

C. S. LABOFISH.
TYPE WRITING MACHINE.
APPLICATION FILED OCT. 15, 1902.

Patented Nov. 16, 1909.
5 SHEETS—SHEET 1.

940,332.

Fig. 1.

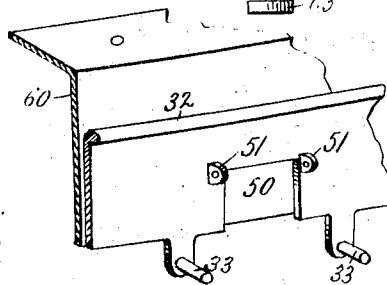
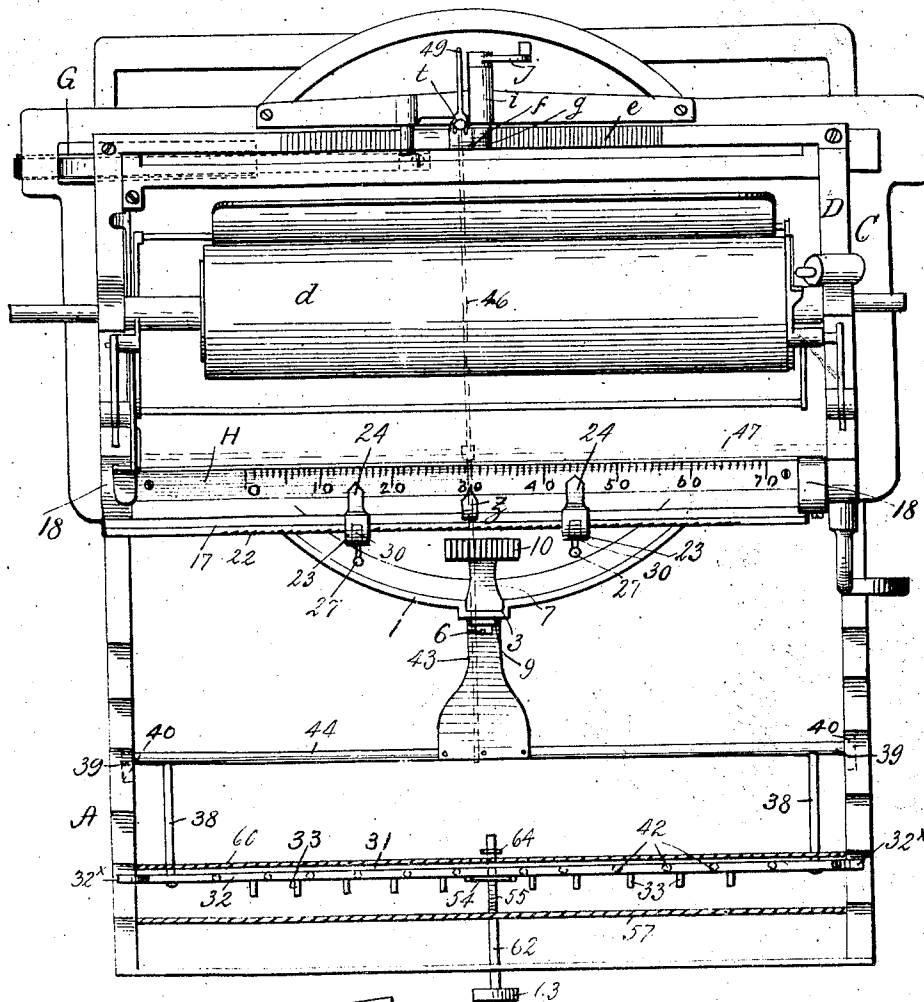


Fig. 13.

