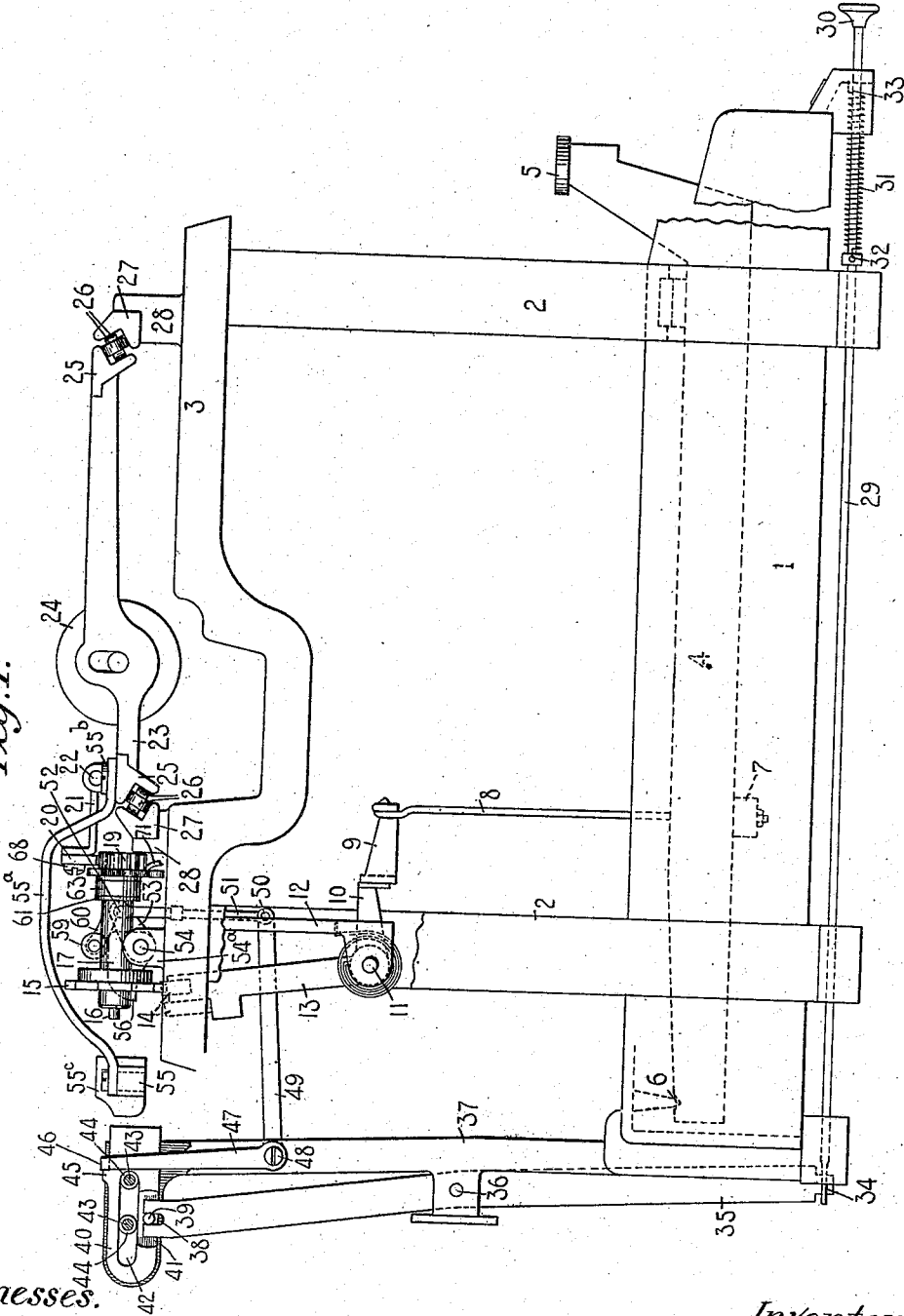


930,500.

