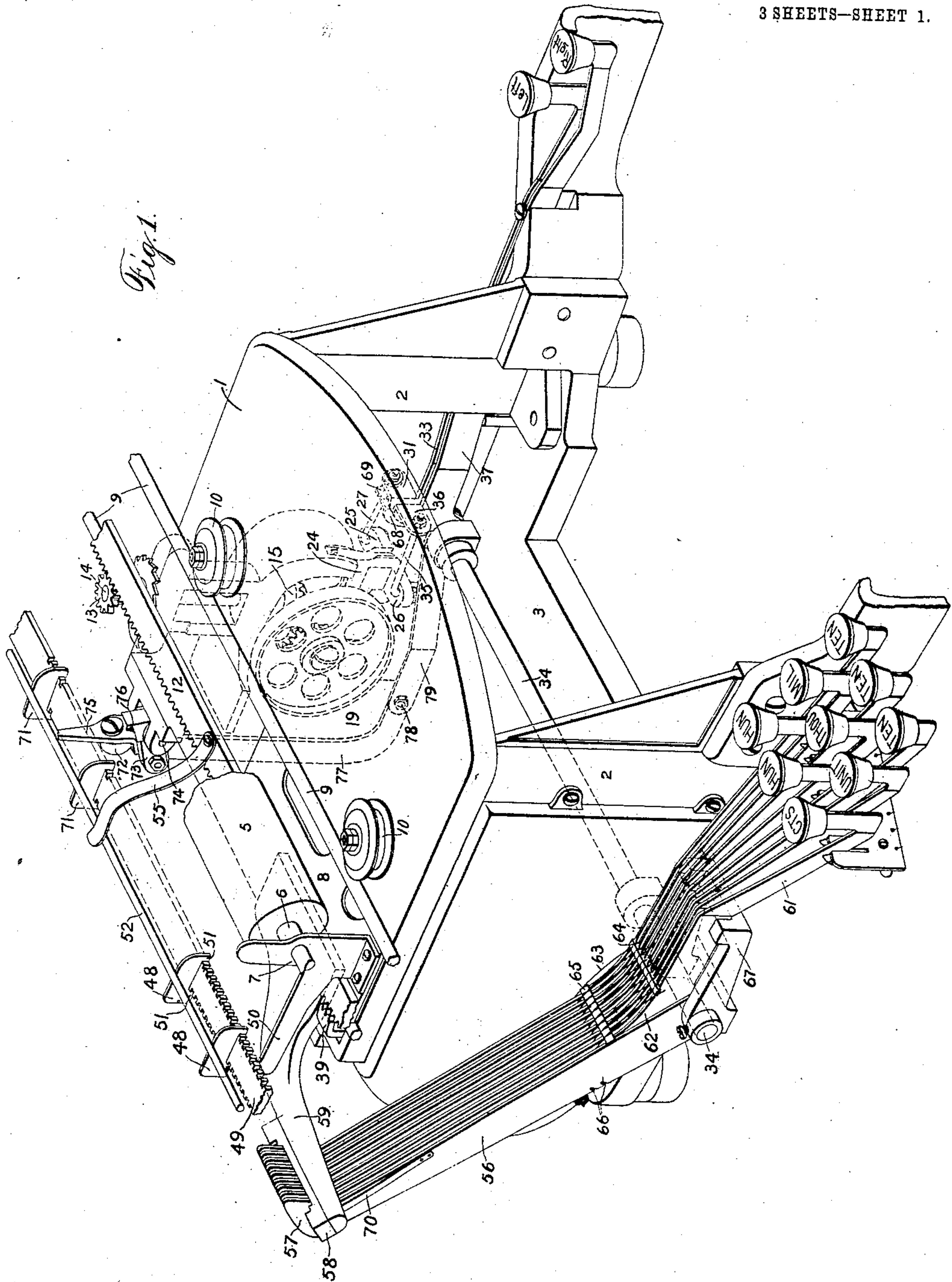


G. C. BLICKENSDEKFER.  
 TABULATOR MECHANISM.  
 APPLICATION FILED AUG. 10, 1905.

930,136.

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



Witnesses:  
 A. White  
 J. F. Graves

Inventor,  
 George C. Blickensderfer  
 by Philip S. Sawyer, Attorney

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3 SHEETS—SHEET 2.

