No. 778,595.

PATENTED DEC. 27, 1904.

E. N. MILLER.

COMBINED TYPE WRITING AND ADDING MACHINE.

APPLICATION FILED MAY 2, 1904.

2 SHEETS—SHEET 1.

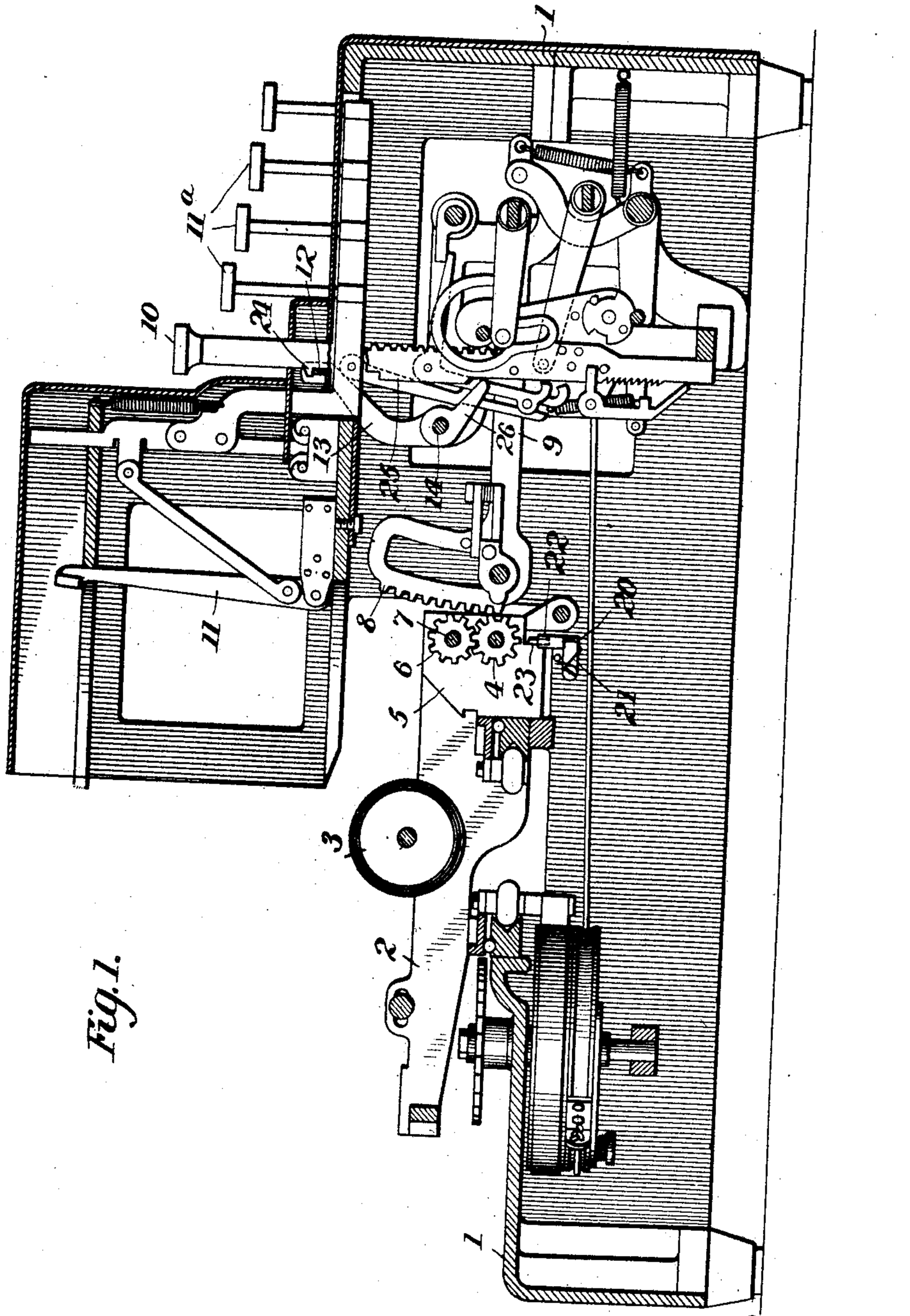

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

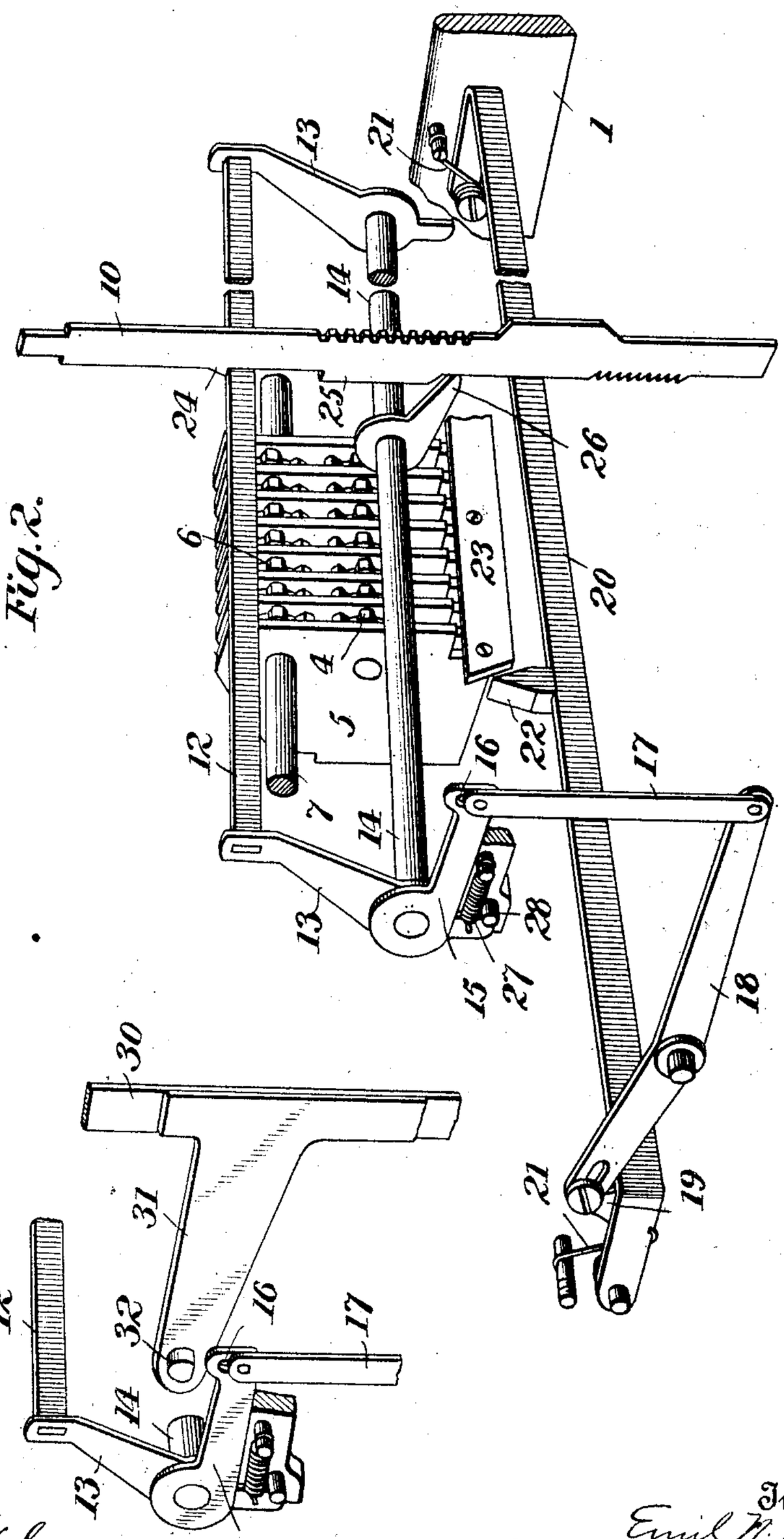

Fig. 3.

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No. 778,595. Patented December 27, 1904.

UNITED STATES PATENT OFFICE.

EMIL N. MILLER, OF ORANGE, NEW JERSEY, ASSIGNOR TO NEW YORK ADDING TYPEWRITER COMPANY, OF ORANGE, NEW JERSEY, A CORPORATION OF MISSOURI.

COMBINED TYPE-WRITING AND ADDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 778,595, dated December 27, 1904.

Application filed May 2, 1904. Serial No. 206,011.

