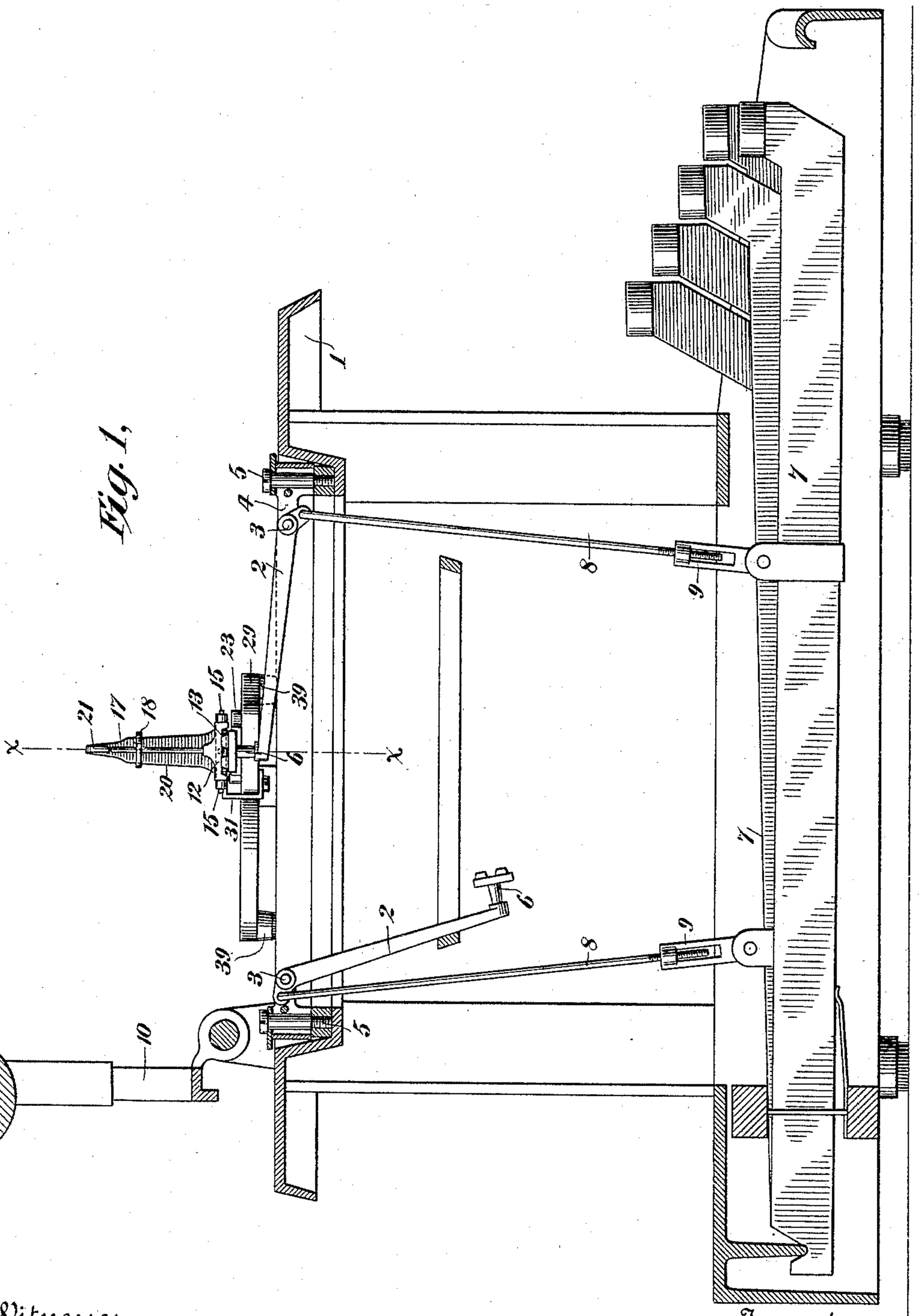
(No Model.) 2 Sheets—Sheet 1.

G. B. WEBB.

TYPE LEVELING CONTRIVANCE FOR TYPE WRITING MACHINES.

No. 496,985. Patented May 9, 1893.

