

No. 666,762.

Patented Jan. 29, 1901.

C. F. LAGANKE.

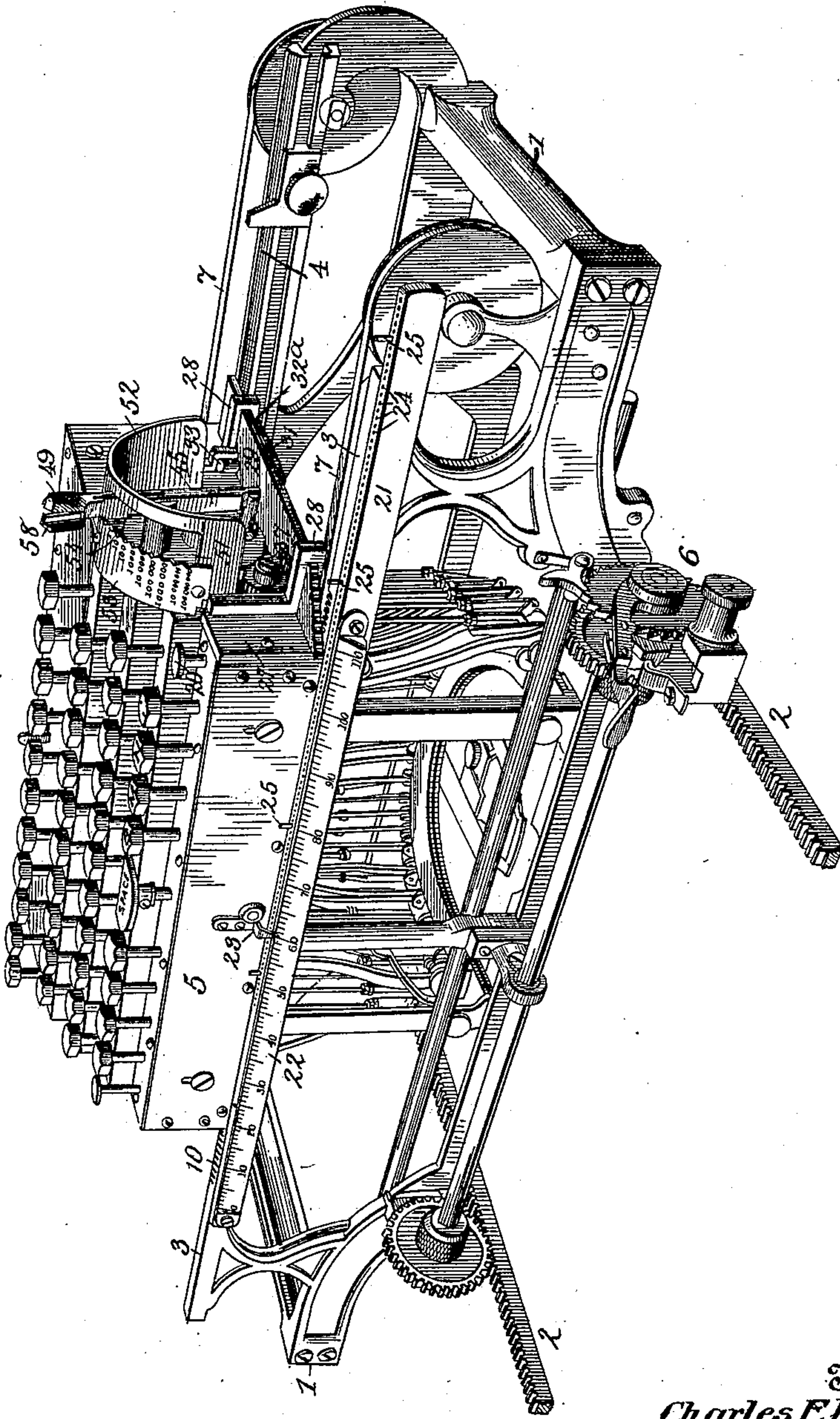
TABULATING ATTACHMENT FOR TYPE WRITING MACHINES.

(Application filed Sept. 5, 1899.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



