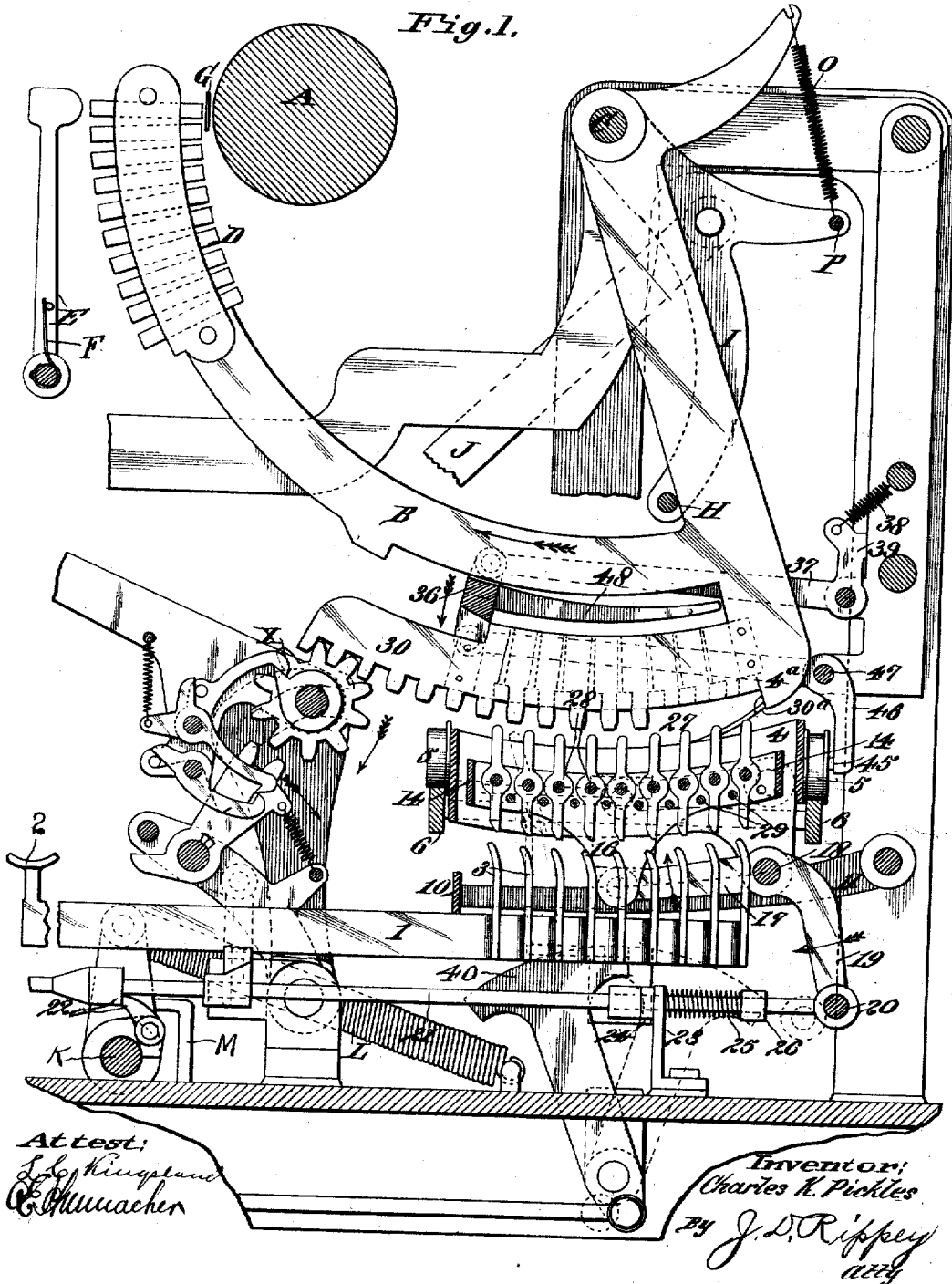


C. K. PICKLES.  
 ADDING AND RECORDING MACHINE.  
 APPLICATION FILED JUNE 7, 1909.

1,005,779.

