

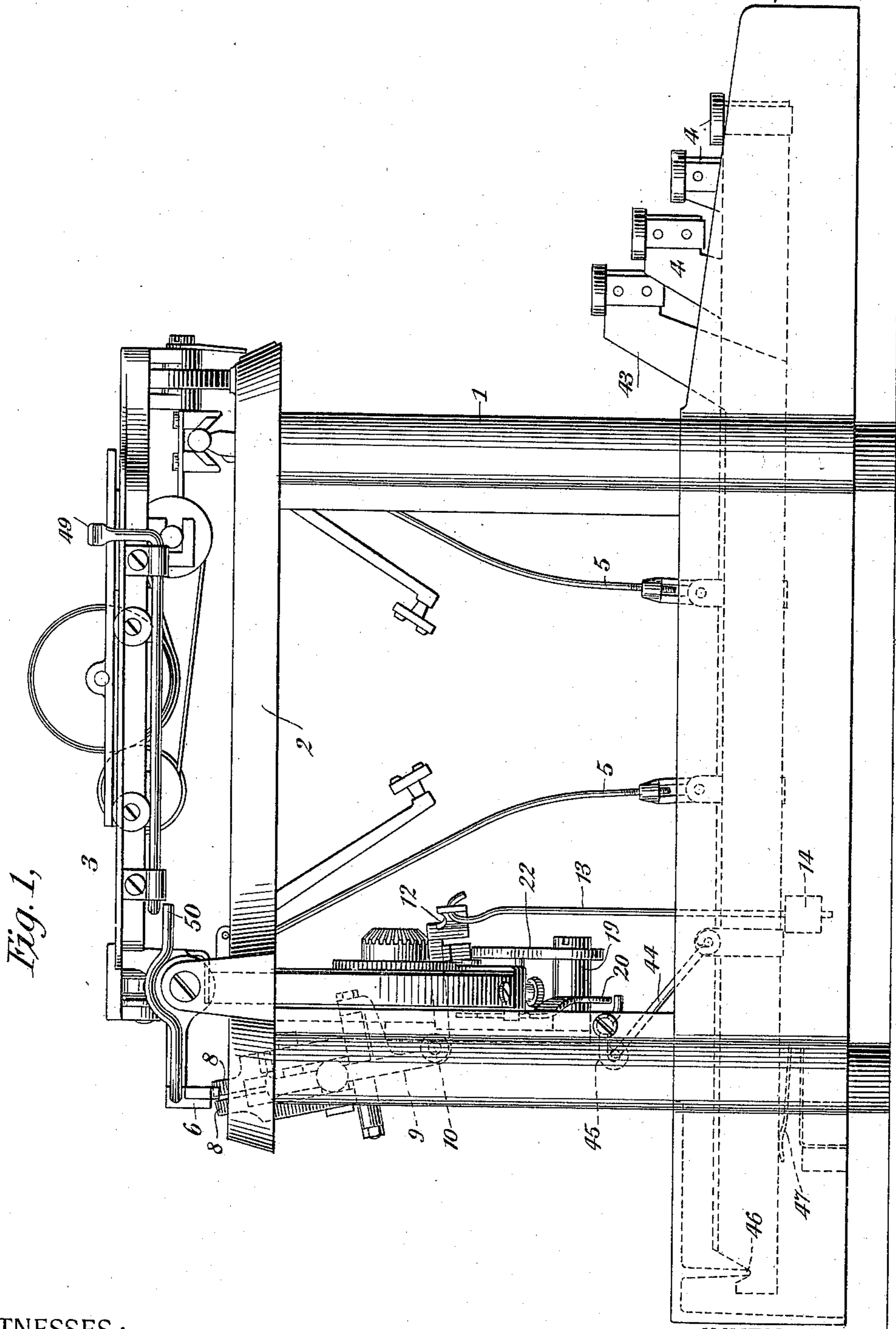
(No Model.)

3 Sheets—Sheet 1.

B. A. BROOKS.  
TYPE WRITING MACHINE.

No. 598,653.

Patented Feb. 8, 1898.



WITNESSES:

*C. E. Ashley*

*W. W. Lloyd*

INVENTOR:

*Byron A. Brooks*  
By his Attorney

*Jacob Felbel*

(No Model.)

