

No. 851,264.

PATENTED APR. 23, 1907.

F. X. WAGNER.
TYPE WRITING MACHINE.
APPLICATION FILED MAY 7, 1906.

3 SHEETS—SHEET 1.

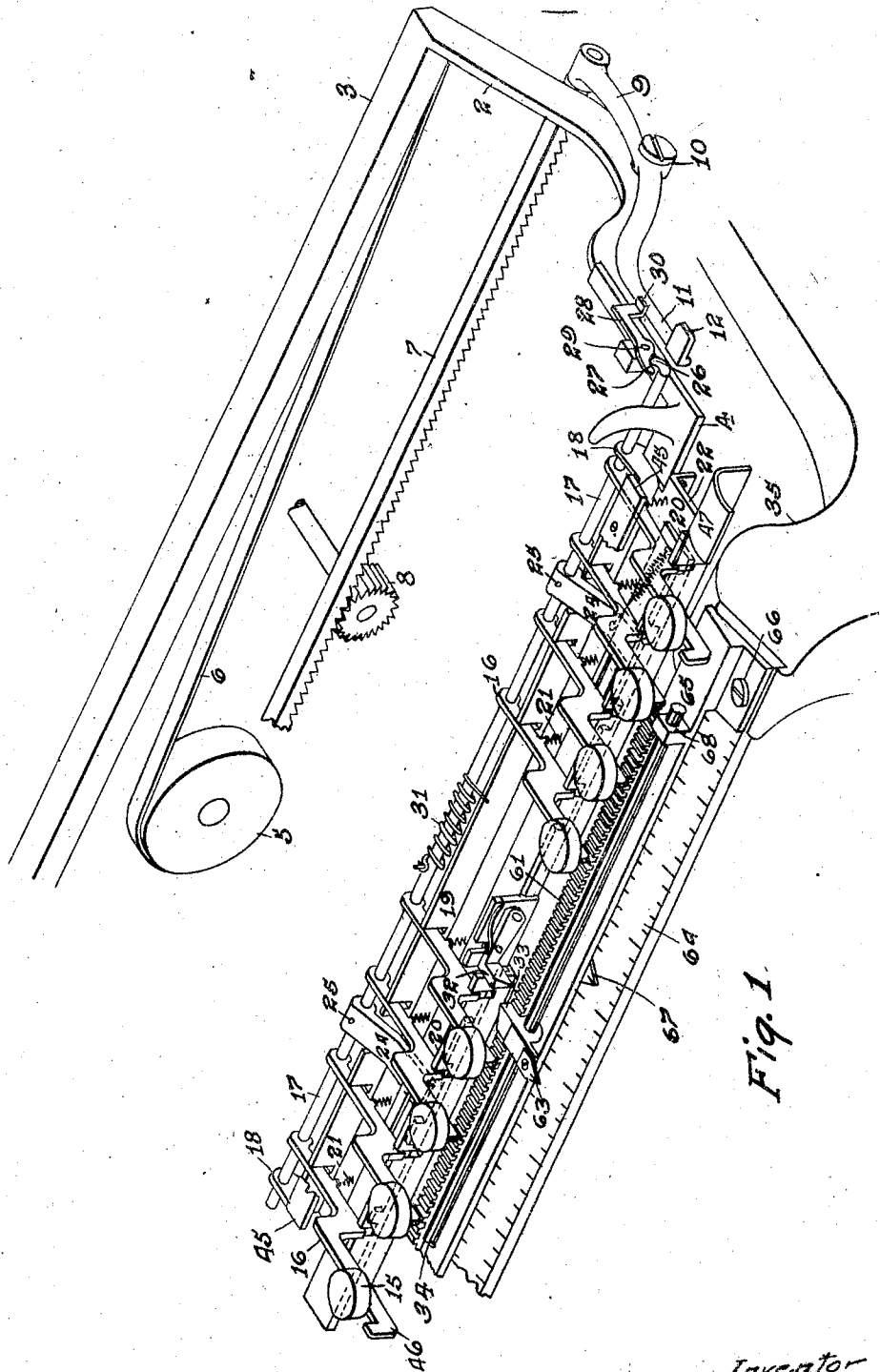


Fig. 1.