Patented Oct. 10, 1911.  
 3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS-SHEET 2.

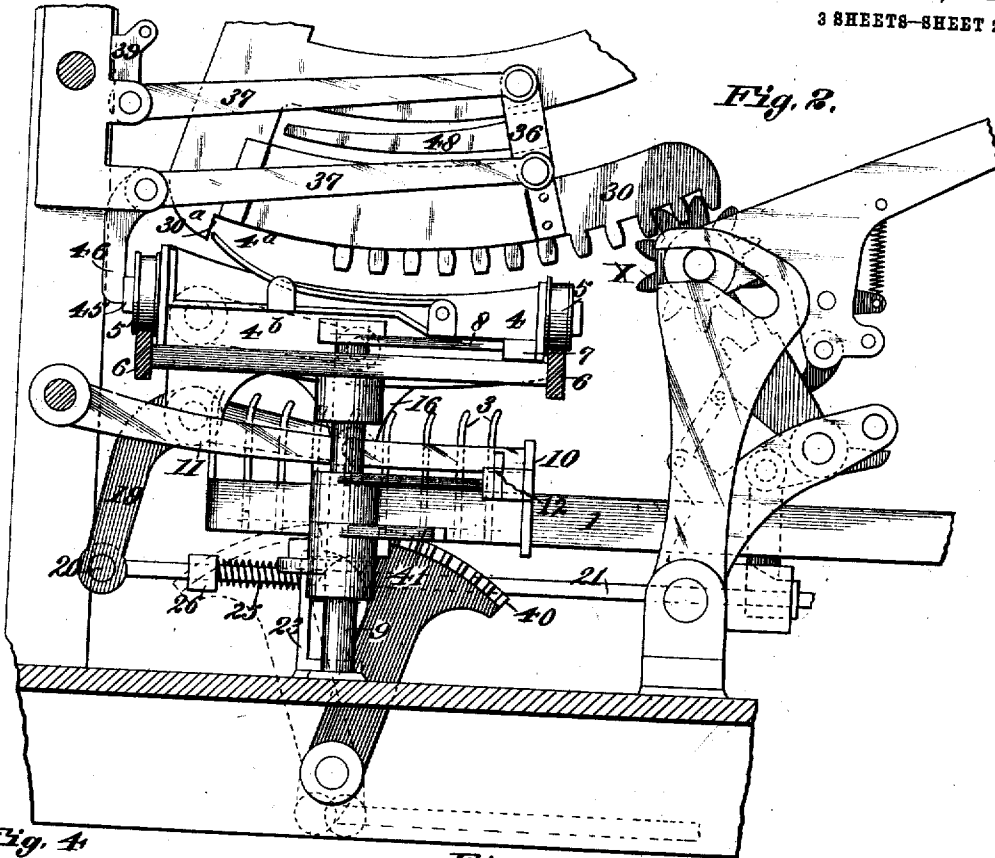
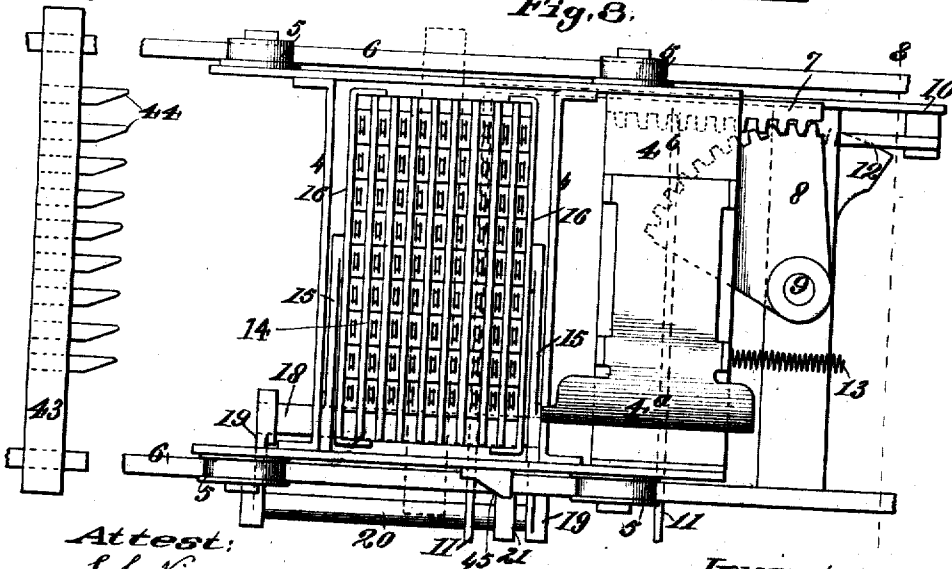


