

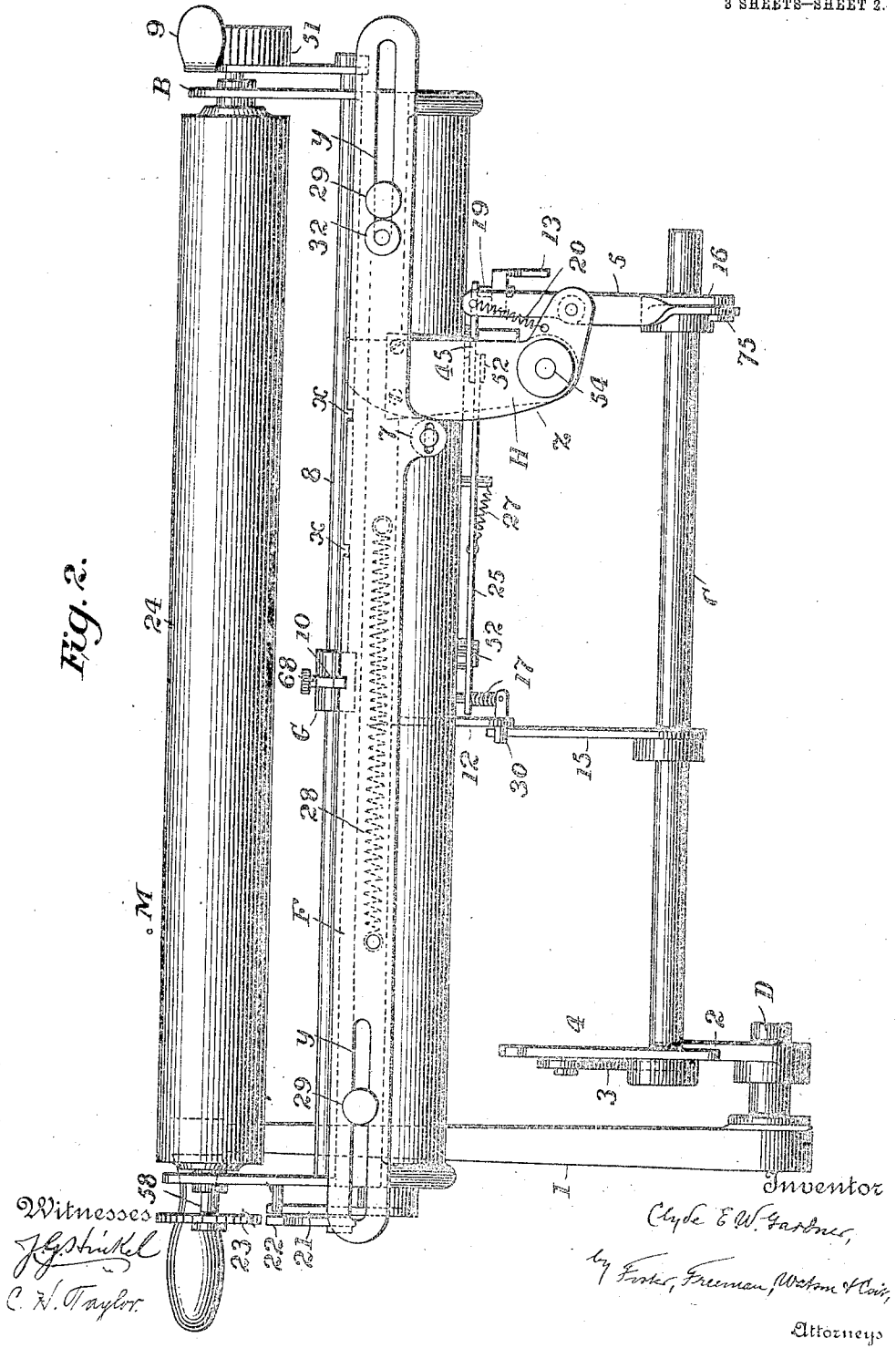
C. E. W. GARDNER.
 RECORDING MECHANISM.
 APPLICATION FILED SEPT. 24, 1908.

1,052,811.

Patented Feb. 11, 1913.

3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 4.

