J. L. DALTON AND J. MAGNUS.

ADDING AND RECORDING MACHINE.

APPLICATION FILED MAY 15, 1909.

1,328,822.

Patented Jan. 27, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

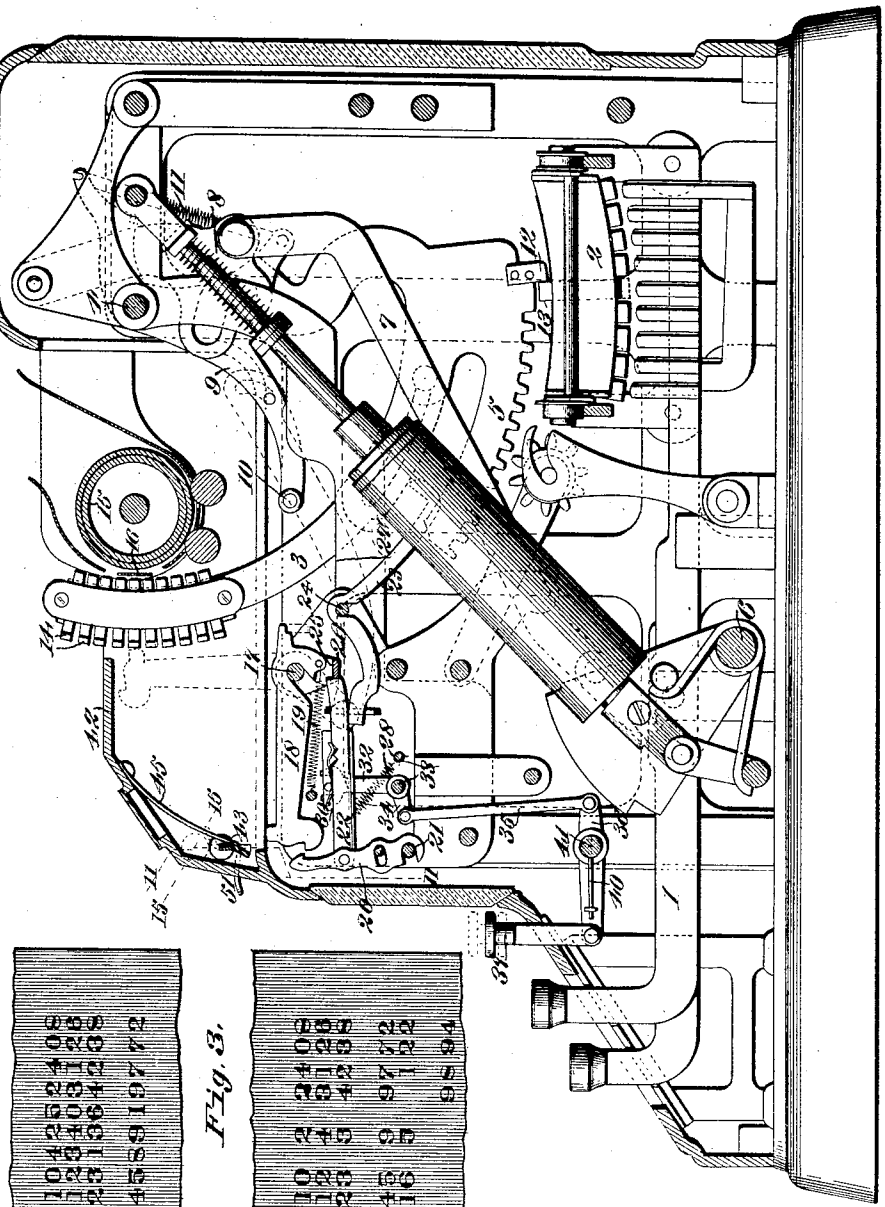


Fig. 2.

Fig. 3.

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2 SHEETS—SHEET 2.

Fig. 4.