Witnesses

Harold H. Binnick

S. P. Mollhaupter.

Inventor  
Charles F. Laganke,

C. F. Laganke  
Attorney



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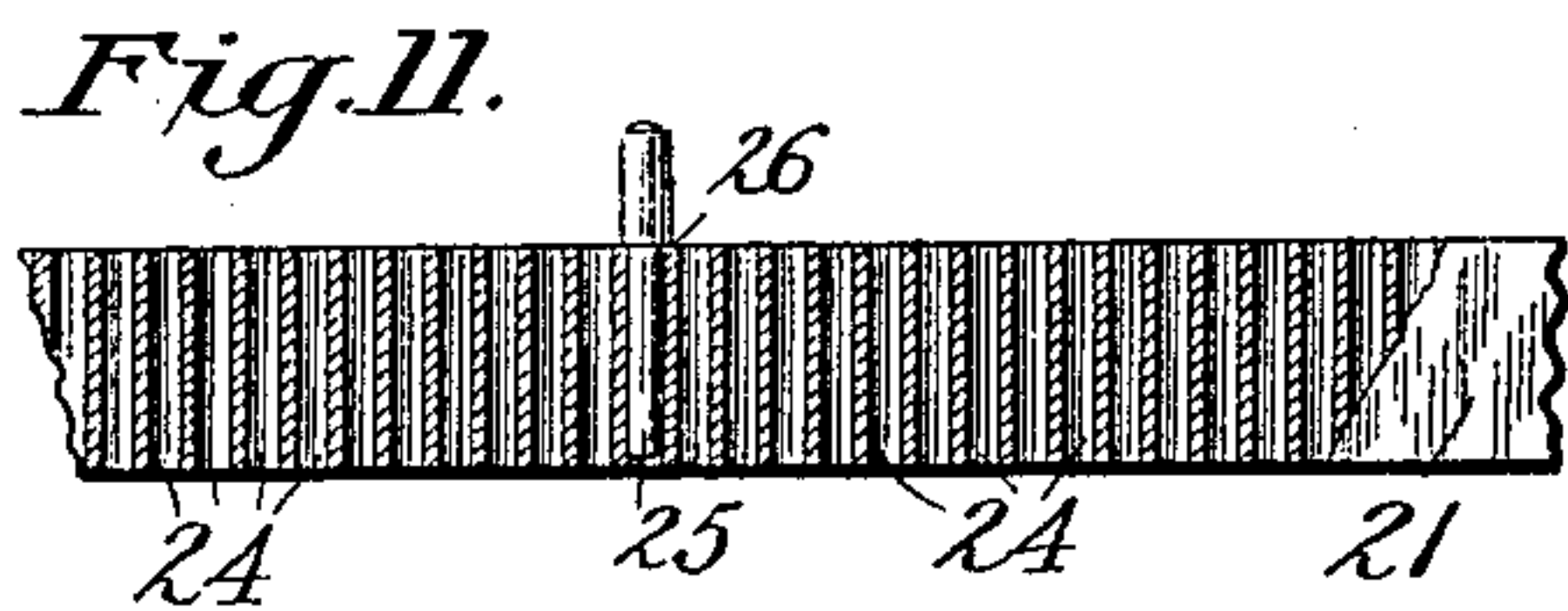
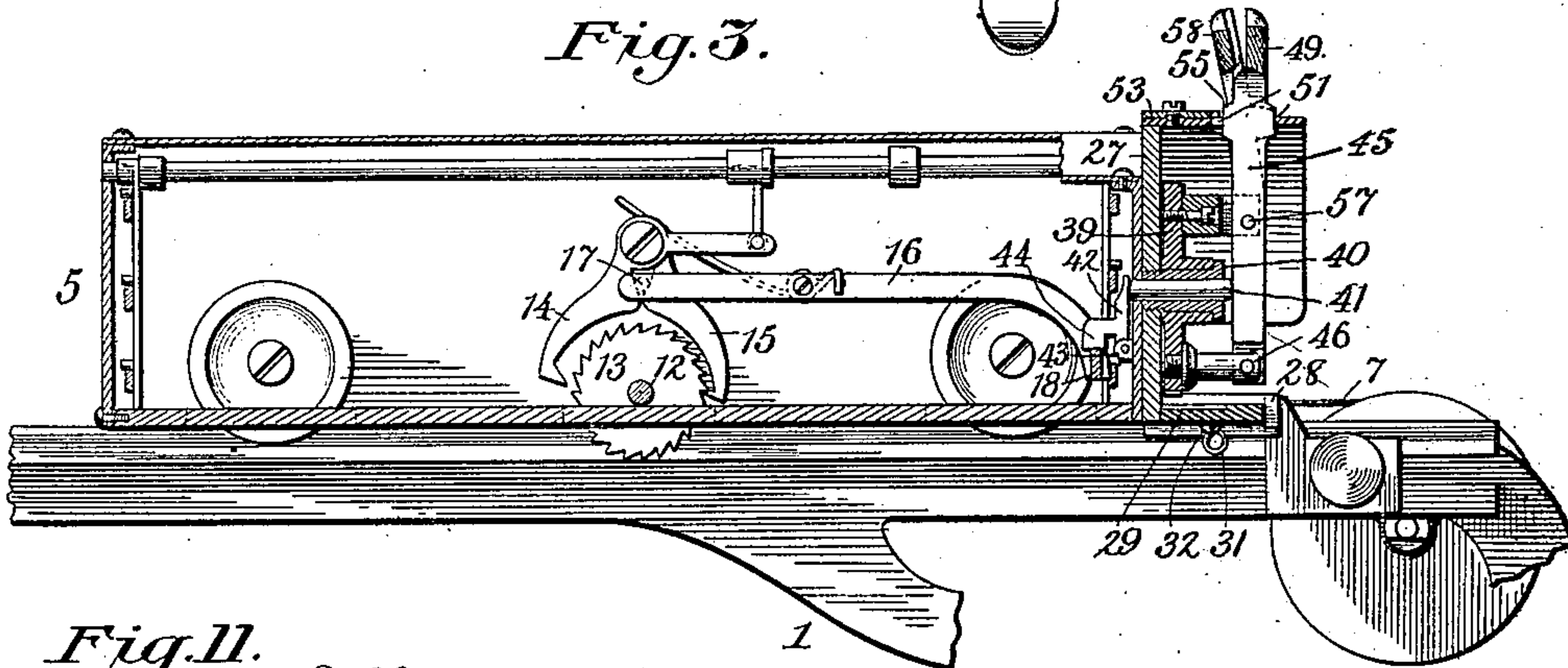
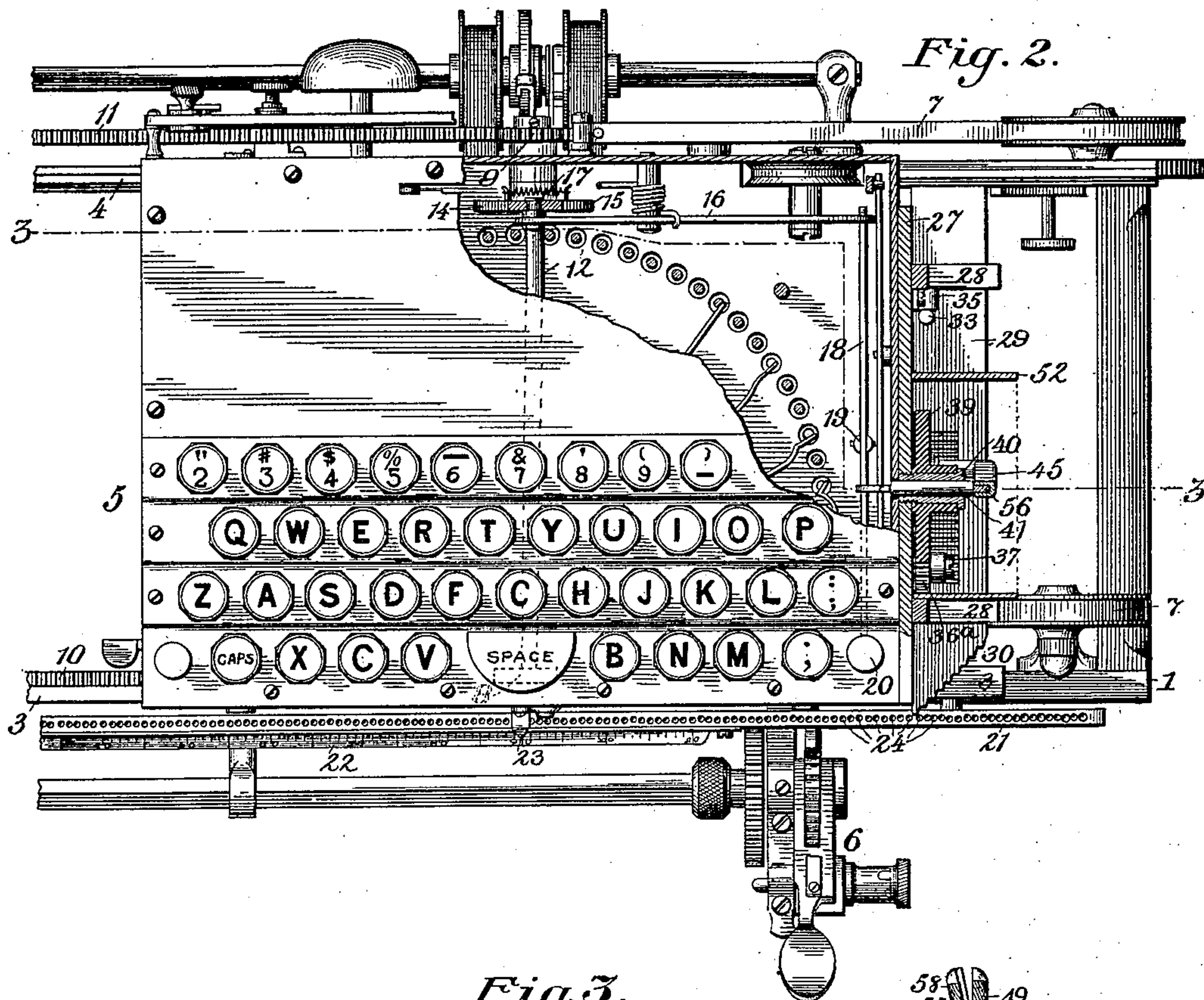
C. F. LAGANKE.

