

No. 849,628.

PATENTED APR. 9, 1907.

E. F. KUNATH.
TYPE WRITING MACHINE.
APPLICATION FILED MAR. 16, 1905.

2 SHEETS—SHEET 1.

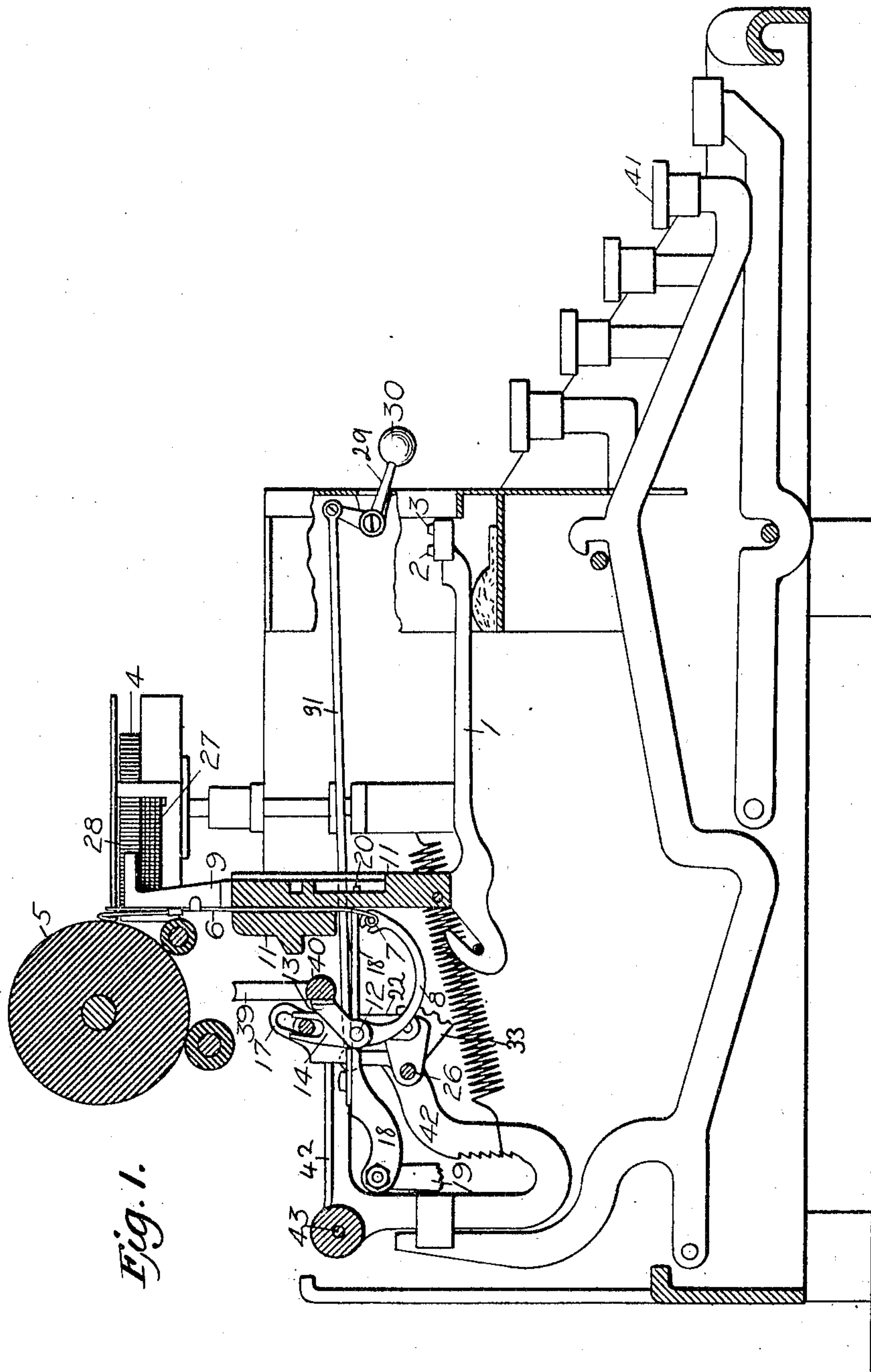


Fig. 1.