Witnesses
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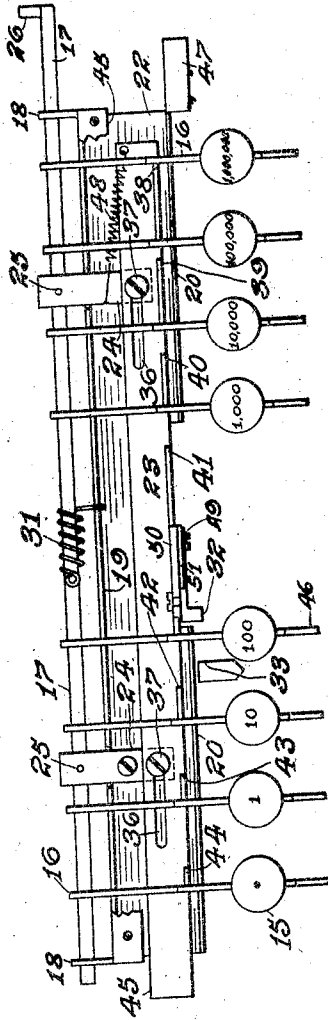


Fig. 2.

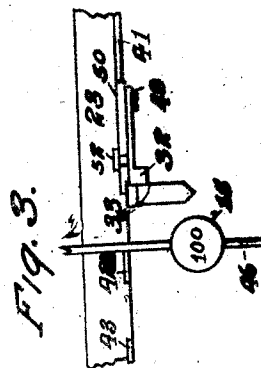


Fig. 3.

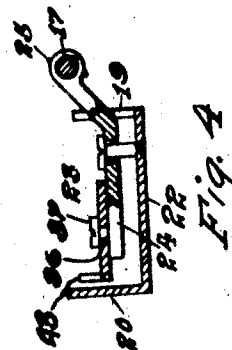


Fig. 4.

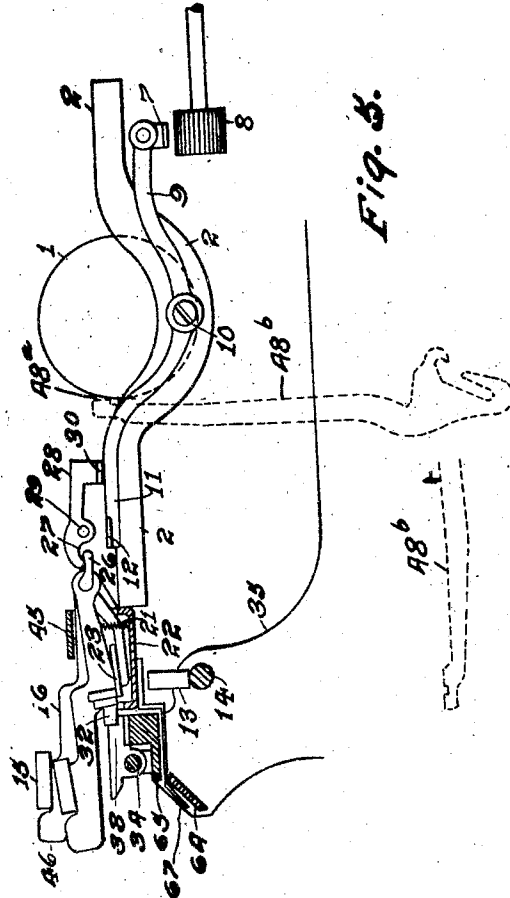


Fig. 5.

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3 SHEETS—SHEET 3.