3 Sheets—Sheet 2.

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Fig. 2,

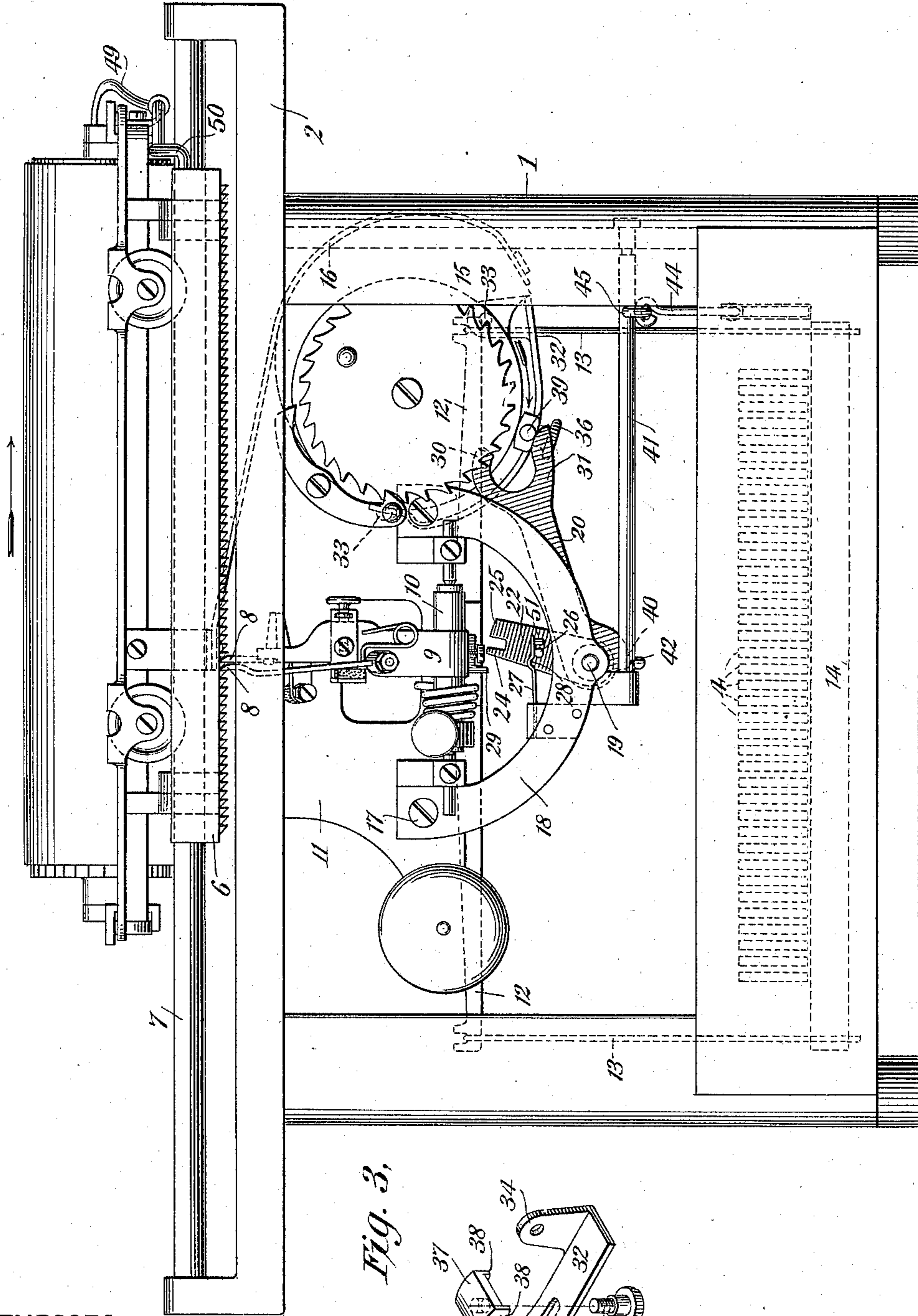
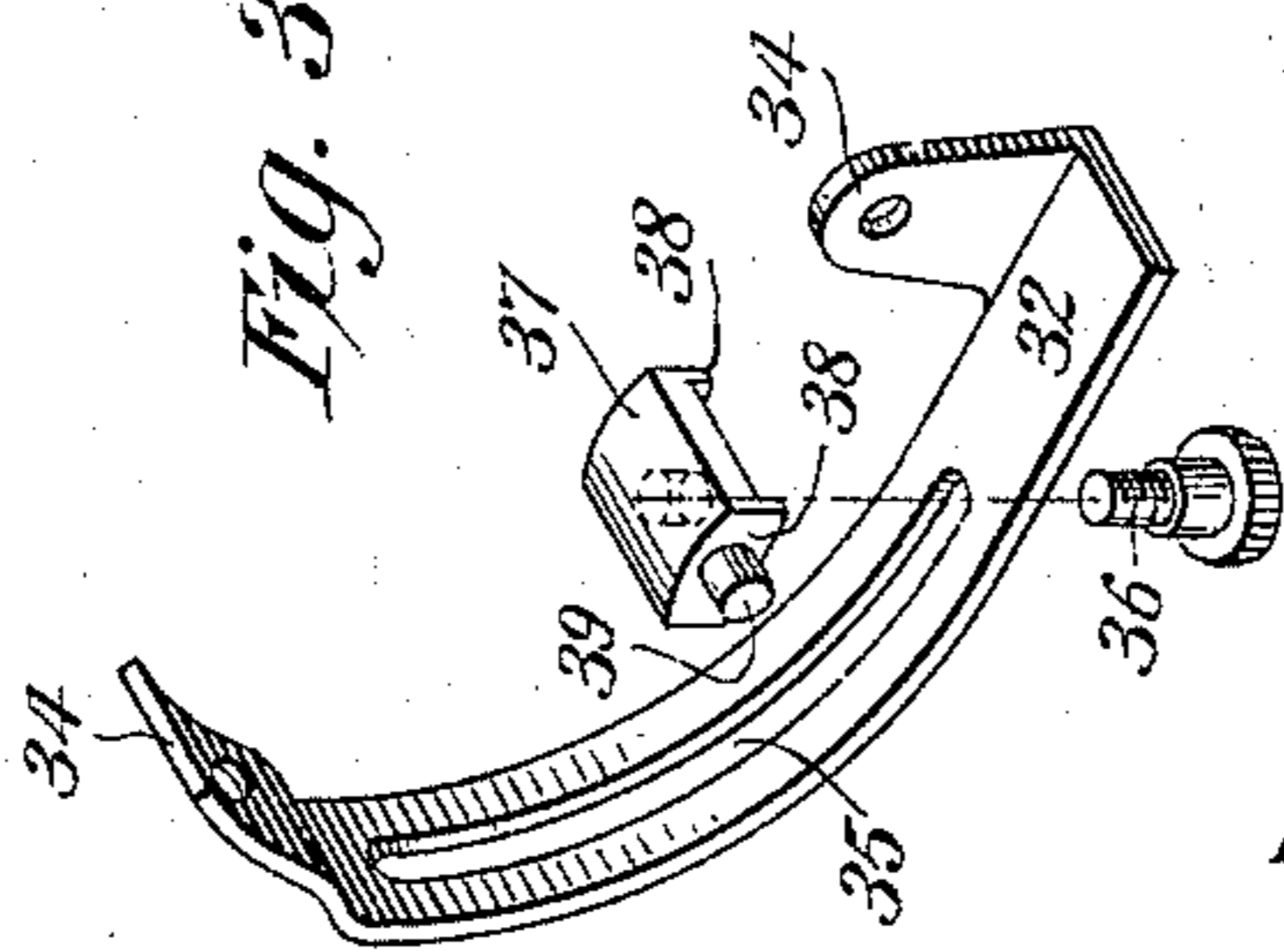