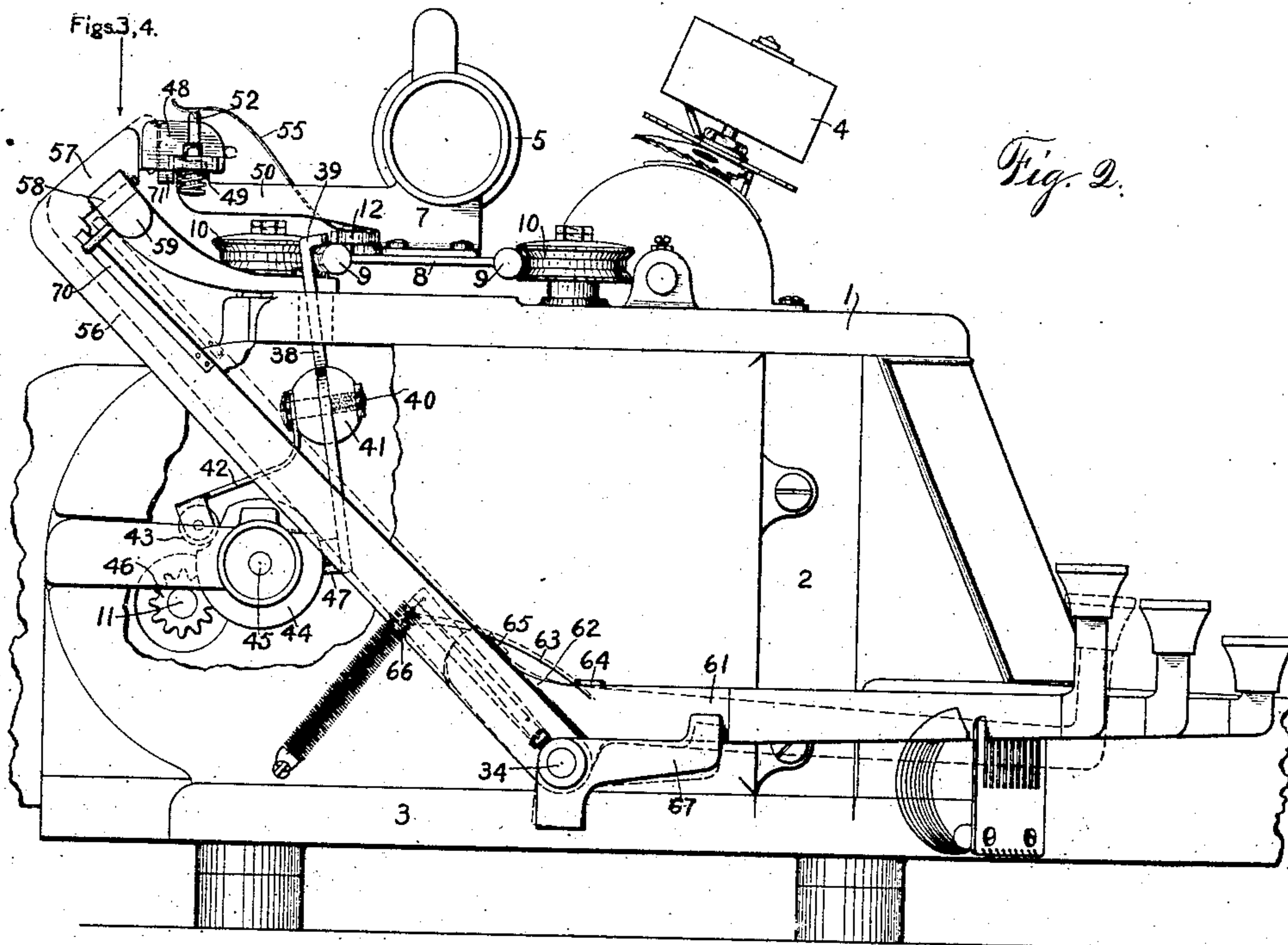
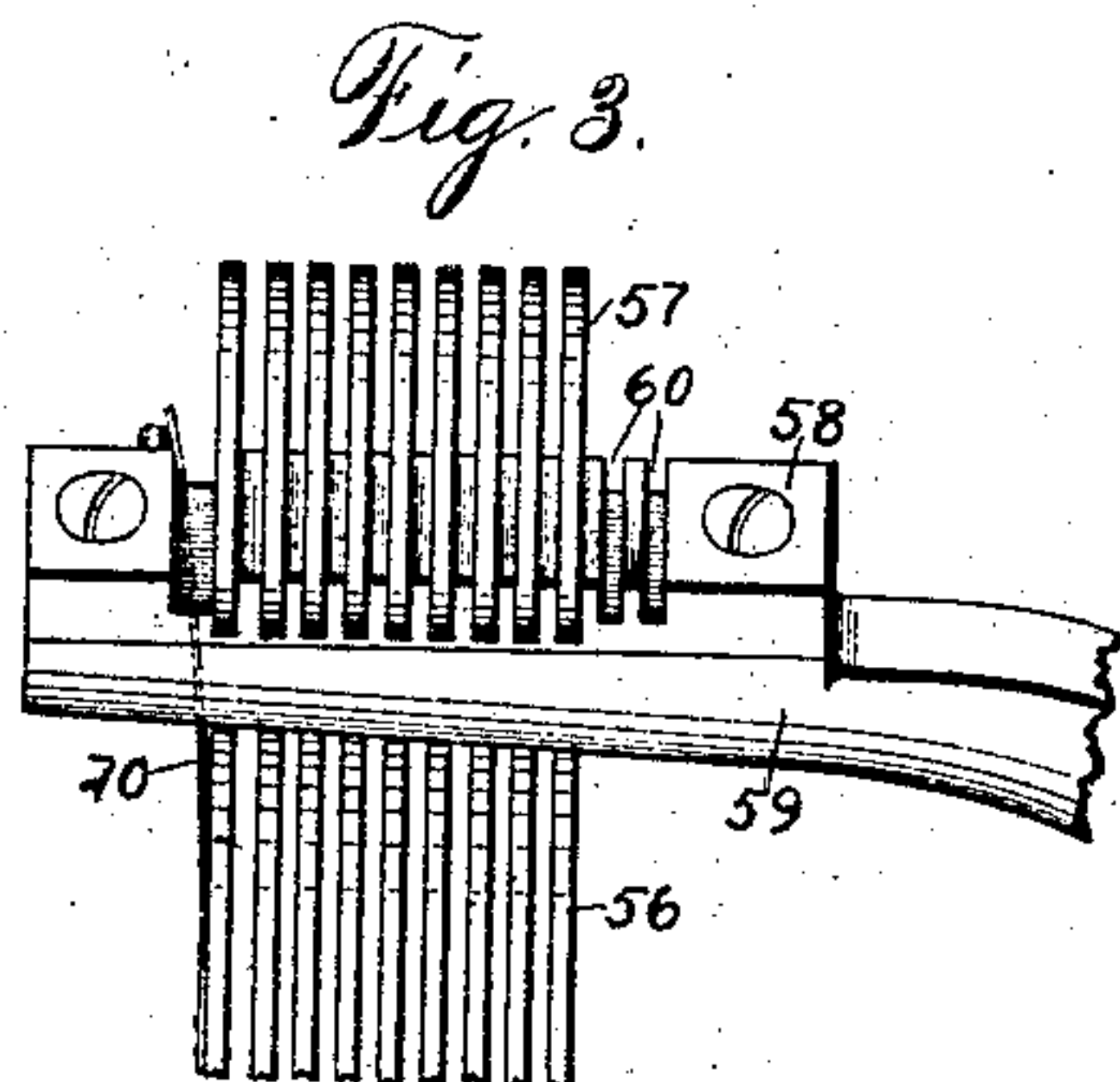
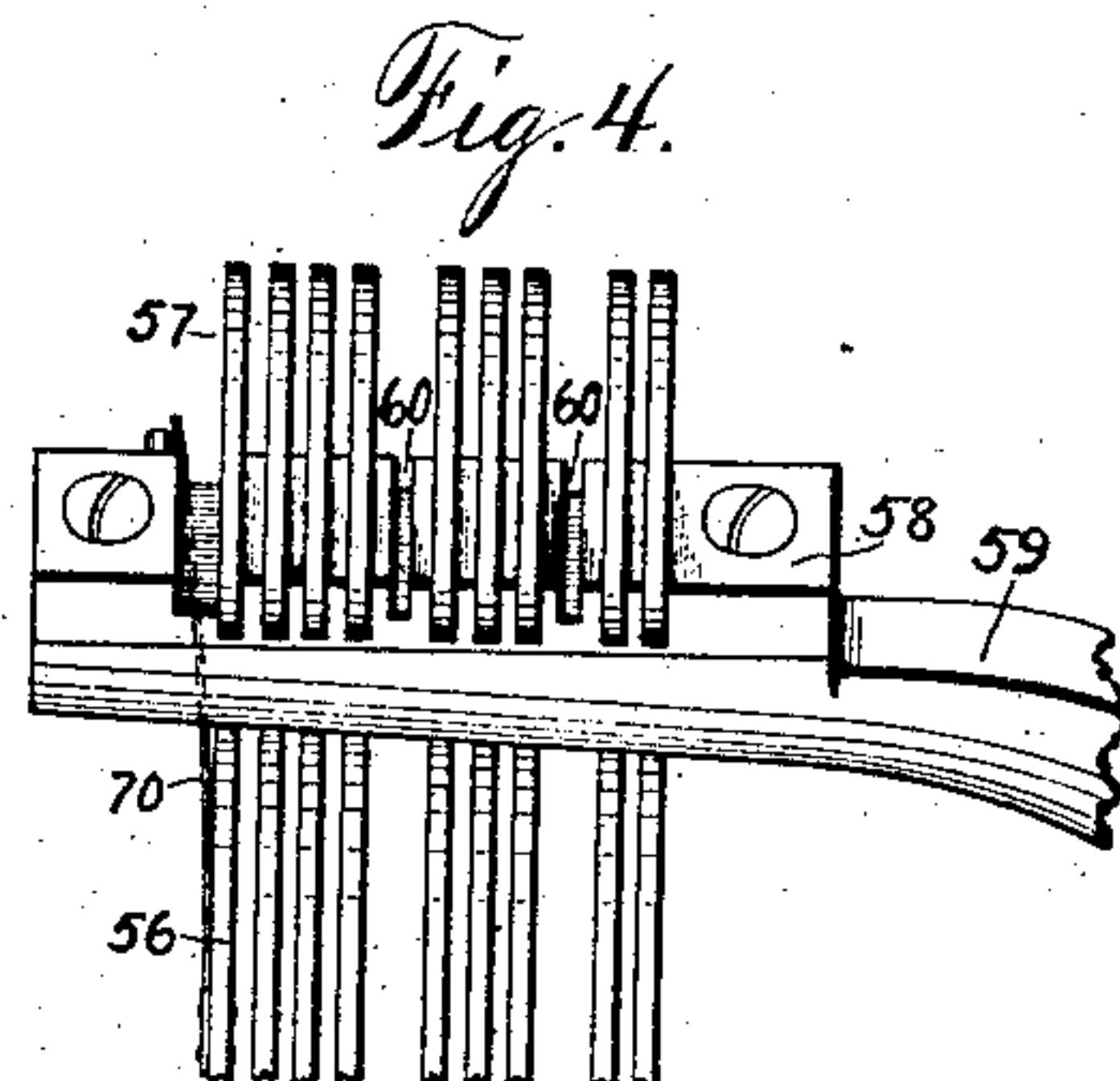