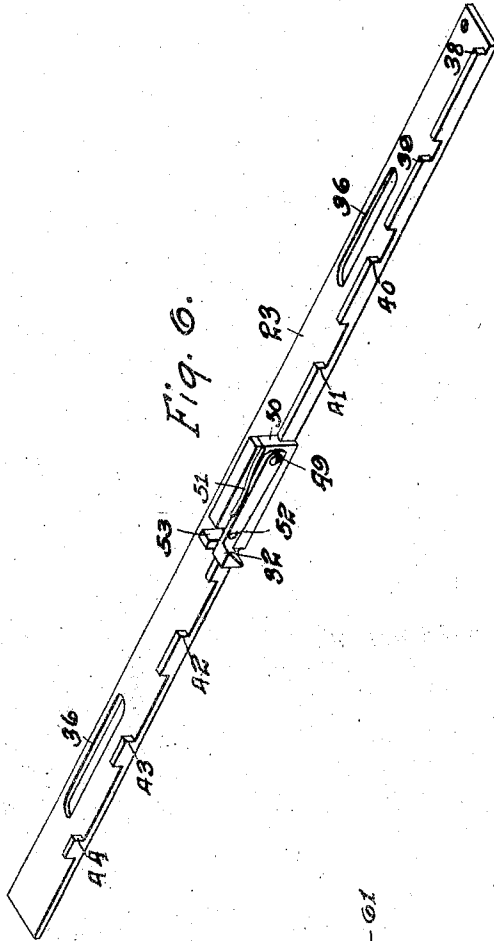


Fig. 6.

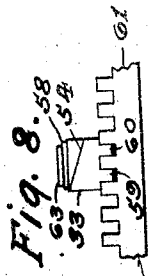
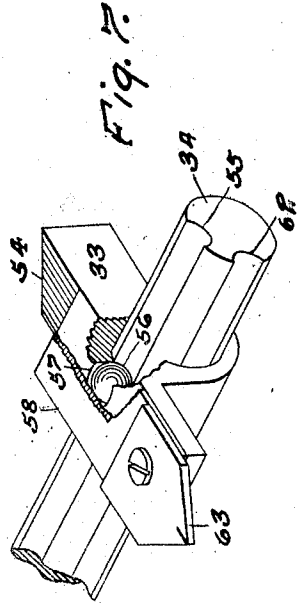


Fig. 8.



UNITED STATES PATENT OFFICE.

FRANZ X. WAGNER, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPE-WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 851,284.

Specification of Letters Patent.

Patented April 23, 1907.

Application filed May 7, 1906. Serial No. 315,609.

To all whom it may concern:

Be it known that I, FRANZ X. WAGNER, a citizen of the United States, residing in Bronx borough, New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to tabulating mechanisms of typewriting and other machines, in which the carriage may be arrested at any desired denomination point with reference to one or more column stops.

The object of the invention is to provide a simple, compact, inexpensive and conveniently operated decimal tabulating mechanism especially adapted for front strike or visible writing machines.

The invention is illustrated in connection with the well known Underwood front strike writing machine. Upon the front part of the paper carriage, I provide a row of independently operable denomination keys, each mounted upon the front end of a lever, each lever having means for releasing the carriage from the control of its escapement mechanism. The denomination stops are mounted upon the framework of the machine, and adjustable in the direction of the run of the carriage. Upon the latter is provided a single stop, which may be depressed by means of any of said levers into position to engage the column stops. When any key is depressed, the carriage runs freely along until such engagement of the stops occurs; but the carriage stop is not rigid with the carriage, but is so mounted thereon that the carriage may continue to move after the carriage stop is arrested, this supplemental movement of the carriage being limited however, and depending upon which denomination key lever was depressed. The carriage stop is mounted directly upon a slide, the latter being mounted upon the carriage, and said slide has a series of graduated stops in such positions with relation to the denomination key lever that the movement of the slide upon the carriage may be variably limited by the co-action of the slide stops with the levers.

It will be understood that when any lever is depressed it will co-act with its own stop for arresting said slide, while the other stops upon the slide will remain idle. The dis-

tances between the stops and their respective levers are graduated, the first lever being close to its stop, the next lever being separated from its stop a distance equal to a single letter space, the next lever being separated from its stop a distance equal to two letter spaces, and so on throughout the series. Thus when any denomination key is depressed, the carriage is released and runs to the left until the carriage stop engages the column stop, and then continues until the depressed lever engages its own slide stop, whereupon the carriage is brought to rest at the proper point to begin writing a number having the same denomination as the depressed tabulator key. The column stops are illustrated as provided with indexes to co-act with the usual front carriage scale for setting the stops. A rack is provided for the column stops, and the latter are pivoted upon a cylindrical bar, so that they may be turned out of engagement with the rack, this turning movement bringing the stop index into proximity to said scale, so that the stop may be slidden along the bar until the index reaches the desired graduation upon the scale, and may then be turned back into engagement with the rack.