Fig. 1.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2,

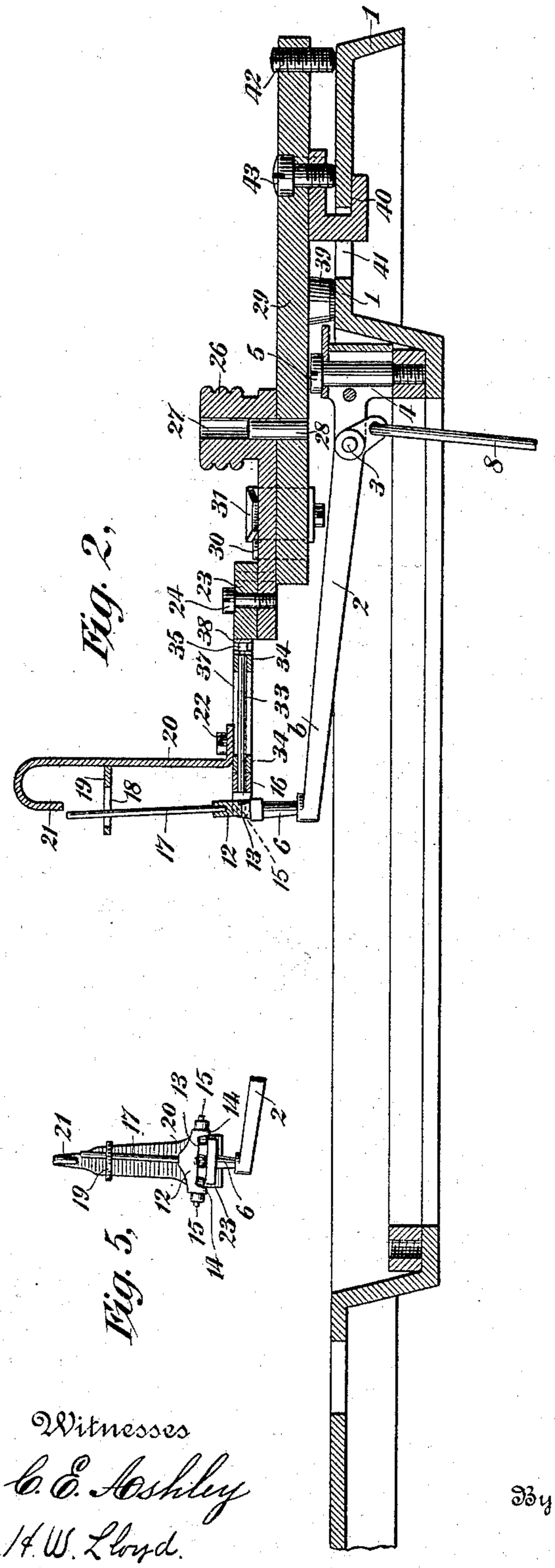

Fig. 3,

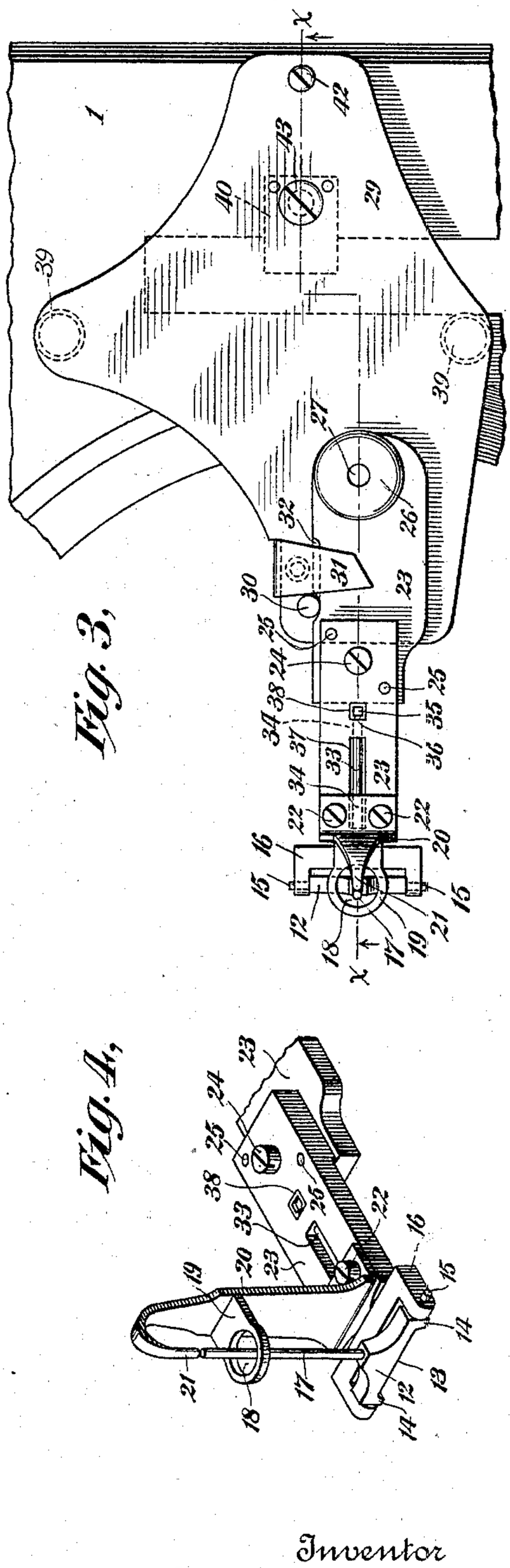

Fig. 5,

Fig. 4,

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UNITED STATES PATENT OFFICE.

GEORGE B. WEBB, OF NEW YORK, N. Y., ASSIGNOR TO THE WYCKOFF, SEAMANS & BENEDICT, OF SAME PLACE.

TYPE-LEVELING CONTRIVANCE FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 496,985, dated May 9, 1893.

Application filed January 13, 1893. Serial No. 458,235. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. WEBB, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Leveling Contrivances for Type-Writing Machines, of which the following is a specification.

In type writing machines of the bar or lever class several operations are necessary (after the pivoting or arrangement of the type bars or levers in the machine) to enable the type to strike at a common center and to print perfectly and in alignment, because of the impracticability of so making the type bars and pivoting them and so making the type and setting them as that each type will stand or come absolutely square at the printing center, or point of impression. One of the operations referred to is known as that of "leveling," or as "setting the type on their feet," which operation consists in so adjusting the type in the machine that when the type-faces are brought to the level of the platen the type shall all stand in the same plane, and with their faces parallel or square with the platen.

My invention has for one of its objects to provide a contrivance to facilitate the operation of leveling, and 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 longitudinal, central vertical section of a portion of a Remington type writing machine embodying my improvements. Fig. 2 is a transverse vertical section taken at the line *x*, *x* of Figs. 1 and 3, omitting the carriage portion of the machine, the base, key-levers, &c. Fig. 3 is a plan view of the parts shown in Fig. 2. Fig. 4 is a perspective view of the leveling contrivance; and Fig. 5 is a detail view showing a modification.

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