Fig. 3,



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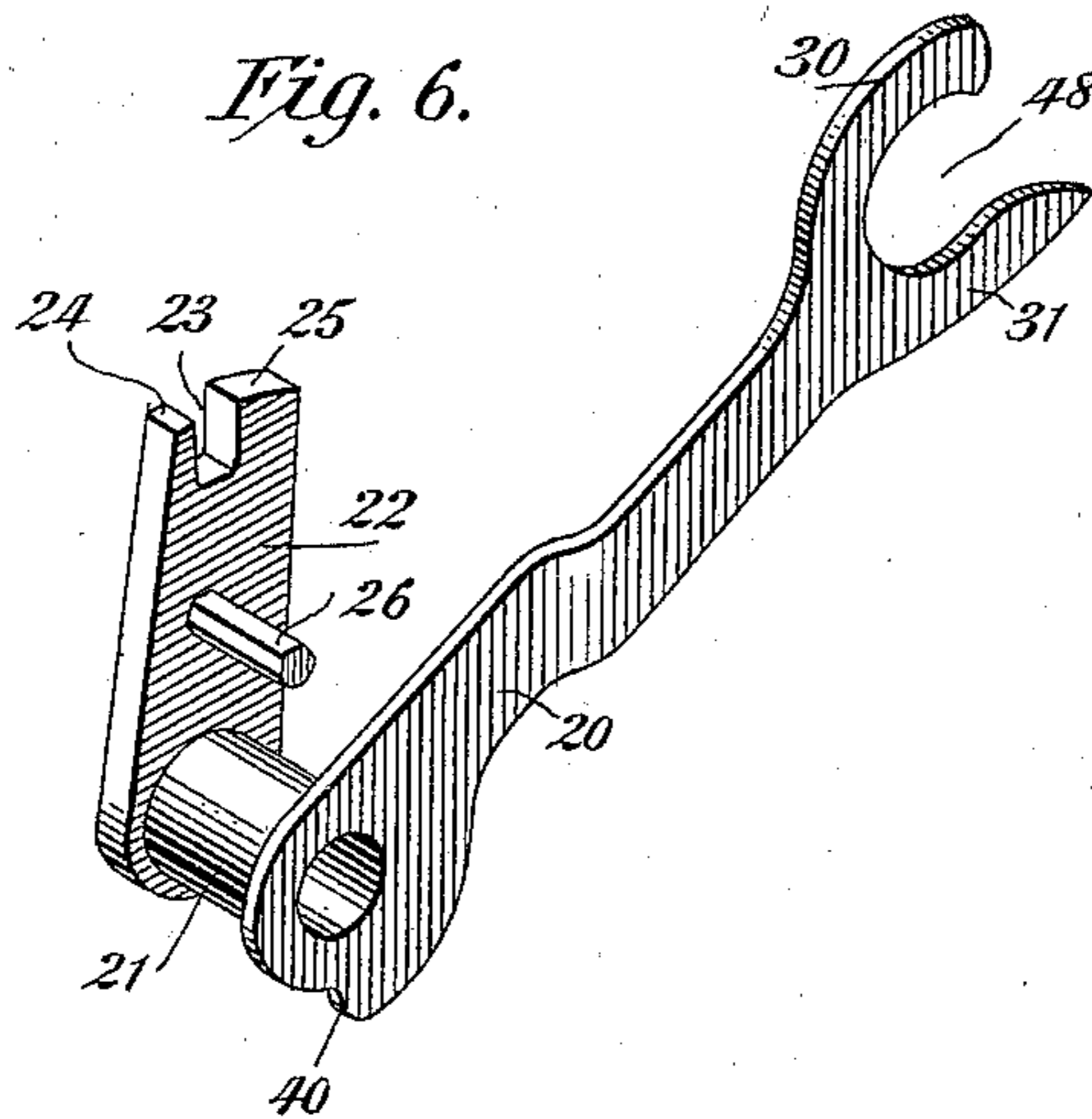
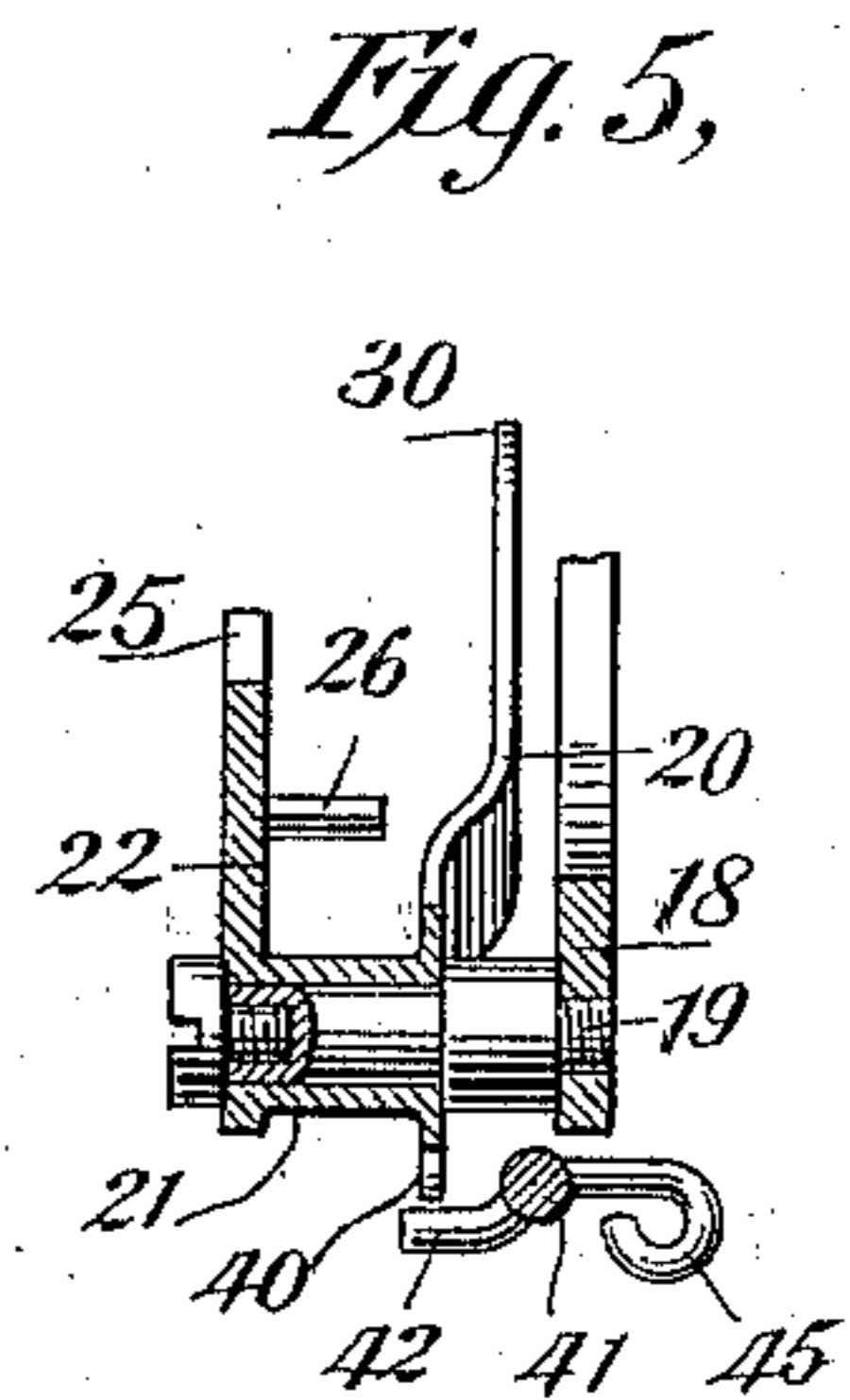