Other objects and advantages will herein-after appear.

In the accompanying drawings, Figure 1 is a perspective view of an "Underwood" front strike typewriter fitted up with my improvements; the parts shown in normal positions. Fig. 2 is a plan of the tabulating mechanism with the parts in normal positions. Fig. 3 is a partial plan showing one key depressed and illustrating the position of the parts when the carriage is arrested by the co-operation of the stops. Fig. 4 is an elevation in cross-section of one of the arms which carries the stop plate on the carriage. Fig. 5 is a side elevation of the carriage tabulating mechanism, partly in section, one denomination key shown in normal position and another in depressed position. Fig. 6 is a perspective view of a bar mounted upon the carriage and having graduated stops thereon to co-operate with the denomination levers. Fig. 7 is a perspective view illustrating a column stop in normal position. Fig. 8 is a rear view of a column stop.

The usual cylindrical platen is illustrated

at 1, and is mounted upon a shifting platen frame, (not shown), the latter mounted in the usual manner upon a carriage comprising side bars 2, rear bar 3, and front bar 4. The carriage is propelled by the usual spring barrel 5 and strap 6, and is provided with a letter spacing rack 7 to mesh with a pinion 8, the latter forming part of the usual escapement or letter feeding mechanism. Said rack is usually provided at its ends with a pair of arms 9 hinged at 10 upon the carriage frame and provided with a forwardly extending depressible arm 11 having a finger piece 12, so that by depressing the finger piece the rack may be raised clear of the pinion 8, and the carriage may run along freely under the influence of the propelling spring 5. The carriage has a front roll 13 running upon a track 14.

Ranging along the front of the carriage and supported thereon are denomination keys 15, the first bearing a decimal mark, the next a unit mark, the next a tens mark, the next hundreds and so on up to millions. These keys are mounted upon the forward portions of levers 16 similar to one another and fulcrumed upon a rod 17, which is mounted at its ends in ears 18 fixed upon the carriage. Fixed combs 19 and 20 provided upon the carriage guide the rear and front portions of the levers. The latter are lifted by individual compression springs 21 which are supported upon a bottom plate 22 secured to the front bar 4 of the carriage and turned up at its rear and front edges to form said combs 19 and 20.

When any denomination key is depressed, its lever bears down a universal bar 23 which extends along the carriage beneath all the levers, and is carried upon the front ends of a pair of arms 24 secured by pins 25 to said rod 17, the latter being thereby rocked. Upon the right hand end of said rod or rock shaft 17 is provided a rock arm 26 to lift an arm 27 formed upon a lever 28 pivoted at 29 on the end bar 2 of the carriage; said lever having a finger 30 to depress the carriage releasing lever 11. The immediate effect therefor of depressing any key is to release the carriage so that it may run forward. A spring 31 turns the rock shaft to normal position after actuation. Also carried upon said universal bar or member 23 is a stop 32 which normally stands high enough to clear a series of column stops 33 pivoted upon a cylindrical bar 34 supported upon the framework 35 of the machine; from which it is carried down with said member 23 so that it will collide with one of said column stops for the purpose of arresting the carriage.

