

No. 686,220.

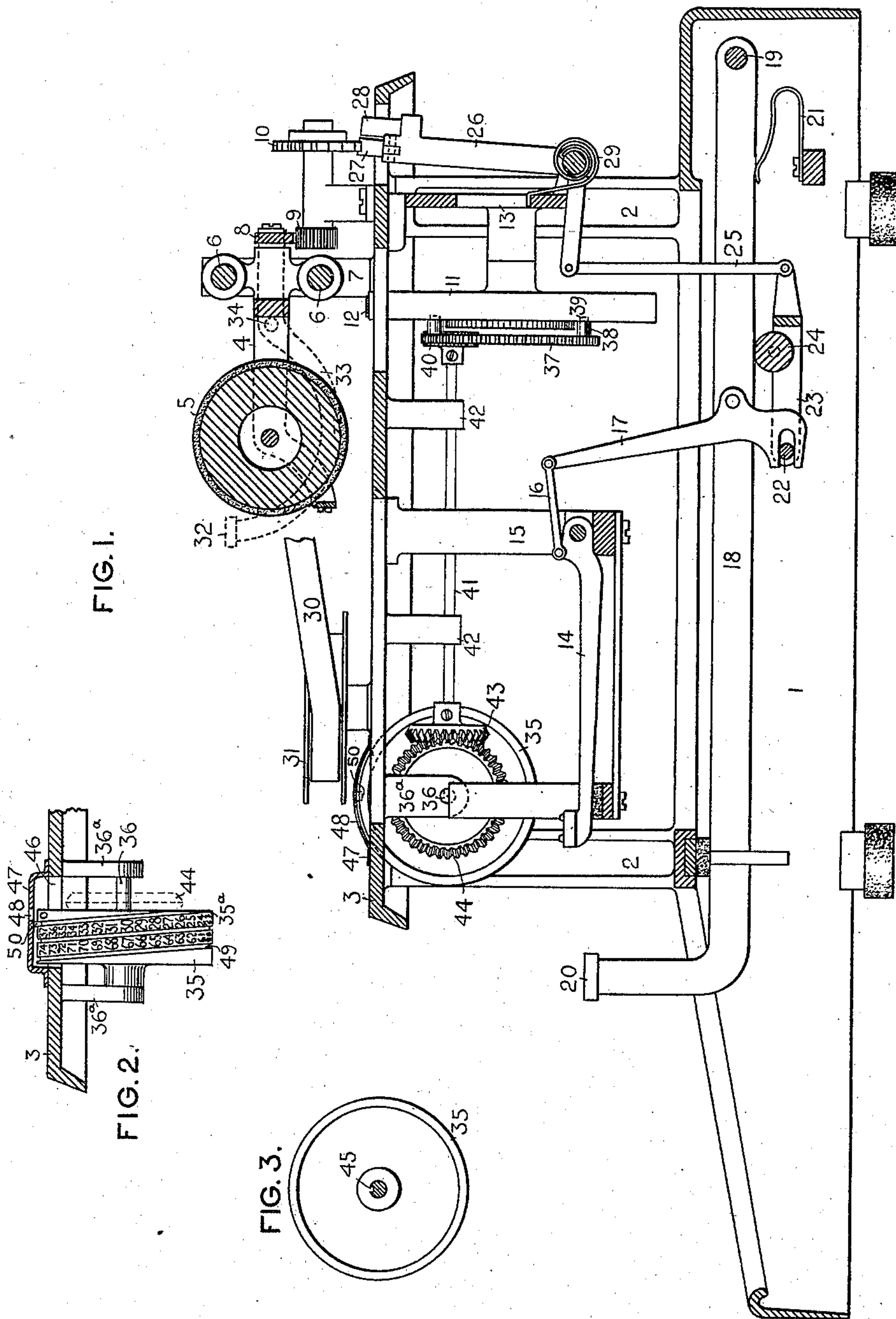
Patented Nov. 5, 1901.

C. GABRIELSON.
TYPE WRITING MACHINE.

(Application filed Dec. 29, 1900.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES.