Fig. 2.



67 25  
 71092 03  
 57462403 15  
 906375 50



3 402 50  
 176 33  
 45 631 209 75  
 6 719 042 20

Witnesses:  
*A. White*  
*J. A. Graves.*

Inventor,  
*George C. Blickensderfer*  
 by *Philip P. Sawyer, Rice & Kennedy*  
 Attys.

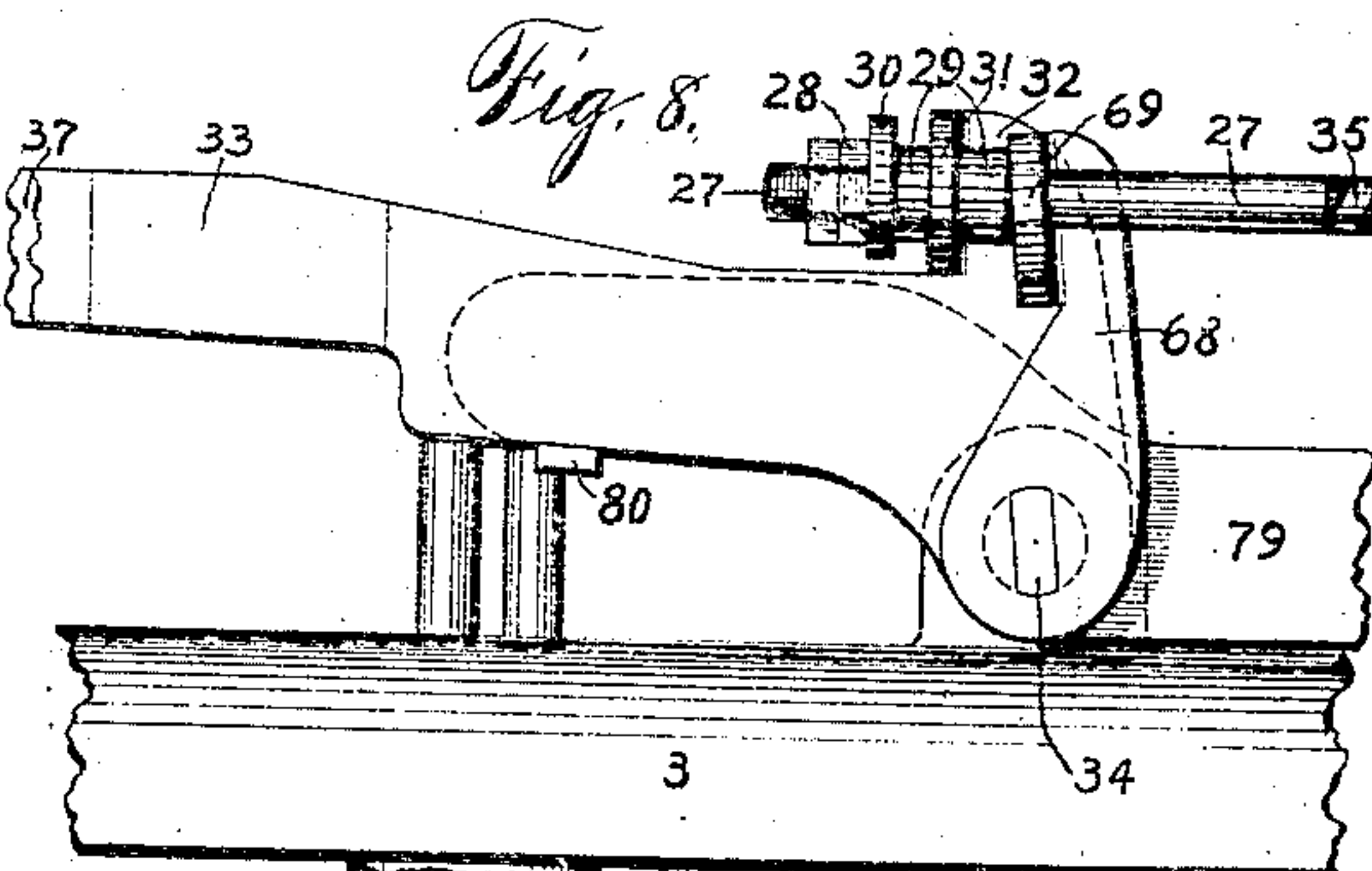
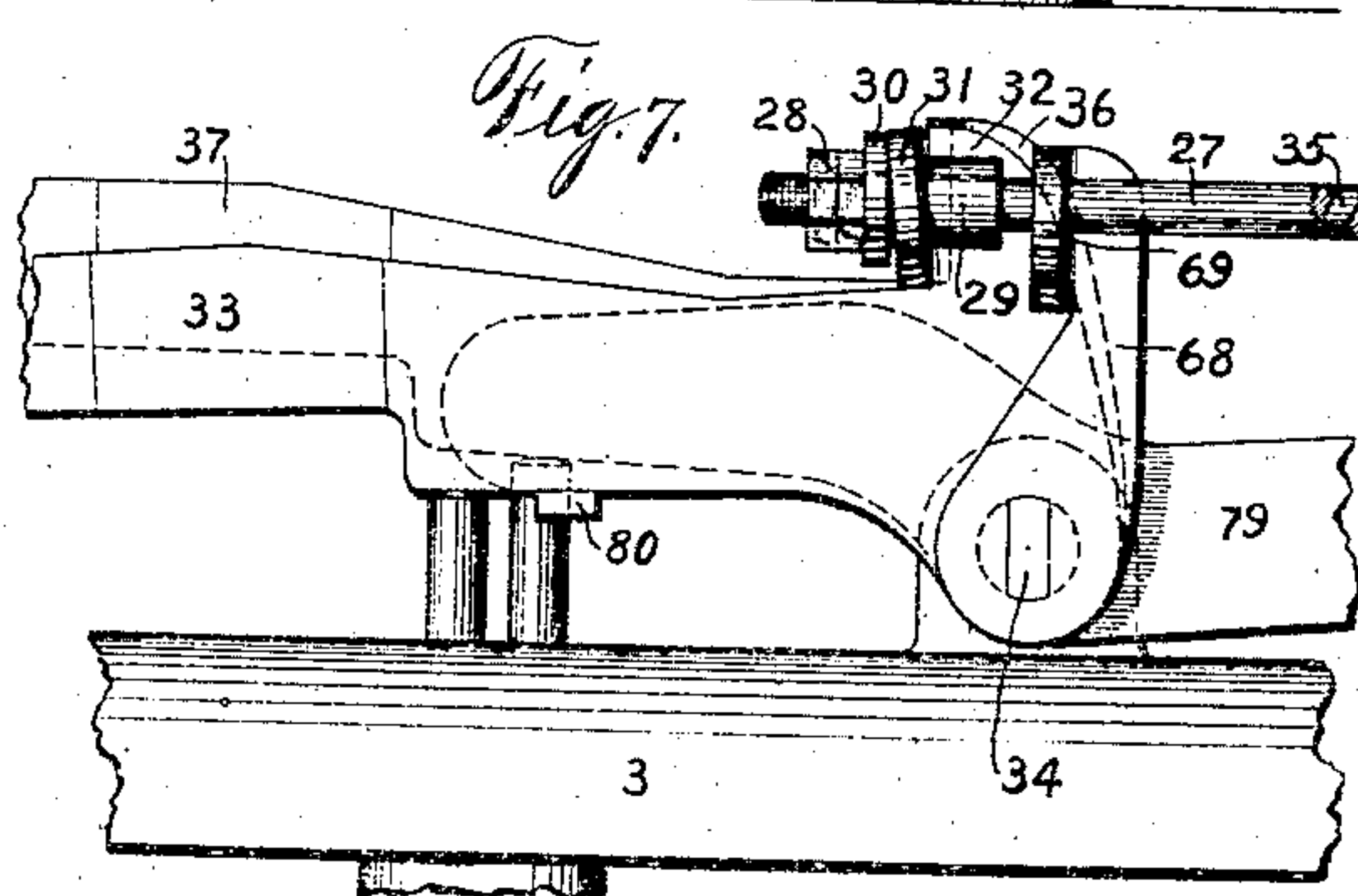
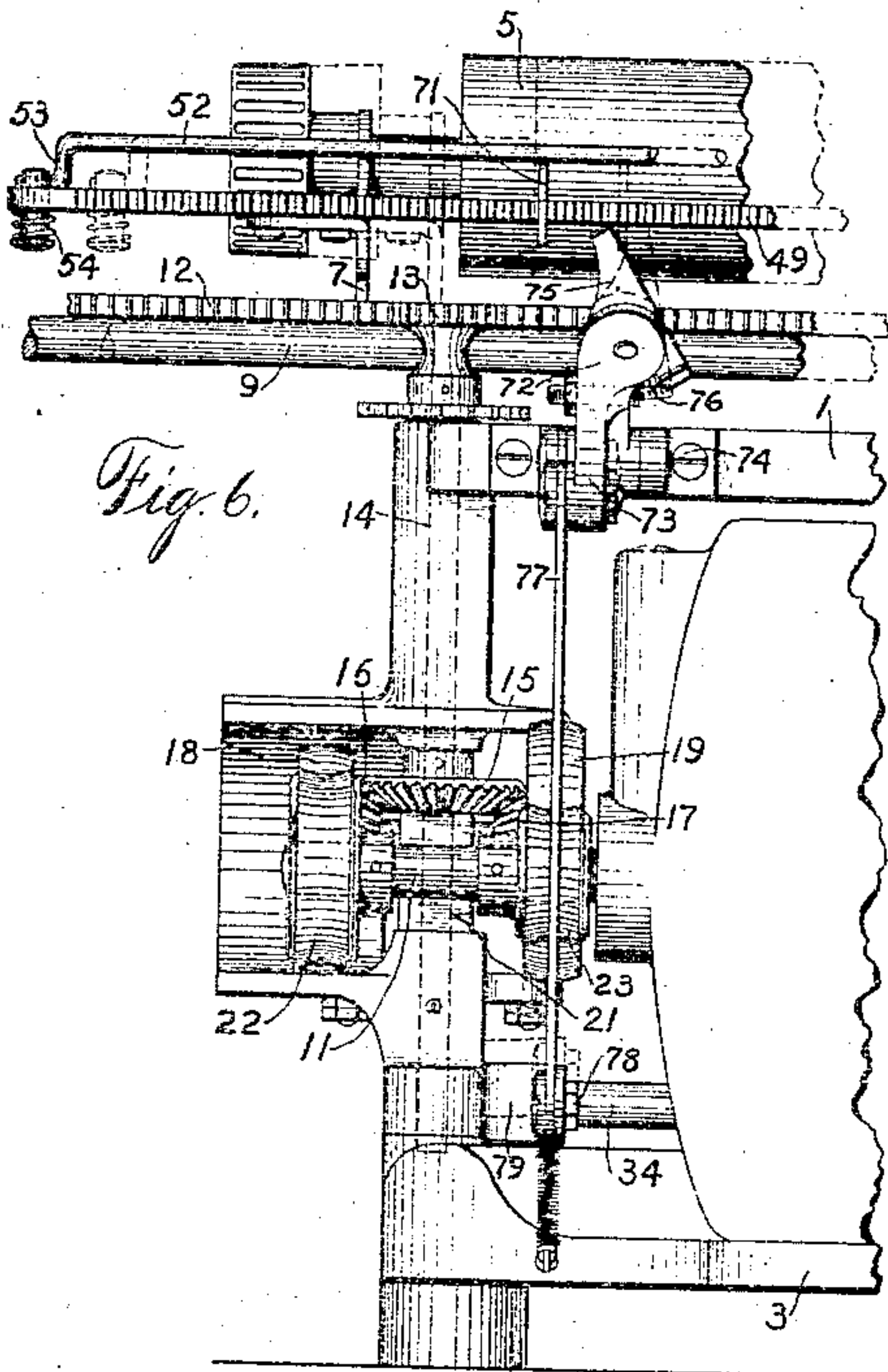
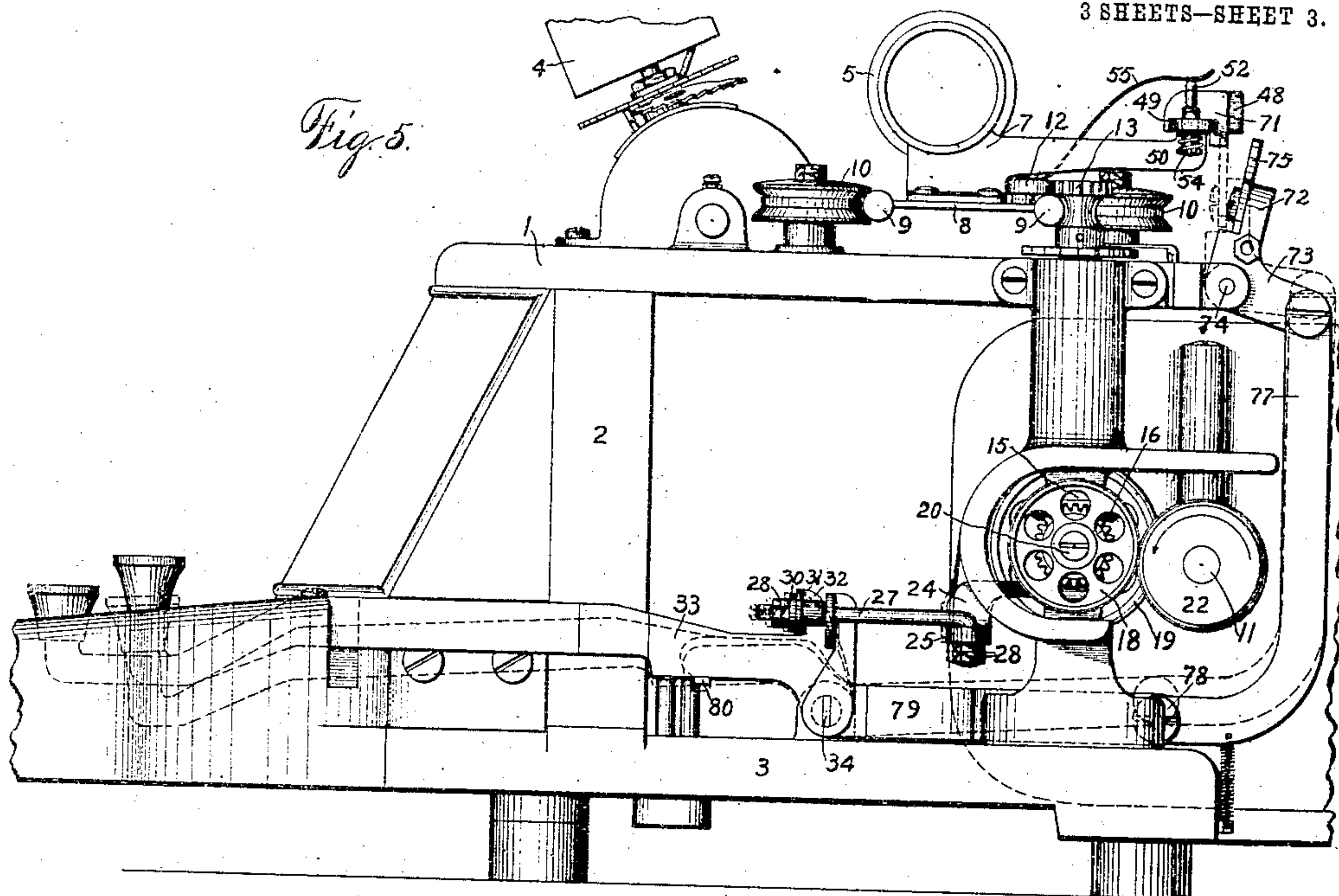


