arranged to contact with the detent when the latter is in position opposite the same to thereby prevent the movements of the hammers.

8. The combination of a recording mechanism of a series of movable hammers, a detent movable to positions to obstruct the action of a greater or less number of hammers according to the extent of its movements, a series of movable stop devices, one adjacent to each hammer, and a series of movable type carriers, and means whereby to set each stop in position to limit the movement of the detent on the movement of its coacting carrier to position to print a figure.

9. The combination in a recording mechanism of a series of type carriers, a correspond-

ing series of movable hammers, a detent movable to positions to progressively obstruct the movements of the hammers, a series of stop devices, one to each hammer, and means for setting the stop devices in positions to limit the movements of the detents.

10. The combination in a recording mechanism of a series of type carriers, a corresponding series of movable hammers, a detent movable to positions to progressively obstruct the movements of the hammers, a series of stop devices, one to each hammer, and means for setting the stop devices according to the positions of the carriers to limit the movements of the detent.

11. The combination in a recording mechanism of a series of type carriers and means for setting them to different positions, a series of coacting movable hammers and actuating means, a series of stop devices each arranged to be shifted on the initial movement of its coacting carrier, and a detent movable to contact with any stop set in proper position, to obstruct the movement of the hammers at the left of the arresting stop device.

12. The combination in a recording mechanism of type carriers and means for setting them to different positions, a series of coacting movable hammers and actuating means, a series of stop devices each arranged to be shifted on the initial movement of its coacting carrier, and a detent movable to positions to arrest the actions of the hammers, and limited in its movements by contact with the stop devices.

13. The combination in a recording mechanism of a series of type carriers, a coacting series of hammers, a detent and means for carrying it past the hammers to progressively contact with and prevent the movements thereof, a series of stop devices, each coacting with one of the hammers and movable into position to limit the movement of the detent, and means for setting the stop devices to an arresting position on the movements of the carrier toward printing position.

14. The combination in a recording mechanism of a series of movable type carriers, a series of movable hammers, a series of stop devices each arranged to be shifted on the movement of one of the carriers, and a movable detent adapted to prevent the action of different hammers according to its position, and controlled in the extent of movement by the positions of the stop devices.

15. The combination with the movable type carriers of a recording device, of a series of coacting hammers, a detent movable in position across the series of hammers to prevent the movements of the same, a series of stop devices, and means for moving each stop device into position to arrest the detent before contacting with the hammer of any carrier which has been set in a printing position.

16. The combination with the movable type carriers of a recording device, of a series of coacting hammers, a detent movable into position across the series of hammers to prevent movements of the hammers, a series of stop devices, and means connected with the carriers for moving the stop devices into positions to arrest the detent before contacting with the hammer of any carrier which has been set into printing position to print figures.

17. The combination with the movable type carriers of a recording device, of a series of coacting hammers, a detent movable into position across the hammers to prevent the movements thereof, a series of stop devices each consisting of an arm movable to a position across the path of the detent, and a stud on each carrier, and means for shifting the stop therefrom to a position across the path of the detent.

18. The combination in a recording mechanism of a series of type carriers, a series of coacting hammers and means for carrying the same into contact with the type of the carriers, a single retainer for holding the hammers away from the type, a detent movable to positions to prevent the action of the hammers when released, and means controlled by the movements of the carriers for limiting the movements of the detent in respect to the hammers.

19. The combination in a recording mechanism of a series of type carriers, a series of coacting hammers and means for carrying the same to contact with the type on the carriers, a single retainer for holding the hammers away from the type, a detent movable to positions to prevent the action of the hammers when released, and a stop device for each carrier, and means for moving each stop device on the movement of the adjacent carrier into a position to limit the movement of the detent.

20. The combination in a recording mechanism of a series of type carriers, series of hammers and operating means, retaining means for said hammers, a detent adjustable to prevent by its contact the movements of the hammers after being released, means for limiting the movement of the detent according to the positions of the carriers, a working shaft, and means for moving the detent and the retainer therefrom in one direction.

21. The combination in a recording mechanism of a series of type carriers, series of hammers and operating means, retaining means for said hammers, a detent adjustable to prevent by its contact the movements of the hammers after being released, means for limiting the movement of the detent according to the positions of the carriers, a working

shaft, and means for moving the detent and the retainer therefrom, and a hammer and carrier, and hammer and carrier restoring devices, and means for operating the same from the working shaft.

22. The combination in a recording mechanism of a series of movable type carriers, a series of movable hammers, a series of stop devices, each arranged to be shifted on the movement of one of the carriers, and a movable detent adapted to prevent the action of different hammers according to its position and controlled in extent of movement by the positions of the stop devices, and a working shaft, and means for moving the detent in one direction therefrom.

23. The combination in a recording mechanism of a series of movable type carriers, a series of movable hammers, means for operating the same, and a retainer for holding them in position, a series of stop devices, each arranged to be shifted on the movement of one of the carriers, and a movable detent adapted to prevent the action of different hammers according to its position and controlled in extent of movement by the positions of the stop devices, and a working shaft and means for shifting the retainer and the detent therefrom.

24. The combination in a recording mechanism of a series of type carriers, a series of hammers, means for setting all the carriers in position to print ciphers, other means for also moving the carriers to positions to print figures, a retainer for holding the hammers out of action, and means for shifting the retainer, and a detent movable to positions to prevent the operation of hammers at the left of the carriers set to print figures.

25. The combination with the series of movable hammers of a recording mechanism and with actuating means therefor, and with a retainer for holding the hammers immovable, of a detent for obstructing the movements of the hammers and movable to positions to act upon one or more of the series of hammers.

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

WILLIAM H. PIKE, Jr.

Witnesses:
FREDERICK T. MAWBY,
ALBERT WARREN.