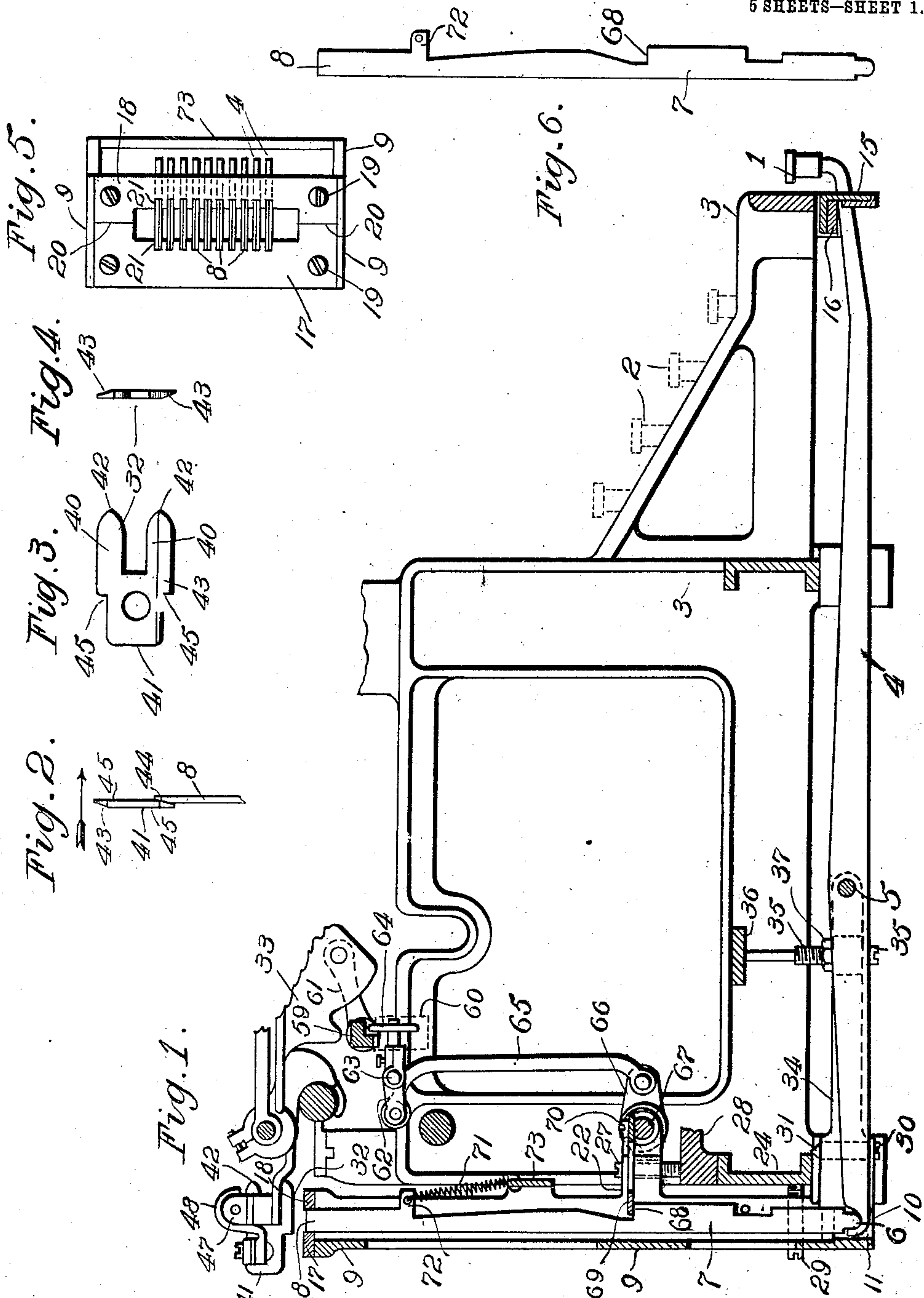


J. C. McLAUGHLIN.  
TYPE WRITING MACHINE.  
APPLICATION FILED NOV. 26, 1907.

956,144.

Patented Apr. 26, 1910.

5 SHEETS—SHEET 1.



WITNESSES:  
John A. Seifert  
C. E. Whitney

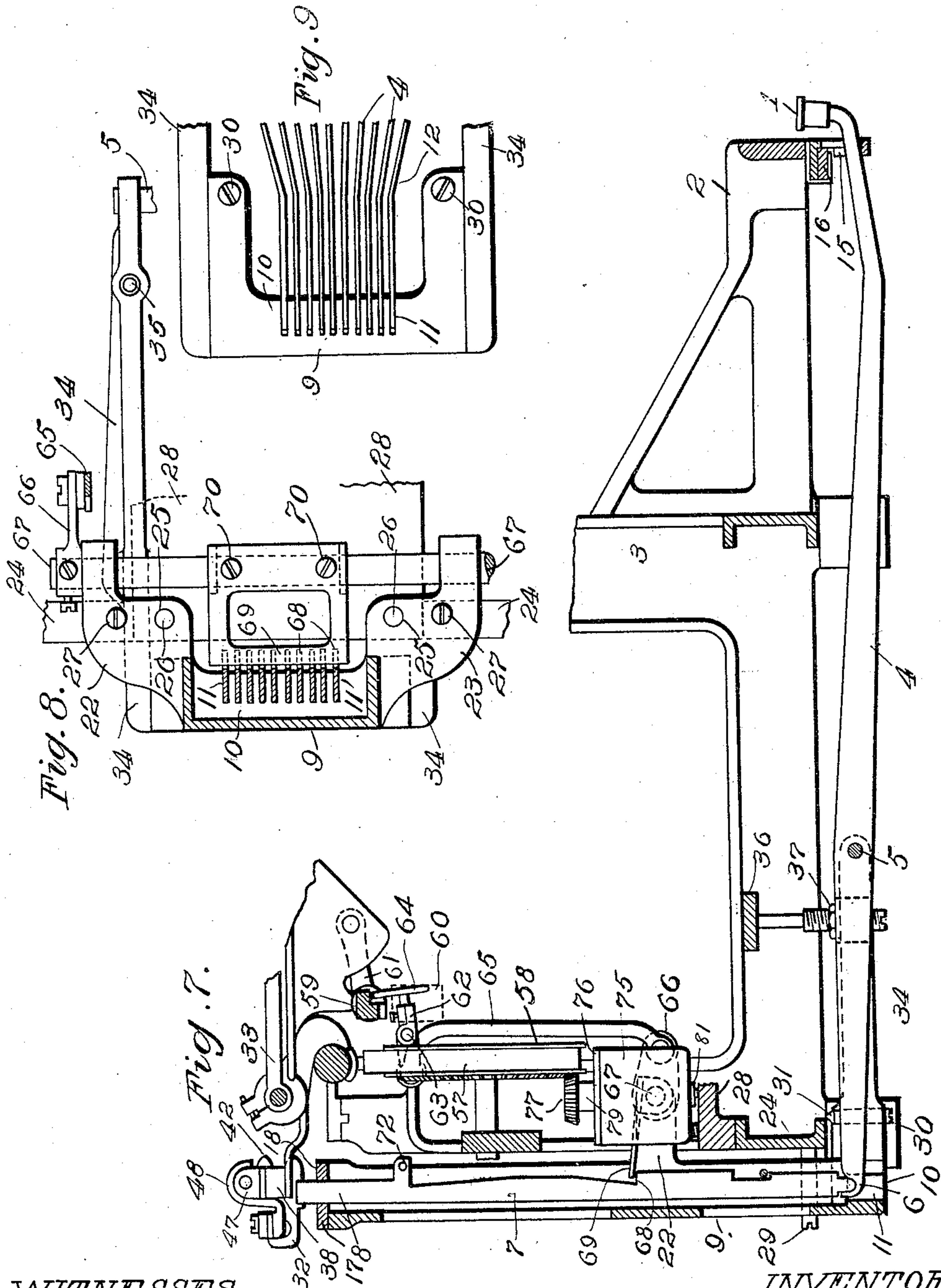
INVENTOR:  
John C. McLaughlin,  
BY HIS ATTORNEY  
C. E. Whitney