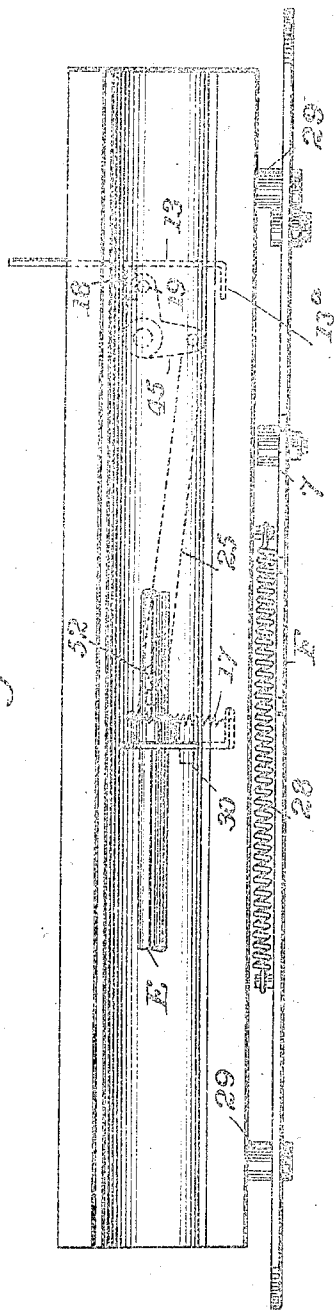


Fig. 7.

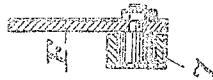


Fig. 6.

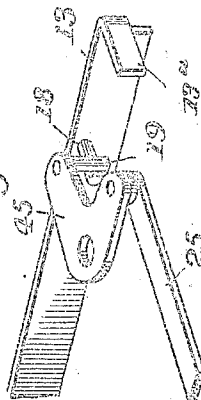
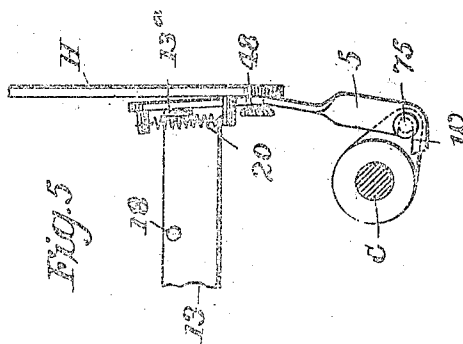


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

CLYDE E. W. GARDNER, OF ORANGE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO BURROUGHS ADDING MACHINE COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

RECORDING MECHANISM.

1,052,811.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed September 24, 1908. Serial No. 454,554.

To all whom it may concern:

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

This invention relates to that class of apparatus in which number items are recorded and where a sheet is carried upon a laterally movable support or platen opposite a series of type or type carriers, and the invention relates to means whereby the platen may be shifted so as to print in columns one of which may indicate dollars and cents while the other indicates numbers, as fully set forth hereinafter and as illustrated in the accompanying drawing, in which—

Figure 1 is a sectional elevation of sufficient of an adding machine of well-known construction to illustrate my invention; Fig. 2 is a rear view; Fig. 3 a section of an adjustable stop. Fig. 4 is a plan showing some of the principal parts below the carriage; Fig. 5 is a detached enlarged view of part of the devices for reciprocating the carriage and means for throwing said devices out of action; Fig. 6 is a detached view; and Fig. 7 a detached sectional view of details of the devices.

The frame A is suitably constructed to support a laterally sliding carriage B, and the other parts of the apparatus including a series of type carriers K, which support sliding type 490, a series of hammers L, a working shaft C, from which all the working parts of the mechanism are actuated, and a driving shaft D to which is connected an operating handle I, when the machine is to be worked by hand. The carriage supports a cylindrical platen M, and accumulator wheels Z are at the front of the machine. The general arrangement and operation of these parts as shown is similar to those in Letters Patent No. 763,692, granted W. H. Pike, Jr., June 28, 1904, and the machine herein described is more particularly an improvement upon that shown and described in an application of said W. H. Pike, Jr., filed January 29, 1907, No. 354,779.