To all whom it may concern:

Be it known that I, EMIL N. MILLER, a citizen of the United States, residing at Orange, county of Essex, State of New Jersey, have invented certain new and useful Improvements in a Combined Type-Writing and Adding Machine, of which the following is a specification.

The present invention relates to improvements in combined type-writing and adding machines; and the object of the invention is to provide means whereby operation of the devices controlling the action of the accumulating or adding mechanism will be prevented until the said mechanism is in proper position to be actuated.

With this object in view the invention consists in the combination, with a laterally-movable accumulating mechanism and an actuating device therefor, of means for locking said actuating device against movement when the accumulating mechanism is not in position to be actuated thereby.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view through a combined type-writing and adding machine having the subject-matter of the present invention embodied therein. Fig. 2 is a perspective view of portions of the said machine. Fig. 3 is a detail view.

Referring to the drawings, in the several figures of which like reference characters designate corresponding parts, 1 designates the frame of the machine.

The carriage 2, in which the paper roller or platen 3 is mounted, also supports the accumulating mechanism, which may be of any suitable character adapted to be actuated by a single member or device mounted in the frame of the machine and past which the accumulating mechanism is moved laterally by the ordinary step-by-step feed of the carriage. As shown, said accumulating mechanism includes a plurality of toothed wheels 4, one for each numeral order, which are mounted in suitable bearings on a frame consisting of a series of parallel plates 5, and each of said wheels meshes with an indicator disk or pinion 6, bearing on their peripheries the digits "1" to "9" and "0". The frame of the accumulating mechanism is suitably secured to a bar or rod 7 on the type-writer carriage, so as to be moved thereby past the sector 8, by which the wheels 4 of said mechanism are actuated. Said sector is carried by a lever 9, suitably fulcrumed in the frame 1 of the machine and controlled in its movements by a plurality of selector or control keys 10. As shown, said keys 10 are each adapted to be operated in conjunction with a type-bar 11, which is provided with a suitable type for printing on the paper supported by the platen 3 the numeral corresponding to that indicated on the head of the key 10. It will be understood that the extent of movement imparted to the actuating-sector 8 by the different controller-keys 10 varies in such a manner that the amount of rotation of the wheel 4 of the accumulating mechanism due to the operation of either of said keys will be such as to cause the indicating-disk 6, connected with said wheel to bring into view the numeral corresponding to that on the key which is operated, or the sum of such numeral and the one previously displayed by said disk. The accumulating mechanism is of course provided with suitable devices for "carrying" from one numeral order to another or causing the disk 5 of each order to move one step on the completion of every revolution of the corresponding disk of the next lower order. It is not necessary, however, for the purposes of disclosing the present invention to illustrate or describe in detail the construction or operation of such mechanism. As before stated, various forms of accumulating mechanisms may be employed, and therefore it will be understood that the present illustration is merely conventional.

As the controller-keys 10 are only intended for operating the accumulating mechanism, the machine is provided, in addition to said keys, with the letter, numeral, and character keys 11^a and type commonly found in type-writing machines, and it is very important that said keys 10 should not be operated ex-

cept when one of the wheels 4 of the accumulating mechanism is in position to be engaged by the sector 8. Therefore means are provided which normally lock said keys in their elevated positions and prevent actuation of the sector 8 until in its lateral movement the carriage 2 brings the accumulating mechanism into position to be operated by said sector, when said lock is automatically withdrawn. Said locking means includes a bar or strip 12, which extends transversely across the machine adjacent to the stems of the keys 10, being supported by arms 13, which are mounted on a rock-shaft 14, journaled in suitable bearings in the frame of the machine. To said shaft is connected an arm 15, having near its free end a slot 16, into which extends a pin at the upper end of a link 17, the lower end of which link is connected to one arm of a lever 18. The other arm of said lever is connected to a lug or ear 19 on a bail 20, which is pivoted to opposite side walls of the frame 1 and normally held in an elevated position by springs 21. The bail 20 is provided at a suitable point with an upwardly-projecting tooth 22, which extends into the path of a trip bar or plate 23, connected to the frame of the accumulating mechanism on the carriage 2.