1 designates the top plate of a type writing machine about the central portion of which the type bars or levers 2 are mounted in the usual manner. The type-bars are pivoted at 3 in hangers 4, which are secured to the type ring by screws 5.

6 is the type, which is fitted into a socket at the free end of the type-bar. The type shown is duplex or one having upper and lower case, as in the Remington machine. The type bars are connected to the key-levers 7 by rods 8 and turn-buckles 9, as usual.

10 represents the paper-carriage, which at Fig. 1 is shown turned up, and 11 represents the usual cylindrical platen thereon.

12 represents a bar or bed, the under surface 13 of which is arranged to lie in the plane of the under side of the platen 11, when lowered for printing. The said device 12 is provided at either end with downward lugs or ears 14, which receive pivots 15 extending inwardly from a yoke or holder 16, the pivots being preferably placed in the plane of the surface 13, in order to obtain the best leveling effect. Extending vertically upward from the device 12 is an indicator 17, which passes through an opening or ring 18 in a horizontal projection 19 of a vertical bracket 20, which at its upper portion is provided with a downwardly-extending stationary finger or index 21, with which the indicator 17 co-operates, as hereinafter explained. The bracket 20 is fastened, by screws 22, on a bar or support 23, which is preferably made in two parts connected together by a screw 24, dowel pins 25 being provided to prevent any independent movement of either of the two parts constituting the support 23. The said support 23 is provided at its rear or outer end with a thumb-piece 26, having a central perforation 27, which fits upon a fixed pin 28 projecting upwardly from a bed-plate 29, whereby the support 23 is pivoted upon said plate and may be swung laterally upon the pin 28. On the bed-plate 29 is a fixed stop-pin 30, and a spring-lip or friction-catch 31, the pin 30 serving as a guide in positioning the leveling surface centrally of the system of type-bars, and the spring-lip 31 serving by its friction to prevent any accidental displacement of the contrivance when properly set or arranged. The back edge of the support 23 is beveled at 32 to guide the point of the spring-catch 31 up on top of the surface of the support 23.