B. B. Stickney
S. Nielsen

INVENTOR:

Carl Gabrielson
by *Jacob Felbel*
HIS ATTORNEY

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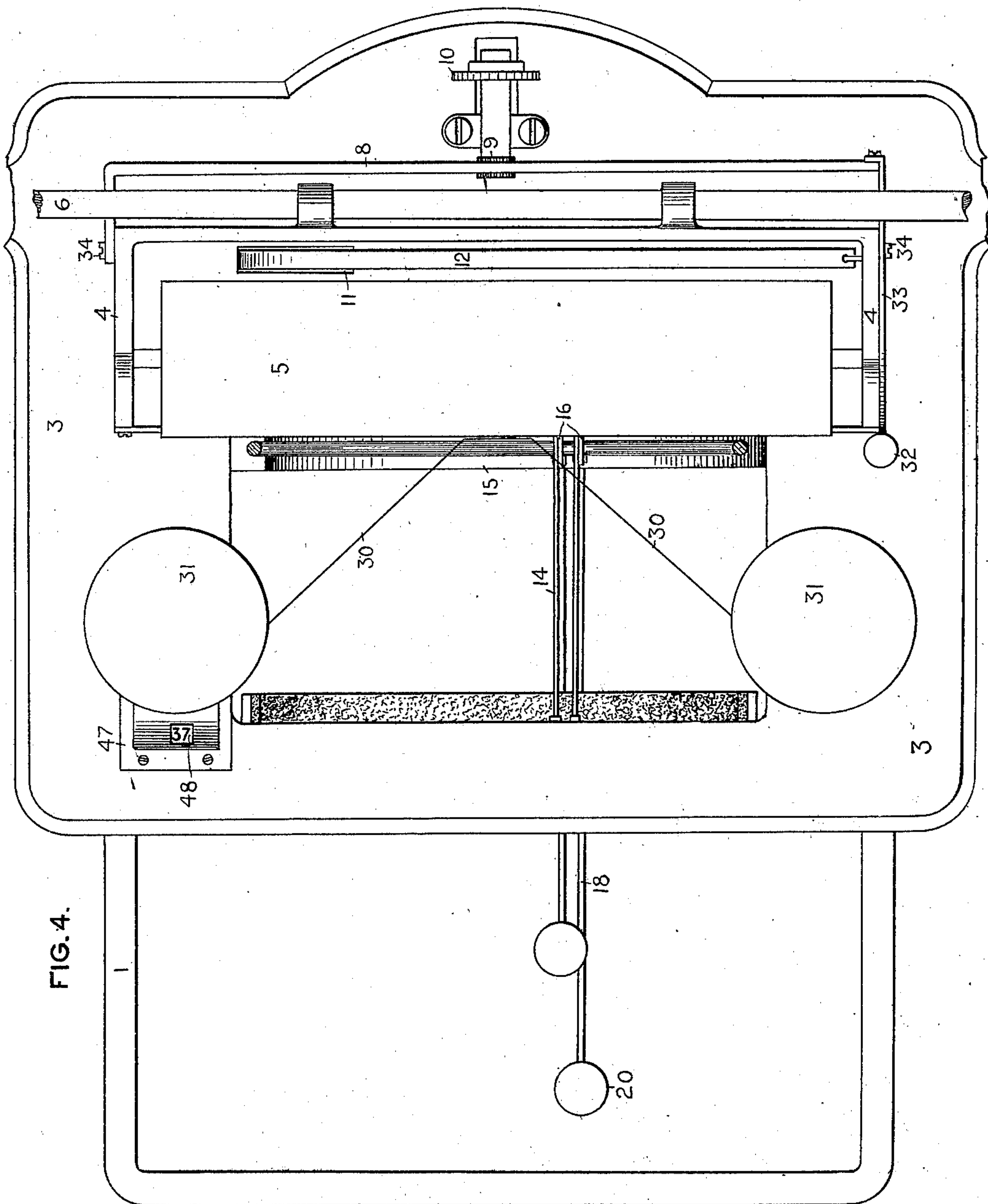


FIG. 4.