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3 SHEETS—SHEET 3.



Witnesses:  
 A. White  
 J. H. Graves.

Inventor,  
 George C. Blickensderfer  
 by Philipp. Saenger, Reel Kennedy  
 Attys.



# UNITED STATES PATENT OFFICE.

GEORGE C. BLICKENS DERFER, OF STAMFORD, CONNECTICUT.

## TABULATOR MECHANISM.

No. 930,136.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed August 10, 1905. Serial No. 273,608.

*To all whom it may concern:*

Be it known that I, GEORGE C. BLICKENS DERFER, a citizen of the United States, residing at Stamford, county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Tabulator Mechanisms, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in carriage controlling mechanism for typewriting machines.

It is one of the objects of the invention to provide improved mechanism for controlling the position of typewriter carriages, this mechanism being generally known as a tabulating mechanism, that is, a mechanism by which the operator is enabled to write columns of figures, the carriage being automatically positioned so as to bring the figures of successive numbers in the same column in vertical rows.

A further object of the invention is to produce an improved mechanism by which columns of other matter, such, for instance, as names, can be written, the carriage being automatically positioned so that the first letter of successive names in the column will be in the same vertical row.

With these and other objects in view, the invention consists in certain constructions and in certain parts, improvements and combinations such as will be hereinafter fully described and then specifically pointed out in the claims hereunto appended.

Referring to the drawings—Figure 1 is an elevation in perspective illustrating so much of the operating mechanism of a typewriting machine as is necessary to an understanding of the invention. Fig. 2 is a side elevation of the machine on the tabulator mechanism side. Fig. 3 is a sectional detail plan view, the position of the observer being indicated by the arrow 3 in Fig. 2, the figure also including a sample of work which may be done by the mechanism. Fig. 4 is a view similar to Fig. 3, illustrating a modification. Fig. 5 is a side elevation of the machine on the power side. Fig. 6 is a rear elevation illustrating the operation of the column stop mechanism. Figs. 7 and 8 are enlarged detail views.

The machine selected to illustrate the invention is a machine of the well-known Blickensderfer type. It is to be understood,

however, that the invention is not confined to machines of this particular type.

Referring to the drawings, 1 indicates a table of the machine, this table being supported on standards 2 rising from the bed plate 3. In the particular machine illustrated, the printing is effected by means of a wheel 4 which may be operated by any suitable mechanism, as, for instance, the mechanism shown in the patent to Blickensderfer, No. 717,732, dated January 6, 1903. The details of the mechanism by which the printing is effected are not illustrated, for the reason that they will not assist in understanding the invention. The printing wheel co-operates with a platen roll 5 mounted on a shaft 6, this shaft being supported in suitable standards 7 rising from a bed 8 connected to side bars 9 which form a part of the carriage. The carriage is supported by pairs of grooved wheels 10, these wheels being supported on vertical shafts rising from the bed 1. While the construction just described is a convenient form of carriage mechanism, any other suitable form of carriage mechanism may be adopted.