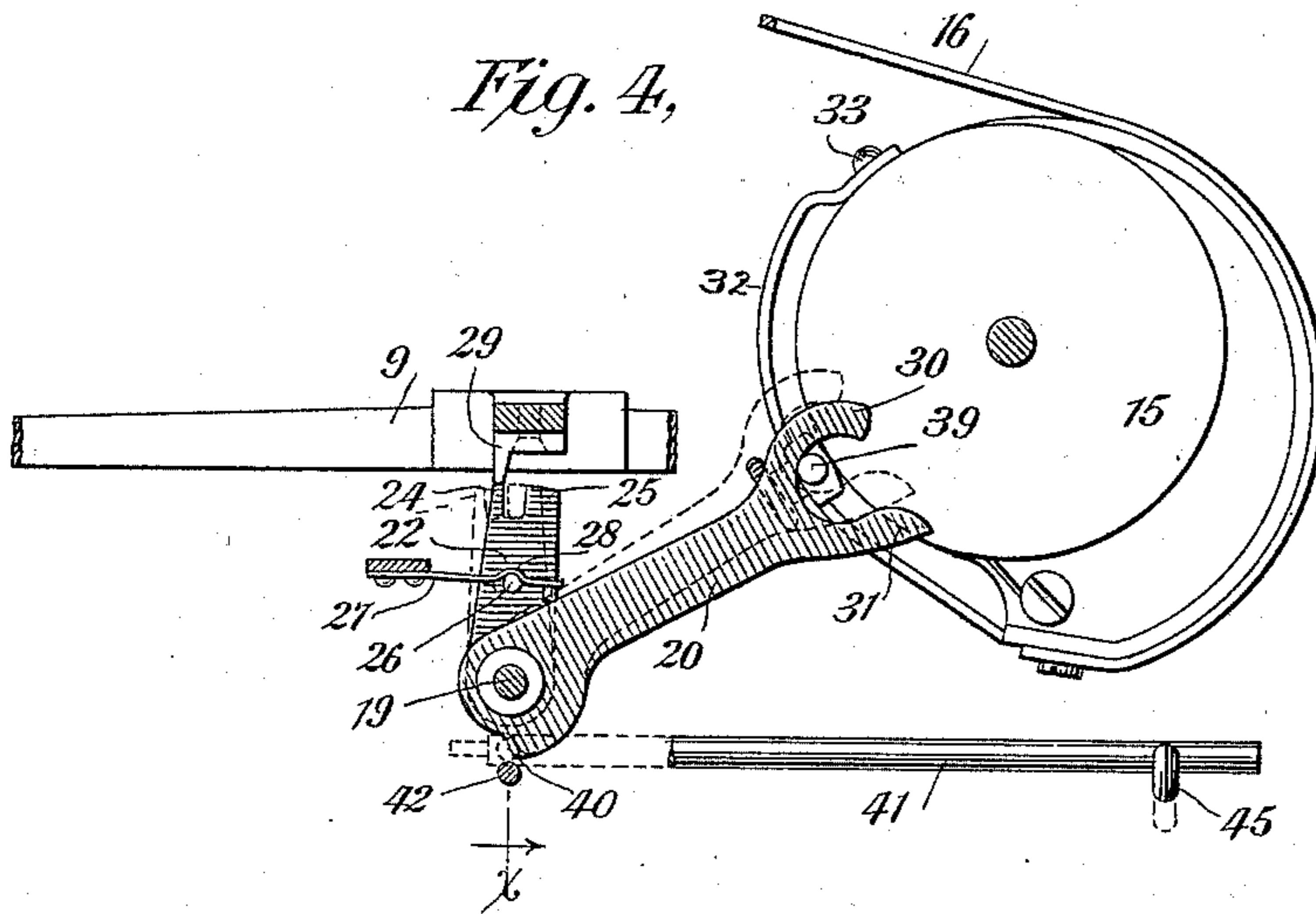
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3 Sheets—Sheet 3.