The member 23 is slidable endwise upon the supporting arms 24, it being for this purpose provided with longitudinal slots 36 to receive screws 37 fastened into said arms. If the extreme right hand or millions key is

depressed the carriage itself is arrested by the contact of stops 32 and 33, because the slide 23 has an upturned stop 38 at its front edge which is contiguous to the millions lever, so that the latter when depressed prevents any longitudinal play of the slide 23. When however, the next key to the left, marked hundreds of thousands, is depressed, a slight endwise play of the slide 23 is permitted, and the carriage is not immediately arrested by the contact of stop 32 with stop 33, but is permitted to advance a distance equal to the gap between the hundreds of thousands lever and its associated stop 39, said gap equal to one letter spacing movement of the carriage. In other words, the carriage is arrested after it has proceeded one letter space beyond the point where the stops 32 and 33 engage, and hence is arrested in position for beginning the writing of a number of a denomination of hundreds of thousands. With the tens of thousands lever is associated a stop 40, a gap equal to two letter spaces being left between this stop and the lever. The thousands lever is associated with a stop 41, which is three letter spaces distant from the lever. The hundreds lever co-operates with a stop 42 which is four letter spaces distant. The tens lever co-operates with a stop 43, five letter spaces distant. The units lever co-operates with a stop 44, six letter spaces distant.

It will be seen that the stops 38 to 44 are in line at the front edge of the slide 23, and that when any lever is depressed it co-acts with its own stop, the other stops remaining idle. When the decimal point key at the extreme left is depressed, a relative movement of the slide 23 and the carriage is permitted equal to the length of the slot 36, thus arresting the carriage at the proper place to write the decimal point. The front comb 20 is close to the stops 39 to 44, so as to sustain the levers against distortion when arresting the carriage. A cap plate 45 placed over the rear portions of the levers serves to limit their upward movements. Each lever is extended forwardly beyond the key at 46 to afford a finger hold, so that the operator may readily control the carriage; and a finger guard 47 may be fixed upon the right hand end of the carriage.

From the foregoing, it will be seen that one or more columns of figures may be readily written without liability of error in positioning the figures in the columns. Before writing each number, the proper denomination key is selected and depressed, thus carrying down the member 23, which both releases the carriage and sets the stop 32 to engage the column stop 33; the supplemental advance of the carriage being determined by the length of the gap between the depressed lever and its associated stop provided on said member 23. Upon releasing the key, the

parts are returned to normal positions, the slide member 23 being restored by a spring 48. The figures are written upon the paper by types 48^a carried upon bars 48^b which strike upon the front of the platen. The keys 15 are below the line of vision.

It will be seen that the stop 32 is in the form of a pawl, pivoted at 49 upon a block 50 provided upon the sliding member 23, a spring 51 being provided for pressing the stop down, the latter having a stop pin 52 seated in a notch 53 cut in said block. The top face of the stop 33 is beveled at 54 so that the stop 32 will ride easily thereover during the return of the paper carriage even though a denomination key is held depressed during such return of the carriage. Hence where a single column is being written down the page, the operator after completing one number may depress the proper denomination key for the succeeding number, thereby releasing the carriage which may be pressed back by means of the finger piece 46 until the carriage stop 32 passes the column stop, whereupon the carriage may be suffered to run to the left until arrested at the denominational position corresponding to the depressed key. The writing of a single column down the page is thus greatly expedited.

A longitudinal groove 55 is formed in the top of the cylindrical bar 34 upon which the column stops 33 are pivoted. Each column stop is provided with a ball 56 to fit in said groove, the ball being retained in a perforation 57 formed in the column stop. A spring 58 covers the ball and yieldingly holds the same in the groove 55. The column stop is preferably formed with two teeth 59 and 60, Fig. 8, to fit in a rack 61, which is just in rear of the column stop bar 34, and is secured upon the framing 35 at the front of the machine. The ball 56 normally holds the column stop in engagement with the rack. When it is desired to adjust the column stop along the rack, it is forced forwardly, the ball 56 being forced out of its groove and riding upon the periphery of the bar 34, and then dropping into a groove 62 formed in the front of the bar 34. At this time an index 63 provided upon said column stop points down to the graduations of the usual front carriage scale 64. The column stop is slidden along the bar 34 until the index 63 is brought opposite the desired graduation on said scale, whereupon the column stop is returned back to normal position in engagement with the rack 61. The latter is formed or secured upon a bridge 65 overlying the scale 64 and secured at its ends upon the framing by screws 66. An index 67 extends forwardly from the front carriage bar 4 to co-operate with said scale 64 to indicate the progress of the carriage. Said index 67 extends beneath the bridge 65. The bar 34 is fixed in a pair of lugs 68 resting upon said bridge.

