

No. 771,596.

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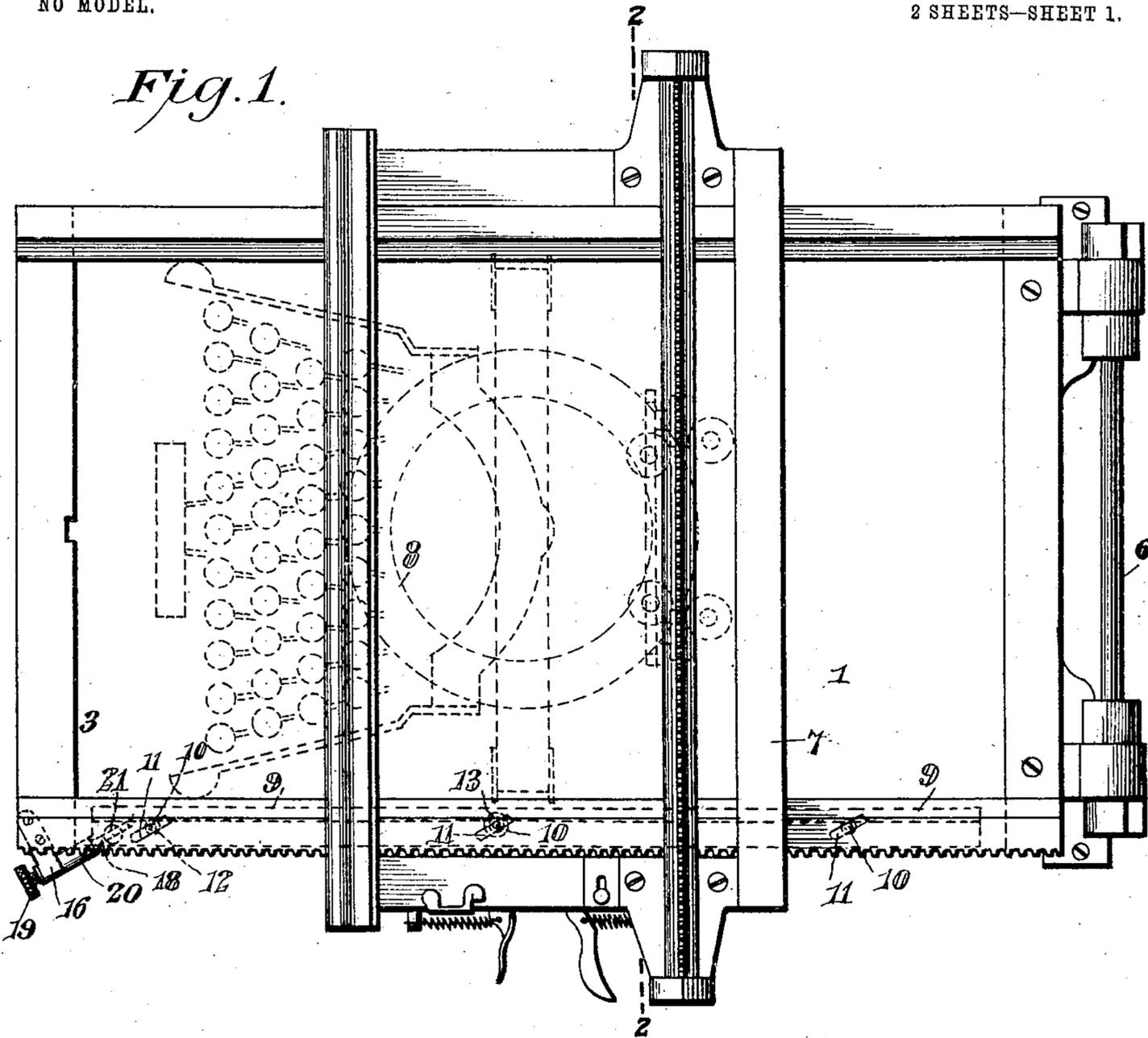
G. S. ANDERSON.  
ADJUSTING OR LEVELING DEVICE FOR TYPE WRITERS.

APPLICATION FILED APR. 13, 1904.