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5 SHEETS—SHEET 2.



WITNESSES.  
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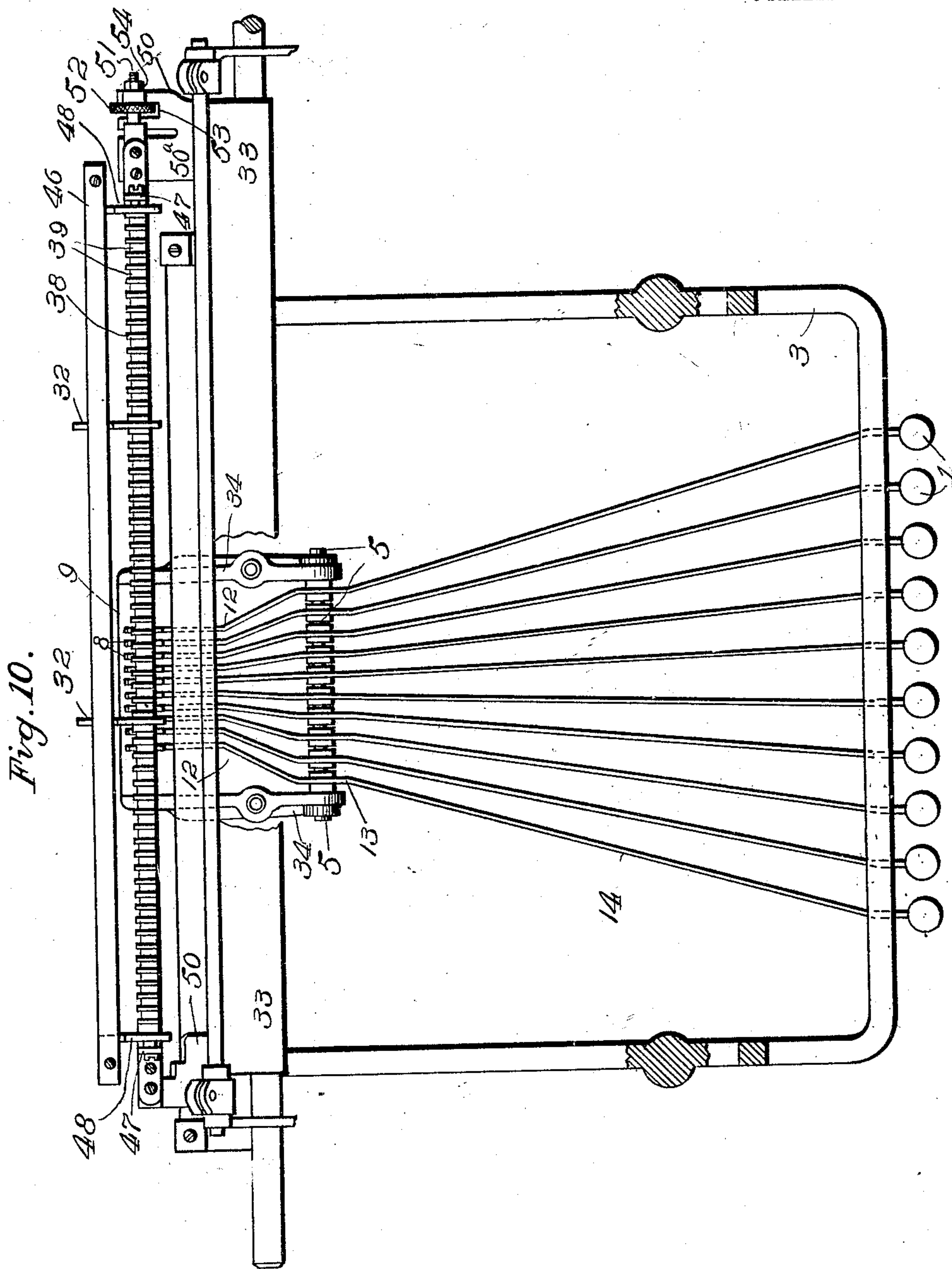
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5 SHEETS—SHEET 3.

956,144.



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5 SHEETS—SHEET 4.

Fig. 11.



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5 SHEETS—SHEET 5.

Fig. 17.