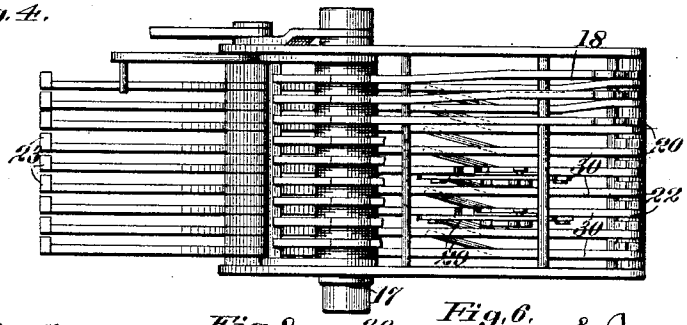


Fig. 5.

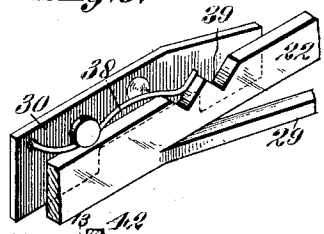


Fig. 8.



Fig. 6.

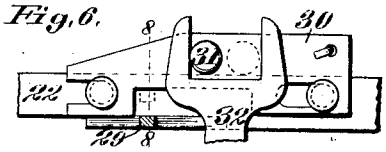


Fig. 9.

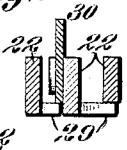


Fig. 7.

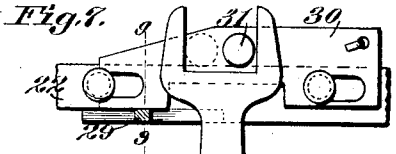


Fig. 10

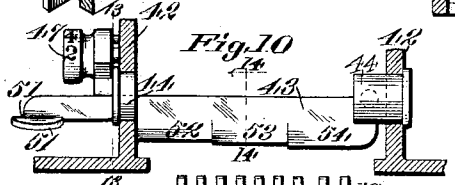
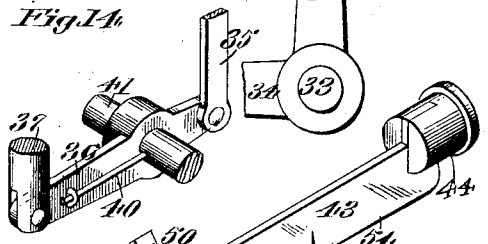


Fig. 14.



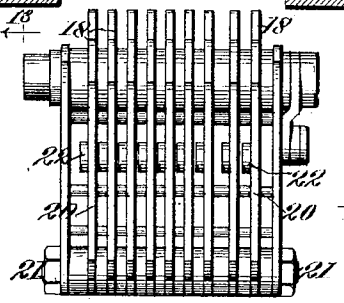


Fig. 11

Fig. 12.

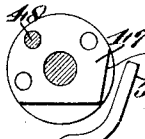
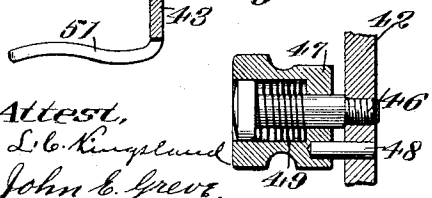


Fig. 13.



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UNITED STATES PATENT OFFICE.

JAMES L. DALTON AND JOHN MAGNUS, OF POPLAR BLUFF, MISSOURI, ASSIGNORS TO DALTON ADDING MACHINE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

ADDING AND RECORDING MACHINE.

1,328,822. Specification of Letters Patent. **Patented Jan. 27, 1920.**

Application filed May 15, 1909. Serial No. 496,285.

To all whom it may concern:

Be it known that we, JAMES L. DALTON and JOHN MAGNUS, citizens of the United States, residing at Poplar Bluff, Missouri, have invented a new and useful Adding and Recording Machine, of which the following is a specification.

This invention relates to adding and recording machines, and more particularly to the recording mechanism thereof.

One object of this invention is to provide devices operable in connection with the recording mechanism of an adding machine to adjust said mechanism whereby two or more columns of lists or other data may be produced simultaneously. This operation is frequently desired to enable the operator to record in one column dates or other data, and in a parallel column the items listed on such dates. In certain types of adding machines the printing mechanism comprises a series of type carriers operable side by side to record on paper in a paper carriage, and hammers or devices arranged to drive the type on the type carriers effectively to print. One type of this machine is illustrated in the application of Hubert Hopkins, Serial No. 140,390, filed January 24, 1903, patented September 24, 1912, No. 1,039,130, and the present invention is peculiarly adapted for use in connection with such a machine.