To a plate 4 on the working shaft is connected the rear end of the link 3 which is connected at the front end to an arm 2 on

the shaft D. The platen M is rotatable and supported on the carriage B by a shaft 58, on which is a ratchet wheel 23 engaged by the end of a pawl 22 pivoted to an arm 21 on a shaft E, rocking in bearings on the carriage, a spring 50 carrying the pawl toward the ratchet wheel, and a spring 17 connected with a fixed stud 70 and to an arm 12 on the shaft E swings the arm 12 when released forward and the arm 21 and pawl backward. The shaft E slides through the hub of the arm 12, but is splined so that the arm must rock with the shaft, said arm passing through a slot in the frame so as to swing, but without lateral displacement.

The lower end of the arm 12 carries a stud 30, and an arm 15 on the working shaft C may be brought against this stud to thereby positively rock the shaft E, to turn the platen, with the carriage in any position. Normally this may occur at each movement of the working shaft to thereby move the platen one step and feed one step the sheet which lies on the platen, as usual in recorders. The platen can also be turned by hand by a hand-wheel 51. Provision is made however whereby to prevent turning of the platen on the rocking of the shaft C, so that items may be printed in line with each other. For instance a stud 52 supports one end of a reciprocating slotted blade 25, the other end of which, when the blade is moved to the left, Fig. 2, is brought opposite the front edge of the arm 12, when the latter is rearward and which arm 12 is thus prevented from swinging forward so that it will not be in a position to be struck and moved back by the arm 15.

To shift the carriage and the sheet thereon to record items in line in different columns, devices are connected with the working shaft, and with a control key or lever, whereby on each rocking of the shaft, and just before a printing, the carriage may be shifted. As shown the frame supports a slide F, which has slots γ , receiving screw studs 29 extending into the frame, and a spring 28 connected with the slide and with the frame tends to carry the slide to the right (Fig. 2) until a stop 32 (which may be adjusted in one of the slots) contacts with the adjacent stud 29.

An adjustable and separable connection is suitably provided between the carriage and

the slide F. Thus on the carriage is a catch G consisting of a hub on a rock-shaft 8, with a projecting wing 10 adapted to engage notches *w*, in an edge of the slide, a spring 53 connected with an arm on the shaft 8 tending to turn the latter to hold the catch in engagement with the slide. An arm or lever 9 at the end of the shaft 8 serves as a means of lifting the catch by hand so that the carriage may be moved to a position for its catch to engage either notch *w*.

Means are provided whereby the slide F may be operatively connected with or disconnected from the working shaft. Thus a lever H rocks upon a fixed stud 54 and bears with an edge of its long arm upon a roller stud 7 on the slide, so that as the lever rocks on the stud a reciprocating motion is imparted to the slide in one direction by the lever; in the other by the spring 28. The stud 7 may be adjusted on the slide in respect to the lever H to vary the throw. To the end of the short arm of the lever H is pivoted, so as to rock loosely, a connecting lever or blade 5, the lower end of which has a notch *w*, adapted to receive a pin 75 on an arm 16 projecting from the shaft C, and when the lever 5 is in the position shown in Fig. 1, the rocking of the shaft C in the direction of its arrow will reciprocate the slide. Where such reciprocation is required the lever 5 is rocked to carry its lower notched end forward to engage the pin 75, when the rocking of the working shaft will shift the position of the carriage. The adjustment of the devices connecting the working shaft and the carriage reciprocating means may be effected from any suitable control device, as a key or lever. As shown there is a control lever J on a shaft 56, rocking in the frame of the machine, and to the lower end of this lever is pivoted, by a slip connection, a link 13, and the bent rear end 13^a of this link bears against the forward face of the upper end of the lever 5, and also has a side lug 18 bearing on a pin 19, on one arm of the horizontal bell-crank lever 45 pivoted to the frame, the other arm of said bell-crank lever being connected with the blade 25. When the upper end of the control lever J is drawn forward the link 13 is pushed back, rocks the bell-crank 45, and shifts the latter to slide the blade 25 to the left, Fig. 2 in front of the arm 12, and prevents the arm from swinging forward and rocking the shaft E and the vertical feeding of the sheet, as before described, and at the same time the rear end of the link pushes back the upper end of the lever 5, so that its lower end swings forward into operative connection with the working shaft C. The parts may be retained in this relation by a hooked catch 26 which when the upper end of the lever J

is pulled forward engages a pin on the lever and is so held by a spring 156. On releasing the catch of the control lever and pushing back its upper end the link is drawn forward; the lever 5 swings out of engagement with the working shaft under the influence of a spring 20; the pin 18 on the link is removed from the pin 19, and spring 27 restores the blade 25 to its normal position.