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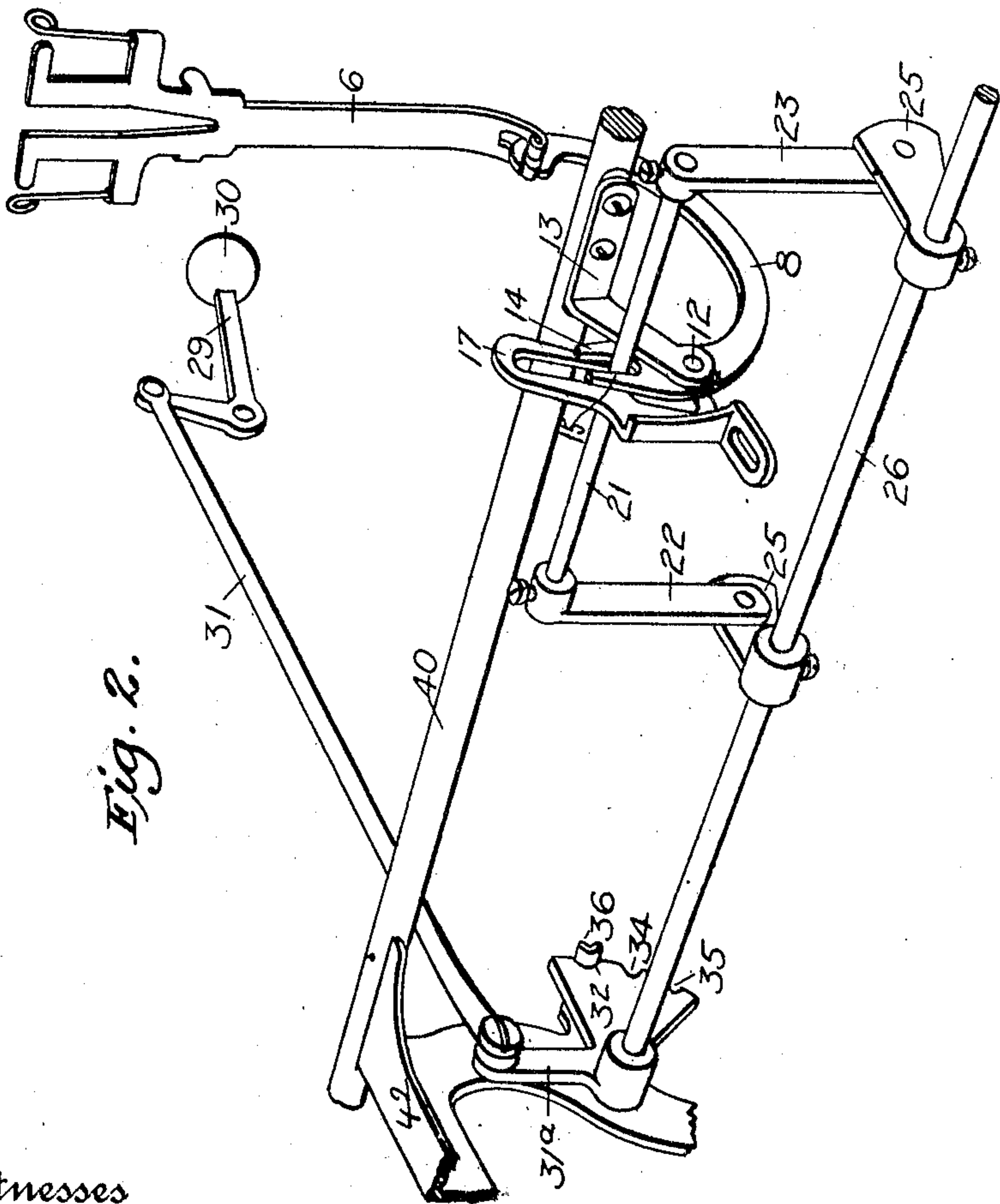