While the mechanism for moving the carriage may be of any suitable type, in the best constructions the machine will embody a power mechanism by which the movement of the carriage is effected. The power mechanism may be varied widely as to its details of construction. An efficient form of power mechanism is that shown in the patent to Blickensderfer, No. 717,732 above referred to, the same embodying a constantly running electric motor, the power shaft of which is indicated at 11 in Figs. 2, 5 and 6. In the best constructions, furthermore, mechanism will be provided with means for giving the carriage a step by step movement, and also with means for giving the carriage what may be termed a running movement in contradistinction to a step by step movement. The means by which the carriage is given the running movement are or may be generally similar to the construction illustrated in the patent above referred to. As shown, the carriage is provided with a rack 12 which is in mesh with a gear 13, this gear being mounted on a vertical shaft 14, the lower end of this shaft being provided with a bevel gear 15. This gear 15 is in mesh with two gears 16 and 17 arranged on opposite sides of its center, as in the patent referred to. The gear 16 is fixed to a friction wheel 18



and the gear 17 is fixed to a friction wheel 19, these wheels being mounted on a shaft, not shown, but being well-shown in the patent referred to. The position of the shaft is indicated by a screw 20 in Fig. 5 which holds the wheel 18 on the shaft. As in the patent referred to, this shaft on which the friction wheels are mounted, is mounted in a swinging block 21. The power shaft is provided with two friction wheels 22 and 23, the wheel 22 being opposite the wheel 18 and the wheel 23 being opposite the wheel 19. It is apparent that when the block is swung so as to bring the wheels 18 and 22 in engagement, the shaft 14 will be turned in one direction and will drive the carriage and when the block is swung so that the wheels 19 and 22 are in engagement, the shaft 14 will be turned in the opposite direction and drive the carriage in the opposite direction. In the particular construction shown, the block has secured to it a T-shaped arm 24 (see dotted lines in Fig. 1) this arm having two projections 25, 26. The projection 25 has connected to it a rod 27, the end of this rod bearing adjusting nuts 28 and a sleeve 29 having a broad collar 30 thereon. The rod and sleeve pass through the outwardly turned end 31 of a bell-crank lever 32—33, this lever being loosely mounted on a shaft 34 which will be hereinafter referred to. This lever 32—33 bears a key marked "Left". The projection 26 has a rod 35 connected to it, this rod having similar adjusting screws and passing through the outwardly turned end 36 of a bell-crank lever 37, this lever bearing a key marked "Right". By pressing the key marked "Left" the block will be swung so as to bring the wheels 19 and 23 into engagement and the motor shaft running, the carriage will be driven to the left, as the machine is shown in Fig. 1. By pressing the key marked "Right", the wheels 18 and 22 will be brought into contact and the carriage will be driven to the right, as the machine is shown in Fig. 1. The key marked "Left" will give the carriage a running movement in the same direction as the step by step carriage feed ordinarily employed in typewriting machines, and the key marked "Right" will return the carriage, after a line has been printed. The details wherein this mechanism for driving the carriage differs from what is shown in the patent referred to are not claimed herein, as they are claimed in an application filed by me December 6, 1902, Serial No. 134,104. While these means have been found in practice to be effective for giving the carriage the running movement, it is to be understood that any other suitable means may be employed for this purpose.

The step by step feeding mechanism, when such a mechanism is employed in connection with the running movement mechanism, will,

in the best machines be independent of the mechanism for giving the carriage the running movement, and, furthermore, in the best machines, will be of such a character as to be disengaged from the carriage so as to leave the carriage free to move at all times. While the construction of the step by step feeding mechanism may be varied widely as to its details, in the particular construction shown, there is provided a swinging lever 38, this lever having an angular toothed end 39 which may be caused to engage with the rack 12 before referred to. This lever is pivoted on a screw 40 mounted in a block 41 which may be given a rotating movement. This block 41 has a spring arm 42 connected to it, this arm carrying a cam roll 43 which works on the circumference of a cam 44 mounted on a shaft 45 which is driven by a gear 46 from the power shaft 11. The lever 38 bears on the end opposite its toothed end a cam roll 47 which runs on a cam formed on the rear side of the cam 44. In the operation of this feed, the cam 44 rocks the block 41 so as to bring the angular toothed end of the lever into engagement with the rack, after which the cam on the rear side of the cam 44 rocks the lever 38 to advance the carriage. This particular feed mechanism is not claimed in this application, as the same is fully described and claimed in a pending application filed by me Nov. 16, 1903 and serially numbered 181,265.

The tabulating mechanism employed may be varied in its details of construction. In the best constructions, this mechanism will include a plurality of stops 48, two of which are shown in Fig. 1. In the best constructions, these tabulator stops are mounted in the carriage. In the particular construction shown, the carriage is provided with a notched bar 49, the notches corresponding in number and position with the teeth on the rack 12. This bar 49 may be conveniently supported on arms 50 extending from the standards 7 before referred to. The stops are provided with depending legs 51 which engage the notches. While the engagement between the legs 51 and notches on the bar 49 might be depended on to hold the stops in position, in the best constructions, additional retaining means will be employed for this purpose, these means being of such a character as to prevent the displacement of the stops vertically. In the particular construction shown, the additional retaining means embodies a rod 52 having downwardly bent ends 53, this rod and its ends forming a bail. While the bail might be secured in position in any suitable manner, in the particular construction shown, the downwardly bent ends are bent outward and pass through perforations in spring pins 54 which pass through the notched bar 49. The under sides of the outwardly bent ends 53 will be flattened in a



manner well understood, so that the tension of the springs will hold the bail in position, but at the same time will allow the bail to be rocked out of position so as to permit the stops to be shifted. An additional spring, as 55, may be employed, if desired, to assist in holding the bail in position, this being desirable where the carriage used is exceptionally long.

The devices which cooperate with the stops to effect the stopping of the carriage in the proper position for the printing of numbers or similar matter may be varied in construction. As shown, a series of levers 56 is provided for this purpose, these levers being loosely mounted on the rock shaft 34. The upper ends of these levers are bent inwardly, as indicated at 57, and by rocking any one of the levers may be positioned so as to engage a stop 48. In the best constructions, an additional steadying device will be employed to prevent the spring of the levers under the impact of the stop as the running carriage strikes them. While this steadying device may be varied in the details of construction, as shown, it consists of a block 58 which may be conveniently mounted on a bracket 59 extending from the machine frame. This block is secured to the bracket by screws, or in any other suitable manner, and is channeled as indicated at 60 (Fig. 3), so that the block forms what may be termed a "comb," the bent ends 57 of the levers moving between the teeth of the comb.

The means for operating the levers when levers are employed for cooperating with the stops may be varied widely, but in the best constructions, these means will be of such a character that the operation of throwing a lever into position connects the carriage to the driving mechanism so that it may be given the running movement. In the particular construction shown, a series of actuating bell-crank key-levers 61—62 is employed for this purpose, these key levers also being loosely mounted on the shaft 34. The connections between each of the levers 61—62 and the operating lever 56 which it actuates, are, in the particular construction shown, formed by means of springs 63, one end of each spring being secured under a lip 64 on the part 61 of the bell-crank levers. The springs are fulcrumed on the lips 65 on the parts 62 of the levers and are hooked under the lever 56, the ends of the springs being caught in one of two notches indicated at 66 in Fig. 1. It will be seen that by pressing any particular one of the levers 61—62, the corresponding lever 56 will be thrown up into position so that its end 57 will cooperate with a stop 48. The arms 61 bear keys which may have conventional indications to indicate the numbers to be printed.