A. W. STEIGER.
TYPE WRITING MACHINE.
APPLICATION FILED JAN. 20, 1906.

Patented Aug. 10, 1909.
3 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

E. W. Wells.
Charles E. Smith

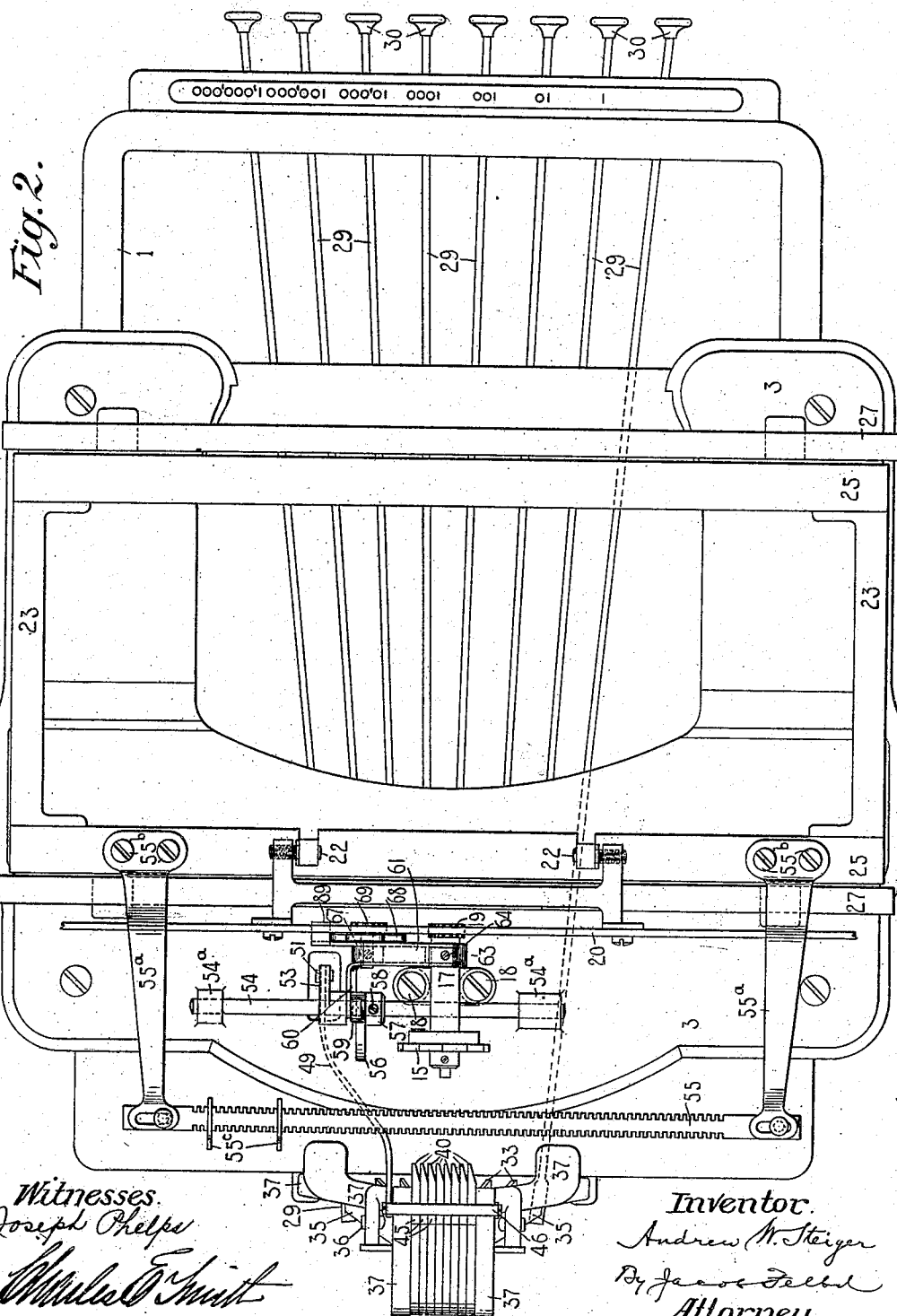
Inventor
Andrew W. Steiger.
By James F. Bell
Attorney