Another object of the invention is to provide means whereby any desired portion of the recording mechanism may be rendered inoperative when any other portion is operated to record. This is to enable the operator to print at the foot of any column total of the items listed, and to throw out the total and leave blank the total space at the foot of the columns containing the dates or other data, when such is desired. Other uses of this non-listing mechanism are obvious and do not require specific mention.

In the accompanying drawings wherein we have illustrated our invention embodied in a machine of the general type disclosed in the aforesaid Hopkins patent, Figure 1 is a longitudinal vertical sectional view of such a machine showing the arrangement of the present invention therein. Fig. 2 shows a list as made by a series of the type carriers all of which operate to record. Fig. 3 illustrates a list in which two of the figure columns are blank showing that the "split" devices had been operated to cause the machine to record the three vertical columns of figures shown. Fig. 4 is a plan view of the hammer section showing the devices whereby the hammers may be held inoperative to "split" the machine. Fig. 5 is a perspective view of the hammer release device. Figs. 6 and 7 show the devices whereby the hammer release devices may be caused to operate or remain inoperative as desired. Fig. 8 is a sectional view of three of the hammer release bars or links taken on the line 8—8 of Fig. 6. Fig. 9 is a corresponding sectional view taken on the line 9—9 of Fig. 7. Fig. 10 is a front view of the hammer section and of the hammer retaining device whereby any predetermined number of the hammers may be prevented from striking the type. Fig. 11 is a perspective view of the hammer-detaining device removed from its support. Fig. 12 is a sectional view taken on the line 12—12 of Fig. 10. Fig. 13 is a sectional view of the adjusting member whereby movement of the hammer-detaining device may be regulated or limited. Fig. 14 shows a detail of the key mechanism.

In the machine above referred to and as the same is now manufactured, there is a keyboard comprising a set of keys arranged upon the vertical extensions of the key levers 1, which are operable in connection with the transversely movable carriage 2 to set up or register numbers in said carriage. A series of type carriers 3 swing from a shaft 4 and have movement coördinate with the gear parts 5 connected thereto respectively. A shaft 6 has a link 7 connecting the same with a plate 8 mounted on the shaft 4. Arms 9 extend downwardly from the shaft 4 and have a rod 10 extending transversely between the lower ends thereof in front of the vertical portions of the type carriers and gear parts, whereby when said rod is in its idle position the type carriers will be held inoperative. When the shaft 6 is rocked and the link 7 is drawn forward, the rod 10 permits the type carriers to be moved by their springs 11 until the heel pieces 12 in connection with the gear parts 5 engage against the pins 13 which had been set up or adjusted in the carriage to represent or register the number therein, all of which is well understood in the art to which this invention relates. Forward movement of the