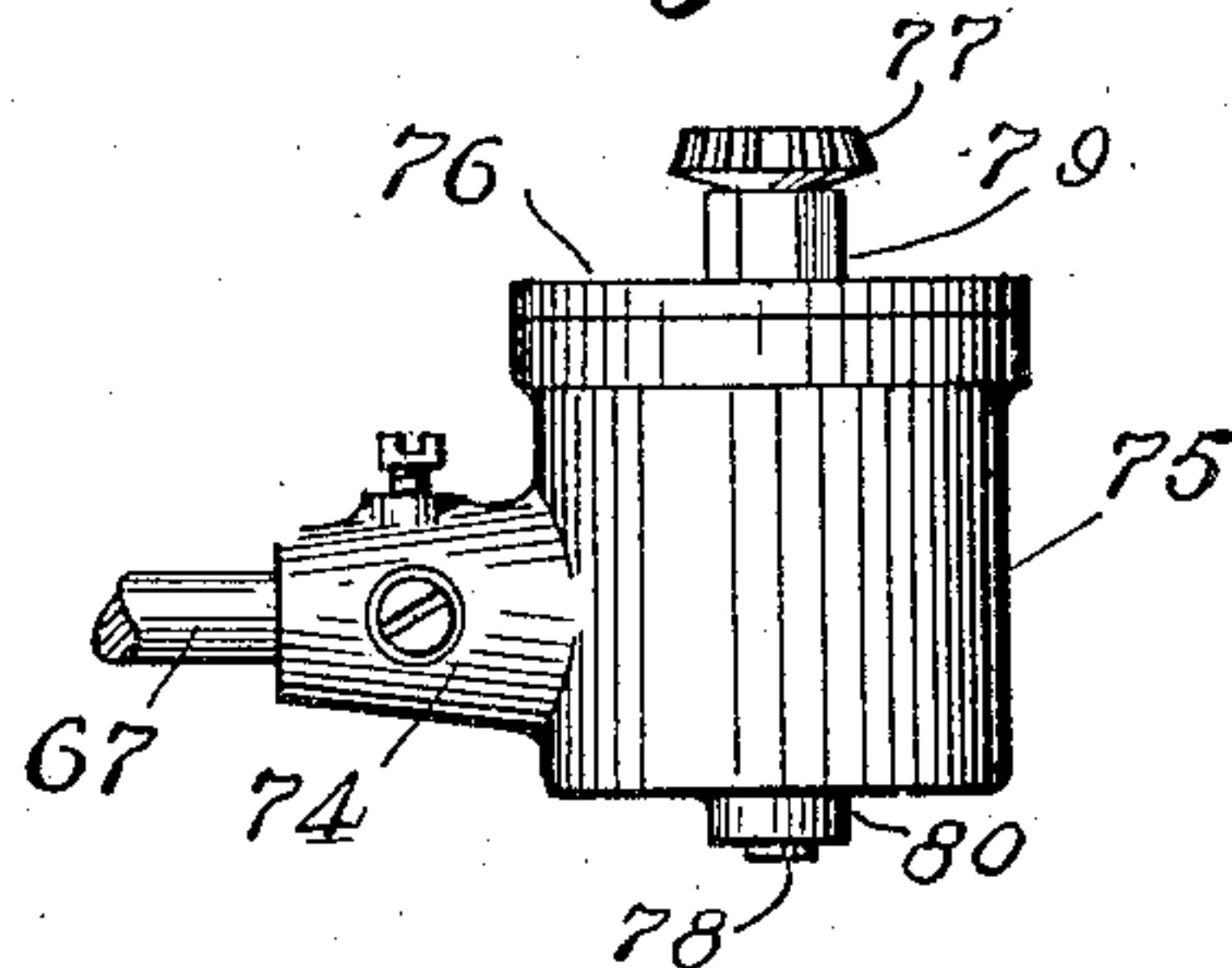


Fig. 18.

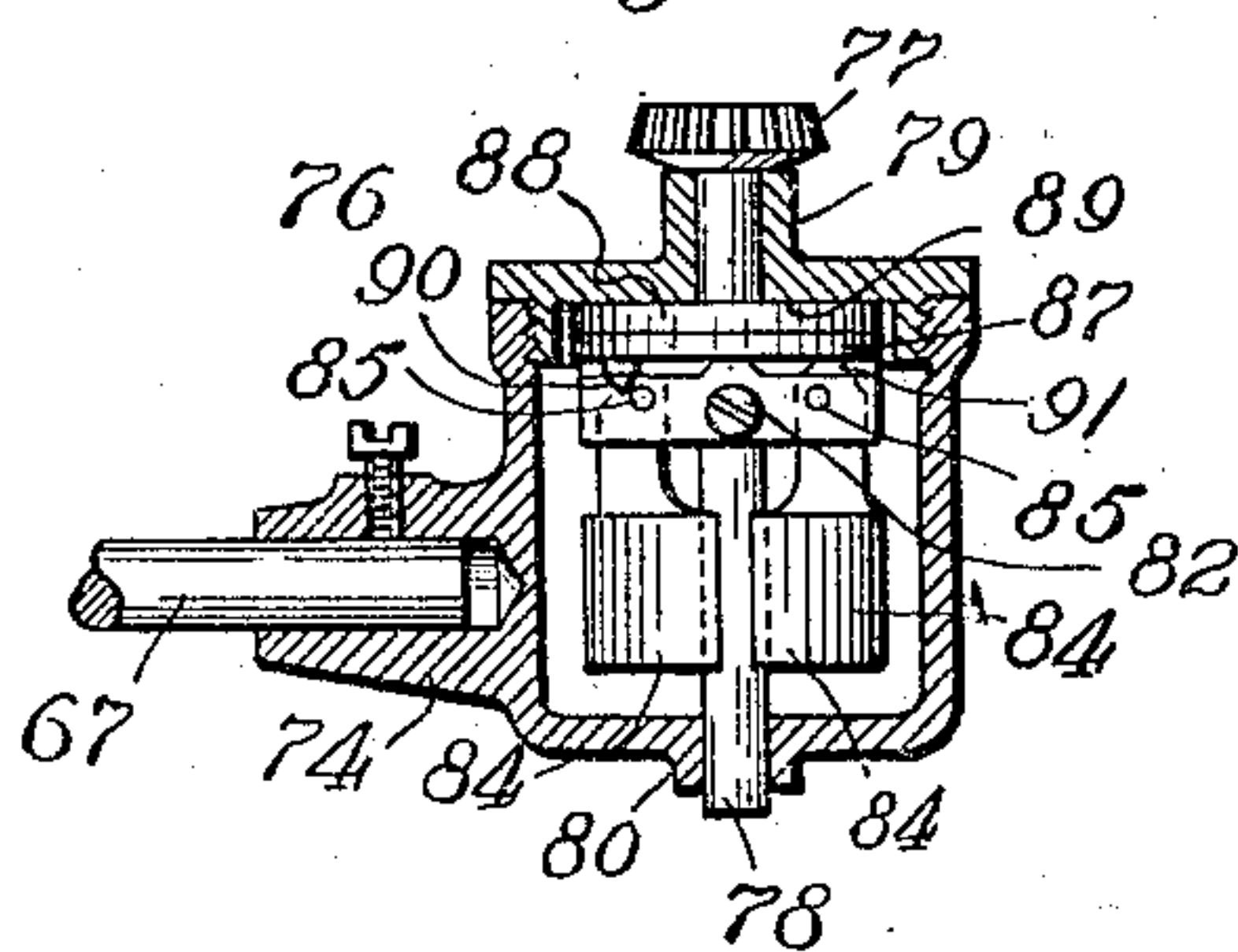


Fig. 19.