Normally the springs 21 hold the bail 20 in an elevated position and the shaft 14 in such position that the bar or strip 12, carried thereby, is swung forward and beneath projections 24, one on the stem of each key 10, as shown in Fig. 2 of the drawings. The said keys will thus be locked in their elevated positions and actuation of the sector 8 prevented until in the lateral movement of the carriage the bar or plate 23 contacts with the tooth 22 and depresses the bail 20, thus rocking the lock-bar 12 rearwardly out of the path of the projections 24 on the key-stems. The plate 23 extends throughout the width of the accumulating mechanism, and thus the bail 20 is held in its lower position as long as any member of the accumulating mechanism is in position to be operated by the sector 8. When the plate 23 is by the movement of the carriage 2 carried past the tooth 22 on the bail 20, the latter under the action of the springs 21 is returned to its upper position and the bar or strip 12 is again moved forward beneath the projections 24.

In order that accurate results may be attained, it is important that whenever either of the controller-keys is operated all of the other similar keys shall be locked in their elevated positions until the full movement of the key first operated is completed. To accomplish this result, the stem or bar of each key 10 is provided on its rear edge with a cam-surface 25, adapted to coact with a finger or dog 26 on the rock-shaft 14. When the bail 20 is rocked, as above described, to withdraw the bar or strip 12 from operative position, the said fingers 26 are brought into position to be engaged by the cams 25 on the stems of keys 10 whenever said keys are depressed. As either key 10 is depressed its cam-surface 25 will contact with the adjacent finger 26 as the projection 24 passes below the bar 12, and thereby the shaft 14 will be rocked to swing said bar forward beneath the projections 24 of those keys which are still elevated, although the bail 20 is held in the lower position by action of the plate 23. The slot 16 in the lever 15 permits of this movement without affecting the position of the bail. As the depressed key is raised by action of a suitable lifting-spring and the cam-surface 25 thereon passes above the finger 26 the bar or strip 12 is again swung rearwardly by the action of a spring 27, connecting the lower end of one of the supporting-arms 13 of said bar with a stationary pin or stud on the machine-frame. A stop-pin 28 limits the rearward movement of the bar 12.

The accumulating mechanism can only be operated by the sector 8 when the carriage is in "lower-case" position. Therefore when the carriage or platen is shifted rearwardly to the "upper-case" position means are provided for positively locking the keys 10 even though the accumulating mechanism should at that time be opposite its actuating-sector. Such means are illustrated in Fig. 3, in which it will be seen that the stem 30 of the shift-key by which the movements of the carriage or platen from lower-case to upper-case position are controlled is provided with an arm 31, having at its rear end a lateral projecting stud 32, which when said shift-key is depressed will contact with the forward end of lever 15 and through said lever rock the shaft 14 to move the bar or strip 12 into operative position.

It will be understood that the carriage 2 is moved laterally of the machine by the usual escapement or step-by-step feed mechanism actuated by operation of either of the keys of the machine. In the present case it is not deemed necessary to illustrate in detail either said carriage-feed mechanism or other parts of the type-writing mechanism not directly connected with this invention, as it is evident that the latter can be embodied with various forms of type-writers other than the one selected for purpose of illustration.

Having thus described the invention and without intending to limit the invention to the details of the embodiment thereof herein illustrated, what is claimed is—

1. The combination of a laterally-movable accumulating mechanism, devices for actuating said accumulating mechanism, and means for preventing the operation of said devices when the accumulating mechanism is not in position to be actuated thereby.

2. The combination of an accumulating mechanism mounted on a carriage, and including a plurality of members, an actuating de-

vice adapted to successively actuate the several members of the accumulating mechanism as the latter is moved past it by the carriage, and means for preventing movement of said actuating device when neither member of the accumulating mechanism is in position to be operated thereby.

3. The combination of an accumulating mechanism, an actuating device for said mechanism, means for moving said accumulating mechanism laterally past said actuating device, a plurality of keys controlling the action of said actuating devices, means for normally locking said keys against movement, and means for automatically releasing said lock as the accumulating mechanism is brought into position to be operated by said actuating device.

4. The combination of an accumulating mechanism, an actuating device for said mechanism, means for moving said accumulating mechanism laterally past said actuating device, a plurality of keys controlling the action of said actuating device, means for normally locking said keys against movement, means for automatically releasing said lock as the accumulating mechanism is brought into position to be operated by said actuating device, and means for locking all of said keys except the one actuated when either controller-key is operated.

5. The combination of a type-writing machine, of an accumulating mechanism supported by the type-writer carriage, a plurality of keys in the keyboard of the machine for controlling the action of the accumulating mechanism, and means for preventing movement of said controller-keys when the accumulating mechanism is not in position to be actuated.