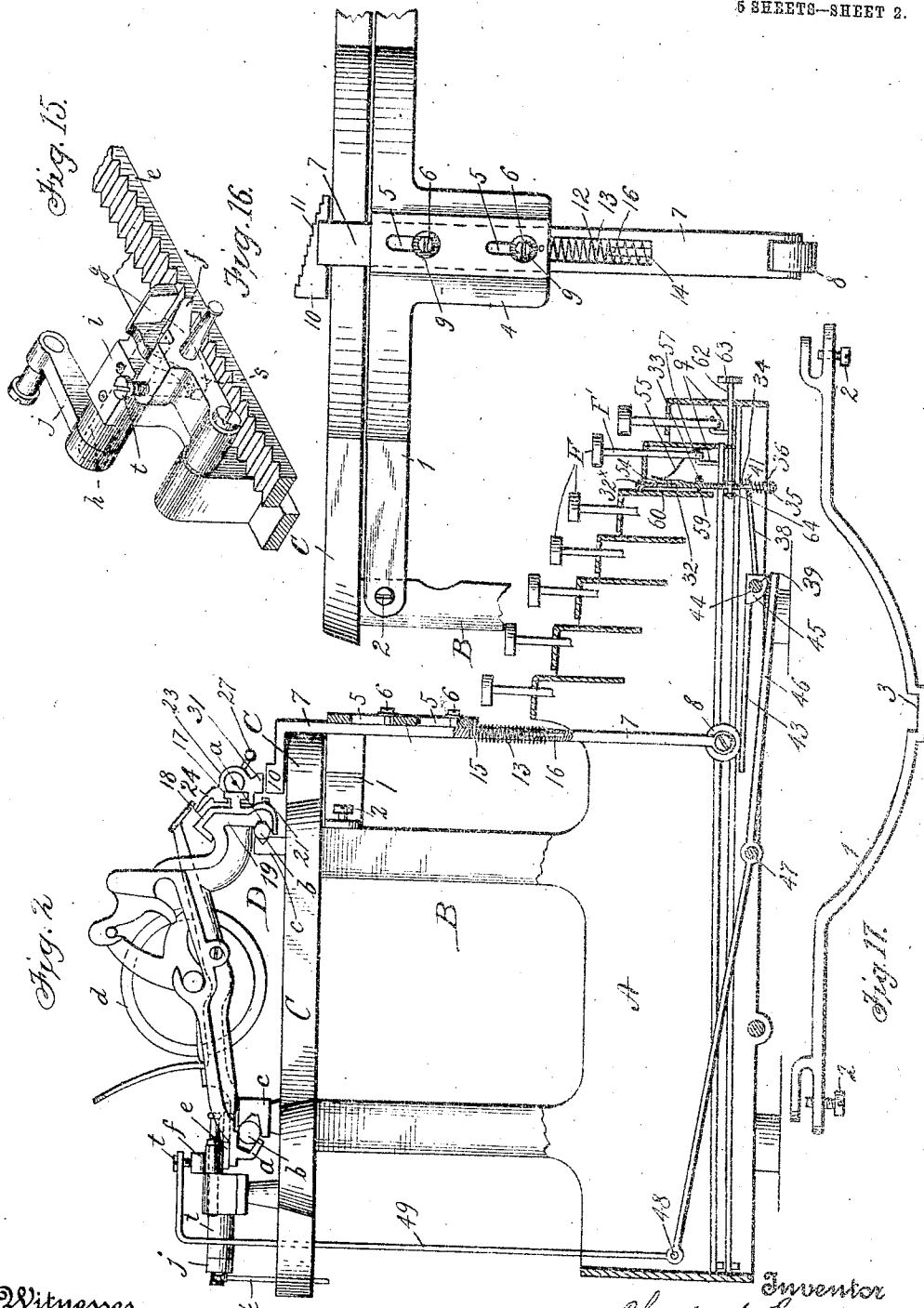
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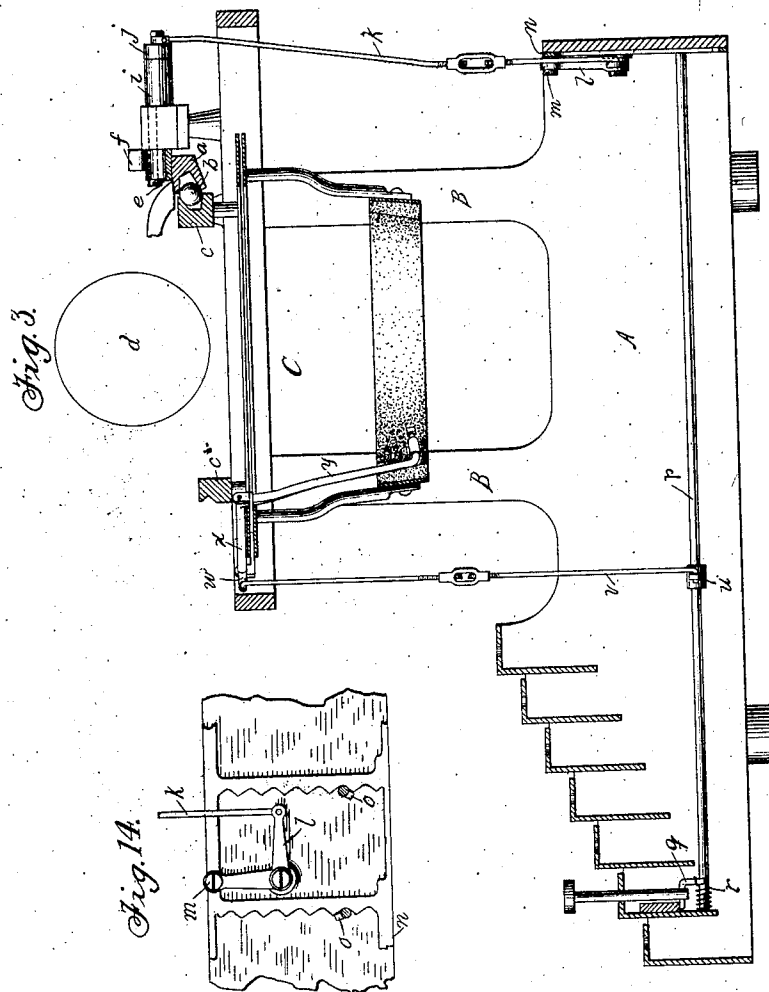
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5 SHEETS—SHEET 3.



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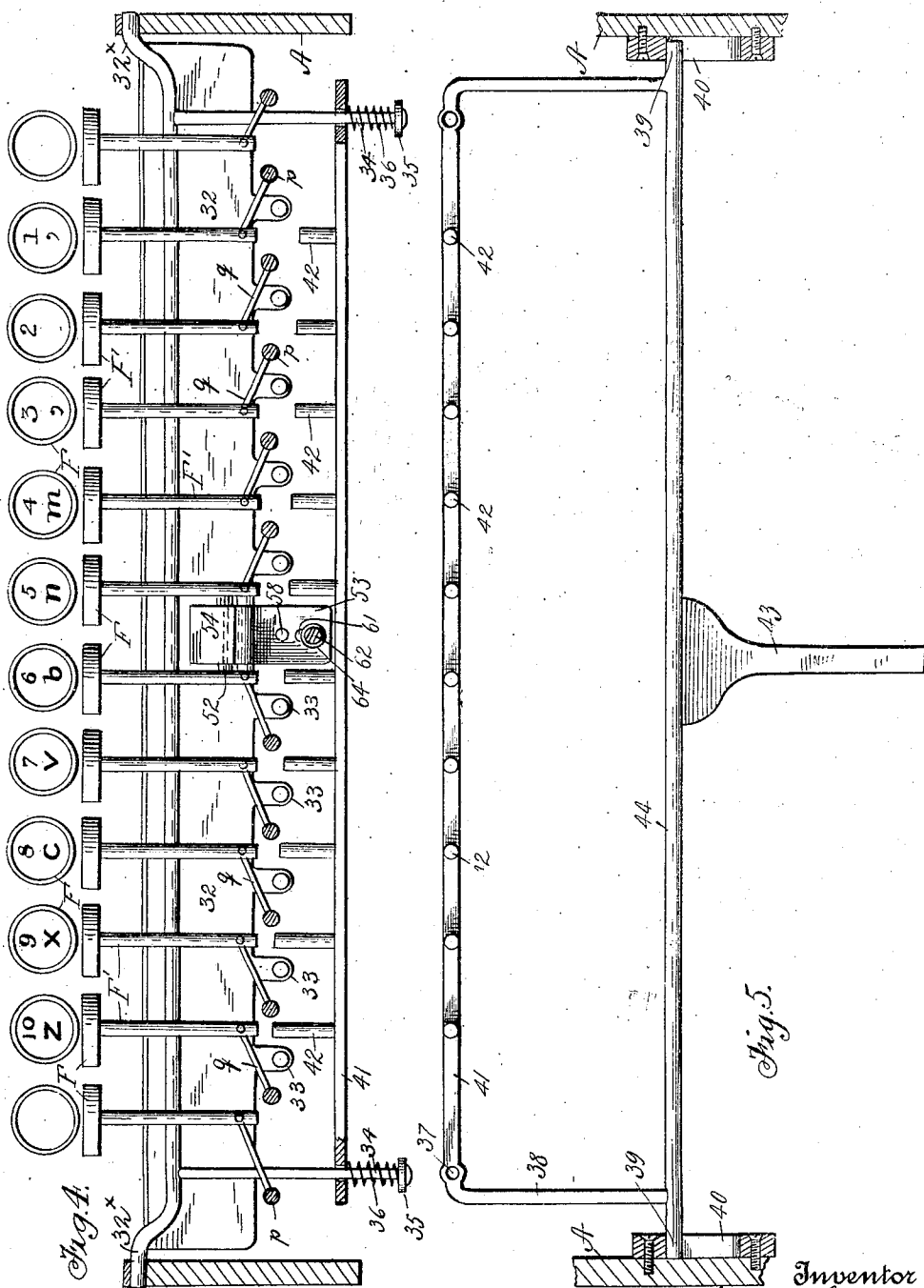
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5 SHEETS—SHEET 4.