The parts in the position last described effect no shifting of the carriage, while the sheet is fed vertically one step at each operation of the working shaft and after printing each item, so that the items are printed in column. When however it is desired to print two items horizontally in line with each other, the control lever J is pulled forward, when the vertical feeding of the paper will be arrested, and the cam lever will be put into connection with the working shaft. As a result, at the next anticlockwise swing of the cam lever H, the slide F and carriage will be carried to the left, Fig. 2, and as the said cam lever has a face Z, of an outline to cause a dwell at the end of the movement, the carriage is held immovable long enough for the imprint to be made. As the cam lever rocks back the carriage also slides back under the action of the spring 28, and the catch 26 is tripped automatically by means of a suitable connection with any coacting part of the machine, when the cam lever will be disconnected from the working shaft and a second imprint can be made in line with the first, and thereafter the devices for feeding the sheet vertically will resume operations. Thus it is seen that after setting the control device the apparatus is operated to print an item in the column at the left, and then when the control device is released another may be printed in line with that last printed, instead of below it, and thereafter the parts will assume their normal relations.

The printing of items in line with each other is generally required in listing where the first column, or item in line indicates a given number of articles, while the second item indicates value. Of course in such case the first item should not divide the figures, as usual, to indicate cents, and it is therefore necessary to cut out of action the two right-hand type carriers, and in some cases also the next which carries a period dividing cent indications from dollars. This result may be effected in different ways, as any suitable means for throwing out of action the parts that result in printing from the units, tens and decimal point type—if used—may be employed. As shown hooked catches 37 are pivoted so that they may engage studs 39 on the hammers that are to be held out of action, and these catches are connected with means, preferably the

control lever J, by which they can be swung to engage the studs 39 wherever the other parts are set to print numbers instead of indicating values. Thus the shaft 56 has an arm 34 which is connected by a link 35 with an arm on a shaft 36 carrying the catches 37, so that when the control device J is in the position shown in Fig. 1 (when the first column or number item is printed) the hammers which operate on the cents type will not be free to act, but when the parts are in position to print the values in the second column, the hammers coacting with the catches will be operative.

One means of automatically shifting the catch 26 is shown. There is an arm 60 on the shaft C, which, as the latter assumes its normal position, strikes a dog 61 on a lever 62 connected to the catch by a link 63. The dog is held normally in the position shown in Fig. 1, by a spring 64, and will not yield as the arm 60 rises and passes from it so the lever 62 is swung in the direction of its arrow, and the catch releases the control lever J, which is then swung to the left at the lower end by a spring 66 connected to the arm 34 on the shaft 55. On the reverse movement of the shaft the dog 61 will swing down and no movement will be imparted to the lever 62 or catch 26. The catches 37 may be inserted wherever required to hold the hammers out of action. A greater scope of adjustment of the carriage is secured by mounting the catch G to slide on the rod 8, and securing it in any position by a set-screw 68. Or as shown in Fig. 3 a sliding stop 79 may be applied to the slide F to slide thereon, a set screw 72 holding it in adjusted position and in this stop is a notch 8 to receive the wing 10. The amount of shift is controlled by setting the stop 22 in different positions to limit the extent of return movement of the slide and carriage, and the latter may be set in different positions in respect to the slide. By shifting the slide wholly to the left, Fig. 2, and securing it by means of the locking stop 32, it is converted into a stationary tabulating bar.

I do not here claim any of the features of construction as shown in this application and also shown and claimed in another application.

Without limiting myself to the constructions and arrangement shown I claim:—

1. In a machine adapted to record items in two parallel columns, the combination of a sliding carriage, a platen on said carriage, means for printing upon a sheet carried by the platen, a shaft, movable connections between said shaft and carriage for moving the platen relatively to the printing devices from one columnar position to another during a partial movement of said shaft, means for throwing said connections

into and out of operative position, and means for returning the carriage to its former position following a further movement of said shaft.

2. In a machine adapted to record items in two parallel columns, the combination of a sliding carriage, a platen on said carriage, means for printing upon a sheet carried by the platen, a shaft, movable connections between said shaft and carriage for moving the platen relatively to the printing devices from one columnar position to another during a partial movement of said shaft, means, including a hand lever, for throwing said connections into and out of operative position, and means for returning the carriage to its former position following a further movement of said shaft.