type-carriers in this way alines at the printing point or line the type 14 on the different type carriers which are necessary to print the number previously registered in the carriage. The paper is supported around a platen 15 in front of which the ribbon 16 extends and against which the type are driven to record in the usual manner. A shaft 17 is supported transversely in front of the type carriers and a series of hammers or drivers 18 are pivoted on said shaft, being actuated as required to strike or drive the type against the ribbon by springs 19. Pawls 20 pivoted on the rod 21 engage with and hold the hammers in idle position. A link or bar 22 is connected to each pawl and at their rear ends rest upon the levers 23 which are pivoted on the rod 24. The shaft 17 is a rock shaft and at each forward movement of the type carriers is automatically rocked, as is well known. Two arms 25 are attached to the ends of the shaft 17 and said arms support a bar 26. Each type carrier when it moves forwardly beyond "0" position depresses the rear end of the corresponding lever 23 by moving the shoulder 27 on said type carrier against the upturned end of said lever, which operation raises the bar or link 22 for the corresponding hammer. In idle position the bars or links 22 are held below the path of movement of the bar 26 by springs 28, but when the lever 23 for any of said bars is operated as mentioned, the rear end of said bar will be raised into the path of movement of the bar 26 so that the latter will contact against said bar 22 and thereby move the same and its pawl 20 forwardly, releasing the pawl from the hammer and permitting the spring 19 to throw the hammer against the type as indicated by dotted lines in Fig. 1. The bars 22 have laterally extending tongues or projections 29 extending from higher to lower orders. That is to say, the bar in tens position has a projection extending under the bar in units position, while the bar in hundreds position has a projection extending under the bar in tens position, and so on, so that when any bar having such extension is raised, the bars toward the right therefrom will also be raised by the coöperation of their extensions 29. In the embodiment shown, the extension 29 on the bar in the sixth or hundred of thousands position does not extend under the bar in the next lower order. Since it is necessary that the type carrier move forwardly beyond its "0" position before it will operate its lever 23 effectively to release the corresponding hammer, it will be obvious that a character may be printed in the sixth column and other digits printed in the units, tens, hundreds and thousands columns without recording any character in the space between thousands and hundreds of thousands as shown in Fig. 3. However, the machine is provided with means whereby a cipher may be recorded in the fifth column whenever desired. A plate 30 is supported by the bar 22 in the fifth position by pin-and-slot devices as shown in Fig. 6, and in its under side has a notch wherein the projection 29 of the adjacent bar moves when said adjacent bar is lifted. The plate 30 may be moved in the opposite direction to position wherein the projection 29 will engage with said plate when said projection is raised, and thereby the bar 22 to which said plate is attached will be lifted and the hammer released. This construction is also applied to the bars in the seventh and eighth positions, the construction being duplicated in these two positions. Each of the plates 30 has a laterally extending projection 31 embraced by two arms of a bifurcated lever 32, one of which is provided for each of said plates. The levers 32 are mounted on a shaft 33 and are provided with extensions 34 connected by links 35 with the rear ends of the levers 36. The stems of keys 37 extend through slots in the keyboard plate and are pivoted to the levers 36, whereby the levers 32 may be operated effectively to move the plates 30 to operative or inoperative position as desired. Each of the plates 30 has a spring 38 arranged to engage in notches 39 on the adjacent bar 22 whereby said plate will be yieldingly detained in its two adjustments. The keys 37 and the parts connected therewith are returned to their idle position after each operation by means of springs 40 connected to the shaft 41 upon which the levers 36 are mounted and having one end connected with said levers 36 as shown in Fig. 1.

From the foregoing it will be seen that the machine may be adjusted to render operative all of the type carriers. It may also be adjusted to render inoperative the type carriers in predetermined positions to enable the operator to record two or more parallel columns. In such use it is usual to record the items that are to be added in the column at the right, and the dates and other data which are not to be added in the parallel column at the left, the latter columns being separated from the former by the blank space left by the inoperative type carriers, a specimen of such work being illustrated in Fig. 3. In performing this character of work it is desirable that the totals be taken only for the column at the right. For this purpose, and to avoid confusion which would arise by producing totals at the foot of the other columns, we have provided means whereby the hammers coöperating with the type carriers in the left hand columns may be detained and held inoperative. The hammers operate within an extension 42 of the case. A bar 43 is