The means by which the position of one of the levers throws the carriage moving

mechanism into operation may be widely varied. As shown, the shaft 34 forms a rock-shaft and is utilized for this purpose. This shaft has extending from it a broad arm 67 which underlies the part 61 of all the levers 61—62, so that the depression of any lever rocks the shaft 34. The shaft 34 (see Figs. 7 and 8) has an arm 68 extending therefrom at the end opposite the end which has the arm 67. This arm 67 has an outwardly bent portion 69 through which the rod 27 before referred to passes. This arm bears against the end of the sleeve 29 before referred to. When the shaft 34 is rocked, the outwardly bent end 69 of the arm 68 strikes the end of the sleeve 29 and moves the rod 27, this movement rocking the block 21 and bringing the friction wheels 19 and 23 into engagement so as to advance the carriage to the left. It will be seen that this movement will be effected without disturbing the connections before described from the lever 33, the sleeve 29 moving through the opening in the outwardly bent end 31 of the lever 32. A depression of one of the keys of the levers 61—62 will, therefore, throw one of the levers 56 into position to cooperate with the stop 48 and will, at the same time, cause the carriage to be moved until the stop 48 strikes the lever, at which time the carriage is in position to print the number.

The tabulator mechanism, in the particular machine illustrated, is arranged for the tabulating of figures representing dollars and cents. In operating the mechanism, the stop 48 is properly positioned on the notched member 49, a convenient way of positioning it being to place it at a point to bring the decimal point in the column at the proper place on the sheet. Then, if it be desired to print the number 67 25, as it appears in Fig. 3, for instance, the "ten" key appearing at the left in Fig. 1 will be depressed. This will throw the end 57 of the corresponding lever up into position to strike the stop 48 and at the same time will rock the shaft 34 and establish the connection between the power shaft and the shaft 14, so that the carriage will be given a running movement until the stop 48 strikes the end 57 of the lever 56. The carriage is now properly positioned for printing the number, and the 6 key, (not shown), on the typewriter, is struck. After the key 7 on the typewriter has been struck, (this key not being shown) the space bar is struck in order to make a space between the 7 and the 2 representing a decimal point, or a period might be struck, if desired. If it be desired to print a higher number, as, for instance, the number 71092.03, as it appears in Fig. 3, the middle one of the "ten" keys, as they appear in Fig. 1, will be struck, the paper roll being turned if it is desired to print this under the previous number. The striking of this middle "ten" key will posi-

130



tion the carriage properly so as to bring the figures in proper relative position with respect to the key previously struck, the running movement of the carriage occurring as before.

It will be seen that the guiding or steadying comb in its operation supports the end of the lever against the impact of the stop on the carriage and thus enables comparatively light levers to be used and the tabulator to be gotten into a small space. This steadying comb may also be availed of to space the numbers if desired. When it is desired that this be done, the tabulator keys may be arranged as in Fig. 4. In this case a space is left between the key representing hundred thousands and the key representing millions, and a similar space is left between the key representing hundreds and the key representing thousands. With the keys spaced in this manner, the operator in printing the first number appearing in Fig. 4, will strike the spacing key between the figures "3" and "4". In printing the second number, however, of the column, the "1" will be brought by the "hundred" key into its proper position beneath the "4" of the first number.

Where a plurality of columns is to be printed across a sheet, it may be desired not to print a number on a given line in the first column or columns, but to begin the printing with the numbers in the second column or a subsequent column on the same line, and to do this without operating the space bar of the machine. While the machine may be constructed in various ways to accomplish this result, in the particular construction shown the space in the comb which the "cts" lever occupies is made wider than the other spaces so as to permit a sidewise movement of this lever. In the best constructions, a spring marked 70 is interposed between this lever and the side of the comb space. By depressing the "cts" lever, the machine will be operated as before described, and the stop 48 for the first column, for instance, if this be the column where it is desired not to print, will be brought into contact with the "cts" lever, and will push the lever over against the tension of the spring 70. The lever is now released and as it is released is pushed back by the spring 70. By striking the proper denomination key, the carriage will be advanced in the manner before described, so as to bring the carriage into proper position to print the proper number on the line in the second column. By mounting the "cts" lever in the manner described, it may be used to jump the carriage from column to column as desired.

It may be desired to associate with the tabulated columns of figures other printed matter, such, for instance, as names or descriptive matter, and to do this, it is desir-

able to have this matter so printed that the first letters of the columns of printed matter will be in the same vertical lines. The particular machine illustrated is provided with means for effecting this result. While these means may be varied, in the particular construction shown, the machine is provided with a series of column stops, marked 71, these column stops being shown as mounted on the same bar 49 as the tabulator stops are mounted on. A stopping member is employed which coöperates with these stops 71. While the construction of this stopping member may be varied, as shown, it comprises a bell-crank lever 72—73 pivoted at 74 in the frame of the machine. The arm 72 of the bell-crank lever is provided with a pivoted member or arm 75 which is normally held in the position illustrated in Fig. 6 by means of a light spring 76. The arm 73 of the bell-crank is connected to a bent link 77 pivotally connected at 78 to a lever 79. This lever 79 is pivoted on the shaft 34 before described, and its forward end has a lip 80 extending therefrom which underlies the lever 33 before described. The stops 71 are so positioned that their operative parts are out of line with the operative parts of the stops 48. When these stops are used, a number of them corresponding to the number of columns to be printed are placed on the bar 49, and in the particular construction shown are held in position by the bail 52 before referred to.

It has been stated that the depression of the lever 33 connects up the power mechanism and causes the carriage to be advanced toward the left. It will be seen that the depression of this lever also, through the lip 80, rocks the lever 79 which in turn rocks the bent lever 77. This lever swings the bell-crank 72—73 forward, bringing the member 75 into position to strike the stop 71. This will stop the carriage at the proper point to bring the first letter of each successive line of printed matter under the first letter of the preceding line. The pivoting of the member 75 enables a given column to be skipped, when desired. As a given stop, 71, strikes the member, it swings it against the tension of the spring, and when the key is released and the bell-crank is thrown down, the spring throws the lever back behind the stop with which it has been in contact and into position so that it may contact with the next stop when thrown up into proper position. While this column stop feature of the mechanism is a desirable adjunct to be used in connection with a tabulating mechanism, it will be readily seen that it may be used alone, if desired, for printing successive columns of printed matter.

The operation of the device will be fully understood from the preceding description.

Changes and variations in the construction by which the invention is carried into effect



may be made. The invention is not, therefore, to be restricted to the specific constructions hereinbefore described.