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# UNITED STATES PATENT OFFICE.

BYRON A. BROOKS, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE  
WYCKOFF, SEAMANS & BENEDICT, OF ILION, NEW YORK.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 598,653, dated February 8, 1898.

Application filed March 22, 1897. Serial No. 628,610. (No model.)

*To all whom it may concern:*

Be it known that I, BYRON A. BROOKS, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates particularly to that class of contrivances known as "line-locks" in which means are provided for preventing the type-bars or other type-bearing devices from reaching the paper on the platen at the end of the carriage travel or at the end of a predetermined line, whereby the printing of one character over another may be avoided; and one of the objects of my invention is to provide simple and effective means of this character.

Another object of my invention is to provide a construction by which after the printing mechanism has once been locked it may be unlocked for the printing of additional characters, and also a construction whereby after such unlocking the printing mechanism may again be automatically relocked.

In carrying out my improvements I employ the carriage-mainspring drum, case, scroll, or the like, or some part having a rotation in unison therewith to actuate the line-locking devices, and consequently when the printing mechanism (including the escapement mechanism) is locked or obstructed the said spring drum, case, &c., is simultaneously locked or arrested. If a short line be provided for and the carriage-release key be operated, when the carriage in its unrestrained movement runs to the end of the predetermined line the drum would be automatically locked without the provision of some automatic releasing means therefor, and the strap, band, or belt connecting the drum and the carriage would bulge from or leave the drum and be liable to break or otherwise cause trouble.

Another object of my invention, therefore, is to provide means for automatically releasing the spring-drum and also, if desired, the line-locking mechanism when the carriage-release key is operated and the carriage is

permitted to run down swiftly to or past the predetermined locking-point.

My invention consists in the features of construction and combinations of devices hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of a Remington No. 2 type-writing machine embodying my improvements. Fig. 2 is a rear elevation of the same. Fig. 3 is a perspective view of the means for attaching the line-locking device to the spring-drum, the several parts of said means being separated in order to more clearly exhibit the detail construction of each part. Fig. 4 is a detail side elevation, partly in section, of the line locking and unlocking devices, looking from the rear of the machine. Fig. 5 is a vertical section taken at the line *xx* of Fig. 4, and Fig. 6 is an enlarged perspective view of a portion of the line-locking devices.

In the several views the same part will be found designated by the same numeral of reference.

1 designates the main frame of the machine, 2 the top plate, 3 the paper-carriage, 4 the key-levers, 5 the connecting-rods therefrom to the type-bars, 6 the feed-rack, connected to the carriage and hinged on the carriage guide-rod 7, 8 the two feed-dogs, 9 the escapement-feed-dog rocker or holder, pivoted at 10 in a depending supplemental frame 11, 12 laterally-extending arms from said dog rocker or holder, and 13 connecting-wires extending therefrom to the universal bar 14, arranged below the key-levers, all in the manner customary in said Remington No. 2 machine.

The carriage 3 is connected to the usual spring drum, case, scroll, or the like 15 by means of a strap, band, or belt 16.

Attached by screws 17 to the supplemental frame 11 or formed integral therewith is a bracket 18, which hangs below said frame and which supports an inwardly or forwardly projecting fixed pin or stud 19. 20 is an arm or lever formed or provided with a hollow boss or hub 21, which is mounted upon said pin or projection, so as to be capable of a vibratory motion. At the inner end of said boss or hub is secured or formed an upright arm 22, which

at its upper free end is cut away or notched, as at 23, to form two lugs or projections 24 and 25. Projecting rearwardly from said arm 23 is a pin 26, with flattened sides, which is engaged by a flat spring 27, formed, preferably, with a bend or recess 28, which is attached at one end to an offset from the bracket 18.

The dog-holder or spacing-rocker 9 is formed or provided at near the free end of its horizontal arm or member with a depending projection 29, which is adapted to cooperate with the lugs 24 and 25 on the rocking arm 22 in a manner to lock the printing mechanism, as will hereinafter more fully appear.