Variations may be resorted to within the scope of the invention and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting and tabulating mechanism, the combination with a power-driven carriage and letter feeding mechanism, of a set of independently operable denomination keys mounted upon the carriage, a carriage releasing mechanism operable by said keys, a column stop upon the framework of the machine, a denomination stop upon the carriage normally incapable of engaging the column stop, means for enabling said keys to set said denomination stop to engage said column stop, means for permitting the denomination stop when arrested by the column stop to yield while the carriage continues to run, and means for enabling the keys to arrest such yielding action variably so that the carriage is arrested at a point corresponding to the denomination of the depressed key.

2. In a typewriting and tabulating mechanism, the combination with a power-driven carriage and letter feeding mechanism, of a set of independently operable levers mounted upon the carriage and provided with denomination keys, a universal bar operable by said levers, a carriage releasing mechanism controlled by said universal bar, a column stop upon the framework of the machine, a denomination stop mounted upon said universal bar and movable by the latter to position for engaging with said column stop, said denomination stop being mounted for a sliding movement upon said universal bar in a direction of the run of the carriage, graded stops connected to said denomination stops for engaging with said levers to limit the continued carriage movement after the arrest of the denominational stop, and a spring for returning the denomination stop to normal position along the universal bar.

3. In a typewriting and tabulating mechanism, the combination with a power-driven carriage and letter feeding mechanism, of a rock shaft mounted upon the carriage and extending longitudinally thereof, rock arms upon said shaft, a slide carried by said arms and having a set of stops rigid therewith, a denomination stop mounted upon said slide, a set of independently operable key levers pivoted upon said rock shaft and having means to depress said slide, and also adapted to co-operate with said set of stops for variably arresting the carriage, a carriage releasing mechanism operable by said rock shaft, and a column stop upon the framework to co-operate with said denomination stop.

4. In a typewriting and tabulating mechanism, the combination with a power-driven carriage and letter feeding mechanism, of a rock shaft mounted upon the carriage and extending longitudinally thereof, rock arms

upon said shaft, a slide carried by said arms and having a set of stops rigid therewith, a denomination stop mounted upon said slide, a set of independently operable key levers pivoted upon said rock shaft and having means to depress said slide, and also adapted to co-operate with said stops for variably arresting the carriage, a carriage releasing mechanism operable by said rock shaft, a column stop upon the framework to co-operate with said denomination stop, and a spring for returning said slide to normal longitudinal position after release of the depressed key.

5. In a typewriting and tabulating mechanism, the combination with a power driven carriage and letter feeding mechanism, of a slide mounted upon the carriage to slide longitudinally thereof, said slide provided with a series of stops, a series of denomination key levers mounted upon the carriage and adapted to variably arrest said carriage, a denomination stop mounted upon said slide, a column stop mounted upon the framework of the machine, and means operable by any of said levers for both releasing the carriage and effecting relative transverse movement between the denomination stop and column stop.

6. In a typewriting and tabulating mechanism, the combination with a power driven carriage and letter feeding mechanism, of a rock shaft mounted upon the carriage and extending longitudinally thereof, rock arms mounted upon said shaft, a sliding plate having longitudinal slots engaged by screws which are threaded into said rock arms, a set of stops bent up from the front edge of said sliding plate, a set of independent levers fulcrumed at their rear ends upon said rock shaft and depressible into position to be engaged by said stops, said levers having keys on their forward ends, a denomination stop mounted upon said slide so as to be depressible by any of said levers together with said slide and rock arms, a column stop mounted upon the carriage, and a carriage releasing mechanism controlled by said rock shaft.

7. In a typewriting and tabulating mechanism, the combination with a carriage and letter feeding mechanism, of a denomination stop, a slidable bar carrying said stop, a series of finger keys mounted adjacent to said bar at intervals greatly in excess of the letter feeding movements of the carriage, stops operated by said keys, stops upon said bar to co-operate with said key stops for arresting the bar and the denomination stop at letter spacing intervals, and a stop to co-operate with said denomination stop to arrest the carriage.