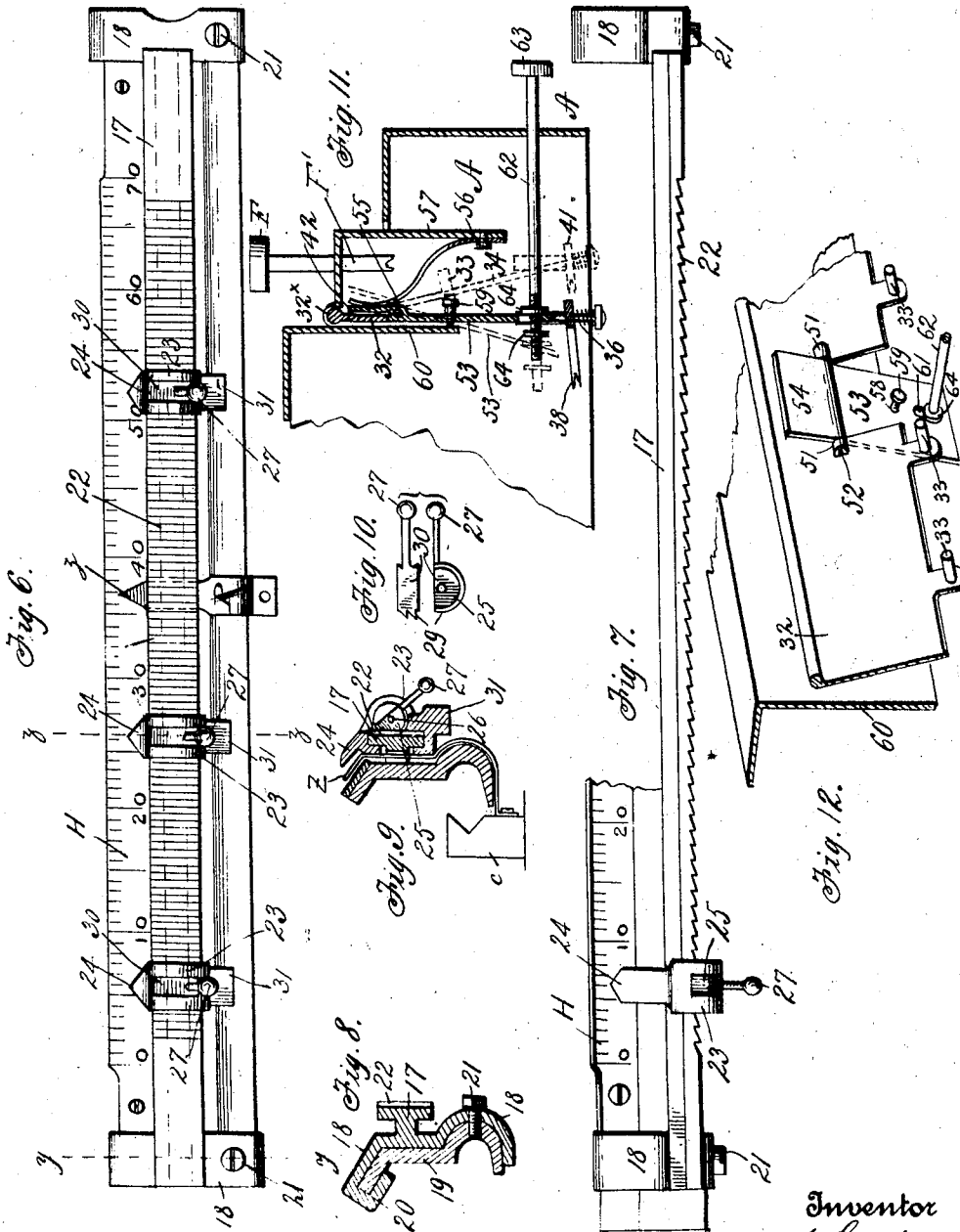
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

CHARLES S. LABOFISH, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

940,332.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed October 15, 1902. Serial No. 127,412.

To all whom it may concern:

Be it known that I, CHARLES S. LABOFISH, citizen of the United States, and resident of Washington, in the District of Columbia, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines and more particularly to tabulating mechanism therefor, and the main object of my invention is to provide simple and efficient tabulating mechanism which may be controlled by the ordinary character keys of the machine.

To these and other ends which will hereinafter appear, my invention consists in the novel features of construction, arrangements of parts and combinations of devices to be hereinafter described and particularly pointed out in the appended claims.

In the drawings, wherein like reference characters indicate corresponding parts in the various views, Figure 1 is a plan view, with parts removed, of one form of typewriting machine embodying my invention. Fig. 2 is a front to rear sectional view of the same with parts in elevation. Fig. 3 is a front to rear vertical sectional view of the machine showing the type action. Fig. 4 is an enlarged detail sectional view taken on the line *x-x* of Fig. 2 and looking toward the rear of the machine. Fig. 5 is an enlarged detail plan view of the tabulator actuating frame. Fig. 6 is an enlarged front elevation of the carriage scale, and stop bar with the tabulating or column stops mounted thereon. Fig. 7 is a plan view of the same with parts broken away. Fig. 8 is a transverse sectional view of the same taken on the line *y-y* of Fig. 6. Fig. 9 is a transverse sectional view of the same taken on the line *z-z* of Fig. 6. Fig. 10 shows a tabulating stop catch in plan and side elevation. Fig. 11 is an enlarged detail vertical front to rear sectional view of a portion of the tabulating mechanism. Fig. 12 is an enlarged fragmentary detail perspective view of certain of the parts represented in Fig. 11. Fig. 13 is a like view of the same showing a different disposition of the parts and with portions thereof detached. Fig. 14 is an enlarged fragmentary detail front elevation of the universal frame and certain of the cooperating parts. Fig. 15 is an enlarged detail perspective view of

the escapement mechanism. Fig. 16 is a detail front view of a portion of the tabulating mechanism, and Fig. 17 is an enlarged detail plan view of the frame which guides the denominational stop bar or carrier.