The yoke or holder 16 is mounted centrally upon a horizontally-arranged shaft or axis 33, which has bearings at 34 in the support 23, the said shaft or axis having a limited amount of oscillation and being arranged in a vertical plane coincident with the lip or finger 21 and at right angles to the bar 12. The free end of the shaft 33 is made square or angular, as at 35 and is provided with a shoulder 36, and this portion of the shaft or pivot, in the construction of the instrument, is arranged to occupy a position in a vertical opening 37 in the support 23. After the shaft 33 has been placed in position, a rectangular C-shaped bushing 38 is inserted, which embraces the squared end 35 and the shoulders 36 in a manner which prevents any withdrawal or movement of the shaft longitudinally.

On the under side of the base plate 29 are two feet 39, which rest upon the top plate 1 of the machine, and also about centrally of said plate 29, on its under side, is a hook-shaped catch 40, which is adapted to pass through an opening 41 in the top plate 1 and form a clamping means for said plate 29 and its attachments. At the extreme outer end of the plate 29 is a leveling screw 42, by which and by the screw 43 of the clamp the surface 13 may be adjusted to the required horizontal plane; or, in other words, to a position coincident with the under side of the platen when down in an operative position.

When the leveling surface 13 is exactly in a horizontal plane the upper end of the pointer is adapted to stand in line with the stationary finger or index 21 extending down from the bracket 20.

In the use of the contrivance, the adjuster or operator raises the type until its face presses squarely against the surface 13. If the upper end of the pointer registers with the depending finger, the adjuster then knows that the type is in proper position or level. But if the pointer stands out of alignment with the finger, he is thereby apprised that the type is out of level, and he must thereupon proceed to cure the defect by either bending or twisting the type-bar 2, according as the pointer stands back or forward of the finger or laterally thereof, either to the right or to the left. If the pointer should stand forward of the finger, as indicated as at Fig. 2, wherein it is shown that the type is not properly leveled, the type-bar 2 should be bent at some point between its pivot and socket (preferably at about the locality marked *b*), for the purpose of throwing the face of the type back in the direction of the pivot 3 to the proper extent to bring the end of the pointer in register with the end of the finger. If the end of the pointer should ever stand back of the end of the finger in the leveling of other types, the type-bar should be bent in the opposite direction. If the end of the pointer should stand either to the right or to the left of the end of the finger the leveling is effected by twisting the type-bar in the proper direction to bring the pointer in line with the finger. In leveling the type, the type-bar must either be bent up or down or twisted. It is not bent laterally for leveling. By bending the type-bar up or down or by twisting it, the plane of the face of the type is changed, and hence the type may be brought properly on their feet or leveled to a position where they will print squarely on the paper on the platen. After ascertaining the nature or character of the error; that is, whether it is one requiring a twisting of the type bar or a bend thereof, and after ascertaining the extent of the error, the operator may swing the support 23 aside for the purpose of more conveniently using the implements which he employs for the purpose of bending and twisting the type-bars. Having operated upon the type-bar in the required manner, the adjuster may then swing the support back to its operative position, and if desired, again try the type on the leveling surface for the purpose of ascertaining positively whether his operation upon the type-bar has entirely cured the defect which he sought to remedy.