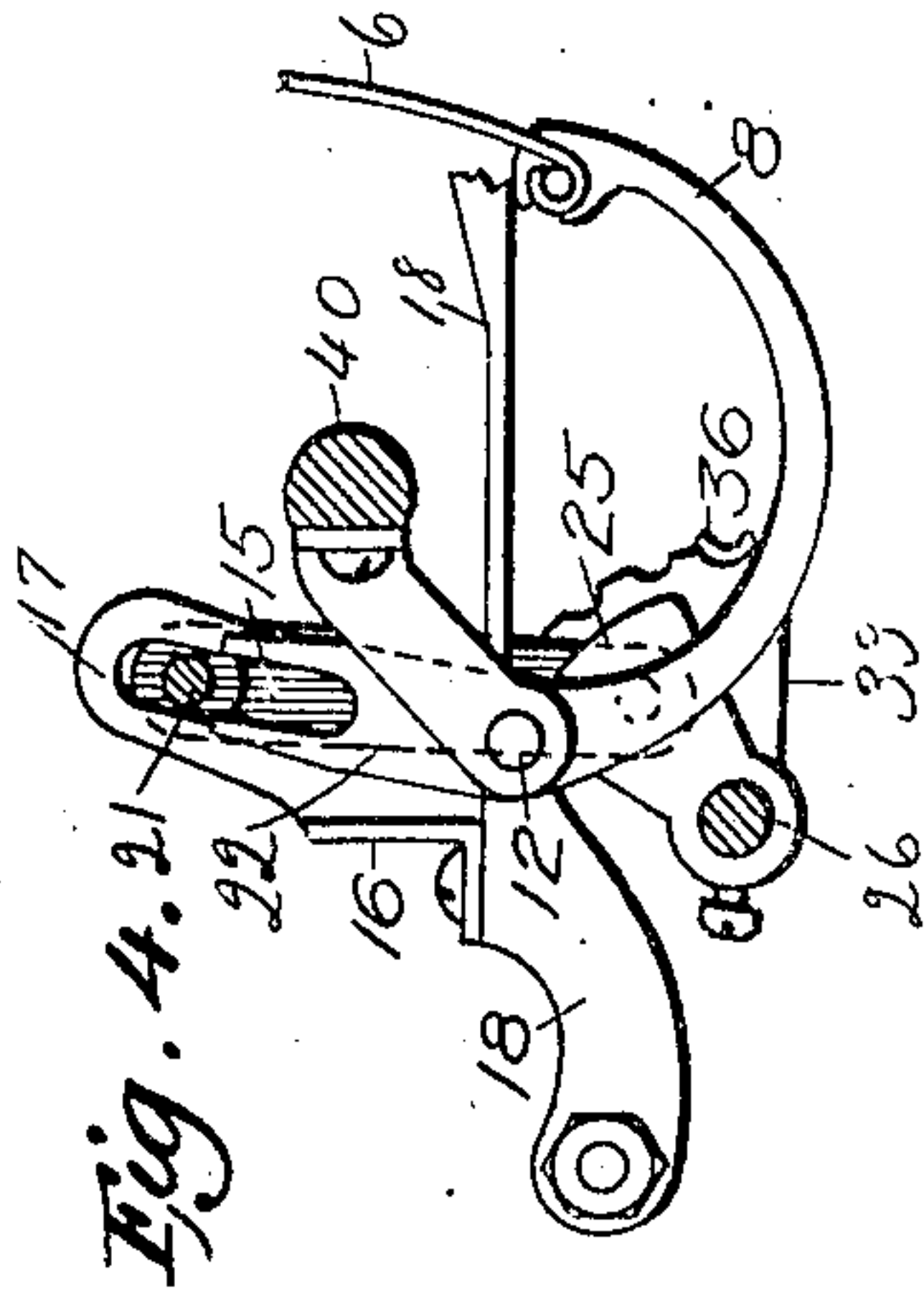