I have illustrated my invention applied to a Smith Premier typewriting machine and while the invention may be applied to said machine without changing any of the structural features thereof, it should be understood that the invention may be applied to other characters of writing machines.

The frame of the machine comprises a base portion A with upwardly projecting corner posts B that support a top plate C, which in turn supports a traveling carriage D; thus the carriage is provided with guide rails *a* that receive anti-friction balls which are likewise received in grooves in the fixed rails *c* supported upon the top plate C. The platen *d* is supported in the carriage and adapted to be turned to expose the last written line and the rear of the carriage frame supports a feed rack *e* which extends longitudinally of the carriage, and feed dogs *f* and *g* cooperate therewith, the feed dog *g* being secured to a rock shaft *h* mounted in a bearing *i* secured to the top plate C. The rock shaft has a crank arm *j* secured thereto and the free end of the crank arm is pivoted to a depending link or rod *k* which extends through an opening in the top-plate and is connected at its lower end to one arm of the bell crank lever *l* pivoted to the base A of the machine, and which has its other arm pivoted at *m* to a frame *n* which constitutes a universal bar or frame that is adapted to vibrate transversely of the machine and is actuated by studs or pins *o*, one projecting from each of the rock shafts *p* of the type actions, so that each time a finger key *q* is depressed, it will, through the intermediate crank arm *g*, cause the associated rock shaft to be rocked against the tension of its spring *r*, thus moving the frame or bar *n* to effect a movement of the feed dog *g* through the intermediate connections between the universal frame and the rock shaft *h*. The feed dog *g* has a finger *s* that is adapted to bear against the free end of a set screw *t* carried by the pivoted feed dog *f* and extending through a threaded opening therein to elevate the nose thereof and throw it out of engagement with the rack *e* when the feed dog *g* is moved down into the path of an oncom-

ing tooth of the feed rack, and thus afford a step-by-step feed movement of the carriage. A spring drum G is connected in the usual manner by a band to the carriage to effect a movement of the carriage when the escapement mechanism is actuated, the position of the carriage relative to the printing point being indicated by the usual carriage scale H which is secured to the front of the carriage and coöperates with a fixed pointer z. Each rock shaft p carries a second crank arm u which is connected to a link v that in turn is connected to a crank arm w on a rock shaft x, which has a type bar y rigidly secured thereto, so that ordinarily at each actuation of a finger key, the associated type bar will be moved to the printing point and the carriage will be fed a letter space distance.

So much of the machine as has thus far been described constitutes portions of the well-known Smith Premier typewriting machine and further description thereof is considered unnecessary.

Extending transversely across the front of the machine and beneath the top plate C, is a bail or frame 1 which is bifurcated at its ends for coöperation with corner-posts B at opposite sides of the machine and which is removably secured thereto by set screws 2. A recess or depressed guiding portion 3 is located centrally and transversely of the frame or yoke 1 and extends beyond the forward face of the top plate. This yoke is likewise provided with a depending portion 4 in which the recess 3 is formed and which is slotted at 5 for the reception of headed screws 6, the stems of which project through the openings and take in threaded openings in a vertically movable bar 7 which is provided with an anti-friction roller 8 at the lower end thereof, suitable washers 9 being interposed between the outer face of the frame 1 and the heads of the screws 6. The upper end of the bar 7 is bent toward the rear of the machine, as indicated in Fig. 2, and is provided with a tabulating stop which, in the present instance, consists of a block 10 that has a series of abutments or denominational stop faces 11, ten being shown, and the lowest of these stops being on the right-hand side thereof. An expansion spring 12 is contained within a cut-out or recessed portion 13 in the bar and bears against the lower wall 14 thereof, whereas the upper end of the spring bears against a pin 15 secured to the frame 1 and projecting rearwardly therefrom. A pin 16 projects upwardly from the lower wall 14 of the apertured portion and is contained within the coiled spring to prevent a lateral displacement of the spring from its recess. The tension of the spring 12 is therefore exerted to normally maintain the bar, together with its tabulating stop 10 in the

position represented in Figs. 2 and 16 of the drawings. A stop supporting bar 17 is provided, as shown in Figs. 6, 7 and 8 of the drawings, with end clamps or supports 18 that conform to the general contour of the front bar 19 of the carriage, the upper end of each clamp being formed to grasp or be seated upon the upper edge of the front bar of the carriage frame, as represented at 20. Each so-called clamp or support 18 has an opening therein through which the stem of a headed screw 21 passes and which is received within a threaded opening in the front bar of the carriage. The two supports or clamps 18 are united by the stop supporting bar 17 which may be formed integral therewith and is T-shaped in cross-section, the clamps being secured to the stem of the T-shaped bar. The forward face of the T-bar is provided with ratchet teeth 22 so that it constitutes a rack bar and the bar itself being merely connected to the carriage by the supports 18 at the ends thereof causes the bar to stand forward of the front face of the bar 19 of the carriage and permits the fixed pointer z, secured to the front rail c, to extend between the stop bar and the carriage, as represented in Fig. 9, so that the end of the pointer may register with the graduations on the carriage scale H and so that the pointer will not afford an obstruction to the free run of the carriage. The tabulating stops 23 are each provided with a groove or recess that conforms to the T-shaped cross section of the stop bar 17, so that the stops cannot be removed transversely from the bar but are adapted to slide longitudinally thereon, in order that they may be adjusted to their proper positions and may, if desired, be removed endwise from the bar without disconnecting the bar from the carriage, and any desired number of column stops may be employed without rendering the mounting or removal of the stops a difficult task and without any liability of the stops being accidentally displaced from the bar as is sometimes the case when stops are employed which must be detached in order to be adjusted. Each stop 23 is provided with a pointer 24 that extends toward and is adapted to coöperate with the carriage scale H to afford a proper positioning of the stops with reference thereto, and each stop has a latch or catch 25 pivoted thereto at 26, the handle or finger-piece 27 extending forwardly through a slotted portion 28 in the stop. Each catch comprises a segmental body portion that has teeth 29 on the periphery thereof, so that the segmental teeth thus formed are adapted to be turned with the stop into engagement with the coöperating teeth 22 on the rack bar. When, however, the handle is moved upwardly to bring the flattened portion 30 on any stop opposite the teeth on the rack bar, the teeth 29 are moved out of

engagement with the rack bar and the stop is free to be adjusted longitudinally thereon. It will be understood that the teeth 22 on the rack bar are situated at letter space distances apart and conform in their disposition to the graduations on the carriage scale so that when a pointer 24 on a stop is positioned at a graduation on the carriage scale, the stop may be locked in this position by turning the catch in the position indicated in Fig. 9. Each of the stops 23 has a depending portion 31 that constitutes an abutment for co-operation with the stop 10.