Fig. 2.

Fig. 4.

Fig. 3.



Attest:

L. C. Kingsland  
 C. Schumacher

Inventor:

Charles K. Pickles  
 By J. D. Rippey  
 Atty.

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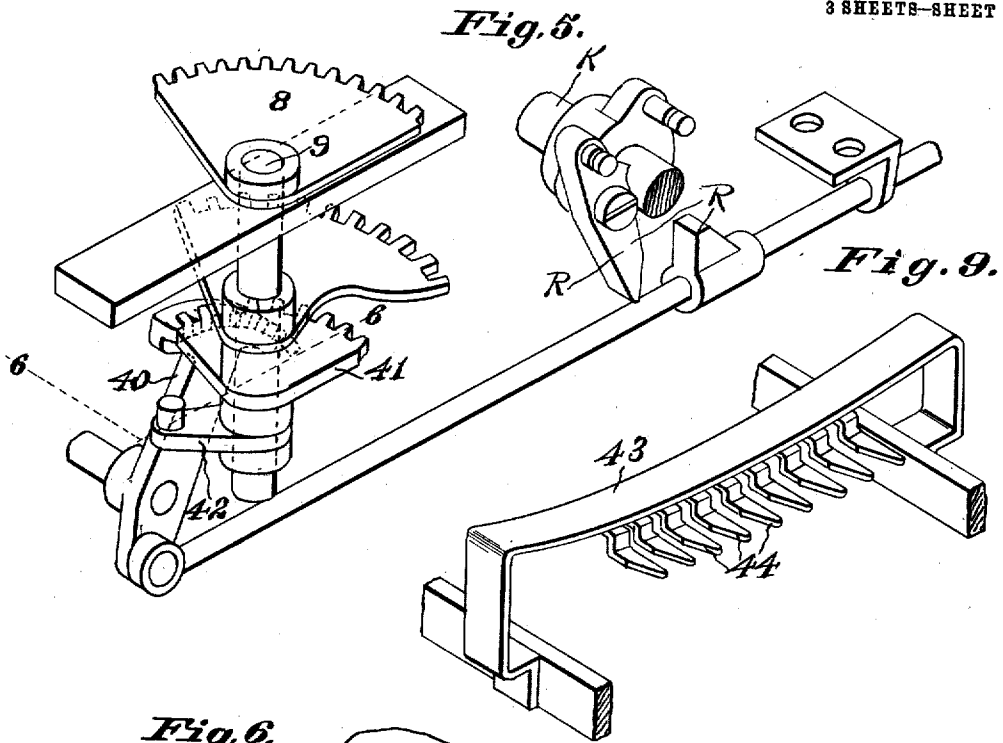


Fig. 6.

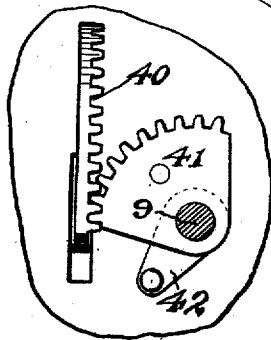


Fig. 8.