The free outer end of the vibratory arm or lever 20 is formed or provided with a fork, the arms or prongs of which are numbered 30 and 31.

A curved plate 32 is attached to the spring-drum by screws 33, which pass through perforations in the ears 34 at the ends of said plate. Lengthwise of the plate 32 is formed a slot 35, through which passes a screw 36, whose threaded end engages a tapped hole in the block or piece 37, preferably flanged, as at 38, to keep it in position upon said plate. Extending rearwardly from said block or piece is a lug or projection 39, which is adapted to act on both the arms 30 and 31 of the fork and vibrate the lever 20 in opposite directions according to the direction of rotation of the spring-drum to which said lug or projection is attached. By reason of the slot 35 the said lug or projection may be adjusted to actuate the lever at different times, it being only necessary to slightly loosen the screw 36 to enable the block or piece to be slid to any desired locality within the range of the slot and then to retighten the screw to clamp the block again in its new position. A suitable scale or set of graduations may be provided to facilitate the adjustment.

In the forward movement of the carriage, or from right to left, the spring-drum rotates in the direction of the arrow thereat at Fig. 2, and hence the lug or projection 39 travels in the same direction. When said lug or projection contacts with the arm 30, the lever 20 is vibrated upwardly thereby about the pivot 19, and the arm 22, being attached to or forming part of said lever, is caused to vibrate toward the right (considered from the front of the machine) until the lug 24 is brought into alignment with the lug 29 of the spacing-rocker. When this occurs, the vibration of the spacing-rocker is prevented, and hence the escapement mechanism and the printing mechanism are locked.

At Fig. 2 the actuating-lever 20 and the spacing-rocker-intercepting lugs 24 and 25, controlled thereby, are shown in their normal or unused position, and the traveling lug or contact 39 is shown as just entering the space between the prongs of the fork at the free end of said lever, which is maintained in its shown position by the pressure of the spring 27 on the pin 26. When the lug 39 strikes

the inner curved edge of the prong 30, the lever 20 partakes of the motion of said lug, and in the construction or arrangement shown when the said lug and the said prong have traveled together for about four or five steps or letter-spaces of the carriage the intercepting-lug 24 has been carried over to the vertical position shown at Fig. 4, immediately under the continuously-vibrated lug 29 on the spacing-rocker, and during this travel of said lug 24 the pin 26 has also traveled from the position shown at Fig. 2 to that shown at Fig. 4, where it has entered the depression in the spring, which may thereby more firmly hold the rocking parts in their locking position. When the lugs 24 and 29 are in register, as shown at Fig. 4, the space-bar or universal bar 14 cannot be depressed or actuated by the key-levers 4, and hence said key-levers, as well as the space-dogs, are locked or prevented from performing their usual functions. Thus not only is the step-by-step feed of the carriage arrested, but the type-bars are prevented from reaching the platen.

As it is often desired to add one or more letters to a word after the line has been locked or to add a punctuation-mark or the like, I have provided means for unlocking the locking mechanism for this purpose and also means for automatically relocking the same after a predetermined number of additional characters have been written.

The lever 20 is formed with a beveled or cam surface 40 below its pivot, and on a rocking rod 41, horizontally arranged in suitable bearings, is formed or provided a pin or projection 42, which normally stands below and out of contact with said inclined or cam surface; but when said rod 41 is rocked the pin or projection 42 is lifted into contact with said cam-surface 40 and wedges or moves the lever 20 upwardly from the position shown in full lines at Fig. 4 to that shown in dotted lines at said figure. This movement or action simultaneously effects a movement of the lug 24 from the full-line locking position to the dotted-line position at Fig. 4, thus unlocking or releasing the spacing mechanism and bringing the notch or cut-away 23 into alignment with the lug 29 on the spacing-rocker, whereby the lug 29 is free to vibrate under the action of the key-levers for a predetermined number of spaces. When these shall have been utilized, the lug 25 will be forced over under the lug 29, and the spacing mechanism will be again arrested.

If the locking-lever 20 be released when the lug 39 is in the position shown at Fig. 4, its prong 30 will rise to the position shown by the dotted lines, and hence the said lug 39 must travel the distance between its present position and the dotted-line position of the prong before it can again contact with said prong, and during this travel of the lug 39, which may be a distance of five or six letter-spaces, more or less, the lug 29 is vibrated in and out of the slot or cut-away 23 during the printing

of the additional characters; but when the lug 39 again reaches the prong 30 and moves it the lug 25 is carried over into line with the projection 29, and the spacing and printing mechanisms are again locked.

For the purpose of conveniently unlocking the line-locking mechanism when it has first been locked by the lug 24 I have provided a key-lever 43, extending out to the keyboard and connected to the rock-shaft 41 by a link 44 and a rocker-arm 45, the fulcrum of said key-lever being at 46 and a returning-spring for said lever being provided at 47. Hence when the head or button of the key-lever 43 is depressed the link and the rocker-arm are pulled down, the rock-shaft is oscillated, and the pin or projection 42 is swung up to engage with the lever 20 and move it and its lug-carrying arm 22, as before described.

After the line has been locked either once or twice, as may be desired, the carriage may be returned to the right for the beginning of a new line, and during such return movement the spring-drum of course rotates in the opposite direction, and the lug 39, traveling therewith, strikes the prong 31 of the lever 20 and vibrates it and the arm 22 back to their normal positions, as shown at Fig. 2.