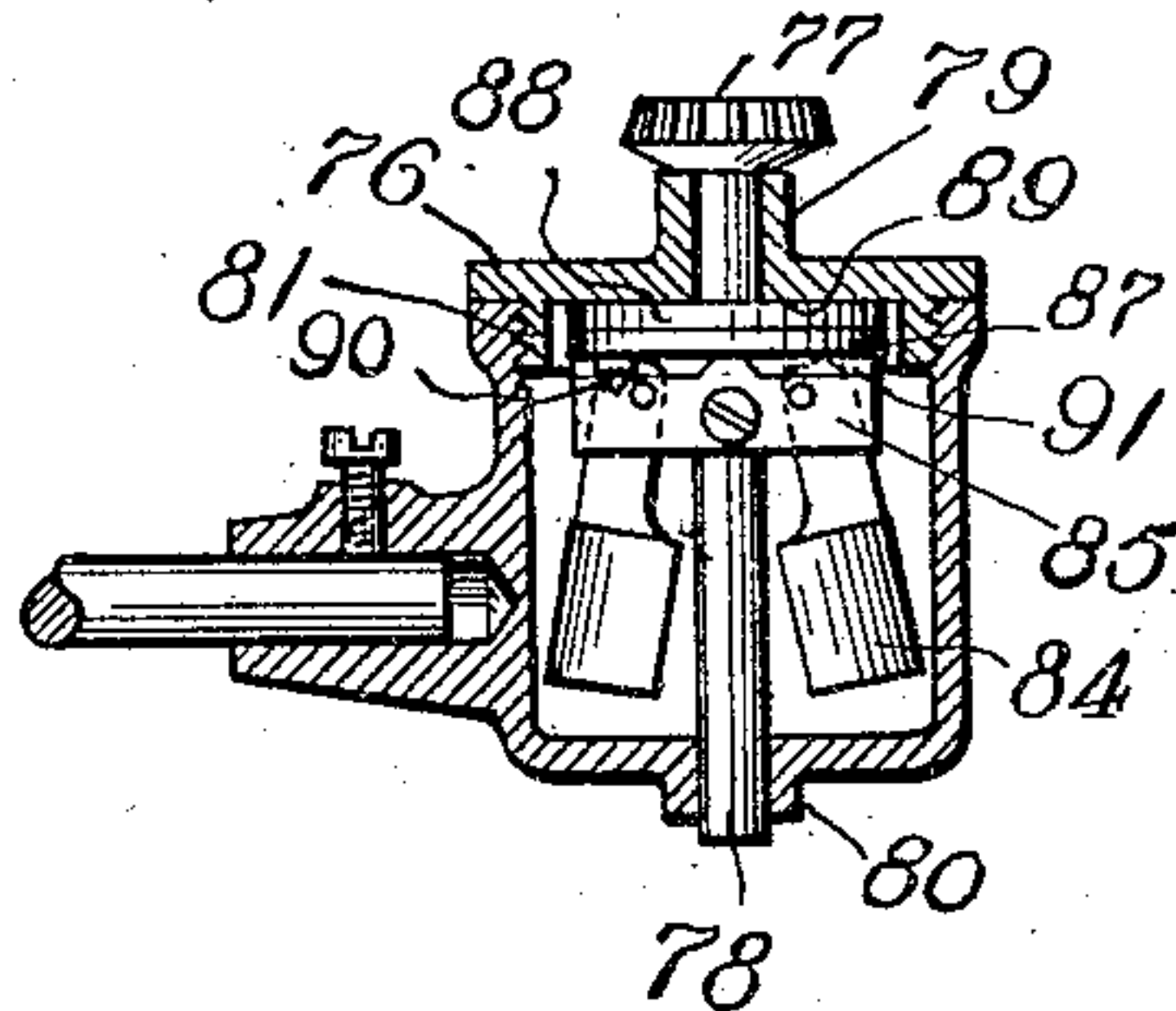


Fig. 20.

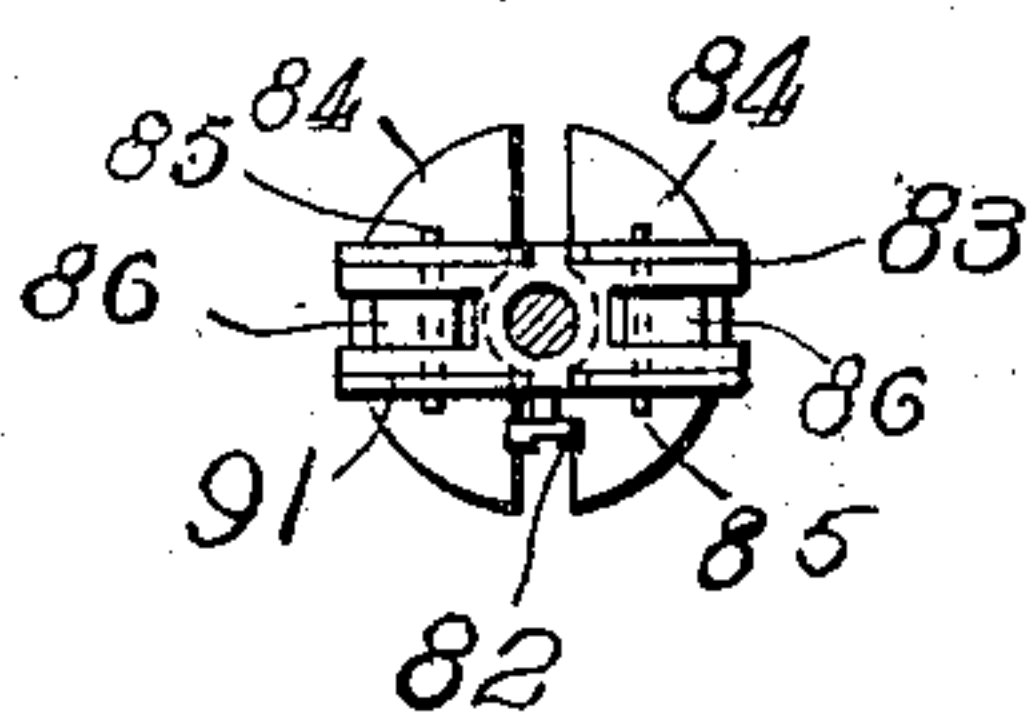


Fig. 21.