connected to axis members 44 (Fig. 10) which have bearings in the case 42, the said bar 43 extending downwardly from its axis supports. A spring 45 holds the bar 43 in its forward position out of the path of movement of the hammers so that the latter may all pass thereunder without obstruction. A trunnion 46 attached to the side of the extension of the case 42 supports an adjustable stop member 47 held in its different positions by a pin 48 on the case extending into holes in said member. A spring 49 interposed between the head of the trunnion 46 and the inner end of the member 47 holds the latter in engagement with the pin in whatever position said member may be adjusted. An extension 50 on the bar 43 extends adjacent to the member 47 and another extension 51 affords means for manual operation of said bar. The member 47 is provided with a cam portion and when adjusted in one position will permit the bar 43 to move only a slight distance; in its second position, will permit the bar 43 to move a farther distance, and in its third position will permit maximum movement to said bar. Corresponding to these surfaces of the cam the bar 43 has off-set portions 52, 53 and 54; the portion 52 being deflected rearwardly to the maximum extent, the portion 53 being deflected to a less degree, and the portion 54 not being deflected at all. When the member 47 is adjusted to permit the bar 43 to move to the minimum extent the portion 52 of said bar will be moved into the path of movement of a number of the hammers at the left—in the present instance three—so that the machine may record to its full capacity less three when this adjustment is used. By adjusting the member 47 to the next position as shown in Fig. 12, both the portions 52 and 53 will be moved into the path of movement of the hammers and in the present instance will be engaged by and stop four of the hammers at the left permitting five at the right to operate, which is the proper operation for the character of work illustrated in Fig. 3. In this way the full total of the items listed in the column at the right will be printed while the total of the various figures printed in the other columns will be thrown out, thereby avoiding the confusion that would otherwise occur from such a record.

We are aware that there may be modifications and alterations in the construction and arrangement of the parts embodying this invention without departure from the spirit and scope of the invention, and we do not restrict ourselves to identical features of construction or arrangement, but what we claim and desire to secure by Letters Patent is—

1. In an adding and recording machine, the combination of series of printing type, a normally retracted hammer for coöperating with the type of each series to print, means for releasing said hammers for printing operations, a selectively settable abutment for engaging and preventing varying numbers of said hammers from operating after they have been released, and a settable device for stopping movement of said abutment in any one of various selected positions.

2. In an adding and recording machine, the combination of series of printing type, hammers for coöperating with said type to print, latch devices for retaining said hammers retracted, means for releasing said hammers, springs for driving said hammers when released, an abutment movable to any one of various selected positions to prevent varying numbers of said hammers from striking the type after they have been released, and a device for stopping said abutment in position to prevent the desired number of hammers from striking the type.

3. In an adding and recording machine, the combination of series of printing type, hammers for driving said type selectively to print, a separate latch for holding each of said hammers normally retracted, a bar supported transversely of said hammers, means for moving said bar to position to stop selected ones of said hammers when said hammers are released, and a device settable to stop said bar in any one of various selected positions.

4. In an adding and recording machine, the combination of a series of type-carriers, a series of type mounted on each carrier, means for moving said type-carriers to position any selected type for printing, hammers operable to drive said type to record, an independently releasable latch for holding each of said hammers in retracted position, means for releasing said latches from said hammers after the type have been positioned by the type-carriers, and a selectively settable abutment for preventing selected ones of said hammers from striking the corresponding type which have been positioned by said type-carriers.

5. In an adding and recording machine, the combination of type-carriers and adding mechanism operable in adding and in clearing operations, type mounted on said type-carriers, hammers for coöperating with said type to print when said type-carriers are operated in adding and in clearing operations, latches for holding said hammers normally retracted, automatic means controlled in part by said type-carriers for releasing said latches from said hammers as an incident to operation of said type-carriers in adding and in clearing operations, and a selectively settable abutment for preventing operation of varying numbers of

said hammers when the corresponding type-carriers are operated in adding or in clearing operations.

6. In an adding and recording machine, the combination of a series of type-carriers, mechanism for operating said type-carriers in adding and clearing operations, type driving hammers, latches holding said hammers normally retracted, means for effecting release of said latches from the corresponding hammers as an incident to operation of said type-carriers in adding or in clearing operations, springs for actuating said hammers when they are released as aforesaid, and a selectively settable abutment for preventing operation of varying numbers of said hammers when they are released by operation of the corresponding type-carriers in adding and in clearing operations.

7. In an adding and recording machine, the combination of a series of hammers arranged in numerical orders, latches for holding said hammers normally retracted, a releasing bar for each of said hammers, a coupler supported by one of said bars and movable thereon into and out of position to coöperate with the adjacent bar, a manipulative device movable in one direction to move said coupling into position to coöperate with the adjacent bar and movable in the opposite direction to move said coupler out of position to coöperate with the adjacent bar, means for restoring said manipulative device to idle position after each operation, and an element carried by said coupler and engaging said bar to hold said coupler in whatever position it may be placed relative to said bar.