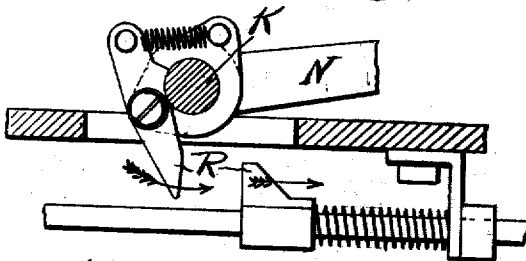
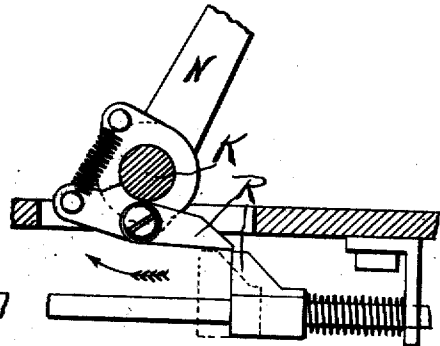


Fig. 8.



Attest:

*Wm. L. Odell*

Inventor:

*Charles K. Pickles*  
 By *J. D. Rippey* atty

# UNITED STATES PATENT OFFICE.

CHARLES K. PICKLES, OF ST. LOUIS, MISSOURI, ASSIGNOR TO DALTON ADDING MACHINE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

## ADDING AND RECORDING MACHINE.

1,005,779.

Specification of Letters Patent. Patented Oct. 10, 1911.

Application filed June 7, 1909. Serial No. 500,756.

*To all whom it may concern:*

Be it known that I, CHARLES K. PICKLES, a citizen of the United States, residing at St. Louis, 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 machines of the cross-carriage type.

One type of such machines is shown in the application of Hubert Hopkins, Serial No. 140,390, filed January 24, 1903, and in the corresponding British Patent No. 854, of 1904, and the present invention relates to improvements in that machine, and consists of a platen arranged for the support of paper and the impingement of type in producing records on that paper, a series of type-carriers operable toward said platen in recording operations, each of said type-carriers carrying a series of stops, and a key-controlled carriage operable effectually to position said stops to cause the type-carrier to assume positions adjacent to the platen whereby any desired number will be recorded.

In the drawings Figure 1 is a vertical sectional view of a machine of the type referred to embodying my present invention. Fig. 2 is a sectional view showing the carriage and the escapement device which governs its step by step movement transversely in the machine. Fig. 3 is a plan view of the carriage. Fig. 4 is a detached view of the device whereby the selecting parts in the carriage are returned to idle position when the carriage returns to idle position after operation. Fig. 5 is a perspective view of the devices whereby the carriage in which the numbers are represented is returned to idle position. Fig. 6 is a detail view of enmeshed segments whereby the carriage return devices are operated. Figs. 7 and 8 are detail views showing the position of the clutch devices whereby the carriage return mechanism is operated when the handle is forward and in idle or rest position, respectively. Fig. 9 is a perspective view of the device shown in Fig. 4.

In a specific sense the present invention comprises, in combination with suitable recording and adding mechanisms, a novel mechanism whereby numbers may be set up in the machine preliminary to the adding and recording thereof. Said numbers set-

ting mechanism comprises a carriage having a plurality of series of key-operated selecting parts, a series of type-carriers each carrying a series of stops, and means for operating the carriage and the selecting parts therein effectively to position any desired stops on the type-carriers so that when the latter are operated the desired number will be recorded.

The roller or platen A is of any approved arrangement which is operative to hold and feed the paper. The type-carriers B are pivoted on a shaft C, each of said type-carriers having at its forward end a series of movable type D arranged, as usual, with "0" at the forward extremity, and thence sequentially to "9" at the rear. These type-carriers are in the form of sectors whose supports are radial arms pivoted upon the shaft C, said sectors being operable in front of the platen A. The type D have their printing faces inside the sectors. The latter are operable in parallel arcuate lines, side by side, jointly or severally as desired, to position any of the type D in a line in front of the platen parallel with the axis thereof, which may be called the printing line. In the present instance the idle or rest position of the type carriers is that in which the foremost type thereon, that is the "0" type, are at the printing line. It follows, therefore, that when any number containing "0" is to be recorded, the type-carrier which does not move, but all others which print the digits or figures of value in the number must move one or more steps or spaces, dependent upon whether the digits are of low or high value. After being stopped to present the number to be printed at the printing line the hammers E are automatically released and thrown against the type by their springs F, thereby driving the type against the ribbon G effectually to print the number on a sheet of paper interposed between the platen and the ribbon. The type-carriers are controlled by a rod H held transversely in front of the radial supporting arms of the type-carriers by two arms I swinging from the shaft C. A link J extends from one of the arms I to a connection on the main shaft K which is actuated by a strong spring L effectually to move the type-carriers rearwardly after printing, and to hold them in idle position when the ma-