TABULATING ATTACHMENT FOR TYPE WRITING MACHINES.

(Application filed Sept. 5, 1899.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses.

Harold A. Timmer  
S. P. Holmquist.

Charles F. Laganke, Inventor

E. G. Siggel, Attorney.



**Patented Jan. 29, 1901.**

**TABULATING ATTACHMENT FOR TYPE WRITING MACHINES.**

**3 Sheets—Sheet 3.**

(No Model.)



Witnesses  
Harold A. Smith <sup>73</sup>

S. R. Haupt.

Inventor  
*Charles F. Laganke,*

E. G. Siggers.

Attorney.



# UNITED STATES PATENT OFFICE.

CHARLES FREDERICK LAGANKE, OF ATHENS, TENNESSEE, ASSIGNOR TO  
THE FISHER TYPEWRITER COMPANY, OF SAME PLACE.

## TABULATING ATTACHMENT FOR TYPE-WRITING MACHINES.

**SPECIFICATION** forming part of Letters Patent No. 666,762, dated January 29, 1901.

Application filed September 5, 1899. Serial No. 729,505. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES FREDERICK LAGANKE, a citizen of the United States, residing at Athens, in the county of McMinn and State of Tennessee, have invented a new and useful Tabulating Attachment for Type-Writing Machines, of which the following is a specification.

This invention relates to type-writing machines, and has special reference to an improved tabulating attachment designed to secure speed and accuracy in tabulating work where it is desirable to write columns of words or figures.

To this end the invention primarily contemplates a tabulating attachment for type-writing machines having simple and efficient means for bringing the carriage of the machine to a stop at any point in the column without consulting the scale or the work and without manipulating the carriage to move it backward or forward—in other words, enabling the operator to quickly and accurately locate the printing-point, so as to columnate matter with exactness and rapidity without observing the scales of the machine.

In tabulating with the ordinary type-writing machine having no tabulating attachment the operation is very slow and tedious and depends for its accuracy entirely upon the observance of the machine-scales, thereby seriously interfering with the speed and exactness of the work, and tabulating devices or attachments have been devised for overcoming these objections; but many of the existing letter type-writers equipped with what are known as "tabulating attachments" are practically only provided with what should be termed "unit-stops," thereby rendering it necessary either to set these stops at a point which locates the average number of figures in a column and then pressing the space-key the required number of times (if there are a lesser number of figures) before putting in the first figure or to push the carriage back the required number of spaces to put in a larger number of figures. Again, in some machines having tabulating attachments the stops are located in the rear of the machine, thereby causing the operator some inconvenience to observe the same or necessitating the

operator to remember the particular column the machine is operating in, as well as to remember the average number of figures in each column to which the stop is set, so as to know how many points backward or forward to move the machine before beginning the operation of the column, unless, of course, the stops are all set to a certain fixed number of figures in each column. Furthermore, in some types of tabulators already patented if it is necessary to skip several columns to get into a desired column, as frequently happens, it is necessary to bring the carriage to a stop at each column before it can go on to the next. Furthermore, in all other tabulating attachments now in use the same are injurious to the machine, besides not attaining the necessary accuracy. This is largely due to the fact that upon manipulating the attachment to release the carriage the latter jumps forward to the stop provided therefor and frequently comes to a stop with such suddenness as to strain the same. If the jump of a carriage is a considerable one, the carriage is often caused to rebound one or two points, thereby locating the work wrongly or necessitating the operator to watch closely and wait after each operation till the carriage comes to a full stop. Also in some types of tabulators a plurality of operating-keys are employed, which necessarily complicates the device, besides materially increasing the number of parts that must be fitted to the machine and also seriously interfering with the speed of operation.