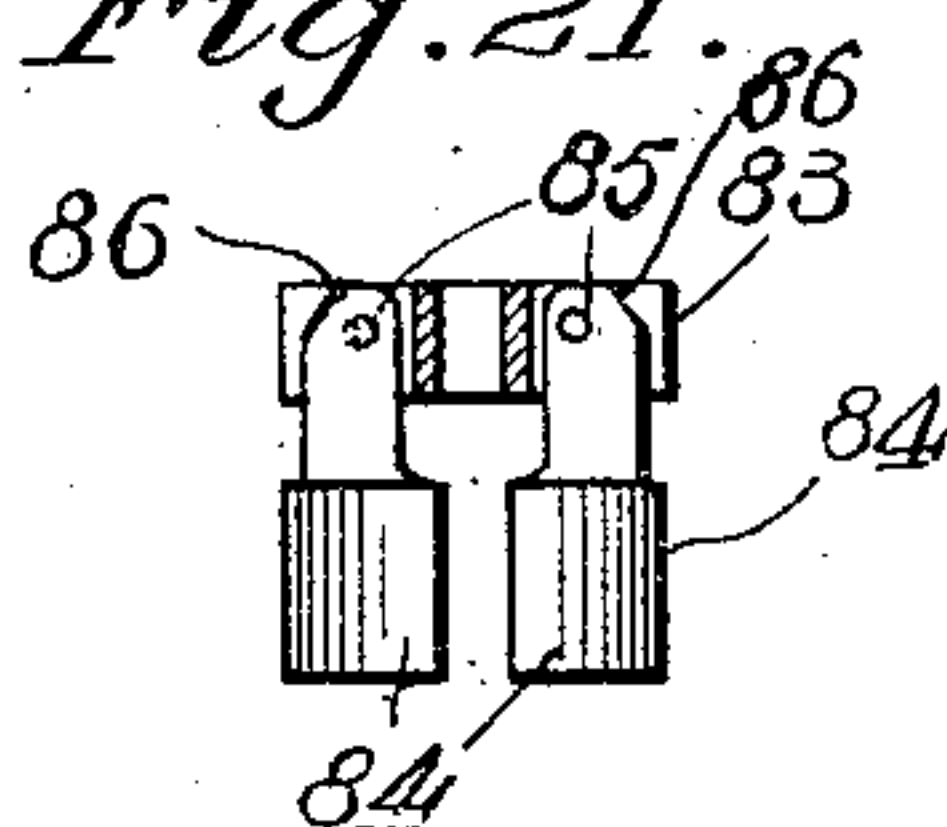
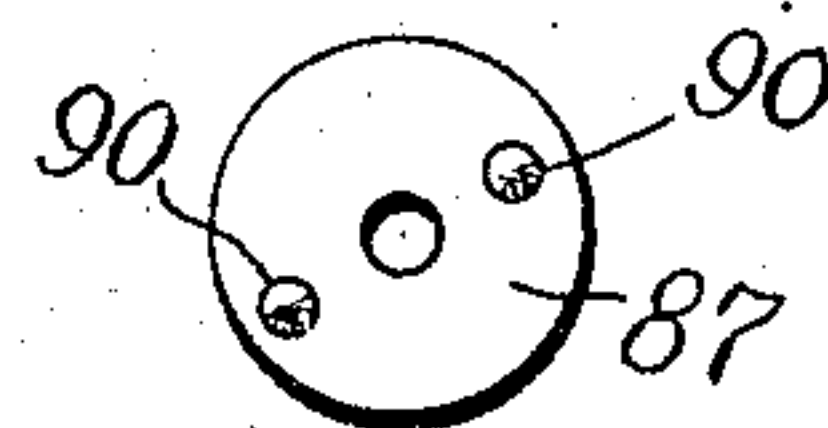


Fig. 22.



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# UNITED STATES PATENT OFFICE.

JOHN C. McLAUGHLIN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

956,144.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed November 26, 1907. Serial No. 403,891.

*To all whom it may concern:*

Be it known that I, JOHN C. McLAUGHLIN, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, 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, and especially to the class of decimal tabulators.

One of the objects of the invention is to facilitate the tabulating operation, and to this end, I mount depressible denomination keys at the front of the keyboard of a typewriting machine, and connect them to independently operable denomination stops, and provide for the mere depression of any key not only to set its stop but also to release the letter feeding carriage.

Another object of the invention is to improve and simplify the construction and mounting of the column stops upon the carriage, and to facilitate the release of the carriage from the arresting stop.

Another object is to provide simple and effective means for effecting endwise adjustment of the column stop rack upon the carriage.

Still another object of the invention is to improve and simplify the construction and mounting upon the main frame of the typewriting machine, of the bracket which carries the denomination stops, and to render said bracket easily adjustable in various directions to bring it into proper register with the column stops upon the carriage.

A further object of the invention is to provide improved means for checking the speed of the carriage when released for tabulating purposes, and to avoid rebounding of the carriage. I provide a centrifugally operated brake, which is connected to the carriage automatically when the latter is released from its letter spacing devices, thereby preventing the carriage from exceeding a certain limit of speed. I also contrive to retard the speed of the carriage mechanically during the interval ensuing between the start of the carriage and the moment when it comes under the control of the centrifugal brake, so that the speed of the carriage shall in-

crease slowly from minimum to maximum, thereby securing even movement of the same and avoiding undue shock at the arrest of the carriage. The braking means are effective not only to control the speed of the carriage, but also to prevent any rebound thereof when arrested by the tabulating stops; this being true in all cases, whether the run of the release carriage is short, long or medium.

Other objects and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of an "Underwood" front strike writing machine showing my improvements applied thereto; the parts being shown in normal positions. Fig. 2 illustrates the manner of engagement of a column stop with a denomination stop. Fig. 3 shows an elevation and Fig. 4 an end view of an improved denomination stop. Fig. 5 is a plan of a set of denomination stops, showing particularly the removable top guide therefor. Fig. 6 shows a denomination stop rod. Fig. 7 is a view similar to Fig. 1, but showing the denomination stop key depressed. Fig. 8 is a sectional plan showing the carriage releasing devices operated by the denomination stop rods. Fig. 9 is an inverted plan of the rear ends of the denomination stop levers and of a bracket in which they are guided. Fig. 10 is a plan of the denomination levers and of a portion of the paper carriage. Fig. 11 is a rear elevation of the tabulating mechanism. Fig. 12 is an inverted plan of the tabulating devices. Fig. 13 is a plan, and Fig. 14 is a side elevation of a detail showing the manner of adjusting lengthwise the rack which carries the column stops. Figs. 15 and 16 show respectively a sectional elevation and a plan of one end of a bar which locks the column stops upon the carriage; the other end of the bar being seen at Fig. 13. Fig. 17 is an elevation, and Fig. 18 a sectional elevation of a casing and its contained braking devices connected to the carriage releasing mechanism. Fig. 19 is a view similar to Fig. 18 but showing the centrifugal brake in operation. Fig. 20 is a plan of the cross-bar and weights seen at Fig. 18. Fig. 21 is a detail of the weights, and Fig. 22 is an inverted plan of a disk



forming part of the braking mechanism and having cam projections, whereby it is turned and pressed upwardly for checking the speed of the carriage.

5 Denomination keys 1 are shown arranged in a row in front of the keyboard 2 and framing 3 of an Underwood typewriting machine. These keys are depressibly mounted upon the front ends of levers 4 fulcrumed between their ends upon a single  
10 horizontal rod 5. At their rear ends, said levers have knuckle-joint connections at 6 with upstanding rods or metal strips 7, upon the upper ends of which are formed denomi-  
15 nation stops 8. Said rods are mounted in a vertical bracket 9 having at its lower end a web 10 in which are formed vertical slots 11, in which work the rear ends of the levers and the lower ends of the stop rods. The  
20 latter, at Fig. 11, stand parallel or approximately so and are arranged at letter space intervals. The levers 4 extend forwardly a short distance from the rods, Figs. 9 and 10, and then diverge for a short distance as at  
25 12, and are again bent into parallelism at 13 at the points where they are fulcrumed upon the rod 5. From thence they diverge forwardly at 14 to their key-bearing ends, said ends being preferably bent into paral-  
30 lelism and working in a comb 15 depending from the front bar of the machine frame and having a pad 16 for the levers to strike up against.