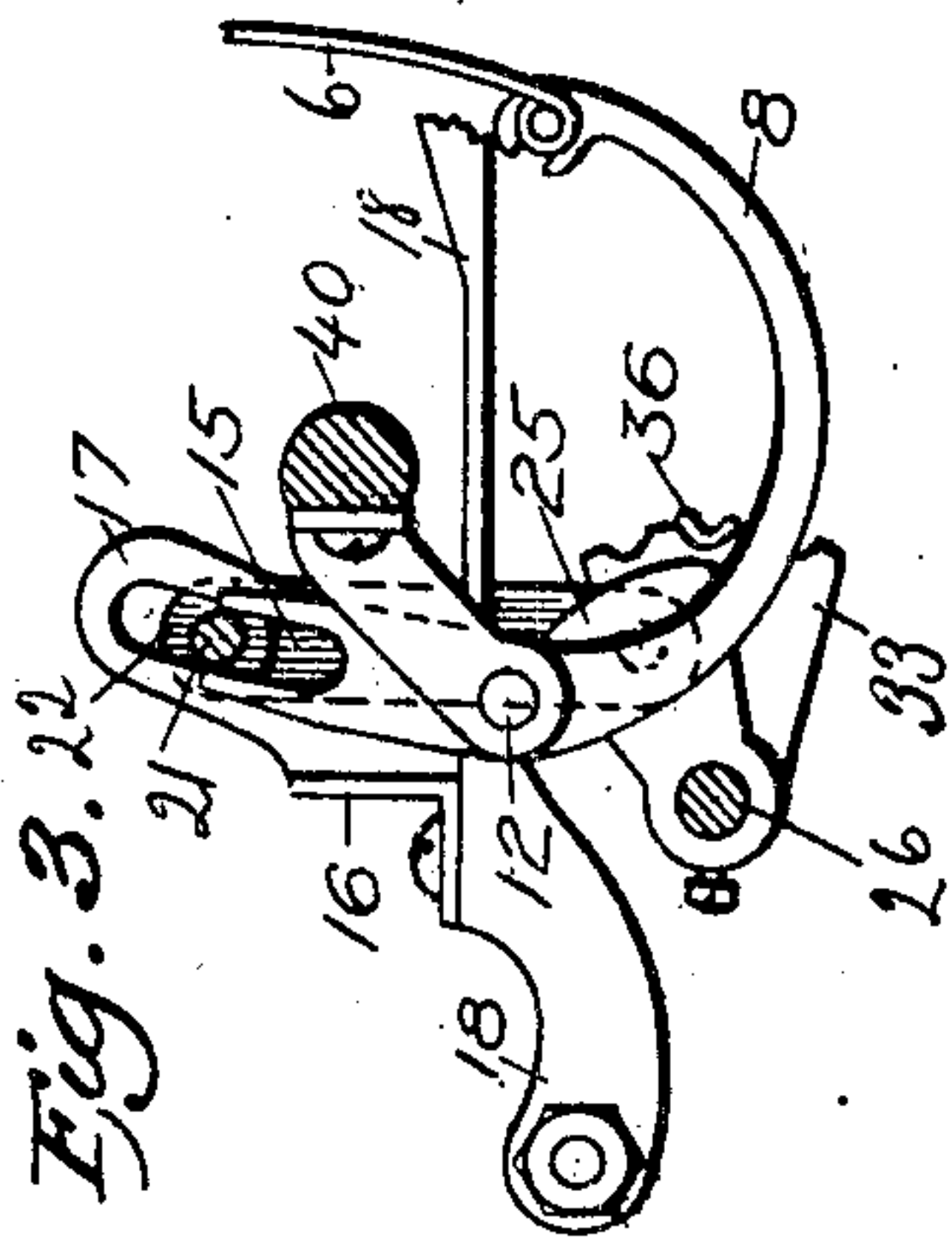
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