With these objections to the ordinary tabulating attachments in view the present invention provides a simple and efficient construction of tabulating attachment having means for bringing the carriage to a positive stop at any point in the column without consulting the scale or the work or without manipulating the carriage to move it backward or forward. The invention contemplates the attachment of the tabulator directly to the carriage or keyboard, so that the sudden arrest or stop of the carriage is largely controlled on account of the operator having a hand on the manipulating device of the attachment during the movement of the carriage.



A further object of the invention is to equip the attachment with a single operating device for locating the printing-point of any number in any column, as well as to provide for the release and locking of the carriage, thereby greatly reducing the number of operating parts and simplifying the operation of tabulating.

Another object of the invention is to provide a construction of tabulator arranged in a novel relation with reference to the carriage, so as to be exposed to the full view of the operator, and equipped with a single operating or manipulating device, which not only provides for locating the printing-point in the column, but also provides simple and efficient means for releasing the carriage, so that it may be readily adjusted to the proper position for working in succeeding columns, and in this connection the attachment is also constructed and arranged in such way as not to necessitate the stoppage of the carriage at the end of each column before it can go on to the next.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction and arrangement of parts hereinafter more fully described, illustrated, and claimed.

The instrumentalities comprising the invention and the fundamental features of the latter are necessarily susceptible to a wide range of modification without departing from the sphere or scope of the invention; but the preferred embodiments of the improvements is shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a tabulating attachment constructed in accordance with the present invention and shown applied to a type-writing machine of the type known as the "Fisher" machine. Fig. 2 is a plan view, partly in section, showing the relation of the attachment to the feed and release mechanism of the carriage. Fig. 3 is a vertical sectional view on the line 3 3 of Fig. 2. Fig. 4 is an enlarged vertical sectional view of the attachment and the contiguous portion of the machine-carriage, showing two positions of the operating and auxiliary levers. Fig. 5 is a detailed and perspective view of the attachment removed from the machine. Fig. 6 is a horizontal sectional view on the line 6 6 of Fig. 4. Fig. 7 is a detailed perspective view of the operating and auxiliary levers separated. Fig. 8 is a detailed perspective of the single stop. Fig. 9 is a detail perspective of one of the space-pins. Fig. 10 is a detail elevation of the oscillatory gear-disk. Fig. 11 is a detail sectional view of a portion of the scale-bar with one of the space-pins fitted therein.

Like reference characters designate corresponding parts in the several figures of the drawings.

The tabulating attachment forming the

subject-matter of the present application is not necessarily confined to any particular kind of type-writing machine, because it obviously could be adapted for use in connection with any type of machine having a suitable release mechanism for the carriage to permit it to advance to a position within the desired column; but in order to plainly set forth the construction and operation of the attachment the same is illustrated in the drawings as associated with a Fisher type-writing machine such as now are on the market. This machine is largely intended for writing in books, reports, and on letter-sheets and the like, and the herein-described tabulating attachment is specially desirable in connection therewith to facilitate tabulation within any particular column rulings or forms of any kind. The said machine involves in its general organization a carriage-supporting frame 1, designed to work upon the tracks 2 and provided with parallel front and rear carriage-guides 3 and 4, respectively, upon which guides is mounted the carriage 5, having a pendent type-bar-supporting ring arranged between the vertical planes of the carriage-guides. The said carriage-supporting frame 1 carries the ordinary line-spacing mechanism 6, and the feed mechanism for the carriage includes the spring-actuated straps or tapes 7 and the carriage-feeding pinions 8 and 9, which mesh, respectively, with the front and rear racks 10 and 11, arranged in parallelism with the front and rear carriage-guides 3 4. The carriage-feeding pinions 8 and 9 are mounted on a common transverse spindle or shaft 12, which also carries at a point within the carriage-casing a ratchet or escapement wheel 13, with which coöperates a pair of escapement-dogs 14 and 15, which dogs are operated in connection with said ratchet or escapement wheel in the manner set forth in the patent to R. J. Fisher, No. 573,868, issued December 29, 1896. This constitutes the main carriage-feed or letter-spacing mechanism of the Fisher type-writing machine now upon the market, and there is combined with this mechanism a carriage-release mechanism, which includes a pivotal trip-lever 16, mounted within the carriage-casing and carrying at one end a trip-pin 17, working between the escapement-dogs 14 and 15 to provide for their disengagement or release from the ratchet or escapement wheel in the manner described in the aforesaid Patent No. 573,868. The said release mechanism also embodies as a part thereof a release-lever 18, housed within the carriage-casing, pivotally supported intermediate its ends, as at 19, contiguous to one end of said casing and connected at one end with the trip-lever 16. The other end of said release-lever is connected there to the stem of the release-key 20, exposed upon the keyboard of the carriage, as plainly shown in the drawings.