3. In a machine adapted to record items in two parallel columns, the combination of a sliding carriage, a rotatable platen on said carriage, means for printing upon a sheet carried by the platen, a shaft, movable connections between said shaft and carriage for moving the platen longitudinally from one columnar position to another, means for returning the carriage to its former position following a further movement of said shaft, other connections between the shaft and the platen for rotating the latter step by step, and means for throwing said two connections alternately into and out of operative position.

4. In a machine adapted to record items in two parallel columns, the combination of a sliding carriage, a rotatable platen on said carriage, means for printing upon a sheet carried by the platen, a shaft, movable connections between said shaft and carriage for moving the platen longitudinally from one columnar position to another, means for returning the carriage to its former position following a further movement of said shaft, other connections between the shaft and the platen for rotating the latter step by step, and a hand lever and devices for throwing said two connections alternately into and out of operative position.

5. The combination in a recorder of printing devices including a platen, a sliding carriage for the platen, a vibrating lever for sliding the carriage, an operating shaft, means for connecting said shaft to actuate the said lever, and means for shifting the said connecting means into and out of operative position.

6. The combination in a recorder of printing devices including a platen, a sliding carriage for the platen, a vibrating lever for sliding the carriage, an operating shaft, means for connecting said shaft to actuate the said lever, and means including a hand lever for shifting the said connecting means into and out of operative position.

7. The combination with a sliding carriage and platen carried thereby, of a lever for sliding said carriage, an operating shaft, connections between the lever and shaft for vibrating the lever on the rocking of the shaft, and means for shifting the connections into and out of operative position.
8. The combination with a sliding carriage and platen carried thereby, of a lever for sliding said carriage, an operating shaft, connections between the lever and shaft for vibrating the lever on the rocking of the shaft, and means including a hand lever for shifting the connections into and out of operative position.
9. The combination with the sliding carriage and platen of a recording mechanism, of a lever for sliding the carriage, an actuating shaft provided with an arm, a blade jointed to the lever and adapted to engage said arm, and means for shifting the blade into and out of engagement with said arm.
10. The combination with the sliding carriage and platen of a recording mechanism, of a lever for sliding the carriage, an actuating shaft provided with an arm, a blade jointed to the lever and adapted to engage said arm, and means including a hand lever for shifting the blade into and out of engagement with said arm.
11. The combination with a sliding carriage of a recording mechanism, of a rotatable platen, a lever for sliding the carriage, a shaft, movable connections between said shaft and the lever, means for shifting said connections into and out of operative position, means for rotating the platen step by step, and connections between said means and said shaft, adapted to be shifted into and out of operative position.
12. The combination with a sliding carriage of a recording mechanism, of a rotatable platen, a lever for sliding the carriage, a shaft, movable connections between said shaft and the lever, means for rotating the platen step by step, connections between said means and said shaft, and means for shifting both of said connections into and out of operative position.
13. The combination with the sliding carriage of a recording mechanism, of a rotatable platen, a lever for sliding the carriage, a working shaft, movable connections between said shaft and the lever, means for rotating the platen step by step, connections between said means and said working shaft, and means including a hand lever for shifting both of said connections into and out of operative position.
14. The combination with the sliding carriage of a recording mechanism, of a rotatable platen, a lever for sliding the carriage, a working shaft, movable connections between said shaft and the lever, means for rotating the platen step by step, connections between said means and said working shaft, and means including a hand lever for alteringly shifting both of said connections into and out of operative position.
15. The combination of the sliding carriage, rotatable platen, rock shaft E and means for rotating the platen therefrom, an arm 12 on said rock shaft, a second shaft, and arm 15 thereon in position to contact with the arm 12, and a blade movable into position to engage the arm on the shaft E and hold it out of position to be engaged by the arm 15.
16. The combination of the sliding carriage, rotatable platen, rock shaft E and means for rotating the platen therefrom, an arm 12 on said rock shaft, a second shaft, and arm 15 thereon in position to contact with the arm 12, a blade movable into position to engage the arm on the shaft E and hold it out of position to be engaged by the arm 15, and means for shifting said blade.
17. The combination of the sliding carriage, rotatable platen, rock shaft E and means for rotating the platen therefrom, an arm 12 on said rock shaft, a second shaft, and arm 15 thereon in position to contact with the arm 12, a blade movable into position to engage the arm on the shaft E and hold it out of position to be engaged by the arm 15, and means including a hand lever for shifting said blade.
18. The combination in a recording mechanism of a frame, a carriage sliding longitudinally thereon, a platen carried thereby, means for printing upon a sheet carried by the platen, a slide F sliding longitudinally on the frame, means connecting the slide with the carriage, a working shaft adapted to actuate the printing means, and connections between the working shaft and slide for sliding the latter.
19. The combination in a recording mechanism of a frame, a carriage sliding longitudinally thereon, a platen carried thereby, means for printing upon a sheet carried by the platen, a slide F sliding longitudinally on the frame, means connecting the slide with the carriage, a working shaft adapted to actuate the printing means, and connections adjustable into and out of operative position between the working shaft and slide for sliding the latter.
20. The combination in a recording mechanism of a frame, a carriage sliding longitudinally thereon, a platen carried thereby, means for printing upon a sheet carried by the platen, a slide F sliding longitudinally on the frame, means connecting the slide with the carriage, a working shaft adapted to actuate the printing means, and connections adjustable into and out of operative position and including a hand lever between the working shaft and slide for sliding the latter.