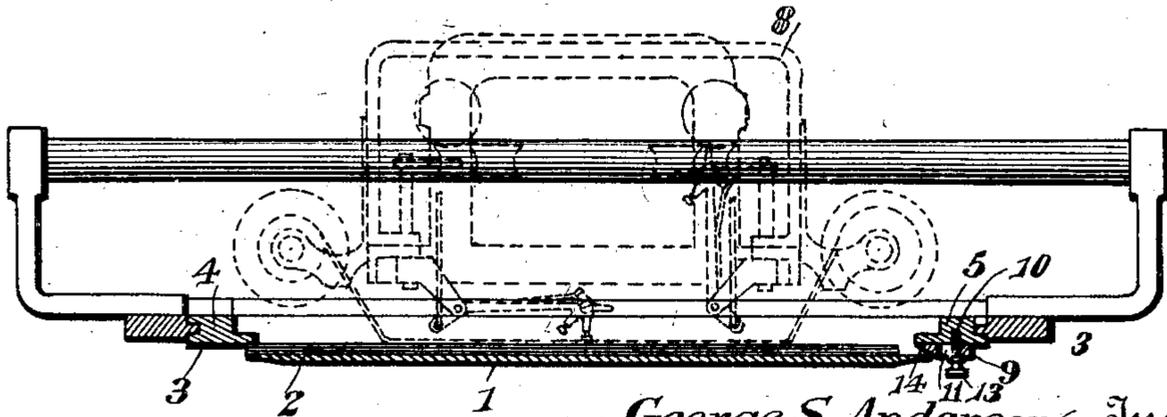
NO MODEL.

2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



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# UNITED STATES PATENT OFFICE.

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## ADJUSTING OR LEVELING DEVICE FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 771,596, dated October 4, 1904.

Application filed April 13, 1904. Serial No. 202,965. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE STUART ANDERSON, a citizen of the United States, residing at Highspire, in the county of Dauphin and State of Pennsylvania, have invented a new and useful Adjusting or Leveling Device for Type-Writers, of which the following is a specification.

This invention relates to an adjusting or leveling device for type-writers, and has special reference to the improvement of the instrumentalities disclosed in Patent No. 727,951 to C. F. Hopkins for elevating one side or rail of the machine-supporting frame of a flat platen type-writer for the purpose of maintaining the writing mechanism in proper position under varying conditions of use.

In machines of this general type the work sheet or sheets are supported by the flat platen and confined along one or more margins by an overlying vertically-movable frame, which serves to support a machine movable longitudinally of the platen for line-spacing and including downwardly-acting writing mechanism laterally movable to effect letter-spacing. As pointed out in the Hopkins patent, it frequently occurs in practice that the sheet or sheets supported by the platen are of less width than the overlying frame. In this event the sheets are confined by one side only of the frame, and if the sheets are numerous, as they are, for instance, when the machine is employed for extensive manifolding, the side of the frame resting thereon will be supported in an elevated position, while the other side of said frame will be unsupported and will sag under the weight of the machine. The effect of this will be to dispose the opposite sides or guides of the machine-supporting frame in different horizontal planes, thus destroying that parallelism between the machine-frame and the platen, which is essential to the proper operation of the printing mechanism. The arrangement adopted by Hopkins to overcome this difficulty comprises one or a series of adjusting devices—as, for instance, cams or screws—located at various

points along the edge of the platen and engaging one side of the machine-supporting frame to adjust and support the same at the proper level. In practice, however, the location of these adjustable frame-supports at a plurality of points in the length of one track or guide permits the latter to sag at intermediate points, and even if a sufficient number of these devices are employed to prevent objectionable sagging it is nevertheless necessary to separately adjust each individual device in order to properly level the frame.

The object of my invention is to provide a device or means adjustable to effect the leveling of the machine-supporting frame and constituting a support for substantially the entire length of that side of the frame which is not imposed upon the work-sheets.

In the accompanying drawings, Figure 1 is a plan view of the platen, machine-supporting frame, and machine-frame of an Elliott-Fisher type-writing machine of the Elliott type equipped in accordance with my invention, the carriage and printing mechanism being indicated in dotted lines. Fig. 2 is a transverse sectional view on the line 2 2 of Fig. 1. Fig. 3 is a detail perspective view of the machine-supporting frame inverted and equipped with my leveling device. Fig. 4 is a bottom plan view of one side of the machine-supporting frame indicating one position of the leveling-strip in dotted lines and showing a portion of the strip-adjusting mechanism in section. Fig. 5 is a detail sectional view on a somewhat enlarged scale, showing the relation of the frame and platen and the intermediate leveling-strip.

The same numerals designate corresponding parts in the several views.

1 indicates the usual flat platen for the support of the work-sheets 2.