EDWARD F. KUNATH, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 849,628.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed March 16, 1905. Serial No. 250,442.

To all whom it may concern:

Be it known that I, EDWARD F. KUNATH, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the ribbon-controlling devices of type-writing machines, and particularly to the mechanism in "front-strike" machines which vibrates the ribbon to cover and uncover the printing-point at each type-stroke.

When writing stencils for use in mimeograph-work, it is necessary to let the types strike directly upon the sheet without the intervention of a ribbon, and it is also desired to shift the ribbon vertically, so as to cause the types to strike upon either the upper or lower portion thereof in machines where polychromatic ribbons are to be used.

The object of my invention is to provide simple and effective means for changing the machine from regular to mimeograph or stencil work, and vice versa, and for bringing either color-band of the ribbon into use at will.

The invention may be carried out in different ways; but preferably I provide a slot in the ribbon-vibrating lever of the well-known "Underwood" type-writing machine, said slot being in line with the slot which is usually provided in the reciprocating ribbon-actuating-arm upon said machine. Said actuating arm and lever are unconnected except for an idle wrist, which extends loosely through both of the slots, so that a backward and forward movement of said actuator is transmitted through said wrist to the lever, thus effecting the vibration of the ribbon. By using a loose wrist I am enabled to adjust it up and down in both slots away from and toward the pivot of the ribbon-vibrating lever, and hence it results that equal movements of said actuator may effect variable movements of the lever. I also provide a finger-piece, which is connected to said wrist, so as to control its position without interfering with the vibration of the ribbon at each type-key stroke. By this means the ribbon

is thrown from normal position up in front of the platen to use either the top edge portion or the lower edge portion of the ribbon, said portions being charged with differently-colored inks. Provision is also made for adjusting said wrist to a position where said actuator can no longer operate said lever, so that during the operation of the keys the ribbon rests in normal idle position, this being a great advantage in mimeographing, where the impressions are made directly from the types.

Figure 1 in the accompanying drawings is a sectional elevation taken from front to rear of an Underwood front-strike type-writing machine, showing my improvements applied thereto, the parts being shown in normal position and the ribbon-vibrating mechanism so adjusted as to bring into use the lower band of color upon the ribbon. Fig. 2 is a perspective view of the principal portions of the ribbon-vibrating mechanism, the parts being shown in the same position as Fig. 1. Fig. 3 is a sectional elevation of portions of the ribbon mechanism shown at Fig. 1, but showing the parts adjusted so as to bring into play the upper band of color upon the ribbon. Fig. 4 is a view similar to Fig. 3, but showing the parts so adjusted that the reciprocating ribbon-actuator is not capable of moving the ribbon into working position.

As usual in the Underwood writing-machine, type-bars 1, carrying lower-case types 2 and upper-case types 3, strike rearwardly through a ribbon 4 against a platen 5, the latter being vertically shiftable to enable the different types to print. At each type impression the ribbon is vibrated vertically to cover and uncover the printing-point, such movement being effected by a carrier 6, pivoted at its lower end at 7 upon an operating-arm 8 and being detachable from said arm. At its upper end the ribbon-carrier is guided for vertical movement by a part 9, which also serves as the type-guide, the part 9 surmounting a segment 11, which also guides the lower part of the ribbon-carrier. The operating-arm 8 is pivoted at 12 upon a part 13 of the platen-shifting mechanism, so that both the operating-arm and the ribbon-carrier are shifted together with the platen,

while said arm 8 is vibrated by means of a short upright arm 14 formed thereon. A bracket 16, having an upstanding slotted arm 17, is caused to vibrate backwardly and forwardly at each type-stroke, the slot in arm 17 accommodating the vertical case-shifting movements of the parts. In said upright arm 14 is formed a slot 15, open at its upper end. The actuating-arm 17, having its slot about in line with the slot 15, is fixed upon a plate 18, which reciprocates to and fro at each key-stroke in a well-known manner, being pivoted in the rear upon links 19 and suitably supported in front upon part 11 by means of a sliding tongue 20. Through the slot 15 in said lever-arm and the slot in said arm or actuator 17 extends loosely a wrist 21, which is supported upon a pair of links 22 23, pivoted in line at their lower ends to a pair of arms 25, which project forwardly from a horizontal rock-shaft 26. Said arms 25 are normally stationary. The links 22 23, with the wrist 21, may idly vibrate backwardly and forwardly with the actuator 17 and transmit the movement of the latter to the arm 14 of the lever, so that the carrier 6 is thrown up and down and the ribbon 4 is vibrated.