21. The combination in a recording mechanism of a frame, a carriage sliding longitudinally thereon, a platen carried thereby, means for printing upon a sheet carried by the platen, a slide F sliding longitudinally on the frame, means connecting the slide detachably with the carriage, a working shaft adapted to actuate the printing means, and connections between the working shaft and slide for sliding the latter.

22. The combination in a recording mechanism of a frame, a carriage sliding longitudinally thereon, a platen carried thereby, means for printing upon a sheet carried by the platen, a slide F sliding longitudinally on the frame, means connecting the slide detachably and adjustably with the carriage, a working shaft adapted to actuate the printing means, and connections between the working shaft and slide for sliding the latter.

23. In a machine adapted to record items in two parallel columns, the combination of a sliding carriage, a platen on said carriage, means for printing upon a sheet carried by the platen, a shaft, movable connections between said shaft and carriage for moving the platen relatively to the printing devices from one columnar position to another during a partial movement of said shaft, means for throwing said connections into and out of operative position, a catch for holding said means in one position, and means for returning the carriage to its former position.

24. The combination with a sliding carriage, platen and means for printing upon a sheet carried by the platen, of an operating shaft, movable connections between said shaft and carriage for shifting the latter from the shaft, devices including a hand lever for throwing said connections into and out of operative position, a catch for holding the hand lever in one position, and means for automatically releasing the catch.

25. The combination with the sliding carriage, platen, working shaft, operating shaft, and connections for actuating the carriage and platen from said working shaft, of devices including a hand lever for shifting said devices into and out of operative position a catch for holding the hand lever in one position, and means for automatically

shifting said catch as the working shaft assumes its normal position.

26. The combination with the carriage, platen, movable type carriers and type, and series of hammers of a recording mechanism, of means for shifting the carriage, a hand lever and connections for shifting said means into and out of operative position, and means connected with said hand lever for preventing the printing from certain hammers with the hand lever in one position.

27. The combination with the carriage, platen, movable type carriers and type, and series of hammers of a recording mechanism, of means for shifting the carriage, a hand lever and connections for shifting said means into and out of operative position, catches for engaging certain of the hammers to hold them out of operation, and connections between the hand lever and said catches for the purpose described.

28. The combination with the sliding carriage, platen, type carriers and hammers of a recording mechanism, of a working shaft, connections for shifting said carriage and other connections for rotating the platen from said shaft, means including a hand lever for shifting both said connections into and out of operative position, and means for preventing the printing action of certain of the hammers, said means being operatively connected with said hand lever.

29. The combination with the sliding carriage, platen, type carriers and hammers of a recording mechanism, of a working shaft, connections for shifting said carriage and other connections for rotating the platen from said shaft, means including a hand lever for shifting both said connections into and out of operative position, means for preventing the printing action of certain of the hammers, said means being operatively connected with said hand lever, a catch engaging the hand lever in one position, and means actuated from the said shaft for disengaging the catch as the shaft returns to normal position.

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

CLYDE E. W. GARDNER.

Witnesses:

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ARTHUR PENTECOST.