chine is idle. An abutment M limits rotation of the shaft K by the spring L, and an operating handle N affords means for manual rotation of the shaft in opposition to the spring as required to swing the rod H forwardly and permit the type-carriers to move to position to record. The type-carriers are independently operated toward printing position when released by means of separate springs O individually connecting rearwardly extending arms on the type-carriers with a rod P carried by the arms I and swinging forwardly therewith when the latter are operated, effectively to actuate the type-carriers.

The mechanism just described is substantially the same as that disclosed in the said British Patent No. 854, of 1904 and United States application Serial Number 140,390, filed by Hubert Hopkins. My invention is devised for use in a machine embodying this mechanism, and comprises the mechanism for introducing numbers into the machine to be printed and added. The mechanism above described is also well known, being in commercial use in machines manufactured in substantial conformity to the Hopkins application aforesaid.

There are ten key levers 1, having keys 2 on their forward ends arranged in rows transversely of the machine. The key levers 1 converge toward the rear and each thereof, except the one representing "9", has a vertical extension 3 on its rear end, said extensions being in the same vertical plane and in a row longitudinally in the machine. Above the rear ends of the key levers a carriage 4 is supported by rollers 5 operating on track members 6 extending transversely in the machine in which direction the carriage is movable. This carriage is in the form of an open box or frame, having at one side a rack 7 extending transversely and meshing with a gear segment 8 attached to an escapement shaft 9. An escapement bar 10, retained from displacement by links 11, rests upon the key levers 1 in advance of the extensions 3, so that when any one of the key levers is operated said escapement box will be raised. An escapement mechanism 12, of known construction, entrains the bar 10 with the shaft 9, so that when any key is operated the escapement will also be operated, permitting the spring 13 to move the carriage one step transversely in the machine, and successive operations of one or more keys resulting in movement of the carriage an equal number of steps transversely in the machine.

Within the carriage 4 a frame including a series of plates 14 is mounted, being sustained by two links 15 pivoted at their rear ends to the carriage 4 and at their front ends to the frame. The two side plates of

the frame have depending arms 16 to each of which a lever 17 is pivoted. The rear ends of the levers 17 are attached to a rock shaft 18 journaled in the carriage 4. Two arms 19 attached to the shaft 18 support a rod 20 at their lower ends. A link 21 has its front end pivoted to an arm 22 passes through a support 23 attached to the machine base, and has an eye or loop loosely encircling the rod 20, in idle position near the left end of said rod. By left is meant the left side of the machine with reference to the operator facing the machine. A collar 24 abuts against the support 23 and serves to hold the parts in their idle position. A spring 25, encircling the link 21 between the rear side of the support 23 and a collar 26 on said link, assists in restoring the frame in the carriage to its lower position after each elevation thereof, as presently described.

Within the frame 14 a plurality of series of selecting devices are mounted. Said devices are in the form of pins 27 pivoted upon rods 28, and projecting above and below the frame in which they are supported. Said devices are arranged in longitudinal series, there being nine in each series,—one for each figure except "9". There is one series of nine pins for each type carrier, and in idle position that row or series of pins at the left is immediately above the key terminals 3, and one step to the right of the type-carriers, so that the first movement of the carriage will position that row or series almost directly under the units type-carrier, as usual in machines of the cross-carriage type. Operation of a key strikes its extension against the forward edge of the corresponding pin 27 and swings the latter to the position shown in Fig. 4. Rods 29 in the frame serve as stops to prevent the pins 27 from turning too far. The pins are held by friction in their various positions. The foremost pin in each series represents "0", the next represents "1", and so on, there being in each series one pin for each figure except "9" for which none is needed as will hereafter appear. Numbers are set up or introduced into the carriage by successive operations of the keys representing the digits in the numbers, which results in swinging the corresponding pins in the carriage.