8. In an adding and recording machine, the combination of a series of type-carriers, hammers for coöperating with the type on said type-carriers to print, individually releasable latches holding said hammers normally retracted, mechanism controlled in part by said type-carriers for releasing said latches as an incident to operation of said type-carriers, and manually operable means for selectively engaging and preventing operation of said hammers after they have been released as a result of the operation of the corresponding type-carriers.

9. In an adding and recording machine, the combination of a series of hammers, means holding said hammers normally in retracted position, means for releasing said hammers, a manually operable device for selectively engaging and preventing operation of said hammers after they have been released, and a settable stop for stopping and holding said device in position to prevent operation of the selected hammers.

10. In an adding and recording machine, the combination of a series of printing hammers, means normally holding said hammers retracted, means for releasing said hammers, a settable abutment for engaging and preventing operation of predetermined numbers of said hammers after they have been released, means for actuating said abutment to position to prevent operation of said hammers, and additional means for stopping said abutment in different selected positions to prevent operation of the predetermined number of hammers.

11. In an adding and recording machine, the combination of a platen, type-carriers operable toward and away from said platen, a series of type mounted on each of said type-carriers, hammers for driving the type toward said platen to print, means holding said hammers normally retracted, means for releasing said hammers, means for driving said hammers against the type, and a settable device for engaging and preventing varying numbers of said hammers from striking the type which are in printing position adjacent to the platen.

12. In an adding and recording machine, the combination of a series of printing hammers, means holding said hammers normally retracted, devices for releasing said hammers, a settable element for preventing operation of said hammers after they have been released, a member for predetermining which of said hammers will be prevented from operation by said element, and a device settable to stop and hold said element in different selected positions to prevent operation of varying numbers of said hammers.

13. In an adding and recording machine, the combination of a series of type-driving hammers aranged in numerical orders, latches holding said hammers normally in retracted position, means for releasing said hammers, permanently stationary bearings, an element mounted in said bearings and extending transversely of said hammers, a series of abutments on said element, means for moving said element relative to said bearings into the path of movement of said hammers, and automatic means for moving said element out of the path of movement of said hammers.

14. In an adding and recording machine, the combination of adding wheels arranged in numerical orders, type-carrying and rack devices also arranged in numerical orders for operating said adding wheels to add numbers, means for operating said type-carrying and rack devices and thereby said adding wheels in printing and adding operations, mechanism for coöperating said type-carrying and rack devices and adding wheels in printing and clearing operations, hammers arranged in numerical orders for coöperating with said type-carrying devices, latches holding said hammers normally in retracted position, means controlled in part by said type-carrying devices for releasing said hammers as an incident to operation of

the corresponding type-carrying devices in adding and clearing operations, means for striking said hammers against the type on said type-carrying devices to print the numbers added and also the totals represented in said adding wheels, and means for obstructing operation of predetermined numbers of said hammers after they have been released by operation of the corresponding type-carrying devices in clearing operations.

15. In an adding and recording machine, the combination of printing hammers arranged in numerical orders, means whereby printing operation of a hammer in a higher order will result in printing operation of hammers in lower orders, means for preventing operation of adjacent hammers in lower orders when other hammers in higher orders operate in printing operations, and means for obstructing operation of predetermined numbers of said hammers, and a device for operating said means.

16. In an adding and recording machine, the combination of printing hammers arranged in numerical orders, latches holding said hammers normally in retracted position, means for releasing said hammers, means controlled by the release of hammers in higher orders controlling the release of hammers in lower orders, means for preventing the release of selected hammers in lower orders when the hammers in higher orders are released, and a rockable element provided with abutments for obstructing operation of selected groups of the hammers in higher orders after thay have been released.

17. In an adding and recording machine, the combination of printing hammers arranged in numerical orders, latches holding said hammers normally in retracted position, means for releasing said hammers, coupling devices whereby the release of a hammer in a higher order controls the releasing of hammers in lower orders, means for disabling said couplings to enable hammers in higher orders to be operated while adjacent hammers in lower orders remain retracted, and means under control of the operator for obstructing operation of selected groups of the hammers in higher orders after they have been released in selected operations.