The foregoing features of construction constitute parts of the Fisher type-writing ma-



chine and form no part of the present invention except in association with the working parts of the tabulating attachment. So in adapting this attachment to a Fisher type-writing machine no change whatever is required therein excepting the provision of an attachment to the front space-scale of the machine. This attachment simply consists of a straight scale-bar 21, secured to the front carriage-guide 3 and to which is fitted the usual front space-scale 22 of the machine, over which plays the index-finger or pointer 23, attached to the front side of the carriage 5. The said scale-bar 21 is arranged in parallelism to the front carriage-guide and the front space-scale 22, and on account of the main portion of the attachment being fitted to one end of the machine-carriage the said scale-bar 21 is shown extended a distance beyond one end of the front space-scale in order to provide for columnating matter at any point within the printing area of the machine. The said scale-bar 21 is provided therein with a longitudinal series of vertically-disposed pin-openings 24, which correspond to the scale-graduations of the scale 22, so that the columns may be located at any desired space, it being observed that there are the same number of pin-openings 24 as there are graduations on the front scale and that the said pin-openings are simply a letter-space apart. These pin-openings are designed to have placed therein one or a number of space-pins 25, the number of said pins varying according to the number of columns to be worked upon the sheet, each of said pins consisting of a straight stem counterturned to produce an annular rest-shoulder 26 at an intermediate point, said shoulder resting at the top edge of the opening in which the pin fits, so as to hold the stem in place, with the upper end thereof projecting above the plane of the scale-bar. At this point it may be noted that the said scale-bar is located in front of the vertical plane of the front side of the carriage, so that the pin or pins in the scale-bar will not interfere with the free movement of the carriage from end to end of its guides except upon the projection of the variable stop-plunger hereinafter referred to. It will thus be seen that the scale-bar 21 constitutes a rack for the space-pins which may be set in any of the pin-openings corresponding to the space-mark on the front scale at which the printing-point of the column is to be located, and the function of these pins will be hereinafter more fully referred to in connection with the other parts of the attachment cooperating therewith.

The main part of the tabulating attachment is carried by the machine-carriage, preferably at the right-hand end thereof, so as to be within convenient reach of the operator for manipulation. This part of the attachment is sustained in place by means of a supporting-plate 27, fitting flat against the end of the carriage-casing and detachably held there-

to by means of screws or equivalent fastening devices. The said supporting-plate 27 of the attachment has projected laterally from the outer side thereof a plurality of offset guide-loops 28, within which is slidably mounted what may be properly termed a "variable" stop-plunger 29. This plunger is preferably in the form of a flat rectangular plate and is provided at the front end thereof preferably with a step series of stop-shoulders 30, which cooperate with the space pin or pins 25 in the manner to be presently explained. The said stepped series of stop-shoulders constitute an inclined or oblique stop-face, and as it is old in this art to form such inclined faces with or without stop-shoulders either of such constructions of the face or head of the plunger may be used in the exercise of my invention. The lateral offset guide-loops 28 support the stop-plunger in a horizontal position at right angles to the vertical plane of the carriage-guides, permit said plunger to be thrust forward to variable positions across the front carriage-guide, and also serve to guide the same in its movement when retracted to a normal position by means of the retracting-spring 31. This spring is connected at one end, as at 32, to the under side of the sliding stop-plunger and at its other end, as at 32<sup>a</sup>, to one of the guides 28 therefor. Inasmuch as the stop-plunger is permitted usually to be sharply retracted to a normal position under the retractile influence of the spring 31, it is preferable to make some provision for cushioning the plunger when it moves in this direction. An effective device for accomplishing this result is shown in the drawings and consists of an upstanding stop-stud 33, projecting from the upper side of the plunger and adapted to be thrown against a leather or equivalent buffer 34, held within an offstanding clip 35, secured to the supporting-plate 27.

The longitudinally-slidable stop-plunger 29 is provided on the upper side thereof with a short rack-section 36, with which meshes the idler-pinion 36<sup>a</sup>, mounted on a short journal-screw 37, secured to the supporting-plate 27 and meshing with the gear portion 38 of an oscillatory gear-disk 39, which element is, technically speaking, a mutilated gear, as it is only necessary to tooth a portion of its periphery to provide for the necessary movement of the idler-pinion and the stop-plunger. Said oscillatory gear-disk 39 is mounted on a tubular journal-bushing 40, fitted to the supporting-plate 27 of the attachment and having loosely fitted therein a sliding pin 41, the inner end of which pin works against one arm of a bell-crank release-dog 42. The said bell-crank release-dog 42 is pivotally supported at its angle within a pivot-lug 43, projected from the inner side of the supporting-plate, so as to expose the said release-dog inside of the carriage-casing, and the lower or horizontal arm of the release-dog is provided at the terminal thereof with a lug or foot 44, which engages the top edge of the release-



lever 18 of the carriage-release mechanism, whereby this mechanism may be controlled directly from the tabulating attachment without requiring the operator to manipulate the  
 5 ordinary release-key 20. The sliding pin 41, cooperating with the release-dog 42, is of a greater length than the bushing within which it works, so that it may be forced against the release-dog through the medium of a device  
 10 which will now be described.

The oscillatory gear-disk 39 is moved in one direction to provide for the projection of the stop-plunger through the medium of a single operating-lever 45, the lower end of  
 15 which lever is pivoted to a pivot-post 46, projected laterally from the gear-disk 39, at one side of the axis thereof, and at the diametrically opposite side of said axis the said gear-disk also has offset therefrom a holding-arm  
 20 47, provided at the outer end with a recess 48 to loosely receive therein the intermediate portion of the operating-lever 45. By reason of the transverse alinement of the pivot-post 46 and holding-arm 47 the operating-lever intersects the plane of the gear-disk  
 25 axis, while at the same time causing a pull upon the lever to provide for oscillating the gear-disk 39. The said single operating-lever is provided at its outer end with a half-grip 49, having a groove 50 upon its inner face, and said end of the operating-lever projects through and freely works within a guideway 51, formed in the front side of an arched scale-bracket 52. This arched scale-bracket  
 30 52 is supported at the top edge of the plate 27 and is offset laterally therefrom to form a partial covering or housing for the gear members attached to the supporting-plate, and at one side edge of the guideway 51 the said  
 40 scale-bracket 52 has fitted thereto a scale-plate 53, having suitable tabulating-graduations thereon to correspond with the character of work intended to be carried out by the use thereof. For the purpose of illustration and to render the operation of the attachment clear the scale-plate 53 is shown as provided with graduations including sums from one to one hundred million, so that any  
 50 numbers lying between "1" and "999,999,999" can be accurately placed in properly-alined columns on the sheet, with the units in the units-columns, the tens in the tens-columns, and so on up to nine hundred and ninety-nine million nine hundred and ninety-nine thousand nine hundred and ninety-nine. Of course it will be understood that these graduations may be changed to suit the different kinds of work, but in all instances necessarily serve the same function of locating  
 60 words or numbers in the succeeding lines in properly-alined columns.