It will be observed from the foregoing that when the movement of the spacing-rocker is prevented by either the lug 24 or the lug 25 the spring-drum is incapable of feeding the carriage step by step, as this action can take place only when the spacing-rocker is unobstructed and the dogs are free to alternately engage the rack. The locking mechanism, however, should be of such character and construction as that the paper-carriage may be run swiftly from right to left for the full extent of its travel when the carriage-release key is manipulated or when the rack and dogs are thrown out of engagement without liability of breakage or derangement of any of the parts or the buckling or casting off of the strap, band, or belt. If the line-locking mechanism should be set or adjusted at, say, "40" on the scale and it should be attempted to run the carriage down to the end of its travel—say at "70" on the scale—by means of the carriage-release key, it will be observed that if the spring-drum or the locking mechanism should not automatically unlock or release as soon as the carriage passes "40" on the scale (positive margin-stop being disregarded) the belt or band would leave the drum and buckle or bulge and be liable to breakage if made of thin steel, and that other breakages or derangement would be liable to ensue under the circumstance mentioned. To obviate this difficulty, I have so constructed my line-locking mechanism that if the carriage be run past the locking-point under the action of the carriage-release key the line-locking mechanism is at once automatically unlocked and the spring-drum is rendered free to continue its rotative movement to the fullest extent. This is accomplished by the

simple expedient of a space or opening 48 between the ends of the prongs or branches 30 and 31, which enables the lug 39 to pass out from between the branches 30 and 31 in case the escapement mechanism should be separated after the line has been locked, thus permitting the spring-drum to rotate freely and the carriage to run down to any desired extent under the action of the carriage-spring and without liability of breakage, strain, or derangement of any of the parts.

During the exit of the lug 39 from the opening or cutaway 48, as just explained, owing to the prolongation of the prong or branch 30 the lever 20 and arm 22 are vibrated, and the lug 25 is thrown over to the right (considered from the front of the machine) beyond the plane of the lug 29, so that at the same time the line-locking mechanism is wholly released; but this latter feature may be omitted in so far as the feature of the releasement of the spring-drum is concerned, since it is not of special moment that the line-lock lugs be thrown out of engagement during the run-down of the carriage, as before explained.

When the lug 39 has been carried out of engagement with the pronged lever 20, as just described, said lever is held by the spring 27 in proper position for the said lug to again enter through the opening 48 on the return movement of the carriage and the reverse rotation of the drum, and if the carriage be moved back far enough the said lug will strike the prong or branch 31, which is slightly elongated, so as to insure the return of the line-locking lugs 24 and 25 back to their normal positions. (Shown at Fig. 2.)

The carriage-release key is of the usual form found on the Remington No. 2 machine and is designated by the numeral 49. The rear bent end of this key bears upon the forwardly-projecting arm 50, attached to the rack, whereby when the key-head is pressed down the rack is lifted from the dogs and the carriage is free to run down toward the left under the action of the carriage-mainspring. If when the locking-lugs have been brought back to their normal positions the carriage has not been fully returned to its starting-point, the lug 39, during the reverse turning of the drum, again passes out of the space 48 and travels away from the forked lever until the carriage is stopped; but as the carriage feeds down step by step and the spring-drum turns in the opposite direction the said lug again enters through said space and at the predetermined time comes into contact with the fork or branch 30 to arrest the printing and spacing mechanisms.

To prevent the lever 20 and the arm 22 from dropping accidentally from the position shown at Fig. 2, the prong is provided with a stop-pin 51, which is engaged by the pin 26 on the arm 22.

Although I have shown my improvements as embodied in a Remington No. 2 machine, it will be understood that they may be used

in machines of other styles or makes without departing from the spirit of my invention.

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

1. In a type-writing machine, the combination with the printing and spacing mechanisms, including a spacing-rocker, the carriage, and a spring driving-drum connected thereto, of an actuating device traveling in unison with said drum, and a lever extending from the spacing-rocker over into the path of rotation of the actuating device so as to be directly vibrated thereby in its rotative movement, and having a part which is adapted to be moved into the path of vibration of the spacing-rocker by the said vibration of the lever.

2. In a type-writing machine, the combination with the printing and spacing mechanisms, the carriage, and a spring-drum connected thereto, of a rotatory actuating device, and a locking-lever provided with two branches or projections, one of which is struck by the rotatory actuating device when traveling in one direction, and causes a movement of said lever to lock the printing and spacing mechanisms, and the other of which is struck by said device when traveling in the opposite direction on the return movement of the carriage and causes a vibration of said locking-lever in the opposite direction and an unlocking of the printing and escapement mechanisms.

3. In a type-writing machine, the combination with the printing and spacing mechanisms, the carriage, and a spring driving-drum connected thereto, of a rotatory actuating device, and a two-branched lever having an upright arm adapted to obstruct the spacing mechanism when the lever is moved in one direction and to be returned to normal position when the lever is moved in the opposite direction.

4. In a type-writing machine, the combination with the printing and spacing mechanisms, and the spring-driven carriage, of a rotatory actuating device, a lever having two branches or projections and an upright arm, and means for holding said lever and arm in both their normal and abnormal positions.

5. In a type-writing machine, the combination with the printing and spacing mechanisms, and the spring-driven carriage, of a rotatory actuating device, and a lever having projections whereby said lever is moved positively in both directions by said device, a locking-arm carried by said lever, and a holding-spring.

6. In a type-writing machine, the combination with the printing and spacing mechanisms, and the spring-driven carriage, of a rotatory actuating device, and a lever actuated thereby and carrying a locking-arm formed or provided with two separated intercepting lugs, whereby the printing and spacing mechanisms may be locked, unlocked and locked again.