The upper ends of the stops are guided in  
35 a horizontal comb comprising two similar parts 17, 18 secured by screws 19 in a seat 20 formed on the top of the bracket 9 and having coincident slots 21 to guide the stops, said slots formed at letter space intervals.  
40 Usually these slots are formed ten to the inch to agree with the letter spacing movements of the carriage of the ordinary machine; but in cases where the tabulating attachment is desired for use upon a machine  
45 built for eleven spaces or nine spaces to the inch, it is only necessary to remove the guides 17, 18, and substitute another pair of guides having slots at the requisite intervals; it being unnecessary to make any further  
50 change in the denomination stop mechanism in order to adapt the attachment for a different pitch of letter-spacing; the stop-rods being movable laterally sufficiently to suit the different guides.

55 A pair of arms 22, 23 extend forwardly from the bracket 9 above the rear vertical wall 24 of the machine base and have perforations 25 to fit upon studs 26 standing up from said base, whereby the bracket is posi-  
60 tioned upon the machine. Threaded down through the side arms are screws 27 to bear upon the top of the wall 24, or of a fixture 28 usually placed upon said base. Below said screws are two screws 29 directed for-  
65 wardly to bear against the rear side of the

wall 24. Two more screws 30 are threaded up through the base of the bracket and provided with cones 31 to bear up against the front corner of the lower edge of the wall  
70 24. It will be understood that there are two of the screws 30 one at each side of the bracket, the same as the screws 29. By turning the screws 29, the top of the bracket may be swung forwardly or rearwardly. By turning the screws 27, the entire bracket  
75 may be raised or lowered; or by turning one screw up and the other down, the bracket may be swung from side to side; and by these means the stops 8 may be brought into register with the column stops 32 that are  
80 mounted upon the carriage 33. After such adjustment is effected the screw 30 may be turned up to fasten the bracket securely, the cones having the effect of drawing the bracket both downwardly and forwardly  
85 upon the screws 27 and 29. Arms 34 extend forwardly from the base of the bracket beneath the typewriting machine and carry at their forward ends the fulcrum rod 5. Screws 35 extend up one from each of said  
90 arms to bear up against a fixed part of the machine 36 and thereby afford a support to the arms 34; said screws being adjustable after the bracket is fixed, and having jam nuts 37 to secure them.

95 The column stops are in the form of plates forked to bestride a notched bar 38, the notches 39 being formed in the top and bottom faces of the bar and preferably also in the rear face thereof to receive said plates,  
100 the latter being adapted for use at any point along the bar. The forks of the column stop members are marked 40 at Fig. 3, and project from a handle portion 41. The forks are pointed or rounded at 42 for con-  
105 venience in setting them upon the bar 38. The device may be set with either edge up so that either fork may serve as a column stop, the lower fork always projecting sufficiently below the bar, Fig. 1, for this purpose. On  
110 alternate sides, the forks are slightly beveled at 43 and the denomination stops are also slightly beveled at 44. At Fig. 2, it will be seen that these bevels are upon the faces which engage to arrest the carriage, when  
115 the latter is released by the tabulating keys. These bevels facilitate subsequent withdrawal of the denomination stop by the spring 71, and the restoration of the carriage to the control of its letter feeding mech-  
120 anism.

The column stop member is formed on its opposite edges with jogs 45 to be engaged by a locking bar 46, the latter extending along the rack bar and hinged to ears 47 thereon,  
125 for an up and down movement by means of arms 48. When it is desired to adjust a column stop, the bar 46 is lifted, the stop withdrawn and inserted at a different point, and then the bar is dropped behind the jog 45; a  
130



compression spring 49 serving to hold the bar in locking position. The column stop bar 38 is mounted at its ends upon arms 50 projecting rearwardly from the carriage 33. For adjusting the column stop rack longitudinally, a screw 51 is threaded into the end of the bar and provided with a head 52 which works in a slot 53 formed in the arm 50. By turning the screw, the bar may be adjusted lengthwise; and the screw may be held by a nut 54. A screw 55 passes up through a slot 56 formed in a portion 50<sup>a</sup> of the arm 50, and is threaded into the bar 38 to fasten the latter after its adjustment.

15 The carriage 33 is connected by a strap 57 to a spring barrel 58, and is provided with a letter feeding rack 59 in mesh with an escapement pinion 60. The rack is hinged upon a pair of arms 61, so that it may be  
20 lifted away from the pinion to release the carriage. For this purpose, a lever 62 is fulcrumed at 63 upon the framework and provided at its forward end with a roll 64 to engage and lift the rack. The rear end of  
25 the lever is pulled down by a pendent link 65 connected at its lower end to an arm 66 which projects from a rocker or rock shaft 67. The latter rocks at each operation of a denomination stop rod, the latter having  
30 jogs 68 any of which may lift up a transverse horizontal universal bar 69 secured upon said rock shaft 67 by means of screws 70. When a key is depressed the rod is thrust up, thereby lifting the universal bar  
35 and rocking the shaft 67 to pull down the link 65 and lever 62 and lift the roll 64 and rack 59, as seen at Fig. 7. Individual springs 71 caught in ears 72 on the stop rods and extending to a fixed cross bar 73, serve to re-  
40 turn the stops and keys to normal positions.

Secured upon one end of the rock shaft 67, by means of a hub 74, is a cylindrical casing 75, from the cap 76 of which protrudes a bevel pinion 77, which by the carriage releasing movement of said rock shaft  
45 is thrust into mesh with a bevel gear 77<sup>a</sup> secured upon the rear face of the carriage driving spring barrel 58, so that the pinion is rapidly rotated by the barrel as the latter  
50 draws the carriage along. The pinion is fixed upon the upper end of a spindle 78 which at its upper end turns in a boss 79 formed upon the cap, and at its lower end revolves in a boss 80 formed upon the opposite  
55 side head of the casing. The cap has a flange 81 threaded into the top of the casing, so that it may be taken off together with the pinion and shaft and the several parts attached to the latter.

60 Attached to the shaft 78 within the casing by means of a screw 82 is a cross arm 83 from which hangs a pair of weights 84, the latter being pivoted at 85 to swing outwardly when rotated by the shaft, Fig. 19.  
65 When swung out, projections 86 upon the

weights, extending up from the pivots 85, are caused to press up against the under side of a disk 87 loose upon the shaft 78, and to force said disk up against a friction washer 88 of fibrous or other material which  
70 is adapted to rub against both the top face of the disk and the lower face 89 of the plate-like cap 76, thus causing considerable frictional opposition to the rotation of the shaft, and serving to prevent the speed of  
75 the carriage from exceeding a certain limit.