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No. 686,220.

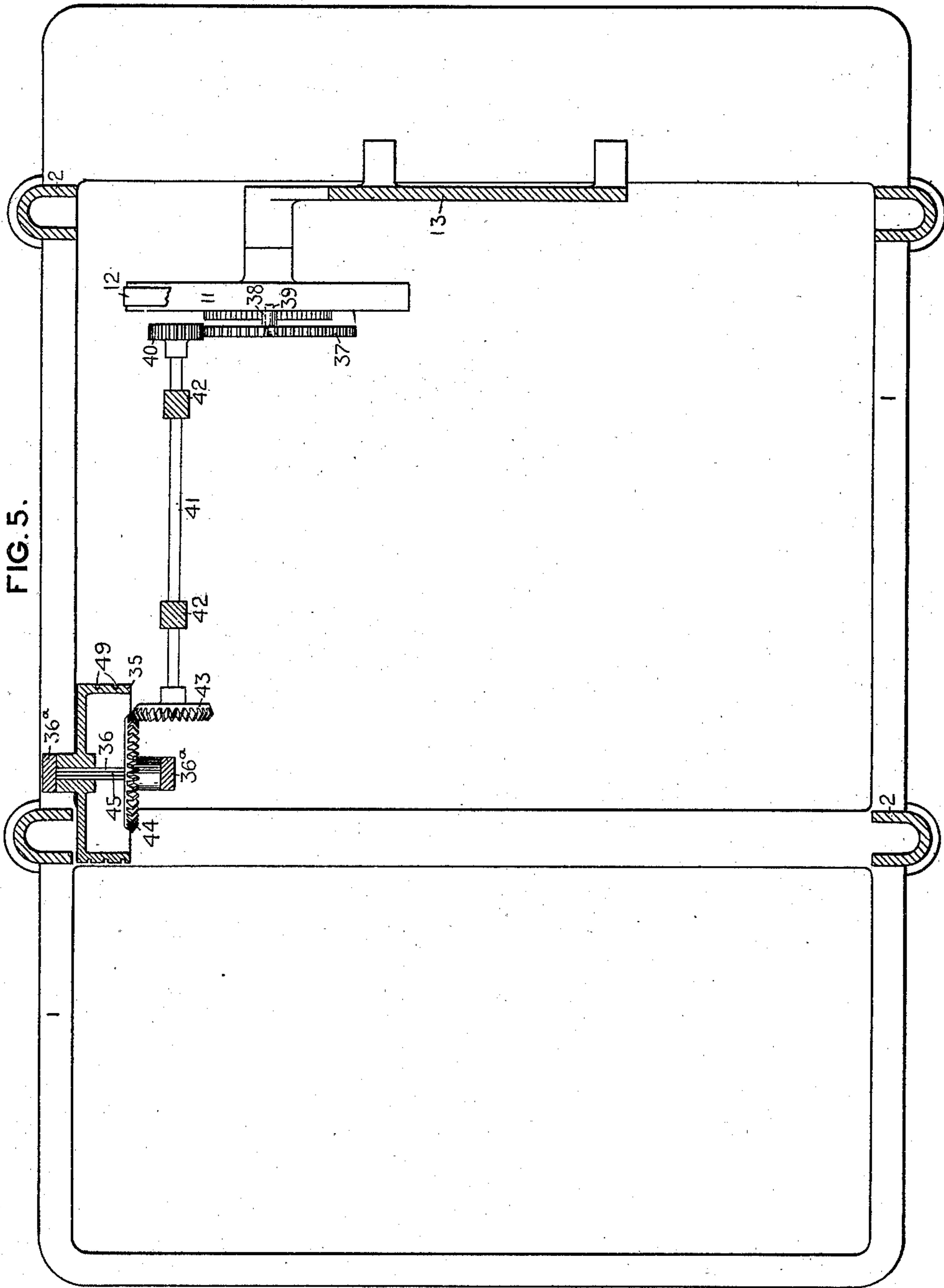
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3 Sheets—Sheet 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CARL GABRIELSON, OF GREENVILLE, NEW JERSEY, ASSIGNOR TO JACOB FELBEL, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 686,220, dated November 5, 1901.