7. In a type-writing machine, the combination with the printing and spacing mechanisms, and the spring-driven carriage, of a rotatory actuating device, a forked lever, and a vibratory locking-arm having two separated lugs or projections.

8. In a type-writing machine, the combination with the printing and spacing mechanisms, including a spacing-rocker having a lug, and the spring-driven carriage, of a rotatory actuating device, a lever actuated thereby, and extending therefrom to the said rocker, and a vibratory arm having a locking-lug adapted to that on the spacing-rocker.

9. In a type-writing machine, the combination with the printing and spacing mechanisms and a spring-driven carriage, of a rotatory actuating device, a locking-lever extending from the spacing mechanism over into the path of rotation of the actuating device so as to be directly vibrated thereby in its rotative movement, and means connected with said locking-lever for engaging the same and positively unlocking it and the spacing mechanism to permit further printing and spacing.

10. In a type-writing machine, the combination with the printing and spacing mechanisms, and the spring-driven carriage, of a rotatory actuating device, a locking-lever extending from said device to the dog-carrying spacing-rocker and having a vibratory lug-carrying arm adapted to said rocker, and a key-lever mechanism for moving said lever and said arm to effect an unlocking of the printing and spacing mechanisms.

11. In a type-writing machine, the combination with the printing and spacing mechanisms, and the spring-driven carriage, of a rotatory actuating device, a locking-lever having an inclined or cam surface, and a vibratory obstructing-arm, a pivoted pin or projection to engage said inclined or cam surface, and a key for swinging or rocking the same into engagement with said surface to unlock the printing and spacing mechanisms.

12. In a line-locking mechanism, the combination of a dog-carrying spacing-rocker, a vibratory arm thereunder adapted to intercept the same, and an actuating-lever attached to said arm and extended outwardly to a rotatory actuating device therefor.

13. In a line-locking mechanism, the combination of a spacing-rocker having a projection, a vibratory arm having two projections and an intervening space, a lever attached to said arm, and an actuating device for said lever.

14. In a line-locking mechanism, the combination of a spacing-rocker having a projection, a vibratory arm adapted to intercept said projection, a lever attached at one end to vibrate said arm and forked at its opposite end, and a rotatory actuating device adapted to vibrate said lever first in one direction and then in the opposite direction.

15. In a line-locking mechanism, the combination of a spacing-rocker having a projec-

tion, a vibratory arm having two lugs and an intermediate cut-away, a forked lever attached to vibrate said arm, a holding-spring, and an adjustable rotatory actuating device.

5 16. In a line-locking mechanism, the combination of a spacing-rocker, a vibratory locking-arm, a lever attached thereto, and an adjustable rotatory actuating device adapted to move said lever and carry said arm to a position to intercept the spacing-rocker.

10 17. In a line-locking mechanism, the combination of a spacing-rocker, a vibratory arm, a lever attached thereto and having an inclined or cam surface, a rotatory actuating device for said lever, a rock-shaft having a projection adapted to said inclined or cam surface, and a key-lever connected to said rock-shaft.

20 18. In a line-locking mechanism, the combination with the spring-drum, of the curved, slotted plate 32, the tapped block 37 having a projection or actuating device, the binding-screw 36, and means for arresting the spacing-rocker.

25 19. In a line-locking mechanism in which the parts are actuated by or through the step-by-step rotation of the spring-drum, and whose step-by-step rotation is prevented when the line-locking occurs, means for automatically releasing the spring-drum when the carriage-escapement devices have been separated and the carriage is freed for rapid advancement toward the left.

30 20. In a type-writing machine, the combination of a carriage, a release-key therefor, a driving-drum therefor, an intermediate belt or band, a rotatory actuator driven in one direction by said spring, line-locking devices adapted to be put into action by said actuator, 35 whereby the feeding and printing devices are obstructed and the actuator and spring are arrested when the line-locking point is reached, and means for automatically releasing said actuator and spring when the release-key is 40 operated and the carriage passes the predetermined locking-point.

21. In a type-writing machine, the combination of a carriage, a release-key therefor, a spring-driven drum, a connecting belt or band, a rotatory actuator traveling with said spring-drum, and means for obstructing the spacing mechanism, whereby the step-by-step feed of the carriage and the step-by-step rotation of the spring-drum and actuator are arrested at a predetermined point; the said line-locking devices and the said actuator being separably or detachably connected so that when the carriage is released from the spacing devices the said actuating device and the spring-drum may be freed or disengaged from the line-locking devices, as and for the purposes described.

22. In a type-writing machine, the combination of a carriage, a release-key, a spring-drum, a connecting belt or band, a rotatory actuator traveling with said spring-drum, a spacing mechanism, a locking-lever having a projection adapted to be struck by said actuator to cause the spacing mechanism to be locked, and having also an open end whereby when the carriage-release key is actuated the said actuator may pass by said projection and thus permit the spring-drum to wind or take on the driving belt or band as the carriage advances under the unrestrained influence of the driving-spring.

23. In a type-writing machine, the combination of a carriage, a release-key therefor, a driving-drum, an intermediate belt or band, a rotatory actuator moving in unison with said drum, a spacing mechanism, and a line-locking mechanism comprising a lever having two forks or projections, and an intermediate space or cut-away for the entrance and exit of said actuator.

Signed at New York city, in the county of New York and State of New York, this 19th day of March, A. D. 1897.

BYRON A. BROOKS.

Witnesses:

JACOB FELBEL,  
K. V. DONOVAN.