18. In an adding and recording machine, the combination of adding wheels arranged in numerical orders, type-carrying devices also arranged in numerical orders for operating said adding wheels in adding and clearing operations, means for operating said type-carrying devices and adding wheels in operations, mechanism for coöperating said type-carrying devices and adding wheels in clearing operations, hammers arranged in numerical orders, latches holding said hammers normally in retracted position, means for releasing said hammers incidentally to the operation of said type-carrying devices in adding and in clearing operations, means for striking said hammers against the type on said type-carrying devices effectively to print the numbers added in adding operations, and also to print the total represented in said adding wheels in clearing operations, and a selectively settable element for obstructing operation of predetermined numbers of said hammers after they have been released by operation of the corresponding type-carrying devices and adding wheels in clearing operations.

19. In an adding and recording machine, the combination of a series of printing hammers arranged in numerical orders, latches holding said hammers normally in retracted position, devices for releasing said latches, a coupler movable into and out of position to effect coöperation between adjacent releasing devices whereby releasing devices in higher orders may be made to control the releasing devices in lower orders or not as desired, and an element movable into position to obstruct operation of all of the hammers in the numerical orders at one side of said coupler.

20. In an adding and recording machine, the combination of printing hammers arranged in numerical orders, latches holding said hammers normally in retracted position, devices for releasing said hammers, couplers movable into and out of position to effect coöperation between different pairs of said releasing devices, means operable to place said couplers in position whereby release of a hammer in one of the higher orders will effect release of all of the hammers in lower orders, or in position to enable certain of the hammers in higher orders and certain of the hammers in lower orders to operate while the hammers in intermediate orders remain in retracted position, as desired, and an element movable to position to obstruct operation of all of the hammers which are released in the orders at one side of the hammers in the intermediate orders mentioned.

21. In an adding machine, the combination of a series of printing hammers, latches for holding said hammers normally retracted, releasing devices for said hammers, a bar supported transversely of said hammers, abutments on said bar, a device holding said bar and said abutments out of position to obstruct movement of said hammers, a manipulative device for actuating said bar to position the abutments in position to obstruct movement of said hammers, and a controlling device settable to limit extent of movement of said bar to determine which of said abutments may be moved to position to obstruct movement of hammers.

22. In an adding and recording machine, the combination of a series of type-driving hammers, latches holding said hammers nor-

mally retracted, means for releasing said hammers, a bar extending transversely of said hammers, abutments on said bar, means holding said bar in position to hold said abutments out of position to obstruct movement of hammers, a manipulative device for actuating said bar to move said abutments to position to obstruct selected ones of said hammers, a device settable to determine which of said abutments may be moved to obstruct movement of the corresponding hammers, and means for indicating which of said hammers will be obstructed by said abutments.

23. In an adding and recording machine, the combination of type-driving hammers, latches holding said hammers normally retracted, means for releasing said hammers, means for operating said hammers when released, a rocking bar, abutments on said bar for obstructing corresponding hammers, manipulative means for actuating said bar to place the abutments in position to obstruct hammers, and a device for moving said bar from the position to which it is moved by said manipulative means.

24. In an adding and recording machine, the combination of a series of type-driving hammers, latches holding said hammers normally retracted, releasing devices for said hammers, means for actuating said hammers when they are released, a support, abutments on said support adapted to be moved to position to obstruct operation of corresponding hammers, a manipulative device for actuating said support for the purpose last mentioned, and a settable device for determining extent of movement of said support.

25. In an adding and recording machine, the combination of type-driving hammers normally held in retracted position, means for actuating said hammers when they are released, a bar extending transversely of said hammers, a series of abutments on said bar each corresponding to at least one of said hammers, elements holding said bar in position to retain said abutments out of position to obstruct movement of the corresponding hammers, a manipulative device for actuating said bar to move said abutments to position to obstruct operation of the corresponding hammers, and a settable device for determining extent of movement of said bar and thereby determining which of said abutments will obstruct the corresponding hammers.