Situated beneath the keyboard of the machine and preferably back of the second bank or row of keys F, is a swinging carrier comprising a plate or bar 32 which is pivoted to the base at 32* to swing at its free edge fore and aft of the machine. This bar or plate 32 extends transversely across the machine from side to side thereof and is provided near the lower edge thereof with laterally projecting stops or pins 33, each of said pins being provided to cooperate with a crank arm *g* of an associated finger key F, the various pins cooperating with the crank arms of the keys in the same bank or row. Thus for instance, if the machine is to be constructed so that ten different denominational positions may be secured by an actuation of the tabulating devices, then ten pins 33 will be employed, as represented in Fig. 4. The relative disposition of parts is such that when the plate 32 is swung toward the front of the machine on its pivots 32*, the various pins 33 will be projected beneath ten of the crank arms *g* in the second row of finger keys F and will arrest the downward movement of said keys before the type bars can be moved to the printing point and no imprint of the characters can take place by a depression of any of the ten finger keys of this row when the pins are projected forwardly beneath the crank arms in the manner described.

The plate 32 is provided with depending arms 34, each of which supports a washer 35 at the lower end thereof, the same constituting an abutment for one end of a coiled spring 36 that surrounds the rod or arm. The arms 34 are projected through openings 37 in the front bar of a rectangular frame 38, which may be termed a tabulating frame and which extends beneath the finger keys and is supported at its front end by the springs 36. This frame has pivots 39 at the ends thereof which are received in elongated pivotal bearings 40 secured to the side plates of the machine. The frame 38 being mounted, in the manner described, in the bearings 40, is adapted to swing on the pivots 39 or to move bodily on the bearings fore and aft of the machine, as will hereinafter more clearly appear. The forward cross-bar 41 of the frame 38 is provided with a series

of upwardly projecting pins or abutments 42 which gradually increase in height from right to left, as indicated in Fig. 4. These pins correspond in number to the number of keys to be employed to actuate the tabulating mechanism to secure different denominational positions; thus ten keys are employed for this purpose in the present instance, so that ten stops or abutments 42 are employed and these abutments are so located with reference to the second bank or row of keys that when the frame 38, as a whole, is moved forward on its bearings 40, as represented in full lines in Fig. 5 and in dotted lines in Fig. 11, the pins or abutments 42 will be located directly beneath the key stems F'. The frame 38 is likewise provided with a centrally disposed rearwardly extending arm 43 which extends beneath the anti-friction roller 8 of the bar 7, as represented in Fig. 2. Located on the rear cross-bar 44 of the frame 38 and adjacent to the arm 43 is a cam 45 (Fig. 2) which bears upon the upper side of a lever 46 pivoted at 47 and having its rearwardly extending end pivoted at 48 to an upwardly extending arm 49 that extends through the top plate C of the machine and is bent forwardly at its upper end and has a hole in the horizontally extending portion for the reception of the stem of the headed screw *z*, that is carried by the feed dog *f*, as hereinbefore described. It will be understood, therefore, that when the forward end of the lever 46 is depressed, the arm or rod 49 will be elevated, thereby carrying the feed dog *f*, which normally engages the feed rack *c*, out of engagement with the rack to permit a free run of the carriage.

Upon reference to Figs. 11, 12 and 13, it will be seen that the transversely extending plate 32 is cut away at 50 and is provided with bearing ears 51 that receive the pivots 52 of a hinged shutter or plate 53, the latter having an upwardly extending wing 54 which is adapted to bear against the face of the plate 32 when the parts are in the normal position and the shutter 53 is in alignment with the plate or bar 32, as represented in full lines in Fig. 11. The extension or wing 54 therefore constitutes a stop that limits the movement of the shutter 53 in one direction relative to the bar or plate 32 and this normal disposition of the parts is maintained by a spring 55, the free end of which bears upon the extension 54, whereas the opposite end of the spring is secured by a screw 56 to the depending portion 37 of one of the cover plates of the keyboard of the machine. The shutter 53 is tapped at 58 to receive a set screw 59, the stem of which passes through the shutter and constitutes a stop which is adapted to bear upon the depending plate 60 of one of the cover plates for the keyboard, as represented in Fig. 11.

The shutter 53 likewise has an elongated opening 61 through which is projected the forwardly extending stem 62 of a push key 63, a nut or abutment 64 being held on the threaded portion of said stem to each side of the shutter 53, so that a movement of the push key toward the rear of the machine will cause the shutter to turn on the set screw 59 as a pivot, thereby deflecting the upper end of said shutter toward the front of the machine, and the lower end thereof toward the rear of the machine. The effect of this movement is to swing the plate 32 on its pivotal center so that the lower end or edge thereof will be moved toward the front of the machine, as represented in dotted lines in Fig. 11 and in full lines in Fig. 12, so that the pins 33 will be carried beneath the crank arms *g* of the ten center finger keys in the second row or bank, to limit the extent of depression thereof. At the same time the depending arms 34 are moved toward the front of the machine with the plate 32 to effect a forward bodily movement of the frame 38 in its bearings 40 and the pins 42 carried by the frame are brought beneath the ten center key stems of the second row or bank, as represented in dotted lines in Fig. 11. At this time, and as long as the finger of the operator is maintained on the push key 63, the tabulating mechanism will be thrown into operative connection with the finger keys to a position where the ten center finger keys in the second row are in coöperative relation with the tabulating mechanism. A depression of any of these keys at this time will bring its key stem *F'* into contact with the associated pin 42 on the front bar 41 of the rectangular frame 38, thereby pressing said bar against the tension of the springs 36 to rock the frame on its pivots 39. This movement of the frame results in elevating the denominational stop block 10 to a position where the stop or face 11, corresponding to the key actuated, will be brought into the path of the abutment 31 on a coöperating column stop 23. The same movement of the frame is effective to rock the cam 45 and thereby effect a movement of the lever 46 which results in lifting the rod 49 to release the feed dog *f* from an engagement with the feed rack. This will result in the carriage being released from its escapement mechanism and it will be moved to the left under the action of the spring drum until it is arrested by the proper denominational stop 11 which has been interposed in the path of one of the column stops on the carriage. When the carriage has been arrested in the manner indicated, the key 63 is released, the pawl *f* will reengage the feed rack, the denominational stop will be withdrawn to the normal position, the stops 33 will be withdrawn from the paths of the crank arms of

the ten key stems with which they coöperate and these, as well as the other character keys, may be actuated to write in the ordinary manner.