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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

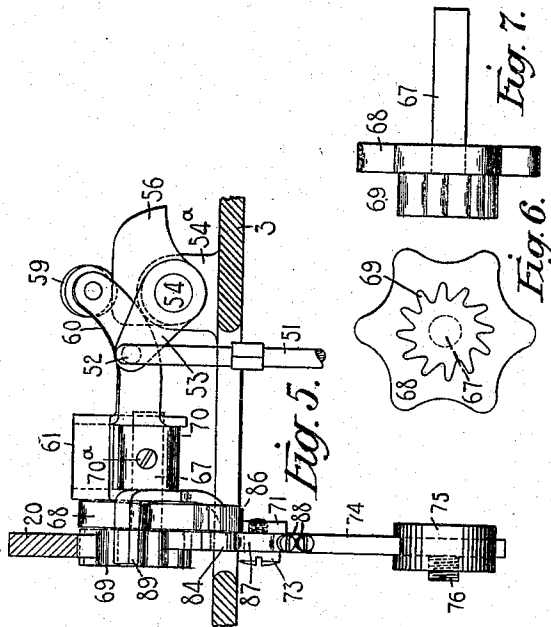


Fig. 5.

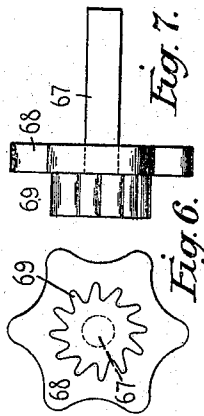


Fig. 7.

Fig. 6.

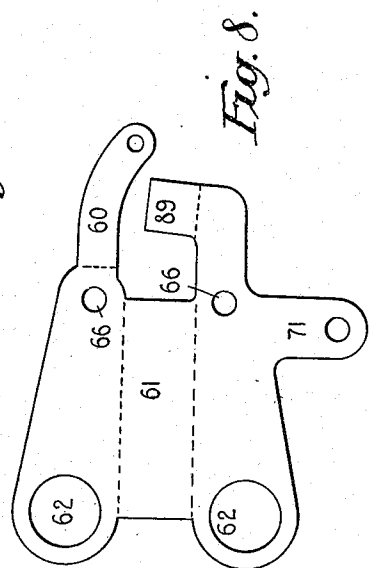


Fig. 8.

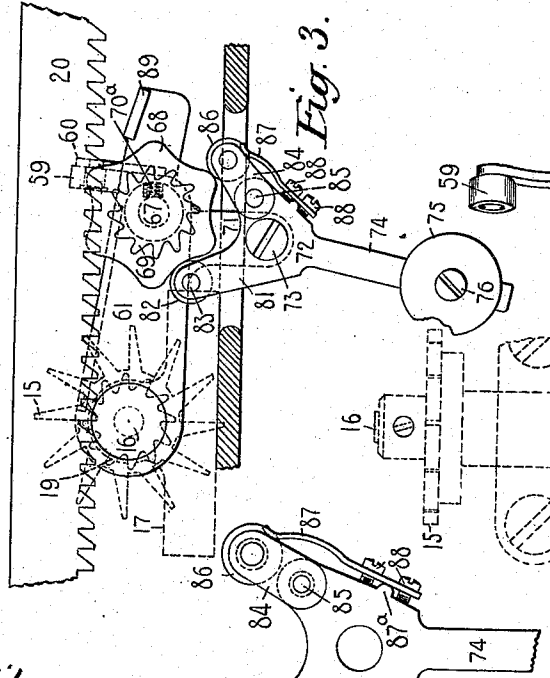


Fig. 3.

Fig. 9.