What is claimed is:—

- 5 1. In a typewriter, the combination with a carriage, of a driving shaft, normally inoperative means whereby the shaft may advance the carriage, a tabulator mechanism, and connections whereby the operation of the  
10 tabulator mechanism causes the driving shaft to advance the carriage.
2. In a typewriter, the combination with a carriage, of carriage advancing means normally disconnected from the carriage, where-  
15 by the carriage is free to move in either direction, a tabulator mechanism, and means whereby the operation of the tabulator mechanism establishes the connection between the carriage advancing means and the car-  
20 riage.
3. In a typewriter, the combination with a carriage, of a motor driven shaft, means normally inoperative whereby the motor driven shaft may drive the carriage, a plurality of  
25 tabulating levers, a plurality of stops on the carriage cooperating with the levers, and means whereby the operation of any lever renders operative the driving means between the carriage and the shaft.
- 30 4. In a typewriter, the combination with a carriage, of a constantly running driving mechanism therefor, normally inoperative connections between the carriage and the driving mechanism, a tabulator mechanism,  
35 and means whereby the operation of the tabulator mechanism establishes a connection between the driving mechanism and the carriage.
- 40 5. In a typewriter, the combination with a carriage, of a driving mechanism therefor, a tabulator mechanism including a plurality of levers and a plurality of cooperating stops, normally inoperative connections between the driving mechanism and the carriage, and  
45 means whereby the operation of any tabulator lever renders operative the connections between the driving mechanism and the carriage.
- 50 6. In a typewriter, the combination with a carriage, of a shaft, suitable connections for moving the carriage, a power shaft, normally inoperative power transmitting devices between the shafts, a tabulator mechanism,  
55 and means whereby the operation of the tabulator mechanism renders operative the connections between the shafts.
- 60 7. In a typewriter, the combination with a carriage, of a shaft suitable connections for moving the carriage, a driving shaft, normally inoperative connections between the shafts, a tabulator mechanism including a plurality of levers and a plurality of cooperating stops, a member operable by each of the levers, and  
65 means whereby said member renders operative the connections between the shafts.
8. In a typewriter, the combination with a carriage, of a motor driven shaft, means normally inoperative by which the motor driven shaft drives the carriage, a tabulator mechanism including a plurality of levers and a  
70 plurality of cooperating stops, a rock-shaft arranged to be operated by each of the levers, and connections between the rock shaft and the carriage driving means, whereby the movement of the rock shaft renders the car-  
75 riage driving means operative.
9. In a typewriter, the combination with a carriage, of a driving mechanism therefor, said driving mechanism including normally inoperative friction connections, a tabulator  
80 mechanism including a plurality of levers and a plurality of cooperating stops, and means whereby the operation of any lever renders the friction connections operative.
10. In a typewriter, the combination with  
85 a carriage, of means including a shaft for advancing the carriage, a driving shaft, normally inoperative friction driving connections between said shafts, a tabulator mechanism including a plurality of levers and a  
90 plurality of cooperating stops, and means whereby the operation of any lever renders the friction driving connections operative.
11. In a typewriter, the combination with a carriage, of means normally out of opera-  
95 tive relation with the carriage for giving it a step by step movement, means normally out of operative relation with the carriage for giving it a running movement, a tabulator mechanism, and means whereby the opera-  
100 tion of the tabulator mechanism renders operative the means for giving the carriage a running movement.
12. In a typewriter, the combination with a carriage, of means for giving the carriage a  
105 step by step movement, said means being normally out of operative relation with the carriage, means for giving the carriage a running movement, said means being normally out of operative relation with the carriage, a  
110 tabulator mechanism including a plurality of levers, a plurality of stops, and means whereby the operation of any tabulator lever renders operative the means for giving the carriage the running movement.
- 115 13. In a typewriter, the combination with a carriage, of a feeding rack mounted thereon, a pinion in engagement with the rack, a shaft for driving the pinion, a power shaft, normally inoperative connections including a  
120 friction driver whereby the power shaft drives the pinion shaft, a rock shaft, connections whereby the rock shaft renders the friction driver operative, a plurality of tabulator levers mounted on the rock shaft, each  
125 of said levers being arranged to operate the shaft, and a plurality of stops mounted on the carriage and cooperating with the levers.
14. The combination with a carriage of a typewriter, of a plurality of stops mounted  
130



thereon, a plurality of levers, each lever comprising an operating member and an actuating member, means for limiting the movement of the operating members, carriage advancing devices, means operated by the actuating member to render the carriage advancing devices operative, and means for permitting a relative movement between the operating and actuating members of the levers.

15. The combination with a carriage of a typewriter, of a plurality of stops mounted thereon, a plurality of levers, each lever comprising an operating member and an actuating member, means for limiting the movement of the operating members, carriage advancing devices, means operated by the actuating member to render the carriage advancing devices operative, and springs connecting the operating and actuating members of the levers whereby a relative movement between the members is permitted.

16. The combination with a typewriter carriage, of a plurality of stops mounted thereon, a rock-shaft, carriage advancing devices, operating connections between the rock shaft and said devices, a plurality of levers mounted on the rock shaft and cooperating with the stops, each of said levers consisting of an operating member and an actuating member, means for limiting the engaging movement of the operating members of the levers, springs connecting the operating and actuating members, and a projection on the shaft with which each of the actuating members contacts as it is operated to rock the shaft.

17. The combination with a typewriter carriage, of a driving mechanism normally disconnected therefrom, a plurality of tabulator stops, tabulating levers cooperating therewith, a plurality of column stops, a key-operated lever cooperating therewith, means for giving the carriage a step by step movement, and means whereby the operation of either a tabulator lever or the column stop lever will connect the driving mechanism to the carriage and give it a running movement, and means whereby the step by step moving means will connect the carriage to the driving mechanism to give it a step by step movement.

18. The combination with a typewriter carriage, of column stopping means, a stopping lever cooperating therewith, a driving mechanism normally disconnected from the carriage, and means whereby the operation of the stopping lever connects the driving mechanism to the carriage.

19. The combination with a typewriter carriage, of a plurality of column stops, a

stopping lever cooperating therewith, a driving mechanism normally disconnected from the carriage, and means whereby the operation of the column stop lever connects the driving mechanism to the carriage.

20. The combination with a typewriter carriage, of column stopping means, a cooperating stopping device, a driving mechanism normally disconnected from the carriage, operating means for the stopping device, means under the control of said operating means for giving the carriage a running movement, and means for giving the carriage a step by step movement.

21. The combination with a typewriter carriage, of a plurality of column stops, a cooperating stopping device, a driving mechanism normally disconnected from the carriage, operating means for the cooperating stopping device, means under the control of said operating means for giving the carriage a running movement, and means for giving the carriage a step by step movement.

22. The combination with a typewriter carriage, of column stopping means, a cooperating stopping device, operating means for the stopping device, a driving mechanism normally disconnected from the carriage, a step by step feeding device, and means whereby the operation of either the stopping device operating means or the step by step feeding device connects the carriage to the driving mechanism.

23. The combination with a typewriter carriage, of a plurality of column stops, a cooperating stopping device, operating means for the stopping device, a driving mechanism normally disconnected from the carriage, a step by step feeding device, and means whereby the operation of either the stopping device operating means or the step by step feeding device connects the carriage to the driving mechanism.

24. The combination with a typewriter carriage, of a plurality of column stops mounted thereon, a cooperating stopping device comprising a swinging lever and a spring mounted member, driving means for the carriage normally disconnected from the carriage, means for swinging the lever to interpose the member in the path of the stops, and connections whereby when the lever is swung the driving mechanism will be connected to the carriage.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

GEORGE C. BLICKENSDEFFER.

Witnesses:

AUGUSTA WHITE,  
J. A. GRAVES.