It will be understood that the parts are so timed that the denominational stop will be interposed in the path of a stop on the carriage at or after the time the feed dog is automatically released from the feed rack. When the push key 63 has been moved toward the rear of the machine and the second row of ordinary character keys operatively connected to the tabulating mechanism, in the manner described, the type bars are prevented from reaching the printing point when said keys are depressed to actuate the tabulating mechanism, by the pins 33 which are automatically interposed in the path of the crank arms *g* of said keys and thus prevent a full depression thereof and a complete writing movement of each of these keys.

It will be understood that the different heights of the pins 42 on the frame 38 afford a different extent of rocking or swinging movement of the frame for each of the ten keys that are adapted to be employed for tabulating purposes. Thus upon reference to Fig. 4, it will be observed that the ten center keys of the second row are adapted to afford ten denominational positions of the carriage, the positions of the columns being determined by the setting of the column stops on the carriage. These ten center keys are numbered from "1" to "10" in addition to the indices thereon which designate the characters for which said keys may be employed in the ordinary printing operation. The machine being a double keyboard machine, only these ten keys are each provided with two indices or characters thereon and therefore they are readily distinguishable from other keys on which only a single character or index is provided on each key. The numeral "1" on the right-hand key will indicate the first position in the denominational series which corresponds to the decimal point; the "2" will designate the second position which corresponds to tens; the "3" on the third key will designate the third position which corresponds to hundreds; the "4" on the fourth key will indicate the thousands position, and so on.

It will be understood from the foregoing description that the frame 38 is movable in two directions; that is to say, it is adapted to be moved bodily fore and aft of the machine to interpose the stops or pins 42 thereon in the path of the associated finger keys or the stems thereof and that a depression of the associated character keys affords a swinging or rocking movement of said frame which is entirely independent of the bodily movement thereof fore and aft of

the machine; and that the bodily fore and aft movement of the frame merely affords a change in the relative position between the tabulating mechanism and the ordinary character keys, whereas the swinging movement of the frame is effective to actuate the tabulating mechanism and to effect a release of the carriage. It will likewise be seen that the stops 33, which arrest or limit the depression of the ten keys which are adapted to be employed for tabulating purposes are entirely independent of the frame 38 and the swinging action thereof, notwithstanding the fact that the movement of the stops into operative position is effective to slide the frame 38 to a position where it may be actuated on the depression of any of the ten finger keys mentioned. The right-hand finger key of the ten employed for tabulating purposes, being intended to secure the first position or that corresponding to the decimal point, coöperates with the shortest pin 42 so that the slightest extent of depression or swinging movement of the frame is brought about through the actuation of this key; whereas the highest denominational position is secured by the key bearing the numeral "10" and this key coöperates with the longest pin 42 so that the greatest extent of depression or swinging movement of the frame is secured by an actuation of this key, and its movement brings the lowermost stop face "11" upon the graduated stop 10 into the path of the coöperating tabulating stop on the carriage and thus arrests the carriage in a position for writing the highest denominational position which may be secured by said keys. While ten keys have been shown for coöperation with the tabulating mechanism, it is obvious that any suitable number of keys may be employed for this purpose. If eight keys, for instance, be employed, eight pins 42 and eight pins 33 will be used, so that the remaining keys cannot be employed for tabulating purposes.

It will be observed that the bar 41 is a bar that is adapted to receive movement in two directions transverse to the length thereof and that the movement of the bar in one direction is effective to move it into and out of coöperative relation with the finger keys, whereas a movement of said bar in the other direction is effective to actuate the tabulating mechanism.

By placing the stop carrying bar 17 at the front of the machine in a position parallel with and adjacent to the ordinary carriage scale, means are provided for maintaining the tabulating stops in constant view of the operator and the stops may be readily adjusted, by the operator, relatively to the ordinary carriage scale.

From the foregoing description, it will be understood that the tabulating mechanism

of my invention may be applied to the well-known Smith Premier typewriting machine without changing or modifying the structural features of said machine and that a simple, cheap and efficient tabulating mechanism is provided.

Various modifications may be made without departing from the spirit of my invention and certain features thereof may be employed without the others.

From certain aspects of the invention the denominational stop block may be regarded as a stop having a series of stepped abutments to arrest the carriage at different denominational positions and from certain other aspects of the invention, the abutments may be regarded merely as a set of denominational stops. Then again, from certain aspects of the invention, the tabulating mechanism may be regarded broadly as such, whether or not the proper denominational position be secured by its use.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination of printing mechanism, a series of rock shafts for actuating said printing mechanism, a series of finger keys for moving said rock shafts, tabulating mechanism, and means for shifting the tabulating mechanism into and out of operative relation to said finger keys, a shifted part of said tabulating mechanism being moved into the paths of depression of said finger keys so as to be directly actuated by said finger keys.

2. In a typewriting machine, the combination of printing mechanism, finger keys therefor, tabulating devices and a bar mounted for movement in two directions transverse to the length thereof and controlled by said finger keys, and operative connections between said bar and certain of said tabulating devices to transmit movement thereto.

3. In a typewriting machine, the combination of printing mechanism, finger keys therefor, tabulating devices, a bar operatively connected to said tabulating devices, and means for moving said bar in a direction transverse to its length to effect a movement of the bar into and out of coöperative relation with the finger keys.

4. In a typewriting machine, the combination of printing mechanism, finger keys therefor, tabulating devices, a swinging bar operatively connected to said tabulating devices, means for normally maintaining the bar out of operative relation with the finger keys, and means for moving said bar in a direction transverse to its length to effect a movement of the bar into coöperative relation with the finger keys.

5. In a typewriting machine, the combination of a carriage, mechanism for releasing said carriage, printing mechanism, finger keys therefor, tabulating devices, a swinging

bar operatively connected to said tabulating devices and carriage releasing mechanism, means for normally maintaining the bar out of operative relation with the finger keys, and means for moving said bar in a direction transverse to its length to effect a movement of the bar into coöperative relation with the finger keys.