3 indicates a rectangular machine-supporting frame, the side bars 4 and 5 of which constitute tracks or guides overlying the longitudinal edges of the platen and constituting marginal confining or holding means for the work-sheets. The frame 3 is hinged at its

rear end upon a hinge-rod 6 and is therefore vertically movable to facilitate the insertion or removal of the sheets.

The secondary or machine frame 7 is slidably supported by the frame 3 to permit its movement lengthwise of the platen for the purpose of line-spacing the writing, which is letter-spaced by the lateral movement of the writing mechanism 8, carried by the machine-frame 7.

When the work-sheets 2 are of less width than the interval between the side bars of the frame 3, they are held along one margin only by said frame, and it will be obvious that the interposition of a number of sheets between the platen and one side bar—as, for instance, the bar 4—will serve to elevate the frame from the platen and to support it at one side only. In consequence the opposite side of the frame, being unsupported, will sag or drop, if not by its own weight by the addition thereto of the weight of the machine. The proper parallelism between the machine and the platen being thus destroyed, the distance between the platen and the fulcrums of the various type-bars of the writing mechanism will vary, and said bars will not have a common printing-point. To overcome this difficulty, I provide means whereby that side of the supporting-frame which is not imposed upon the work-sheets will be continuously supported throughout its entire length, or substantially so, in proper position to maintain the parallelism of the platen and frame.

In the illustrated embodiment of the invention a metal leveling strip or blade 9 is imposed against the under side of the right-hand frame-bar 5 and is adjustably retained in place by suitable means—as, for instance, screws 10 passed through oblique slots 11 in the strip 9 and screwed into the frame-bar 5. (See Figs. 3 and 5.) These screws are preferably located adjacent to the opposite ends of the strip and at an intermediate point, respectively, and are provided with heads 12, imposed against the under side of the strip. One of these devices is preferably in the form of a thumb-screw 13, the head being enlarged and knurled to facilitate the turning of the screw for the purpose of rigidly securing the strip against movement after proper adjustment thereof.

The inner longitudinal edge of the strip 9 is beveled, as indicated at 14, (see particularly Fig. 5,) in order to constitute said edge a wedge capable of being urged between the bar 5 and the platen to effect the desired separation thereof.

It is apparent that the structure thus far described comprehends a complete embodiment of my invention in one aspect thereof, since the frame adjusting or leveling strip 9 may be moved inward by hand, the several screws 12 constituting studs, which by engagement

with the walls of the slots in the strip will compel the strip to advance uniformly throughout its length. In other words, the screws 10 constitute means compelling equal movement of both ends of the strip, so that the vertical adjustment of the machine-supporting frame will be identical throughout the length of the bar 5. I prefer, however, to provide means conveniently located at the front end of the frame for securing an extremely nice adjustment of the strip.

At the under side of the right-hand front corner of the frame 3 is secured an angularly-disposed bracket 16, through which is passed the plain cylindrical portion 17 of a strip-adjusting screw 18. Secured to the front end of the screw 18 is a knurled head 19, abutting against one side of the bracket 16, against the other side of which abuts a collar 20, likewise secured to the screw. The collar 20 and the head 19 are designed to prevent longitudinal movement of the screw, while permitting the latter to rotate in the bracket 16 as a bearing. The rear threaded end of the adjusting-screw 18 is passed through and has threaded engagement with a stud 21, depending from the strip 9 adjacent to its front end, as clearly shown in Figs. 3 and 4.

Attention is now directed to the fact that the adjusting-screw 18, as well as the several slots 11 in the strip, are disposed obliquely with reference to said strip and that the latter will not only have uniform movement throughout its length, but will move in an oblique direction, so that its lateral movement, which alone is effective for the adjustment of the frame, is considerably less than the total movement of the strip necessary to accomplish such adjustment. Therefore a given advance of the stud 21 along the adjusting-screw, by reason of the rotation of the latter, will result in a lesser lateral movement of the strip. (Compare the two positions of the strip indicated in full and dotted lines, respectively, in Fig. 4.) This peculiarity of the movement of the strip will not only facilitate a nicety of adjustment of the latter, but it also reduces the force required to effect the adjustment and makes the screw 18 comparatively easy to turn. This is for the reason that by moving the wedge in an oblique direction the effect is precisely the same as if a wedge having a more gradual taper were employed.

It will of course be understood that while I have described and shown my frame-leveling device at the right-hand side of the frame either or both sides of the frame may be thus equipped, if desired.