8. In a typewriting and tabulating mechanism, the combination with a power driven carriage and letter feeding mechanism, of a set of independently movable keys mounted

upon the carriage along the front thereof, at intervals much in excess of the letter spacing movements of the carriage, a denomination stop mounted upon the carriage, and movable thereon in the direction of the run of the carriage, means controlled by said keys for releasing the carriage, and depressing said denomination stop into the path of a stop upon the framework of the machine, and a set of movable stops ranging along the carriage one at each key for enabling the keys to variably limit the run of the carriage after engagement of said denomination stop with said framework stop.

9. In a typewriting and tabulating mechanism, the combination with a power driven carriage and letter feeding mechanism, of a rock shaft mounted upon the carriage and extending longitudinally thereof, rock arms upon said shaft, a slide carried by said arms and having a set of stops rigid therewith, a denomination stop mounted upon said slide, a set of independently operable key levers pivoted upon said rock shaft and having means to depress said slide, and also adapted to co-operate with said set of stops for variably arresting the carriage, a guide comb for said key levers close to said stops, individual springs for returning said key levers, a carriage releasing mechanism operable by said rock shaft, and a column stop upon the framework to co-operate with said denomination stop.

10. In a typewriting and tabulating mechanism, the combination with a power driven carriage and letter feeding mechanism, of a set of independently operable keys mounted upon the carriage and controlling the carriage releasing mechanism, a stop on the carriage and movable thereon in the direction of the run and permitting movement of the carriage to different denominational positions, the denominational movements of said carriage being controlled by said keys, and a stop upon the framework of the machine to arrest said denomination stop and carriage; means being controlled by said keys for projecting one stop into the path of the other, and one of said stops having a yielding construction to permit it to pass the other when the carriage is run backward during the depression of one of said keys.

11. In a typewriting and tabulating mechanism, the combination with a power driven carriage and letter feeding mechanism, of a stop upon the carriage, a bar mounted upon the framework and having column stops adjustable thereon, a front carriage scale upon the framework forward of said bar, an index mounted upon the carriage and extending forwardly beneath said bar to said scale, and indexes upon said column stops to co-operate with said scale, but normally in inoperative positions; the column stops being adjustable to move the indexes

into position to co-operate with the scale when the stops are to be adjusted along the bar.

12. In a typewriting and tabulating mechanism, the combination with a power driven carriage and letter feeding mechanism, of a denomination stop mechanism mounted upon the carriage, a bar mounted upon the framework and having column stops adjustable thereon, a front carriage scale upon the framework forward of said bar, an index mounted upon the carriage and extending forwardly beneath said bar to said scale, each of said column stops having normally inoperative individual index, and a rack for said column stops; the latter being releasable from said rack, and their indexes being movable into co-operation with said scale at the releasing operation.

13. In a typewriting and tabulating mechanism, the combination with a power driven carriage and letter feeding mechanism, of a stop upon the carriage, a shaft mounted upon the framework, a set of column stops pivoted upon said shaft and each having an index, a scale upon the framework of the machine, an index upon said carriage to co-operate with said scale, said stop in-

dexes being normally out of co-operation with said scale, a rack extending along said shaft, and teeth upon said column stops to engage said rack; the index on the column stop being so mounted that when the column stop is released from the rack by turning it upon said shaft, the index is brought into juxtaposition with said scale to co-operate therewith for adjusting the column stop.

14. In a typewriting and tabulating mechanism, the combination with a power driven carriage and letter feeding mechanism, of a denomination stop mechanism mounted upon the front of the carriage, a shaft mounted upon the framework, a set of column stops upon said shaft and each having an index, a letter scale upon the framework to co-operate with said index, said scale constructed to co-operate with the indexes upon the column stops for setting the latter, and an index upon the carriage extending forwardly beneath the rack and shaft to co-operate with said scale to indicate the progress of the carriage.

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