26. In an adding and recording machine, the combination of a series of type-driving hammers, latches holding said hammers normally retracted, devices for releasing said hammers, a coupler movable into and out of position to effect or to interrupt coöperation between adjacent releasing devices as desired, whereby said series of hammers may be divided into independently operable groups separated by intermediate hammers remaining in retracted position, a support, abutments on said support, and means for actuating said support to position to obstruct the hammers in one of said groups when said hammers are released.

27. In an adding and recording machine, the combination of a series of type-carriers arranged in numerical orders, a series of type-driving hammers also arranged in numerical orders, latches holding said hammers normally in retracted position, releasing devices therefor, a coupler movable into and out of position to effect or to interrupt coöperation between said releasing devices, whereby said series of hammers may be divided into independently operable groups separated by intermediate hammers remaining in retracted position when said groups of hammers operate, automatic means for operating said releasing devices as an incident to operation of the corresponding type-carriers, and an element movable to position to obstruct all of the hammers in one of said groups when they are released by operation of the corresponding type-carriers.

28. In an adding and recording machine, the combination of adding mechanism, type-carriers for actuating said adding mechanism in adding and in clearing operations, type carried by said type-carriers, a series of hammers for coöperating with said type to print, latches holding said hammers normally in retracted position, releasing devices therefor, a coupler movable into and out of position to effect or to interrupt coöperation between adjacent releasing devices, as desired, whereby said series of hammers may be operated as a series or as independently operable groups separated by intermediate hammers remaining in retracted position when said groups of hammers operate, automatic means for operating the releasing devices of each group as an incident to the operation of the corresponding type-carriers, and an element movable to position to obstruct all of the hammers in one of said groups when the entire series of type-carriers are operated in clearing operations.

29. In an adding and recording machine, the combination of type-driving hammers arranged in numerical orders, latches holding said hammers normally in retracted position, devices for releasing said hammers, a coupler carried by one releasing device and movable into and out of position to coöperate with an adjacent releasing device, means for retaining said coupler in or out of coöperating position, as desired, and manipulative means for obstructing operation of the hammers in the numerical orders at one side of said coupler.

30. In an adding and recording machine, the combination of type-driving hammers;

means for obstructing operation of varying numbers of said hammers, comprising a movable member with varied abutments for obstructing hammers; manipulative means for actuating said member to position to obstruct hammers; a device limiting extent of movement of said member and indicating the number of hammers obstructed thereby; and means for moving said member out of position to obstruct hammers.

31. In an adding and recording machine, the combination of type-driving hammers; means for obstructing operation of varying numbers of said hammers, comprising a movable member with stepped abutments to obstruct hammers; a manipulative device for actuating said member; an arm on said member; and an adjustable stop adapted to be engaged by said arm to limit extent of movement of said member.

32. In an adding and recording machine, the combination of a series of type-driving hammers, pawls holding said hammers normally retracted, a releasing bar in connection with each of said pawls, an actuator for moving said releasing bars to disengage said pawls from said hammers, springs holding said releasing bars normally out of position to be engaged by said actuator, means for moving said releasing bars to position to be engaged by said actuator, a coupler supported by one of said releasing bars and adapted to be moved into or out of position to coöperate with an adjacent bar, and means for actuating said coupler.

33. In an adding and recording machine, a series of hammers arranged in numerical orders, pawls holding said hammers normally retracted, releasing bars connected to said pawls, an actuator for moving said releasing bars to disengage said pawls from said hammers, means holding said bars normally out of position to coöperate with said actuator, means for moving said releasing bars individually to position to be engaged by said actuator, means controlled by certain of said releasing bars for moving the adjacent ones in lower orders into position to be engaged by said actuator, a coupler supported by one of said releasing bars, means for moving said coupler into and out of position to coöperate with the adjacent releasing bar, and means for holding said coupler in either of said positions.

In testimony whereof, we hereunto affix our signatures to this specification this 10th day of May, 1909, in the presence of two witnesses.

JAMES L. DALTON. [L. S.]
JOHN MAGNUS. [L. S.]

Witnesses:
ROYE V. LOWRY,
HARRY DUNHAM.