Application filed December 29, 1900. Serial No. 41,490. (No model.)

To all whom it may concern:

Be it known that I, CARL GABRIELSON, a citizen of the United States, and a resident of Greenville, 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 means for indicating the position of the paper-carriage, and is in the nature of an improvement upon the construction for which Letters Patent were granted to Jacob Felbel October 30, 1900, No. 660,988.

The main object of the present invention is to enable the use of larger and more easily read numbers and at the same time to put the numbering devices into a more compact form, so that they may not occupy room that may be needed for other portions of the type-writer mechanism and also so that the numbers may be read through a sight-hole provided in the top plate, where they fall more readily under the operator's observation.

In carrying out my invention I coil a series or column of numbers around the periphery of a wheel or drum and provide a sight-hole through which only that one of said numbers which corresponds to and hence indicates the position of the carriage can be seen by the operator. The sight-hole is immovable, while the drum is caused to both rotate and slide upon its bearing, thereby bringing the spirally-arranged numbers thereon successively opposite the sight-hole, so that the operator may at any time inform himself of the exact position of the carriage by merely glancing at the number within the sight-hole.

My invention consists in certain combinations of devices and features of construction, all as will be more fully hereinafter set forth, and particularly pointed out in the concluding claims.

In the accompanying drawings, Figure 1 is a sectional elevation taken longitudinally of a "front-strike" type-writing machine, showing my improvements applied thereto. Fig. 2 is a front view of the number-drum, showing the manner of mounting and guiding the same. Fig. 3 is a side elevation of the number-drum and its shaft. Fig. 4 is a plan of

the machine, showing a sight-hole and a number appearing therethrough which tells the position of the carriage. Fig. 5 is a sectional plan taken below the top plate of the machine and showing the number-wheel and connections.

In the several views parts are omitted or broken away to more clearly exhibit the invention, and similar parts are designated by similar numerals of reference.

1 designates the rectangular base of the machine, 2 corner-posts rising therefrom, and 3 a top plate supported upon the posts. A reciprocatory carriage 4, bearing a platen 5, slides in letter-space direction upon rails 6, which are fixed upon brackets 7, rising from the top plate. A rack 8 upon the carriage meshes with a pinion 9, which is connected to a letter-feeding escapement-wheel 10. The carriage is propelled by a spring drum or barrel 11, which is connected thereto by a strap 12 and which is mounted upon a bracket 13, depending from the under side of the top plate. Type-bars 14 are pivoted at their rear ends in a segment 15 and strike upwardly and rearwardly against the platen. The type-bars are operated by means of links 16, bell-cranks 17, and key-levers 18, to which said bell-cranks are pivoted. The key-levers are pivoted at their rear ends upon a fulcrum-rod 19 and are provided with keys 20 and returning-springs 21. Beneath the key-levers is supported a transverse fulcrum-rod 22, which is engaged by the forked lower ends of all the bell-levers 17. Upon said rod 22 is hinged a frame 23, which supports a universal bar 24 and is connected by a vertical link 25 to the horizontal arm of a dog-rocker, which is pivoted in said bracket 13 and whose up-right arm 26 carries a feeding-dog 27 and a detent-dog 28. A returning-spring 29 is provided for the dog-rocker and serves also to hold the universal bar 24 normally up against the key-levers. A ribbon 30 is carried by spools 31, which may be rotated in any suitable manner. A release-key 32 may be provided upon the carriage, said key being fixed upon a forwardly-extending arm 33 of a bail, the latter being hinged to the carriage-frame at 34 and comprising said rack 8. Upon depression of said release-key the bail swings

upon the hinge or pivots 34 and the rack is lifted out of engagement with the pinion 9, whereupon the carriage may be slid rapidly in either direction.