It is thought that from the foregoing the construction, mode of manipulation, and the advantages accruing from the use of my device will be readily understood; but while the present embodiment of the invention appears at this time to be preferable I desire to re-

serve the right to effect such changes, modifications, or variations thereof as may come fairly within the scope of the protection prayed.

5 What I claim is—

1. In a type-writer, a flat platen, an overlying machine-supporting frame, and leveling means including a continuous longitudinal support for one side of said frame.

10 2. In a type-writer, a flat platen, an overlying machine-supporting frame, and a frame-supporting strip extending along substantially the entire length of the frame at one side thereof and adjustable to level said frame.

15 3. In a type-writer, a flat platen, an overlying machine-supporting frame, and a frame-leveling device including a member movable horizontally to effect the vertical adjustment of the frame.

20 4. In a type-writing-machine platen, an overlying machine-supporting frame, frame-leveling means including a leveling-strip movable laterally to adjust one side of the frame, and means for compelling uniform movement

25 of said strip throughout its length.  
5. In a type-writer, a flat platen, an overlying machine-supporting frame, and a frame-leveling device including a wedge adapted to be interposed between the frame and platen.

30 6. In a type-writer, a flat platen, an overlying machine-supporting frame, and frame-leveling means including a wedge, and means for guiding the wedge to compel an oblique movement thereof.

35 7. In a type-writer, a flat platen, an overlying machine-supporting frame, and a frame-leveling strip located along one side of the frame and having a tapering edge insertible between the frame and platen.

40 8. In a type-writer, a flat platen, an overlying machine-supporting frame, and a frame-leveling strip having a tapering edge insertible between the frame and platen, and means for guiding the strip in an oblique path.

45 9. In a type-writer, a flat platen, an overlying machine-supporting frame, a frame-leveling strip extending along one side of the frame, having one longitudinal edge beveled for insertion between the frame and platen, and provided with oblique slots, and relatively

50 fixed projections engaging said slots to compel the strip to follow an oblique path and to move uniformly throughout its length.  
10. In a type-writer, a flat platen, an overlying machine-supporting frame, and a frame-leveling device including an actuating member located at the front end of the frame and a leveling member operated thereby.

55 11. In a type-writer, a flat platen, an overlying machine-supporting frame, and a frame-leveling device including an adjustable frame-support, and means located at the front end of the frame for moving said support hori-

zontally to vary the separation of the frame and platen.

65 12. In a type-writer, a flat platen, an overlying machine-supporting frame, and frame-leveling mechanism including supporting means for both ends of one side of the frame, and a single device for moving said support-

70 ing means to effect the simultaneous uniform adjusting of both ends of the frame.  
13. In a type-writer, a flat platen, an overlying machine-supporting frame, a leveling-strip located along one side of the frame and

75 having a beveled edge insertible between the frame and platen, means for moving said strip, and means compelling uniform movement of the strip throughout its length.  
14. In a type-writer, a flat platen, an over-

80 lying machine-supporting frame, a leveling-strip located along one side of the frame and having one edge tapered and insertible between the frame and platen, and a strip-adjusting screw located at the front end of the

85 frame.  
15. In a type-writer, a flat platen, an overlying machine-supporting frame, and frame-leveling means including a longitudinal leveling-strip carried by one side of the frame and

90 having a tapering edge insertible between the frame and platen by the lateral movement of the strip, guiding means for said strip, a strip-adjusting screw carried by the frame, and means for securing the strip in its adjusted

95 positions.  
16. In a type-writer, a flat platen, a machine-supporting frame, and a longitudinal leveling-strip carried at one side of the frame.

100 17. In a type-writer, a flat platen, a machine-supporting frame, and a horizontally-movable leveling-strip.  
18. In a type-writing machine, a flat platen, a machine-supporting frame, a frame-leveling member and an actuator therefor, said mem-

105 ber and actuator being relatively movable.  
19. In a type-writing machine, a flat platen, a machine-supporting frame, a frame-leveling member and an actuating member therefor, one of said members having reciprocatory and

110 the other rotary movement.  
20. In a type-writing machine, a flat platen, a machine-supporting frame, a reciprocatory leveling member for said frame, and a rotary actuator for said member.

115 21. In a type-writer, a flat platen, a machine-supporting frame, and a frame-leveling device including a wedge and a wedge-adjusting screw.

In testimony that I claim the foregoing as

120 my own I have hereto affixed my signature in the presence of two witnesses.  
GEORGE STUART ANDERSON.

Witnesses:

WARREN SAMUEL FISHER,  
GEO. RAYMOND ANDERSON.