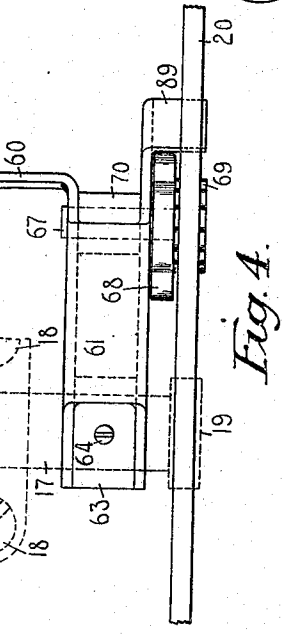


Fig. 4.

Witnesses
Joseph Phelps
Charles Smith

Inventor
Andrew W. Steiger
By Isaac Deibel
Attorney.

UNITED STATES PATENT OFFICE.

ANDREW W. STEIGER, OF NEW YORK, N. Y., ASSIGNOR TO WYCKOFF, SEAMANS & BENEDICT,
OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 930,500.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed January 20, 1906. Serial No. 296,999.

To all whom it may concern:

Be it known that I, ANDREW W. STEIGER, citizen of the United States, and resident of the borough of Manhattan, city of New York, 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.

My invention relates to typewriting machines and more particularly to means for controlling the speed of the carriage to prevent too rapid a movement thereof when it is released from its step-by-step feed mechanism.

One object of my invention is to provide simple and efficient means of the character specified.

A further object of my invention is to combine such speed controlling means with tabulating mechanism, so that an actuation of the tabulating mechanism will automatically throw the speed controlling means into and out of cooperation with the carriage.

To the above and other ends which will hereinafter appear, my invention consists of the features of construction, arrangements of parts and combinations of devices to be hereinafter described and claimed.

In the accompanying drawings, wherein like reference characters indicate corresponding parts of the various views, Figure 1 is a side elevation with parts in section, showing a sufficient number of parts of one form of typewriting machine to illustrate my invention and its application thereto. Fig. 2 is a plan view of the same. Fig. 3 is a detail front elevation of the carriage controlling means. Fig. 4 is a plan view of the same. Fig. 5 is a side elevation of the parts shown in Figs. 3 and 4. Fig. 6 is a front view of the cam and its actuating pinion. Fig. 7 is a side view of the same. Fig. 8 is a detail view of the blank from which the frame for the carriage controlling device is formed. Fig. 9 is a detail front view of the vibratory device or lever for the carriage speed controlling means.

The frame of the machine comprises a base 1, corner posts 2 and a top plate 3. Key levers 4, provided with the usual finger keys 5, are fulcrumed at 6 in the base of the machine. These key levers are connected in any suitable manner with printing instrumentalities (not shown) and extending

transversely beneath the key levers is a universal bar 7 connected at its ends to upwardly extending links 8 which in turn are connected at their upper ends to a transverse bar 9 carried by a forwardly extending arm 10 on a dog rocker pivoted at 11 to a fixed bracket plate 12, carried by the frame of the machine. An upwardly extending arm 13 on the dog rocker carries the usual feed dogs 14 which cooperate with an escapement wheel 15, operatively connected in the usual manner to a shaft 16 mounted in a bearing 17 secured by screws 18 to the top plate of the machine. The forward end of the shaft 16 carries the usual feed pinion 19 which cooperates with a feed rack 20 carried by arms 21 which are pivoted at 22 to the carriage 23. The carriage supports the usual cylindrical platen 24 and has grooved tracks 25 which cooperate with anti-friction rollers 26 supported in fixed tracks 27 secured to lugs 28 on the top plate of the machine.