The tabulating-scale plate 53 at one edge, or, more properly speaking, one edge of the guideway, is formed with a series of locking-notches 54, corresponding to and lying directly opposite the graduations upon the plate, and with these locking-notches is de-

signed to cooperate the double-bevel engaging point 55, projecting integrally from one side of the operating-lever 45, contiguous to  
 70 the half-grip thereof. The said lever is also longitudinally bifurcated, and within its bifurcation is loosely mounted an auxiliary lock-lever 56. This lever is pivoted intermediate its ends, as at 57, within the main  
 75 operating-lever and is so arranged that its lower end lies opposite and works directly against the outer end of the sliding pin 41. The upper end of the auxiliary lock-lever 56 is formed with a half-grip 58, forming the  
 80 complement of and arranged at one side of the half-grip 49 of the lever 45 and provided at its inner side with a tongue 59, having an interlocking engagement with the groove 50 of the half-grip 49 when the two half-grips  
 85 are brought together. Below the half-grip 58, at the upper end thereof, the auxiliary lock-lever 56 is further provided with an off-standing pressure-lug 60, which projects through the bifurcation of the lever 45, at the  
 90 outer side thereof, so as to impinge against the side of the guideway 51 opposite the notches 54.

In operating the machine the space-pins are placed in the holes of the scale-bar 21  
 95 immediately back of the usual front space-scale to correspond with the column rulings or forms of any kind. The slidable stop-plunger is then brought forward to the point on the tabulating-scale 53 indicating the particular denomination of the number to be inserted in the column, or, in other words, the number of digits in the sum to be placed in the column. After this the secondary lever is pressed, thereby causing a locking of the  
 105 main operating-lever in the notch opposite the graduation to which it is adjusted and at the same time operating the release mechanism of the carriage, which advances until the stop-plunger engages the space-pin.  
 110 When the carriage comes to a full stop, the pressure is relieved from the secondary lever, which allows the stop-plunger to be retracted under the influence of its spring, with the carriage set at the proper point to begin the  
 115 printing of the number. This is in brief the simple operation required to manipulate the herein-described attachment and provide for columnating any desired sums with the units, tens, &c., accurately alined in their individ-  
 120 ual columns.

Referring more specifically to the operation of the attachment, it may be assumed that it is desired to print upon the sheet a single column of figures of different denominations  
 125 the column of which figures is to end at the space-mark "50" on the front space-scale. One of the space-pins is then placed in the fiftieth hole 24, so that all adjustments of the machine will be with reference to this point.  
 130 Now if the first number of a column is of units denomination the operating-lever 45 is drawn forward till the engaging point 55 thereof lies opposite the units-point on the



tabulating-scale, and this movement of the operating-lever projects the shouldered front end of the stop-plunger across the scale-bar having the pin therein. Then the half-grip 5 58 of the auxiliary lever 56 and the half-grip 49 of the main lever are pressed together, bringing the tongue 59 and the groove 50 into interlocking engagement, so as to prevent lateral movement of the parts. This operation forces the pressure-lug 60 of the auxiliary lever against the side of the guideway 51 opposite the notches 54, thereby moving the engaging point 55 of the main operating-lever into the locking-notch opposite the units, 10 denomination on the tabulating-scale. This securely locks the operating lever or handle, so that it is impossible for it to slip backward or forward, and thus the movement of the carriage may be controlled by the hand of the operator. Simultaneously with the action of the auxiliary lever in locking the main operating-lever the lower end of said auxiliary lever presses against the sliding pin 41, which in turn causes the bell-crank release-dog 42 to 25 bear upon the release-lever of the carriage-release mechanism, thereby freeing the carriage from the escapement-dogs, so that it may move under the influence of its spring-actuated straps or tapes in a direction toward the space-pin. When the unit-stop shoulder of the stop-plunger engages with the space-pin 25, the motion of the carriage is arrested at the proper printing-point, only leaving one space for the printing of the number of units denomination. Not until the carriage is thus arrested at the proper point is pressure relieved from the auxiliary lock-lever; but when this occurs the operating-lever, with its attached auxiliary lever, is free to 40 spring back to its starting-point, after which the operator prints the number on the sheet. Of course simultaneously with the release of the main operating-lever the release mechanism of the carriage resumes its normal operative position and locks the carriage at the point where it has been set. If on the next line it is desired to write a number in the same column of the denomination of tens, the operator draws the operating-lever down within the guideway 51 to a point opposite the tens graduation on the scale-plate, after which the same operation takes place as already described; but with this number the carriage will be arrested one space in advance of the 55 units-space, so that the units-digit will aline with the unit number already printed. Similarly, by carrying the operating-lever forward to the hundreds denomination on the scale the carriage is arrested two spaces in advance of the units-space, thus insuring an exact alinement of the units, tens, and hundreds in their respective columns. This may be carried on indefinitely with any number from "1" to "999,999,999," and by reason of the step 65 series of stop-shoulders in the stop-plunger the said plunger may be set to have its end adjusted to variable positions across the scale-

bar within the path of the space pin or pins, according to the digits in the numbers to be printed. In all cases the carriage is arrested 70 a proper distance in advance of the units-space after the initial adjustment of the space pin or pins without further attention to or regard for the usual front space-scale of the machine, as the attachment will accurately 75 locate the initial printing-point of each number, so that the last character of each number will always end in the same space as originally provided for by the setting of the space-pin. 80