5 The drum, which indicates the position of the carriage, is designated as 35 and is arranged vertically upon a horizontal shaft 36, mounted in lugs 36^a, depending from the top plate. A rotary movement is transmitted to
 10 said shaft from the carriage-driving drum 11 by means of a train of gearing, which comprises a large spur-wheel 37, secured, by means of studs 38 and screws 39, upon the front vertical face of said spring-barrel 11
 15 and in mesh with a pinion 40, which is fixed upon the rear end of a forwardly-extending horizontal shaft 41, the latter being journaled in lugs 42, which depend from the top plate, and carrying at its forward end a bevel-pin-
 20 ion 43, which meshes with a bevel-gear 44, made fast upon said shaft 36. The shaft 41 is parallel with the axis of the spring-barrel and at right angles to the shaft 36, to which the drum is splined at 45, so that it is caused
 25 to oscillate during the back and forth endwise rectilinear travel of the carriage. The drum may project upwardly through an opening 46, formed in the top plate 3 and may be covered by a cap-plate or shield 47, the latter
 30 having a sight-hole 48. The numbers, one for each letter-feeding movement of the carriage, are arranged in a single column 35^a, which extends spirally or coils more than once around the periphery of the drum. By means of the
 35 described gearing the drum is given a complete revolution during about one-half of the endwise travel of the carriage in either direction, or, in other words, about thirty-seven step-by-step letter-spacing movements of the car-
 40 riage cause a complete revolution of the drum. To the end that any number in the spiral column may be brought beneath said sight-hole I form upon the drum a spiral groove or worm 49, said groove preferably being arranged
 45 upon the periphery in alternation with the column of figures, and in engagement with said grooves I provide a fixed pin 50, which projects downwardly from the cap-plate 47. The pin coöperates with the groove to cause
 50 the drum when turned by the described connections to worm or move in a spiral direction, the spline 45 permitting the necessary sliding movement upon the shaft 36 and the drum being preferably hollowed, so as to telescope the gear 44. The numbers are so spaced
 55 in the column that successive step-by-step movements of the drum brings successive numbers opposite the sight-hole, while the pitch of the groove 49 is the same as that of the column of numbers, so that said column al-
 60 ways registers laterally with the sight-hole. The opening 46 and cap 47 are made large enough to accommodate the endwise or lateral movement of the drum.

65 In the operation of the machine a type-key 20 is depressed, vibrating its lever 18 downwardly and, through the bell-lever 17 and link

16, swinging the type-bar 14 to the platen to make an impression of the type upon the paper arranged thereon. Upon release of the
 70 finger-key from pressure said parts are returned to normal position by spring 21. During the reciprocation of the lever 18 the dog-rocker is caused to vibrate by means of the described connections, and the escapement
 75 devices permit an advance movement of the carriage toward the left in the usual manner under the influence of the spring-barrel 11. The movement of the latter is communicated
 80 by gears 37 40, shaft 41, and gears 43 and 44 to the shaft 36 and drum 35 thereon, which accordingly is given a combined rotative and endwise movement, so that the next
 85 higher number thereon is brought into view at the sight-opening 48. As the operation of depressing the keys is repeated the number-drum is rotated step by step in a spiral path, each time presenting a new number, so that the
 90 operator when wishing to ascertain the position of the carriage needs only to glance at the number which is visible at the time through the opening or sight-hole in or upon the top
 95 plate. Upon the completion of the line of writing the carriage is returned by the operator to begin a new line, and through the connection 12 the spring-barrel is rotated re-
 100 versely to rewind the spring therein. By means of the described positive connections to the spring-barrel the number-drum 35 is also wormed reversely, so that when the carriage reaches its normal starting-point for a
 105 new line the character "0" or zero appears through the sight-hole 48. If the carriage should be arrested at any point during its return movement or during a rapid movement
 110 thereof in letter-space direction when released from the control of the escapement devices by the key 32, the number which appears through said sight-hole at once informs the operator of the exact position of the car-
 115 riage. Thus the difficulty of mentally calculating said position by means of graduations, line, or marks upon a carriage-scale is wholly avoided, as well as the constant liability of misreading the scale, and conse-
 120 quently imprinting the letters at a wrong point in the line of writing. By the use of the release-key and the number-wheel the carriage can be adjusted instantly to any desired position without possibility of confusion, and the work of the operator is thereby
 125 greatly facilitated. It will be understood that the spur-wheel 37 makes about one complete revolution during the writing of a line. The diameter of the pinion 40 is about one-
 130 third that of said spur-wheel, so that the bevel-pinion 43 revolves three times at each revolution of the spur-wheel 37. The bevel-gear 44, however, is of larger diameter than the pinion 43, so that the rotative speed of the number-drum is but twice that of the
 spur-wheel 37. The diameter of the number-drum is, however, considerably more than one-half the diameter of the spring-barrel,