In the position seen at Figs. 1 and 2 the idle wrist 21 works at the nearest point to the lever-pivot 12, so that the throw of the lever, and hence of the ribbon, during each type-stroke is greatest, and hence the bottom band 27 of the ribbon is thrown up far enough to cover the printing-point, said band being usually red. The shaft 26 may be rocked to lift the links 22 23 and the idle wrist 21, carrying the latter to the position seen at Fig. 3, where the wrist is more remote from the lever-pivot 12, so that the lever and hence the ribbon are given shorter strokes, and hence the ribbon is not carried so far up in front of the platen, and the upper band 28 thereon covers the printing-point and receives the impressions of the types, this band being usually black, although other colors of ink may be used. This adjustment of the idle wrist is perfectly effected by means of a lever 29, having a finger-piece 30 at the front of the machine above the keyboard. Said lever is in the form of a crank and connected by a link 31 to an arm 31^a, which is also fixed upon said rock-shaft 26.

At Figs. 1 and 2 the finger-piece 30 is shown as thrown down to its lowest position; but when it is thrown up to its highest position said rock-shaft 26 is vibrated to such an extent as to lift the idle wrist clear out of the slot 15 in the ribbon-vibrating lever, so that during the movements of the actuator 17, that are effected by the type-bars 1, the lever remains motionless and the ribbon

stands in its lowest or normal position, this position of the parts being seen at Fig. 4, thus permitting the types to strike upon the platen or paper without the intervention of the ribbon.

To hold the mechanism wherever adjusted, I employ a detent-plate 33, fixed to the rock-shaft 26 and having three notches 32 34 35, either of which may receive a spring-detent 36, which is secured to a fixed part of the framework. When said detent 36 is in notch 33, as in Fig. 2, the lower color-band 27 is used; but when said detent is in notch 34 the upper color-band 28 is used. When said detent is in notch 35, the ribbon remains motionless below the printing-point during the type-strokes. Thus by manipulating the finger-piece 30 either color of ribbon may be used or the types may be caused to strike off from the ribbon.

In the Underwood machine the platen 5 is shifted up and down to enable the types 2 and 3 to print, said platen being mounted upon a carriage, (not shown,) the latter having a roll 39, which rests upon a rail 40, to which said bracket 13 is fixed. This rail is moved up and down by means of a shift-key 41 in a well-known manner. When the rail 40 moves up, the ribbon-lever 8 14 moves bodily therewith, together with the ribbon-carrier 6, so that the relation of the ribbon to the platen may remain the same.

The rock-shaft 26 is pivoted in the ends of a shifting frame, of which the rail 40 forms a part, said frame rocking up and down about a hinge 43. Thus all the ribbon mechanism seen at Fig. 2, except the actuator 17, moves up and down with the platen and its carriage. These shifting movements of the arm 32 are accommodated by the link 31 without moving the finger-piece 30, and it will be understood that the operation of the mechanism after the carriage is shifted up is the same as already described. Thus the ribbon may either be shifted to either color-band or kept out of use whether the lower-case types 2 or upper-case types 3 are printing.

Owing to the fact that the rock-shaft 26 does not move so high during the shifting operation as the shift-rail 40, it will be understood that the idle wrist 21 (which moves upwardly as much as the rock-shaft 26) stands slightly nearer to the pivot 12 of the lever when the parts are shifted to the upper-case position than when in lower-case position. The result of this would be to increase unduly the ribbon-vibrating stroke of the lever, and to overcome this difficulty I cause this lever and ribbon to stand normally farther below the printing-point when the platen is in upper-case position than when it is in lower-case position, this result being

effected by slanting forwardly and upwardly the slot 17 in the actuating-arm 16, as seen at Fig. 1.

Variations in construction and method of operation may be resorted to within the scope of invention and portions of my improvement may be used without others.

Having thus described my invention, I claim—

1. In a type-writing machine, the combination with an actuator which reciprocates uniformly at the key-strokes and is provided with a slot of a ribbon-vibrating lever having a slot, a wrist loose in the slot of said actuator and also loose in the slot of said lever, and means for adjusting said idle wrist so as to vary the length of the stroke of said lever.