As already stated, by using a plurality of the space-pins at any desired points on the scale-bar several columns may be readily printed on the sheet. After printing one column of figures in connection with a particular space-pin it is unnecessary to bring the carriage to a stop at the end of each column, because it can be carried directly into the next column by simply pressing upon the secondary lock-lever to actuate the release mechanism of the carriage, as will be readily understood by those familiar with this class of devices. 85

In much-tabulated work, such as making out bills or reports of various kinds, certain 95 of the columns have abstract figures, while other columns are devoted to dollars and cents. Now where there are abstract figures or quantities the space-pin is set to the end of the column, and the same scale can be followed where dollars and cents are used by placing the space-pin at the decimal-point, which operation necessitates either to place a period when the decimal is reached and then 100 follow with the dollars and cents, or to space once at the decimal-point and then insert dollars and cents. However, this refers to the manner of manipulating the machine with the attachment and the character of graduations placed upon the tabulating-scale, and 110 it will be obvious that a skilful manipulator may soon learn to do any and all kinds of tabulation or column work with the attachment. It will also be obvious that the character of the tabulating-scale and the use of 115 one or more of such scales would not affect the salient features of construction and the particular operation herein described.

It will be understood that I do not desire to limit myself to the specific devices and arrangement illustrated in the drawings and described herein, as the same may be changed in a variety of ways without departing from the fundamental features of the invention. For instance, a single operating-lever has 125 been disclosed as one expedient for adjusting the carriage so as to locate the printing-point of any sum in any column, as well as to provide for the releasing and locking of the carriage, whereas a single operating-key or other 130 single device may be associated with the stop-plunger in any practical mechanical way to secure precisely the same operation as is effected by the use of the operating-lever; also,



the locking-notches 54 at one edge of the guideway in the scale-plate 53 simply constitute one of many expedients which may be utilized for effecting not only the locking of the manipulating or operating device, but also the locking of the stop-plunger in its adjusted position. This locking of the stop-plunger in its adjusted position is desirable in carrying out the invention; but I do not wish to be limited to any particular means for securing this result. Furthermore, the scale-bar 21, constituting a rack for the space or stop pins, is described and shown as arranged at the front of the machine, whereas the same could obviously be arranged at the rear or back of the machine and yet permit of the same operation being carried out, although the front arrangement of the said scale-bar is found to be the most convenient and advantageous. In connection with this part of the invention it is equally obvious that any type of stop pins or projections may be associated with the stop-plunger to provide for arresting the carriage at the proper point. So it will be understood that I claim, broadly, any means and any practical arrangement of parts for accomplishing the several results referred to, and various changes in the form, size, shape, and proportion and in the minor details of construction as comprehended within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed is—

1. In a tabulating attachment, for type-writing machines having a carriage-release mechanism, a stop device for the carriage, having a member movable to different set positions for arresting the carriage at variable distances from a predetermined point, and operating means for moving said member into its variable set positions, said operating means being also operatively connected with the carriage-release mechanism.

2. In a tabulating attachment, for type-writing machines having carriage-release mechanism, a stop device having a member movable to different set positions for arresting the carriage at variable distances from a predetermined point, and single operating means for said stop member, said operating means being operatively connected with the carriage-release mechanism.

3. In a tabulating attachment, for type-writing machines having carriage-release mechanism, a stop device having a member movable to different set positions for arresting the carriage at variable distances from a predetermined point, a single operating-lever for said member, and means, actuated by said lever, for actuating the carriage-release mechanism.

4. In a tabulating attachment, for type-writing machines, having carriage-release mechanism, a stop device adjustable to dif-

ferent set positions for arresting the carriage at variable distances from a predetermined point, setting means for said stop device, and a carriage-release device, carried by said setting means, and operatively connected with the carriage-release mechanism.

5. In a tabulating attachment for type-writing machines, a stop device having means for arresting the carriage at variable points, a single operating lever or handle having an operative connection with the stop device, and common means for locking the said lever in an adjusted position, and also actuating the carriage-release mechanism.

6. In a tabulating attachment for type-writing machines, a stop device having means for arresting the carriage at variable points, operating means for said stop device, and a common device for locking said operating means, and also actuating the carriage-release mechanism.

7. In a tabulating attachment for type-writing machines, a stop device having means for arresting the carriage at variable points, operating means for said stop device, and a separate device for simultaneously locking said operating means and actuating the carriage-release mechanism.

8. In a tabulating attachment for type-writing machines, a stop device carried by the carriage and having means for arresting the latter at different distances from a predetermined point, single operating means for the stop device, and common means for simultaneously locking said operating means, and also actuating the carriage-release mechanism, substantially as set forth.

9. In a tabulating attachment for type-writing machines having carriage-release mechanism, a stop device having means for arresting the carriage at variable points, and common means for locking the stop device in an adjusted position and also for actuating the carriage-release mechanism.

10. In a tabulating attachment for type-writing machines having carriage-release mechanism, a stop device carried by the carriage and having means for arresting the same at variable distances from a predetermined point, and means for simultaneously locking the stop device in any of its adjusted positions, and also actuating the carriage-release mechanism.

11. In a tabulating attachment for type-writing machines, a stop device carried by the carriage, a single operating-lever for adjusting the stop device, and means carried by said lever for locking the same in any adjusted position, and also for actuating the carriage-release mechanism, substantially as set forth.

12. In a tabulating attachment for type-writing machines, a stop device carried by the carriage, and having means for arresting the latter at different distances from a predetermined point, single operating means for the stop device, and means for simultaneously



causing the stop device to be locked in an adjusted position, and also for actuating the carriage-release mechanism, substantially as set forth.

5 13. In a tabulating attachment for type-writing machines, a stop device carried by the carriage and adjustable to variable positions, a single operating-lever for said stop device, and means, carried by said lever, for  
10 locking the same against movement in any direction, and simultaneously actuating the carriage-release mechanism, substantially as set forth.