After the number has been introduced into the carriage by operation of the keys that number may be printed. Upon each type-carrier is an arm 30, in the form of a rack, and each of these arms carries a series of vertically movable pins 31 held in frames 32 attached to said arms. There is one of these pins for each digit except "9", the foremost representing "0", the next "1", and so on, and they are arranged the same distance apart as are the type. Each pin 13

has a notch 33 in its lower end and a projection 34 extending under adjacent frame portions 35. A cross bar 36 is supported transversely over the arms 30 by four pivoted arms 37. Springs 38 uphold the arms 37, in their idle position, as shown in Fig. 1, abutments 39 preventing the springs from drawing the bar 36 into contact with the type-carriers. After the number has been introduced as described the operating handle 10 is drawn forward and, through the medium of the link 21 and its connections, the frame 14 is raised and the upper ends of the pins 27 which had been operated by the keys 15 strike the lower ends of corresponding stops 31 and raise the latter. The pins 27 which had not been key set pass into the notches 33, so that in this way the selector frame selects and sets up the proper stop pins 31 20 to represent the number which had been struck on the keys. The frame then quickly drops downward to its idle position. By this time the rod H starts forward and the type-carriers necessary to record the number swing forward until the stops which had 25 been set strike the bar 36. The number is then presented at the printing line and is automatically printed by the hammers E being thrown against the type in a well understood manner. When the handle 30 reaches the limit of its movement it is released and all the parts are restored to idle position ready for another operation. A totalizing mechanism X, of known construction and operation, is arranged automatically 35 to add the numbers recorded.

To prevent movement of those type-carriers whose operation is not desired in recording a number, a detaining plate 4<sup>a</sup> is 40 pivoted to a support 4<sup>b</sup> on the carriage 4, said plate extending in front of the extension 30<sup>a</sup> below the arms 30 of the type-carriers. In idle position this plate is in front of the extensions 30<sup>a</sup> of all the type-carriers 45 but moves leftward to release one type-carrier at each operation of a key. Said plate is spring-held so that any part 30<sup>a</sup> that should be in front thereof at any time would easily depress the plate and return to its 50 position rearward thereof, after which the plate would again rise to prevent operation thereof except in proper manner and time.

Return movement of the shaft K operates a rack bar 40 through the medium of an 55 automatic catch-and-release device R of known construction and operation. The rack 40 is enmeshed with a sector 41 loose on the shaft 9, and arranged to engage with an arm 42 to turn said shaft and thereby move 60 the carriage 4 toward its idle position. These parts, also, are substantially the same as in the Hopkins machine of commerce, and, being well known do not require further description. As the carriage is thus moved 65 toward idle position it travels under a bar

43 having a series of switch arms 44 attached to its under side. The pins 27 which had been moved or set by the keys rub against these arms 44 and are thereby forced again to vertical position ready for another 70 operation. In its backward movement the carriage travels a slight distance beyond its idle position so that the pins in all the rows will be restored by the arms 44, after which the carriage moves slightly so that the first 75 row of pins will be carried away from said arms 44 and over the key terminals 3 and be free to move. A cam 45 on the carriage 4, at the time the carriage is farthest at the right during the restoring operation, engages an arm 46 on a rock shaft 47, to which the lower two arms 37 are attached and rocks said shaft effectively to draw downward the front ends of said arms 37. By this movement a series of arms 48 carried by the bar 85 36 are moved downward and caused to restore to idle position such of the stops 31 as had been selected to represent the number. For the digit "9", however, there is no stop, the edge of the sector arm serving that function. 90

From the foregoing description it will be observed that my invention is readily combinable in any machine of the cross-carriage type without destroying the fundamental 95 principles of such machines.