6. In a typewriting machine, the combination of printing mechanism, finger keys therefor, tabulating devices, a bar operatively connected to said tabulating devices, spring pressed means for normally maintaining said bar out of coöperative relation with the finger keys, and a separate key for moving said bar in a direction transverse to its length and into coöperative relation with the finger keys.

7. In a typewriting machine, the combination of a carriage, carriage releasing mechanism, printing mechanism, finger keys therefor, tabulating devices, a bar operatively connected to said tabulating devices, and carriage releasing mechanism, spring pressed means for normally maintaining said bar out of coöperative relation with the finger keys, and a separate independently actuated key for moving said bar in a direction transverse to its length and into coöperative relation with the finger keys in order to render the finger keys effective to actuate the tabulating devices and carriage releasing mechanism.

8. In a typewriting machine, the combination of a swinging frame that is also adapted to receive an independent movement fore and aft of the machine, tabulating devices controlled by said frame, finger keys, and means for effecting a movement of said frame fore and aft of the machine to bring the frame into and out of coöperative relation with the finger keys.

9. In a typewriting machine, the combination of printing mechanism, finger keys therefor, tabulating devices, a bar operatively connected to said tabulating devices, means for moving said bar in a direction transverse to its length to effect a movement of the bar into and out of coöperative relation with the finger keys, and means for preventing a printing operation when said finger keys are effective to actuate the tabulating devices.

10. In a typewriting machine, the combination of printing mechanism, finger keys therefor, tabulating devices, a bar operatively connected to said tabulating devices, means for moving said bar in a direction transverse to its length to effect a movement of the bar into and out of coöperative relation with the finger keys, a series of stops, one for each of the keys which is adapted to actuate the tabulating mechanism, and means for automatically interposing said stops to prevent a full depression of each of said fin-

ger keys when they are effective to actuate the tabulating devices.

11. In a typewriting machine, the combination of a carriage, carriage releasing mechanism, a swinging frame that is also adapted to receive an independent movement fore and aft of the machine, tabulating devices controlled by said frame, connections between the carriage releasing mechanism and the frame, to effect a release of the carriage by a swinging movement of the frame, finger keys, and means for effecting a movement of said frame fore and aft of the machine to bring the frame into and out of coöperative relation with the finger keys.

12. In a typewriting machine, the combination of a swinging frame that is likewise adapted to slide fore and aft of the machine, denominational tabulating devices controlled by the swinging movement of said frame, finger keys for swinging said frame to different extents, and means for moving said frame fore and aft of the machine to bring it into and out of coöperative relation with said finger keys.

13. In a typewriting machine, the combination of printing mechanism, a swinging frame that is likewise adapted to slide fore and aft of the machine, denominational tabulating devices controlled by the swinging movement of said frame, finger keys for actuating said printing mechanism and which are likewise adapted to swing said frame to different extents, spring pressed means for normally maintaining the frame out of coöperative relation with the finger keys, and hand operated means for moving said frame fore and aft of the machine to bring it into coöperative relation with said finger keys.

14. In a typewriting machine, the combination of printing mechanism, a swinging frame that is likewise adapted to slide fore and aft of the machine, denominational tabulating devices controlled by the swinging movement of said frame, finger keys for actuating said printing mechanism and which are likewise adapted to swing said frame to different extents, means for normally maintaining the frame out of coöperative relation with the finger keys, hand operated means for moving said frame fore and aft of the machine to bring it into coöperative relation with said finger keys, and automatically operated means for preventing a printing operation of the printing mechanism when said finger keys are effective to actuate the tabulating mechanism.

15. In a typewriting machine, the combination of a carriage, carriage releasing mechanism therefor, printing mechanism, a swinging frame that is likewise adapted to slide fore and aft of the machine, denominational tabulating devices controlled by the swinging movement of said frame, finger keys for actuating said printing mechanism.

anism and which are likewise adapted to swing said frame to different extents, operative connections between said frame and the carriage releasing mechanism, so as to afford a release of the carriage by a swinging movement of the frame, means for normally maintaining the frame out of co-operative relation with the finger keys, hand operated means for moving said frame fore and aft of the machine to bring it into co-operative relation with said finger keys, and automatically operated means for preventing a printing operation of the printing mechanism when said finger keys are effective to actuate the tabulating mechanism.

16. In a typewriting machine, the combination of writing mechanism, rock shafts for actuating said writing mechanism, key stems connected to said rock shafts, and tabulating mechanism including a part under said key stems which is directly depressible by said key stems.

17. In a typewriting machine, the combination of a carriage, carriage releasing mechanism, writing mechanism, rock shafts for actuating said writing mechanism, key stems connected to said rock shafts, tabulating mechanism including a part under said key stems which is directly depressible by said key stems, and connections between said depressible part and said carriage releasing mechanism.

18. In a typewriting machine, the combination of writing mechanism, rock shafts for actuating said writing mechanism, key stems connected to said rock shafts, denominational tabulating mechanism including a part which is depressible to different extents by said key stems, and means for affording an operative connection or disconnection between said depressible part and said key stems.

19. In a typewriting machine, the combination of writing mechanism, rock shafts for actuating said writing mechanism, crank arms extending from said rock shafts, key stems connected to said crank arms, denominational tabulating mechanism including a part which is depressible to different extents by said key stems, means for affording an operative connection or disconnection between said depressible part and said key stems, and stops that are automatically interposed in the paths of said crank arms when the key stems and depressible part are operatively connected in order to prevent a printing operation by those keys which actuate the tabulating mechanism.

20. In a typewriting machine, the combination of a carriage, carriage releasing mechanism, writing mechanism, rock shafts for actuating said writing mechanism, crank arms extending from said rock shafts, key stems connected to said crank arms,

denominational tabulating mechanism including a part which is depressible to different extents by said key stems, means for affording an operative connection or disconnection between said depressible part and said key stems, stops that are automatically interposed in the paths of said crank arms when the key stems and depressible part are operatively connected, in order to prevent a printing operation by those keys which actuate the tabulating mechanism, and connections between said depressible part and said carriage releasing mechanism.

21. In a typewriting machine, the combination of a swinging carrier, a frame that is connected to said carrier to move therewith and to move independently thereof, tabulating devices controlled by said frame, and finger keys for moving the frame.

22. In a typewriting machine, the combination of a swinging carrier, a frame that is connected to said carrier to move therewith, springs interposed between the carrier and frame to afford a movement of the frame independently of the carrier, tabulating devices controlled by said frame, and finger keys for moving the frame.