and the movement of the peripheral or numbered portion of the said drum is hence considerably in excess of the corresponding movement of the carriage. I employ the described motion-multiplying gearing between the carriage and the number-drum for the purpose of enabling large figures to be placed upon the latter, so that they may be easily read. The bevel-gears 43 and 44 may be made of equal diameter, if desired, and the column of numbers extended thrice around the drum, the worm 49 being lengthened accordingly.

It will be observed that the oscillatory or back and forth worming movements of the number-drum correspond with and are governed by the rectilinear reciprocatory movements of the carriage in opposite directions, and that said drum is controlled by the same step-by-step feeding devices as the carriage. It will also be noted that I have provided a drum with a column or series of whole numbers arranged spirally thereon in numerical or consecutive order and corresponding to the feeding movements of the paper-carriage—that is to say, the first number denoted by said wheels is "0" to agree with the normal position of the carriage, and the last number denoted thereby is, say, "74" to agree with the extreme left-hand position of the carriage.

Changes in construction and arrangement may be made within the scope of the invention. It is not essential that the number-drum be arranged vertically or at right angles to the spring-barrel 11 so long as the numbers thereon are presented in their natural position to the eye of the operator. Viewed in one way my invention may be regarded as comprising a plurality of columns of numbers arranged around a wheel combined with means for moving the wheel transversely as well as rotatively. It is not essential that said transverse movement be secured in the described manner, although I prefer to use the details of construction herein specifically described.

By the term "number-drum" I intend to include any rotary device having a column of numbers coiled thereon.

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

1. In a type-writing machine, the combination of a carriage constructed to reciprocate in letter-space direction, a wheel, a series of numbers extending more than once around said wheel, one number for each letter-space movement of said carriage, means for causing said wheel to both rotate and move transversely as the carriage travels, and step-by-step letter-feeding devices controlling the movements of both said carriage and said wheel.

2. In a type-writing machine, the combination of a step-by-step letter-feeding mechanism, a carriage constructed to reciprocate in letter-space direction along the framework of

the machine, a drum mounted in the framework of the machine independently of said carriage and bearing upon its periphery a spirally-arranged column of numbers, the height of each number exceeding the distance covered by the carriage at its corresponding step-by-step letter-feeding movement, connections between said drum and said carriage, and means for causing said drum to move laterally.

3. In a type-writing machine, the combination of step-by-step letter-feeding devices, a carriage constructed to reciprocate in letter-space direction along the framework of the machine, a wheel operatively connected to said carriage but mounted in the framework of the machine independently thereof, said wheel being provided with a column of numbers arranged in a coil upon a surface or portion thereof which travels step by step at a greater rate of speed than the step-by-step movements of the carriage, said numbers being arranged in numerical order, and means for causing said wheel to move transversely.

4. In a type-writing machine, the combination of step-by-step letter-feeding devices, a carriage constructed to reciprocate in letter-space direction along the framework of the machine, a vertically-arranged drum, means for causing said drum to worm as said carriage reciprocates, a column of numbers extending spirally in numerical order around the peripheral face of said drum, said numbers corresponding to the letter-feeding movements of the carriage and being successively presented to the operator in their natural positions, and means for indicating to the operator the number on the drum which corresponds to the position of the carriage.