2. In a type-writing machine, the combination with an actuator which reciprocates at the key-strokes and is provided with a slot, of a ribbon-vibrating lever having a slot, a wrist loose in the slot of said actuator and also loose in the slot of said lever, and means for adjusting said idle wrist so as to vary the length of the stroke of said lever, and for adjusting said wrist to a point where it is incapable of moving said lever.

3. In a type-writing machine, a ribbon-vibrating mechanism comprising a slotted reciprocating actuator, a slotted lever, a ribbon-carrier connected to said lever, a wrist extending through the said slots and loose therein, means for supporting said idle wrist, and means for adjusting said supporting means to a plurality of positions.

4. In a type-writing machine, a ribbon-vibrating mechanism comprising a slotted reciprocating actuator, a slotted lever, a ribbon-carrier connected to said lever, a wrist extending through the said slots and loose therein, means for supporting said idle wrist, and means for adjusting said supporting means to three positions, one for causing the upper edge of the ribbon to be used, one for causing the lower edge of the ribbon to be used, and one for effecting disconnection between said slotted actuator and said lever.

5. In a type-writing machine, a ribbon-vibrating mechanism comprising a lever, a reciprocating actuator, a wrist having a loose connection to said lever and a loose connection to said actuator, and means for adjusting said wrist to cause equal movements of said actuator to effect variable movements of said lever.

6. In a type-writing machine, a ribbon-vibrating mechanism comprising a lever, a reciprocating actuator, a wrist having a loose connection to said lever and a loose connection to said actuator, means for adjusting said wrist to cause equal movements of said actuator to effect variable movements of said lever, and means for moving said

wrist to a point at which it cannot affect said lever.

7. In a front-strike writing-machine, the combination of a reciprocating frame, a slotted actuator thereon, a wrist movable up and down in the slot, a link device supporting said wrist, means for adjusting said link device to different positions, and a lever having a loose connection to said wrist.

8. In a front-strike writing-machine, the combination of a reciprocating frame, a slotted actuator thereon, a wrist movable up and down in said slot, a link device supporting said wrist, means for adjusting said link device to different positions, and a lever having a loose connection to said wrist; said wrist being movable upon said link to a point to render said lever inoperable by said actuator.

9. In a type-writing machine, a ribbon-vibrating mechanism comprising a reciprocating actuator having a slot, an idle wrist extending loosely through said slot, a ribbon-vibrating lever by the side of said actuator, and having a slot through which said wrist also extends, links supporting said idle wrist, a rock-shaft having arms to which said links are pivoted, and a finger-piece for adjusting said rock-shaft.

10. In a type-writing machine, a ribbon-vibrating mechanism comprising a reciprocating actuator having a slot, an idle wrist extending loosely through said slot, a ribbon-vibrating lever by the side of said actuator, and having a slot through which said wrist also extends, links supporting said idle wrist, a rock-shaft having arms to which said links are pivoted, and a finger-piece for adjusting said rock-shaft; one of said actuator and lever elements being so formed that a movement of said idle wrist effected by said rock-shaft may render said lever inoperable by said actuator.

11. In a type-writing machine, a ribbon-vibrating mechanism comprising a reciprocating actuator having a slot, an idle wrist extending loosely through said slot, a ribbon-vibrating lever by the side of said actuator, and having a slot through which said wrist also extends, links supporting said idle wrist, a rock-shaft having arms to which said links are pivoted, a finger-piece for adjusting said rock-shaft; one of said actuator and lever elements being so formed that a movement of said idle wrist effected by said rock-shaft may render said lever inoperable by said actuator; and a detent for holding said rock-shaft in a plurality of positions.

12. In a front-strike writing-machine, the combination with a reciprocating actuator having a slot, a lever provided with an open slot, a ribbon-carrier connected to said lever, an idle wrist extending through said slots, a

pair of links upon which said idle links are
carried, a rock-shaft having arms to which
said idle links are pivoted, a detent for hold-
ing said rock-shaft in any of three positions,
5 so that said idle wrist may work in said lever-
slot either near the lever-pivot, or remote
from the lever-pivot, or may move to a posi-

tion outside of said lever-slot, a finger-lever
and a link connecting said finger-lever to a
third arm upon said rock-shaft.

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Witnesses:

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