The disk 87 is caused to revolve by reason of the engagement of the cross arm 83 with projections 90 extending down from said  
80 disk. Preferably said projections are beveled, and the top edges of the cross arm are also beveled, as seen at 91, so that when at the beginning of the run of the carriage the cross arm strikes the projection, it is enabled  
85 to cam the disk 87 upwardly and produce a fair degree of pressure between the disk, washer and cap; the cross-arm revolving slightly relatively to the disk 87, to cam the latter against the washer. These three parts  
90 are always in contact even when still, and there is sufficient initial friction between them to afford the necessary resistance, so that the bevels 91 on the cross arms can produce the required camming effect on the pro-  
95 jections 90. The operation of the mechanically operating braking devices is independent of the speed of the carriage.

In practice, the paper carriage may run a short distance, say from half an inch to  
100 two inches, at normal speed without substantial interference from the braking devices; but during a moderately long run the mechanical braking means, that is, the camming devices, take effect and retard the rate at which the speed of the carriage in-  
105 creases; and when the rate becomes so great that the centrifugal braking devices take effect, there is no noticeable jerking action of the carriage and no tendency of the strap 57 to bulge and slip off from the spring  
110 drum. Moreover, in no case is there any objectionable back lash or rebound of the carriage upon its arrest by the tabulating stops. The screw 82 may be loosened and the cross arm 83 set up or down on the shaft 78  
115 and again secured thereto, in order to vary the force with which the projections 86 cam upwardly the friction devices, and hence to vary the control of the governor over the speed of the carriage.  
120

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 carriage having a column stop thereon, of a set of up-  
standing denomination-stop rods below said  
125 column stop, and a set of denomination-stop  
130



levers extending forwardly from the lower ends of said rods and bearing depressible keys at their forward ends; slotted guides being provided for the lower ends of said rods, and the rear ends of said levers being bent into parallelism and working in said slotted guides.

2. In a typewriting and tabulating mechanism, the combination with a carriage having a column stop, of a series of upstanding rods in the form of metal strips below said column stop and having their upper ends in the form of denomination stops, a bracket having corresponding slotted guides at its upper and lower ends for said strips, and key-operated means for lifting said strips.

3. In a typewriting and tabulating mechanism, the combination with a carriage having a column stop, of a series of upstanding rods in the form of metal strips below said column stop and having their upper ends in the form of denomination stops, a bracket having corresponding slotted guides at its upper and lower ends for said strips, and key-operated means for lifting said strips; said key-operated means including levers fitted at their rear ends within the lower guiding slots in said bracket and diverging forwardly therefrom, and bearing keys at their forward ends.

4. In a typewriting and tabulating mechanism, the combination with a carriage having a column stop, of a series of key-operated upstanding denomination-stop rods, a bracket having guides for said rods, and means supporting said bracket upon the framework of the machine; adjustable devices being provided for rocking said bracket to bring the denomination stops into proper relation to the column stops and with the letter-feeding devices of the carriage.

5. In a typewriting and tabulating mechanism, the combination with a carriage having a column stop, of a series of denomination-stop rods extending down from said column stop, a bracket secured upon the framework of the machine and having guides for said rods, arms extending forwardly from the lower end of said bracket, a fulcrum rod mounted in said arms, and key-operated levers engaging at their rear ends said rods, and fulcrumed between their ends upon said fulcrum rod and diverging forwardly to the keyboard.

6. In a typewriting and tabulating mechanism, the combination with a carriage having a column stop, of a series of denomination-stop rods extending down from said column stop, a bracket secured upon the framework of the machine and having guides for said rods, arms extending forwardly from the lower end of said bracket, a fulcrum rod mounted on said arms, and key-operated levers engaging at their rear ends

said rods and fulcrumed between their ends upon said fulcrum rod and diverging forwardly to the keyboard; said key-levers at their rear ends being bent into parallelism and fitting in said bracket guides.

7. In a typewriting and tabulating mechanism, the combination with a carriage having a column stop, of a series of denomination-stop rods extending down from said column stop, a bracket secured upon the framework of the machine and having guides for said rods, arms extending forwardly from the lower end of said bracket, a fulcrum rod mounted in said arms, key-operated levers engaging at their rear ends said rods; and fulcrumed between their ends upon said fulcrum rod and diverging forwardly to the keyboard; said key-levers at their rear ends being bent into parallelism and fitting in said bracket guides; said bracket having between its upper and lower ends a pair of arms or lugs to receive fastening devices for securing the bracket upon the base of the machine, a rock-shaft mounted in said lugs, means upon said rods for enabling any of the latter to rock said rock-shaft, and a carriage-releasing mechanism actuated by said rock-shaft.

8. In a typewriting and tabulating mechanism, the combination with a carriage and a spring barrel for driving the same, of a column stop, a cooperating stop, carriage-feeding devices, a carriage releasing mechanism, a gear revolving with said spring barrel, a pinion thrown into mesh with said gear at the operation of said carriage-releasing mechanism, and a brake operated by said pinion.

9. In a typewriting machine, the combination of a carriage, a spring barrel connected thereto, letter-feeding mechanism, a column stop upon the carriage, a set of key-operated denomination stops on the framework, a rocker connected to be rocked at the operation of any of said denomination stops, carriage-releasing mechanism connected to said rocker, a pinion upon said rocker and turning upon an axis transverse to the rocker, a gear upon said spring barrel and normally disconnected from said pinion, the latter being mounted so that the carriage releasing movement of the rocker throws it into mesh with said gear, and a brake operated by said pinion.

10. In a typewriting and tabulating mechanism, the combination with a carriage and letter feeding devices, of a spring barrel to drive the carriage, a gear upon said spring barrel, a brake-operating pinion normally out of mesh with said gear, tabulating stops, a carriage-releasing mechanism, and means for enabling said carriage-releasing mechanism to cause said pinion to mesh with said gear during the travel of the carriage.

11. In a typewriting and tabulating mechanism,



anism, the combination with a carriage, letter feeding mechanism and a spring barrel to drive the carriage, of cooperating tabulating stops, a carriage-releasing mechanism including a rocker, and a revolving brake mounted on said rocker and having a part to be swung into engagement with a gear upon the spring barrel at the carriage-releasing movement of said rocker.

12. A tabulating attachment for a typewriting machine, comprising an upstanding bracket at the rear of the typewriting machine frame and carrying a set of denomination-stop rods and having at its sides screws to bear down upon the base of the machine frame, screws below said screws to bear against the rear vertical face of the machine base, and screws having cones to bear up against the front bottom edge of the rear wall of the base.

13. A tabulating attachment for a typewriting machine, comprising an upstanding bracket at the rear of the typewriting machine frame and carrying a set of denomination-stop rods and having at its sides screws to bear down upon the base of the machine frame, screws below said screws to bear against the rear vertical face of the machine base, and screws having cones to bear up against the front bottom edge of the rear wall of the base; means being provided adjacent to the first-mentioned screws to position the bracket upon the machine frame.