By reference to Fig. 2 it will be observed that the type-face rests squarely against the leveling surface 13, but the type being off its feet has rocked the leveling-bar 12 about its pivots 15 and thrown the pointer 17 forward, and it will also be observed, from said figure, that if the type end of the bar should be bent upwardly and backwardly at about the locality marked *b*, and if bent in this direction to the proper extent, when the type is again brought into contact with the leveling surface it will cause the pointer 17 to register accurately with the stationary finger or index. The expert adjuster may determine readily from the amount of deflection of the pointer the amount of bending or twisting to be done to bring the type to proper printing position, and hence not only is the contrivance useful for mechanically accurately leveling the types, but it also enables the work to be done in less time than if the adjuster were obliged to make an impression on the paper with the type and judge of its accuracy by his eye, as heretofore. From this it will be understood that the leveling bar 12 rocks about its pivots when acted upon by types which are out of level and which require the bending of their type-bars to secure leveling of the type-faces. Types which are out of level and which require twisting of their type-bars operate, when brought against the surface 13, to rock or turn the yoke or holder 16, and its shaft 33, with the bar 12 and pointer 17, all together, thereby deflecting the needle or pointer to the right or to the left of the axis or shaft 33. Thus the leveling mechanism is capable of moving in four directions, and of vibrating the pointer in any direction and the pointer being comparatively long the error in level of the type is hence considerably multiplied, thus enabling finer adjustments to be made.

I have shown herein a duplex or Remington type, but of course my invention may be carried out in machines where there is only one type on a bar, and I have also shown a plane or flat leveling surface 13, since the type have plane or flat faces; but if the type in the machine to be aligned have curved or other shaped faces the leveling surface may be formed to correspond as shown at Fig. 5.

Many variations may be made without departing from the spirit of my invention, the gist of which rests in the employment of a leveling device substantially at the plane of the printing point against which the type may bear for the purpose of detecting any error in leveling of the type.

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

1. A type-leveling contrivance adapted for attachment to a type writing machine and provided with a movable plate or surface against which the type may bear at the printing point to indicate any error in the level of the type.

2. A type-leveling contrivance adapted for attachment to a type writing machine and provided with a leveling surface mounted to move in four directions from a horizontal plane, whereby the nature of the error in the level of the type and the manner of its cure may be mechanically indicated.

3. A type leveling contrivance adapted for attachment to a type writing machine, and provided with a movable type-leveling surface carrying an indicator for exhibiting the amount and character of error in the type being leveled.

4. In a type-leveling contrivance adapted for attachment to a type writing machine, the combination of a movable leveling device, and a multiplying indicator carried thereby.

5. In a type leveling contrivance adapted for attachment to a type writing machine, the combination of a four-motion leveling device, an indicator carried thereby, and a fixed index.

6. In a type-leveling contrivance adapted for attachment to a type writing machine, the combination of a type-leveling surface carrying an indicator and pivoted to a yoke or holder, which is pivoted at right angles to the leveling surface, and a stationary index to co-operate with said indicator.

7. In a type leveling contrivance adapted for attachment to a type writing machine, the combination of an oscillatory yoke or holder, a type-leveling surface pivoted to said yoke or holder at right angles to its axis of oscillation, a pointer movable with the type-leveling surface and the yoke or holder, and a fixed index to co-operate with said pointer.

8. In a type-leveling contrivance adapted for attachment to a type writing machine, the combination of the yoke or holder, the shaft or pivot therefor, the type-leveling surface carrying a pointer, and the bracket carrying a fixed index.

9. In a type leveling contrivance adapted for attachment to a type writing machine, the combination of the yoke or holder, the shaft or pivot therefor, the type leveling surface carrying a pointer and pivoted in said yoke or holder at right angles to its own pivot, a bracket carrying a fixed index, and a limiting means for said pointer.

10. In a type leveling contrivance for type writing machines, the combination with a base-plate adapted to be fixed upon the top-plate of a type writing machine, of a support pivoted upon said base-plate and provided at its inner end with a type-leveling surface for detecting any error in level of the type, and also provided with suitable means for indicating the amount and character of such error.

11. In a type leveling contrivance for type writing machines, the combination with a base-plate, of a support pivoted thereto and provided at its inner end with means for detecting any error in level of the type and for indicating the amount and character of such error, and also provided with means for guiding said pivoted support to its proper position and for holding the same thereat against accidental displacement.

12. In a type writing machine, the combination with the top-plate thereof, of a type leveling contrivance comprising a bed-plate, a pivoted support, and a detector for exhibiting any error in level of the type.

13. In a type writing machine, the combination of the top-plate thereof, the bed plate provided with attaching means and with means for adjusting its level, and a pivoted support provided at its inner end with means for exhibiting the amount and character of any error in the level of a type being operated upon.

Signed at New York city, in the county of New York and State of New York, this 11th day of Jauuary, A. D. 1893.

GEORGE B. WEBB.

Witnesses:
JACOB FELBEL,
IDA MACDONALD.