The tabulating mechanism comprises a series of push rods 29 extending beneath the base of the machine and provided at their forward ends with denominational or tabulating keys 30, each rod having a coiled spring 31 surrounding it and secured at 32 to a collar carried by the rod and at its opposite end 33 to a fixed portion of the machine. These springs 31 are contractile springs and tend to restore the push rods to the normal position shown in Fig. 1 after the keys and push rods have been forced toward the rear of the machine. The rear end of each push rod is apertured to receive a projection 34 which extends downwardly from an upright lever 35 pivoted at 36 to a tabulator frame 37 which is clamped to the base 1 of the typewriter frame. The upper end of each stop lever is bifurcated at 38 for cooperation with a pin 39 carried by a denominational stop 40. Each stop is recessed at 41 for the reception of the upper end of its associated actuating lever 35 and has an elongated slot 42 therein through which bearing pins 43 extend. The bearing pins extend from inside of the frame 37 through the openings of the series of stops, and each pin supports a series of rollers or sleeves 44 with which the denominational stops contact to afford an easy movement of the stops. Each denominational stop has an upwardly projecting ear or lug 45 which cooperates with a cross-piece 46 formed as a part of a releasing bail with the side arms 47

thereof pivoted at 48 to the tabulating frame 37. One of the arms 47 has a forwardly extending integral arm 49 which is pivoted at its forward end 50 to an upwardly extending link 51 pivoted at 52 to a crank arm 53 on a rock shaft 54 of the releasing mechanism. A column stop rod 55 is supported on the rear ends of arms 55^a which, at their forward ends are secured to the carriage by screws 55^b and the column stop rod carries the usual column stops 55^c. The rock shaft 54 extends in the direction of the travel of the carriage and is mounted in bearings 54^a which are in the nature of lugs that project upwardly from the top plate of the machine. The rock shaft carries a cam 56, the hub 57 of which is secured to the rock shaft by a set screw 58. The cam 56 coöperates with an anti-friction roller 59 pivoted to and projecting laterally from a rearwardly extending arm 60 which forms a part of a releasing lever or frame 61. Said frame 61 is struck up from a blank such as that shown in Fig. 8, so as to present a U-shaped form in cross-section. The left-hand end of said frame has two ears with holes 62 which are alined when the frame is formed and by which said frame is pivoted on the bearing 17 for the escapement wheel shaft so as to permit the frame to turn on said bearing. A sleeve or collar 63 is contained between the side walls of the frame 61 and is secured to the bearing 17 by a set screw 64 so as to prevent the frame from moving fore and aft on the bearing 17. The frame 61 is also apertured at 66 to provide bearings for a spindle 67 that has rigidly mounted thereon a cam 68 that stands just back of the feed rack 20, and an integral or rigidly connected pinion 69 which is beneath said rack and is adapted to mesh with it when the frame 61 is raised by the cam 56 acting on the roller 57. A sleeve 70 is interposed between the side arms of the frame 61 to maintain them properly spaced apart, and the spindle 67, heretofore referred to, extends through said sleeve and is secured thereto by a set screw 70^a (Fig. 5) to prevent a displacement of the spindle 67 from its bearings 66.

The frame 61 has a depending arm 71 which constitutes a support for a pivoted vibratory carriage speed controlling device or lever 72 which is pivoted to the arm at 73. This vibratory device is preferably in the nature of a three-armed lever, a comparatively long depending arm 74 thereof carrying a weight 75 which is slotted to receive the arm and to afford a longitudinal adjustment of the weight on the lever. A set screw 76 is threaded into an opening in the weight and bears at its inner end against the arm 74, thus securing the weight to the lever arm in the proper adjusted position. One of the comparatively short arms 81 of the lever is rigidly connected to the arm 74 and carries a

laterally projecting anti-friction roller 82 pivoted to the arm at 83, and adapted to coöperate with the cam 68 hereinbefore referred to. The third arm of the lever is preferably formed by a link 84 pivoted at 85 to the vibratory device and carrying a laterally projecting anti-friction roller 86 which is likewise adapted to coöperate with the cam 68. A leaf spring 87 is secured by screws 88 to the vibratory device and is adapted to bear at its free end against the link 84 so as to force it toward the cam. Between the screws 88, the spring arm 87 bears against a lug 87^a projecting from the edge of the vibrator 72. The construction is such that the free end of the spring arm 87 may be adjusted toward or from the link 84 by loosening one of the screws 88 and tightening the other. An adjustment of the roller 86 toward and from the cam 68 is thus afforded, and said roller is held against said cam by spring pressure. It will be observed that the arms 81 and 84 of the vibratory device form a bifurcated portion and that the said arms or the anti-friction rollers thereon extend on different sides of the pivotal center of the cam.