14. A tabulating attachment for a typewriting machine, comprising an upstanding bracket at the rear of the typewriting machine frame and carrying a set of denomination-stop rods and provided with positioning means and having screws to bear down upon the base of the machine frame, screws to bear against the lower rear vertical face of the machine base, and screws having cones to bear up against the front bottom edge of the rear wall of the base; said bracket also comprising arms extending forwardly beneath the machine frame and carrying a set of levers to operate the stop rods, and adjustable screws extending upwardly from the forward portions of said arms to support the latter against a part of the framework.

15. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, including cooperating friction devices, mechanism dependent on the movement of the carriage to render said friction devices effective, and powerful centrifugally operating means rendered effective only by relatively rapid movement of the carriage to increase the effect of said friction devices and limit the speed of the carriage.

16. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, including relatively movable friction members, mechanically-operating

means rendered effective by relatively slow movement of the carriage to press one of said members lightly against the other to retard slightly the movement of the carriage, and centrifugally operating means rendered effective by a relatively rapid movement of the carriage to force said friction members powerfully together to limit the speed of the carriage.

17. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, comprising means dependent upon the speed of the carriage for limiting such speed, and mechanically operating means dependent upon the movement of the carriage for preliminarily retarding the movement of the carriage.

18. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, comprising a revolving arm connected to the carriage, a revoluble loose disk, a fixed plate, a friction washer between the disk and the plate, and a cam between the disk and arm to enable the latter both to rotate the disk and press it against the washer, to force the latter against the plate.

19. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, comprising a pair of revolving arms connected to the carriage, a revoluble loose disk, a fixed plate, a friction washer between the disk and the plate, and cams upon the disk engageable by the arms to enable the latter both to rotate the disk and to press it up against the washer to force the latter against the plate.

20. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, comprising a pair of revolving arms connected to the carriage, a revoluble loose disk, a fixed plate, a friction washer between the disk and the plate, and cams upon the disk engageable by the arms to enable the latter both to rotate the disk and to press it up against the washer to force the latter against the plate; and centrifugal devices revolving with the arms and having means to force the disk against the washer.

21. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, including mechanically operated braking means capable only of slightly retarding the movement of the carriage, and centrifugally operating auxiliary means to act upon said braking means to determine the maximum speed of the carriage.

22. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, comprising a pair of revolving arms connected to the carriage, a revoluble loose disk, a friction washer, means upon the disk engageable by the arms to enable the latter both to rotate the disk and to press it up against the washer, and centrifugal weights pivoted upon said arms and having



means to bear against said disk to press the washer.

23. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, comprising a spindle connected to the carriage, a pair of arms thereon, a revoluble loose disk, a friction washer, and centrifugal weights pivoted upon said arms and having projections to force the disk against the washer, said arms being adjustable upon said spindle to vary the pressure exerted by said projections upon said disk.

24. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, a pair of revoluble arms connected to the carriage, a loose disk, means for causing said disk to revolve with said arms, a friction washer, and centrifugal weights pivoted upon said arms and having projections to force the disk against the washer.

25. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, comprising a casing having a cap, a spindle extending through the cap and having on its outer end a pinion connected to the carriage, a cross arm secured upon said spindle, a disk loose upon said spindle and having projecting cams, a friction washer combined between said disk and said cap, said cams engageable by said cross-arm to turn the disk and also press the latter against the washer, and pendent weights pivoted to said cross arm and having projections to engage said disk to force the same against the washer.

26. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, comprising a casing, a cap threaded thereon, a spindle extending through the cap and having on its outer end a pinion connected to the carriage, a cross arm secured upon said spindle, a disk loose upon said spindle and having projecting cams, a friction washer combined between said disk and said cap, said cams engageable by said cross-arm to turn the disk and also press the latter against the washer, and pendent weights pivoted to said cross arm and having projections to engage said disk to force the same against the washer; said spindle being journaled at one end in the cap, and at the other end in the opposite head of the casing.

27. In a typewriting and tabulating mechanism, the combination with a carriage-releasing mechanism including a rocker, of a casing mounted on said rocker and having a cap, a spindle extending through the cap and having on its outer end a pinion movable by the rocker into engagement with a gear which is connected to the carriage, a cross arm secured upon said spindle, a disk loose upon said spindle, a friction washer

combined between said disk and said cap, said disk rotatable by said cross-arm, and pendent weights pivoted to said cross-arm and having projections to engage said disk to force the same against the washer.

28. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, comprising braking means operated by the carriage driving means but independent of the speed of the carriage, and centrifugally-operating auxiliary devices to act upon said braking means to limit the speed of the carriage.

29. A speed-governor for the power-driven carriage of a typewriting and tabulating machine, comprising two revoluble members and a cam, one of said revoluble members connected to the carriage and acting through said cam both to drive the other of said members and to wedge or press the latter against a friction device, and centrifugally operating devices to determine the maximum speed of the carriage.

30. In a typewriting and tabulating machine, the combination with a power-driven carriage and carriage-releasing means including a rocker, of a casing mounted upon said rocker, a centrifugally operated brake within the casing, a pinion upon said casing and connected to said brake, and a gear with which said rocker causes said pinion to mesh; said gear connected to the carriage, said casing having a cap threaded thereon, and said pinion and braking means connected to said cap to be attached or removed therewith.

31. In a typewriting and tabulating mechanism, the combination with a carriage-releasing mechanism, of a revoluble brake normally ineffective, and means for rendering the brake effective when the carriage is released, said brake comprising a revoluble friction member, a cooperative friction member, and a revolving driver whereby the revoluble friction member is driven, said revolving driver being rotatable relatively to said revoluble friction member, and having means called into action at such relative movement to force the friction members together.

32. In a typewriting and tabulating mechanism, the combination with a carriage-releasing mechanism, of a revoluble brake normally ineffective, and means for rendering the brake effective when the carriage is released, said brake comprising a revoluble friction member, a cooperative friction member, and a revolving driver whereby the revoluble friction member is driven, said revolving driver being rotatable relative to said revoluble friction member, and having means called into action at such relative movement to force the friction members together; said forcing means comprising means between the driver and the revoluble



friction member to enable the driver to cam or wedge said revoluble friction member against the other friction member.

33. In a typewriting and tabulating mechanism, the combination with a carriage-releasing mechanism of a revoluble brake normally ineffective, and means for rendering the brake effective when the carriage is released, said brake comprising a revoluble friction member, a cooperative friction member, and a revolving driver whereby the revoluble friction member is driven, said

revolving driver being rotatable relatively to said revoluble friction member, and having means called into action at such relative movement to force the friction members together, and centrifugally operating means to force said friction members still more firmly together. 15

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Witnesses:

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