5. In a type-writing machine, the combination of a carriage, a drum, a series of numbers extending spirally more than once around said drum, a sight-hole so arranged with reference to said drum that only that one of said numbers which tells the position of the carriage is visible to the operator, and means for worming said drum during the back and forth movements of the carriage.

6. In a type-writing machine, the combination of a carriage, a drum, a series of numbers extending spirally around the periphery of said drum, and means for worming said drum during the movements of the carriage.

7. In a type-writing machine, the combination of a carriage, a drum mounted within the framework of the machine, a series of numbers extending spirally around said drum, means for worming said drum during the movements of the carriage, and a sight-hole in the framework through which the number which tells the position of the carriage is visible to the operator.

8. In a type-writing machine, the combination of a carriage, a spring-barrel therefor, a number-bearing drum arranged at the front of the machine, a worm and a coacting device for said number-drum, and connections

extending forwardly from said spring-barrel to said number-drum.

9. In a type-writing machine, the combination with a carriage, of a rotary number-bearing drum connected thereto, and arranged within the framework, means for moving said drum laterally, and an opening as 46 in the framework through which said drum projects, said opening being of sufficient extent to permit the lateral movement of said drum.

10. In a type-writing machine, the combination with a carriage, of a rotary number-bearing drum connected thereto and arranged within the framework, means for moving said drum laterally, an opening as 46 in the framework through which said drum projects, said opening being of sufficient extent to permit the lateral movement of said drum, and a cap arranged over said opening and having a sight-hole.

11. In a type-writing machine, the combination of a power-driven reciprocatory carriage, escapement devices, a release-key, a laterally-movable drum positively connected to said carriage and provided with a worm, means to engage said worm to move it laterally, a column of numbers coiled upon said drum, and a sight-hole.

12. In a type-writing machine, the combination with a carriage, of a drum having numbers arranged in numerical order thereon, a motion-multiplying gear positively connecting said drum to said carriage, and a worm and coacting device for causing said drum to move laterally during its rotation.

13. In a type-writing machine, the combination of a reciprocatory carriage, a driving spring-barrel therefor, a gear fixed upon said barrel, a pinion in mesh with said gear, a forwardly-extending shaft upon which said pinion is mounted, a drum connected to said shaft, a worm for said drum, a pin for said worm, and a series of numbers extending spirally around said drum.

14. In a type-writing machine, the combi-

nation of a reciprocatory carriage, a driving spring-barrel therefor, a gear fixed upon said barrel, a pinion in mesh with said gear, a forwardly-extending shaft upon which said pinion is mounted, a bevel-gear upon the forward portion of said shaft, a shaft arranged at right angles to said shaft and carrying a bevel-gear in mesh with the first-mentioned bevel-gear, a number-bearing drum splined to the second-mentioned shaft, a worm, and a device engaging said worm.

15. In a type-writing machine, the combination of a carriage, a top plate, spring-barrel 11, gears 37 and 40, shaft 41, bevel-gears 43 and 44, shaft 36, spline 45, drum 35, numbers 35^a, groove 49, pin 50, cap 47, and sight-hole 48.

16. In a type-writing machine, the combination of a carriage, a wheel, a series of numbers thereon corresponding with the letter-feeding movements of the carriage, said numbers being arranged in a plurality of columns, and means connected to the carriage for moving said wheel both rotatively and transversely.

17. In a type-writing machine, the combination of a carriage, a hollow number-bearing drum, a bevel-gear connected to said carriage and arranged at said drum, and means for worming said drum, the latter being adapted to telescope said bevel-gear.

18. In a type-writing machine, the combination of a carriage, a drum provided with a series of numbers, means connecting said drum with said carriage for causing the rotation of the drum, and means for moving the drum laterally.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York, this 28th day of December, A. D. 1900.

CARL GABRIELSON.

Witnesses:

WM. E. COOK,
E. M. WELLS.