14. In a tabulating attachment for type-  
15 writing machines, a relatively-fixed stop projection on the machine-frame, and a variable stop-plunger slidably supported at one end of the carriage and shiftable transversely to the plane of movement thereof, said plunger  
20 normally lying within the plane of movement of the carriage, substantially as set forth.

15. In a tabulating attachment for type-writing machines, a stop-plunger carried by the carriage, and having means for arresting  
25 the latter at variable points, a single operating-lever for said plunger, and means carried by said lever for locking the same and simultaneously actuating the carriage-release mechanism, substantially as set forth.

30 16. In a tabulating attachment for type-writing machines, a stop-plunger carried by the carriage and having means for arresting the latter at variable points, a single operating-lever for said stop-plunger, and an auxiliary lock-lever associated with said operating-  
35 lever, and having means for causing the latter lever to be locked in its adjusted position and also for actuating the carriage-release mechanism, substantially as set forth.

40 17. A tabulating attachment for type-writing machines having a carriage-release mechanism comprising a stop projection on the machine-frame, a stop-plunger carried by the carriage and having its operative end set on  
45 an inclination and adapted to be thrust to variable positions with relation to said stop projection, and means for locking said stop-plunger in an adjusted position and simultaneously actuating the carriage-release mechanism.  
50

18. A tabulating attachment for type-writing machines having carriage-release mechanism, comprising a shiftable stop projection on the machine-frame, a stop-plunger carried  
55 by the carriage and provided with a stepped series of shoulders and adapted to be thrust to variable positions with relation to said stop projection, and means for simultaneously locking said plunger in an adjusted position  
60 and also actuating the carriage-release mechanism.

19. A tabulating attachment for type-writing machines comprising a space-pin, a single stop-plunger having a plurality of stop  
65 elements cooperating with said pin, a single operating-lever for adjusting the stop-plunger, and a common device for locking the op-

erating-lever, and simultaneously actuating the carriage-release mechanism, substantially as set forth.

20. A tabulating attachment for type-writing machines comprising a space-pin, a single stop-plunger carried by the carriage, and provided with a stepped series of stop-shoulders  
70 cooperating with the pin, a single operating or controlling lever associated with the stop-plunger to adjust same to variable positions, and means carried by said lever for effecting a locking thereof, and also for actuating the carriage-release mechanism, substantially as  
80 set forth.

21. A tabulating attachment for type-writing machines comprising a stop projection on the machine-frame, a longitudinally-slidable spring-retracted stop-plunger supported at  
85 one end of the machine-carriage and movable transversely to the plane of movement thereof, said plunger being provided at one end with a stepped series of shoulders cooperating with said stop projection, and operating  
90 means for said plunger, said operating means including a lock for holding the plunger in an adjusted position.

22. A tabulating attachment for type-writing machines, comprising a space-pin, a longitudinally-slidable stop-plunger provided  
95 with a stepped series of stop-shoulders cooperating with said pin, a single operating-lever having an operative connection with the plunger for thrusting the same in one direction  
100 across the path of the pin, and an auxiliary lever carried by an operating-lever and having means for effecting a locking thereof, and also for actuating the carriage-release mechanism, substantially as set forth.  
105

23. A tabulating attachment for type-writing machines, comprising a spring-retracted longitudinally-slidable stop-plunger supported at one end of the machine-carriage, and provided at its front end with a plurality of  
110 stop-shoulders cooperating with a stationary projection, a gear device for thrusting the plunger forward, and a single operating-lever for setting said gear device in motion, substantially as set forth.  
115

24. A tabulating attachment for type-writing machines, comprising a longitudinally-slidable stop-plunger having a plurality of stop-shoulders cooperating with a stationary  
120 projection on the machine-frame, said stop-plunger being carried by the machine-carriage, a gear device for thrusting the stop-plunger forward, a single operating-lever having an operative connection with the gear device for setting the same in motion, and an  
125 auxiliary locking-lever carried by said operating-lever and having means for causing a locking of the latter and also for actuating the carriage-release mechanism, substantially as set forth.  
130

25. A tabulating attachment for type-writing machines, comprising a longitudinally-slidable stop-plunger carried by the machine-carriage and provided with a plurality of stop-



shoulders coöperating with a stationary projection on the machine-frame, a gear device for thrusting the stop-plunger forward, a single operating-lever for setting said gear device in motion to adjust the stop-plunger, a release-dog arranged in operative relation to the release-lever of the carriage-release mechanism, and an auxiliary locking-lever carried by the operating-lever, and having means for effecting a locking of the latter, and also for operating said release-dog, substantially as set forth.

26. A tabulating attachment for type-writing machines, comprising a support arranged at one end of the machine-carriage, and provided with an arched scale-bracket having a guideway, a tabulating-scale, and a series of locking-notches at one side of the guideway, and associated with said scale, a spring-retracted longitudinally-slidable stop-plunger held for movement at one side of said support and provided at its front end with a stepped series of stop-shoulders coöperating with a stationary projection on the frame, a rack-and-gear connection with said plunger for thrusting the same forward, said connection including an oscillatory gear-disk having an offstanding holding-arm, a bell-crank release-

dog pivotally sustained at the inner side of said support, and having one arm disposed in operative relation to the release-lever of the carriage-release mechanism, a suitably-supported sliding pin arranged to bear at one end against the other arm of said release-dog, a single operating-lever extending through the guideway of said scale-bracket, and provided at one side with an engaging point, said operating-lever having a pivotal connection with the gear-disk, and loosely engaging with the holding-arm thereof, and an auxiliary locking-lever pivotally mounted on the said operating-lever, and adapted to have one end thereof engage one end of said sliding pin, said auxiliary locking-lever being further provided at an intermediate point with a lateral pressure-lug adapted to impinge against the side of the guideway opposite said notches, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES FREDERICK LAGANKE.

Witnesses:

JOHN B. CROSS,  
B. J. HORNSBY.