6. The combination with a type-writing machine, of a plurality of accumulating-wheels supported by the type-writer carriage, key-controlled means for actuating said accumulating-wheels, and means to prevent movement of said controller-keys when the accumulating-wheels are not in position to be operated by their actuating means.

7. The combination with a type-writing machine, of an accumulating mechanism supported by the type-writer carriage, a plurality of keys controlling the action of said accumulating mechanism, means for normally locking said keys in inoperative position, and means on the carriage for releasing said keys as the accumulating mechanism is brought into position to be operated.

8. The combination with a type-writing machine, of an accumulating mechanism supported by the type-writer carriage, a single actuating device for said mechanism mounted in the frame of the machine, means for normally holding said actuating device stationary, and means on the carriage for automatically releasing said actuating device as the accumulating mechanism is brought into position to be operated by said device.

9. The combination with a type-writing machine, of an accumulating mechanism supported by the type-writer carriage, an actuating device for said mechanism mounted in the frame of the machine, a plurality of keys each adapted to operate said actuating device, means supported by the frame of the machine for normally preventing movement of said keys, and means on the carriage for automatically releasing said keys as the accumulating mechanism is moved by the carriage into position to be operated by said actuating device.

10. The combination with a type-writing machine, of an accumulating mechanism supported by the type-writer carriage, an actuating device for said mechanism mounted in the frame of the machine, a plurality of keys each adapted to operate said actuating device, a rock-shaft mounted in the frame of the machine and supporting means adapted to normally prevent movement of said keys, and means for automatically rocking said shaft to release said keys as the carriage moves the accumulating mechanism into position to be operated by said actuating device.

11. The combination with a type-writing machine, of an accumulating mechanism supported by the type-writer carriage, an actuating device for said mechanism mounted in the frame of the machine, a plurality of keys each adapted to operate said actuating device, means supported by the frame of the machine for normally preventing movement of said keys, and means connected with the frame of the accumulating mechanism for automatically releasing said keys as said mechanism is moved by the carriage into position to be operated by said actuating device.

12. The combination with a type-writing machine, of an accumulating mechanism supported by the type-writer carriage, an actuating device for said mechanism mounted in the frame of the machine, a plurality of keys each adapted to operate said actuating device, a swinging bar or strip movable to and from a position where it will engage and prevent operation of said keys, means for normally holding said bar in operative position, and means for automatically withdrawing said bar from such position when the accumulating mechanism is in position to be operated by its actuating device.

13. The combination with a type-writing machine, of an accumulating mechanism supported by the type-writer carriage, an actuating device for said mechanism mounted in the frame of the machine, a plurality of keys each adapted to operate said actuating device, a swinging bar or strip movable to and from a position where it will engage and prevent operation of said keys, means for normally holding said bar in operative position, and a tooth or projection connected with said bar and ex-

tending into the path of a trip carried by the accumulating mechanism, whereby said bar will be automatically withdrawn from engagement with said keys as the accumulating mechanism is brought into position to be operated by its actuating device.

14. The combination with a type-writing machine, of an accumulating mechanism supported by the type-writer carriage, an actuating device for said mechanism mounted in the frame of the machine, a plurality of keys each adapted to operate said actuating device, a rock-shaft mounted in the frame of the machine, a bar supported on said shaft and adapted to be moved thereby to and from a position where it will prevent operation of said keys, a swinging bail mounted in the frame of the machine and connected with said shaft, and means attached to the carriage for actuating said bail to rock the shaft and withdraw the lock-bar from its operative position as the accumulating mechanism is brought into position to be operated by its actuating device.

15. The combination with a type-writing machine, of an accumulating mechanism supported by the type-writer carriage, an actuating device for said mechanism mounted in the frame of the machine, a plurality of keys each adapted to operate said actuating device, a swinging bar movable to and from a position where it will prevent operation of said keys, means for normally holding said bar in operative position relative to all of said keys, means for automatically moving said bar to inoperative position when the accumulating mechanism is in position to be operated by its actuating device, and means for thereafter automatically restoring said bar to operative position relative to all but one of said keys on the operation of either of said keys.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EMIL N. MILLER.

Witnesses:
THOS. A. PADDAIN,
E. C. BATAILLE.