The periphery of the cam 68 has the form of a sinuous curve, and the construction is such that when the roller 82 is in one of the depressions in this curve, the roller 86 is on the apex of another, and vice versa. The two rollers, mounted as they are on the same vibratory part, force each other into engagement with the cam, so that, when said cam is rotated, the vibration of the member 72 is an enforced one. The frame 61 is likewise provided with a laterally bent shoe or finger 89 which extends beneath the feed rack 20, as shown in Figs. 4 and 5. The position of this shoe is such that when the frame is elevated, turning on the bearing 17 as its pivotal center, the flat face of the shoe will be brought into contact with the teeth of the feed rack after said teeth have been engaged by the pinion 69, and the rack will be raised out of engagement with the feed pinion 19 and supported by the shoe independently on the pinion 69. This enables the teeth of the feed rack to engage the teeth on said pinion 69 but prevents too deep an engagement between the teeth and causes the carriage to run smoother than it would if the teeth of the rack engaged the teeth on the pinion to the fullest extent.

In the operation of the machine a denominational key 30 is pushed rearwardly to project the associated denomination stop into the path of the column stop 55^c on the carriage. This movement of the denomination stop causes the releasing bail 46—47 to be actuated, thereby moving the forward end of the arm 49 down, thus rocking the shaft 54, which results in the cam 56 being turned toward the front of the machine. In this movement, the cam engages the roller 59 and

elevates the free end of the frame 61, thus moving the pinion 69 into mesh with the feed rack 20, elevating the feed rack, thereby disengaging said rack from its feed pinion 19.

5 The upward movement of the frame 61 will also bring the flat face of the shoe 89 into contact with the teeth on the feed rack, thus supporting it in its released position and preventing an engagement between the rack and
10 pinion 69 to the fullest extent. The disengagement of the feed rack from its feed pinion in the manner described releases the carriage from its escapement, and the motion of said carriage in the direction of its feed, produced by the usual spring drum (not shown)
15 causes the pinion 69 to be rotated, thus rotating the cam 68 controlled thereby. This movement imparts to the vibratory controlling device an enforced vibratory motion on its pivot 73. The resistance offered by this
20 device increases with the speed of the carriage, as will be understood. Thus while practically no resistance is offered by the pendulum of vibratory device until its speed of vibration has reached a certain point, due
25 to its effective length, the resistance offered by the pendulum will increase rapidly after its speed has reached and passed the natural speed of vibration due to its length.

30 When the resistance including that offered by the vibrating pendulum, equals the pull on the carriage the latter will maintain a uniform velocity until arrested. It will be understood that this equalizing of the resistance
35 to the pull may be readily effected by varying the position of the weight 75 on the vibrating arm by means of the set screw 76, so that, within the capacity of the machine, any determined speed may be obtained.

40 When pressure on the denominational key 30 is released the associated restoring spring 31 will restore the denominational stop and its associated parts to the normal position. At this same time the cam 56 will be restored to its normal position, thus permitting
45 the free end of the frame 61 to drop to the normal position, thereby lowering the feed rack into engagement with its feed pinion and automatically disconnecting the driving pinion 69 from the rack and thus automatically disconnecting the speed controlling
50 device from the carriage and restoring it to the control of its step-by-step feed mechanism. If desired, the wheel 68 or the anti-friction
55 rollers 82 and 86 or both may be made of parchementized fiber or some such material to prevent the production of noise during the vibration of the vibratory device in its coöperation with the cam wheel 68.

60 Various changes may be made without departing from my invention.

Certain of the features herein shown and described are, from the broad aspect, the in-

vention of Oscar Woodward and are claimed broadly in a separate application filed by him 65 of even date herewith.