I do not restrict myself to identical features of construction or arrangement, but

What I claim and desire to secure by Letters Patent is:-

1. The combination with the type-carriers, and the stops carried thereby, of mechanism for positioning any of said stops and an abutment against which said stops engage when said type-carriers move, substantially as specified. 105

2. The combination with the type-carriers, the platen, and the printing hammers, of a series of stops on each type-carrier, mechanism operable to position said stops 110 and an abutment whereby the stops positioned as aforesaid will stop movement of said type-carriers.

3. The combination with a series of type-carriers, a series of stops carried by each 115 type-carrier, and means for holding paper adjacent to the type-carriers, of keys, and devices operated by the keys for moving the stops on the type-carriers.

4. The combination with adding mechanism, and type-carriers operable to record numbers, of a series of stops on each type-carrier, and key-controlled devices for positioning any desired stops to limit movement of said type-carriers. 125

5. The combination with the type-carriers, and the stops carried thereby, of key operated parts for moving said stops.

6. The combination with the type-carriers, and the stops carried thereby, of keys, 130

and devices adjustable by said keys to position any of said stops.

7. The combination with the type-carriers, and the stops carried thereby, of a movable carriage, and devices in said carriage for positioning any of said stops to limit movement of the type-carriers.

8. The combination with the type-carriers, and hammers for driving the type to record, of a series of stops on each type-carrier, and key controlled devices for moving any of said stops, substantially as specified.

9. The combination with the type-carriers, printing hammers, and adding mechanism, of parts carried by said type-carriers, a carriage for operating said parts to set up numbers to be added and printed, and means for restoring said parts to idle position.

10. The combination with a series of type-carriers, type on said type-carriers, a carriage and mechanism operable to cause said carriage to set up numbers on said type-carriers, of means for causing said type to record said numbers.

11. The combination with the type-carriers, and the stops thereon, of a carriage, and key actuated devices in said carriage operable to move said stops to represent numbers, substantially as described.

12. A platen, a series of type-carriers, and a series of hammers operable to drive the type to record on paper held by said platen, in combination with a series of movable stops carried by each type-carrier, a carriage, and devices in said carriage operable effectively to position any desired stops.

13. A platen arranged to hold paper, a series of type-carriers, and hammers operable to drive the type to record on paper held by said platen, in combination with a series of movable stops carried by each type-carrier, a carriage, devices in said carriage operable effectively to position any desired stops, and keys operable to position said devices.

14. A series of type-carriers, a platen, hammers for driving the type toward said

platen, stops on the type-carriers, means for positioning any of said stops as described, means for operating said type-carriers after said stops have been positioned and an abutment for said stops.

15. A series of type-carriers, a platen, hammers for driving the type toward said platen, racks connected with said type-carriers, stops on said racks, means for setting any of said stops; means for operating said type-carriers and racks after said stops have been set, and an abutment for said stops.

16. Recording mechanism comprising a platen, type-carriers, means for operating said type-carriers, a carriage determining which of said type-carriers may be operated, stops carried by said type-carriers, means for setting selected ones of said stops when said carriage operates, and hammers operable to drive the type to record.

17. Recording mechanism comprising a platen, type-carriers operable toward and away from said platen, movable pins carried by said type-carriers, a carriage, means in said carriage for setting selected ones of said pins, means for operating said carriage effectively to set said pins, an abutment for said pins, means for operating said type-carriers, and hammers for driving the type to print.

18. In an adding machine, mechanism for recording the numbers to be added comprising a series of carriers, a series of type mounted on each carrier, a series of movable stops mounted on each carrier, a carriage, means for operating said carriage, means in said carriage for setting selected ones of said stops, means for operating said carriers, a platen arranged to feed paper to said carriers, and hammers operable to drive the type to print on paper on said platen.

In testimony whereof, I hereunto affix my signature this 1st day of December, 1908.

CHARLES K. PICKLES. [L. S.]

Witnesses:

JNO. A. WARREN,  
L. C. KINGSLAND.