23. In a typewriting machine, the combination of a carriage, carriage releasing mechanism, a swinging carrier, a frame that is connected to said carrier to move therewith and to move independently thereof, tabulating devices controlled by the independent movement of said frame, finger keys for moving the frame, and means for effecting an actuation of the carriage releasing mechanism by said independent movement of said frame.

24. In a typewriting machine, the combination of a carriage, carriage releasing mechanism, a swinging carrier, a frame that is connected to said carrier to move therewith, hand actuated means for moving the carrier, springs interposed between the carrier and frame to afford a movement of the frame independently of the carrier, tabulating devices controlled by the independent movement of said frame, finger keys for moving the frame, and means for effecting an actuation of the carriage releasing mechanism by said independent movement of the frame.

25. In a typewriting machine, the combination of finger keys, denominational tabulating devices, graduated abutments that are moved by said keys to actuate said tabulating devices, stops, and means for moving said stops fore and aft of the machine and into and out of the paths of said finger keys.

26. In a typewriting machine, the combination of a pivoted frame that is likewise adapted to slide on its bearings, graduated abutments carried by said frame, finger keys for swinging said frame on its pivotal center, hand operated means for sliding said

frame fore and aft of the machine, to move the graduated abutments into and out of the path of the finger keys, a tabulating stop controlled by said frame, a carriage, a co-operating tabulating stop on the carriage, and carriage releasing mechanism controlled by said swinging frame.

27. In a typewriting machine, the combination of a carriage, a pivoted frame that is likewise adapted to slide on its bearings, graduated abutments carried by said frame, finger keys for swinging said frame on its pivotal center, hand operated means for sliding said frame to move the graduated abutments into and out of the paths of the finger keys, spring supporting means interposed between the said hand actuated means and said frame, to afford a swinging movement of the latter to different extents by an actuation of said keys, and tabulating and denominational stops, one being carried by the carriage and the other controlled by the said frame.

28. In a typewriting machine, the combination of printing mechanism, a carriage, a pivoted frame that is likewise adapted to slide on its bearings, graduated abutments carried by said frame, finger keys for said printing mechanism and which are adapted to swing said frame on its pivotal center, hand operated means for sliding said frame to move the graduated abutments into and out of the paths of the finger keys, spring supporting means interposed between the said hand actuated means and said frame, to afford a swinging movement of the latter to different extents by an actuation of said keys, tabulating and denominational stops, one being carried by the carriage and the other controlled by the said frame, and carriage releasing mechanism controlled by said swinging frame.

29. In a typewriting machine, the combination of printing mechanism, finger keys therefor, tabulating devices, a swinging shutter carrying stops, hand actuated means that are operable to swing said shutter to move the stops to a position where they will arrest the depression of said keys, and independent means controlled by said shutter for operatively connecting the finger keys to said tabulating devices when the stops are in position to arrest the depression of the keys.

30. In a typewriting machine, the combination of a carriage, printing mechanism, finger keys therefor, tabulating devices, a swinging shutter carrying stops, hand actuated means that are operable to swing said shutter to move the stops to a position where they will arrest the depression of said keys, independent means controlled by said shutter for operatively connecting the finger keys to said tabulating devices when the stops are in position to arrest the depression

of the keys, and carriage releasing mechanism controlled by said independent means.

31. In a typewriting machine, the combination of a carriage, a carriage scale at the front of the machine, a stop carrying bar extending in the direction of the travel of the carriage, means for securing said bar in place adjacent to the carriage scale, an adjustable tabulating stop on said bar and so disposed with reference to said scale that it is adapted to co-act with the carriage scale to afford a proper positioning of the stop, and co-operating tabulating devices controlled by keys at the keyboard of the machine.

32. In a typewriting machine, the combination of a carriage, a carriage scale secured thereto, a stop supporting bar removably secured to said carriage adjacent to the carriage scale and extending parallel therewith, an adjustable column stop carried by said bar and co-operating with the carriage scale to determine the proper positioning of the stop, co-operating denominational stops, and means at the keyboard of the machine for actuating said denominational stops.

33. In a typewriting machine, the combination of writing mechanism, finger keys therefor, a carriage, a carriage scale secured thereto, a stop supporting bar removably secured to said carriage adjacent to the carriage scale and extending parallel therewith, an adjustable column stop carried by said bar and co-operating with the carriage scale to determine the proper positioning of the stop, and co-operating denominational stops adapted to be actuated by said finger keys.

34. In a typewriting machine, the combination of a rack bar, a tabulating stop carried by said rack bar and adapted to slide thereon, and a hand actuated catch carried by and pivoted to said stop and provided with segmental teeth which are adapted to engage with the teeth on the rack bar when the catch is turned to one position on its pivot and to be disengaged therefrom when the catch is turned to another position on its pivot, said catch being adapted to remain in either of said positions.

35. In a typewriting machine, the combination of a carriage scale, a T-shaped bar parallel with said carriage scale and having a rack face thereon, a stop adapted to slide along said bar, an index carried by said stop and adapted to register with said carriage scale, and a catch pivoted to said stop and having segmental teeth that are adapted to be turned with the catch into engagement with the teeth on the rack face of the bar or to be disengaged therefrom.

36. In a typewriting machine, the combination of a carriage, a carriage scale secured to the front of the carriage, a rack bar which is T-shaped in cross-section and is carried by the carriage and extends parallel with the

carriage scale, a stop carried by and adapted to slide along said T-shaped rack bar, an index carried by the stop and adapted to register with the graduations on said carriage scale, and a catch pivoted to said stop and adapted to cooperate with the rack bar to secure the stop in place.

37. In a typewriting machine, the combination of a carriage, a tabulating stop on the carriage, a cooperating tabulating stop carried by the frame of the machine, printing instrumentalities, finger keys therefor, a swinging bar located beneath the keyboard of the machine, laterally projecting stop pins that extend from said swinging bar and are adapted to be projected into the paths of the finger keys or their connections to arrest the

depression thereof before the associated printing instrumentalities can arrive at the printing point, a separate frame adapted to be moved in one direction by the finger keys, intermediate connections between the said frame and one of said tabulating stops and between said frame and said bar, and hand controlled means for rendering the bar and frame effective for cooperation with said finger keys.

Signed at Washington, in the District of Columbia, this 9th day of October, A. D. 1902.

CHARLES S. LABOFISH.

Witnesses:

FOREST P. TRALLES,
G. E. TRALLES.