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

1. In a typewriting machine, the combination of a carriage, and a carriage speed controlling device comprising a rotary cam that is adapted to be turned by the carriage, and a vibratory device having two arms that extend to different sides of the pivotal center of said cam and coöperate therewith, so that a 70 rotation of the cam by the carriage vibrates said vibratory device. 75

2. In a typewriting machine, the combination of a carriage, a carriage speed controlling device comprising a rotary cam that is adapted to be turned by the carriage, and a pivoted vibratory device having two arms that extend to different sides of the pivotal center of said cam and coöperate therewith, so that a rotation of the cam by the carriage 80 vibrates said vibratory device, and a weight carried by said vibratory device and adjustable thereon toward and away from the pivotal center thereof. 85

3. In a typewriting machine, the combination of a carriage, a carriage speed controlling device comprising a rotary cam that is adapted to be turned by the carriage, key actuated means for effecting an operative connection and disconnection between the 90 carriage and cam, and a pivoted vibratory device having two arms that extend to different sides of the pivotal center of said cam, anti-friction rollers carried by said arms and coöperating with said cam, so that a rotation 100 of the cam by the carriage vibrates said vibratory device, and a weight carried by said vibratory device and adjustable thereon toward and away from the pivotal center thereof. 105

4. In a typewriting machine, the combination of a carriage, a feed rack therefor, a pinion, a pivoted frame carrying said pinion, key actuated means for moving said frame to throw the pinion into and out of mesh with 110 the feed rack, a rotary cam connected to said pinion to be turned thereby, and a vibratory lever having arms that extend to different sides of the pivotal center of said cam and coöperate therewith, so that the rotation of 115 the cam by the carriage feed rack vibrates said lever.

5. In a typewriting machine, the combination of a carriage, a feed rack therefor, a pinion, a pivoted frame carrying said pinion, 120 key actuated means for moving said frame to throw the pinion into and out of mesh with the feed rack, a rotary cam connected to said pinion to be turned thereby, a pivoted speed controlling vibratory lever having arms that 125 extend to different sides of the pivotal center

of said cam and cooperate therewith, so that the rotation of the cam by the carriage feed rack vibrates said lever, and a weight mounted on said lever and adapted to be adjusted toward and from the pivotal center of said lever to regulate the travel of the carriage.

6. In a typewriting machine and tabulating mechanism, the combination of a carriage, tabulating devices, a carriage speed controlling device comprising a rotary cam that is adapted to be turned by the carriage, and a vibratory device having two arms that extend on opposite sides of the pivotal center of said cam and cooperate therewith, so that the rotation of the cam by the carriage vibrates said vibratory device, and key actuated means for operating said tabulating devices and for automatically throwing said carriage speed controlling device into and out of cooperation with the carriage.

7. In a typewriting machine, the combination with a carriage, of a speed controlling device for said carriage comprising a cam, a vibratory device having two arms engaging said cam, and means for adjusting said vibratory device to regulate its relation to said cam.

8. In a typewriting machine, the combination with a carriage, of a speed controlling device for said carriage comprising a cam, a vibratory device having two arms engaging said cam at different points, and means for

adjusting one of said arms toward and from the cam.

9. In a typewriting machine, the combination with a carriage, of a speed controlling device for said carriage comprising a cam, a vibratory device having two arms engaging said cam at different points, one of said arms being spring-pressed toward said cam.

10. In a typewriting machine, the combination with a carriage, of a speed controlling device for said carriage comprising a cam, a vibratory device having two arms engaging said cam, spring means for bringing one of said arms into engagement with said cam, and means for adjusting said spring means.

11. In a typewriting machine, the combination with a carriage, of a speed controlling device for said carriage comprising a rotary cam having its periphery in the form of a sinuous curve, a vibratory device having two arms engaging said cam, one of said arms being pivoted to said vibratory device and adjustable with relation to said vibratory device.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York, this 19th day of January, A. D. 1906.

ANDREW W. STEIGER.

Witnesses:

E. M. WELLS,
J. B. DEEVES.