

Feb. 4, 1969

M. ZOLLIKER

3,426,356

TYPEWRITER FOR TYPING ON STIFF DOCUMENTS

Filed Dec. 2, 1965

Sheet 1 of 3

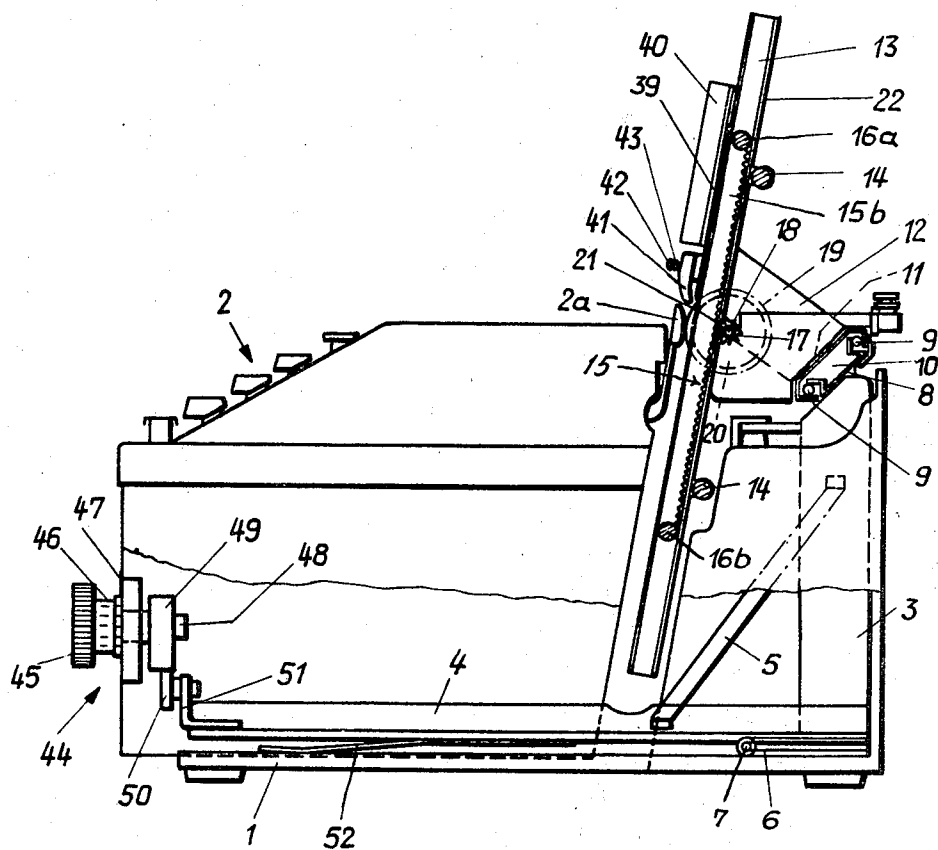


Fig. 1

Feb. 4, 1969

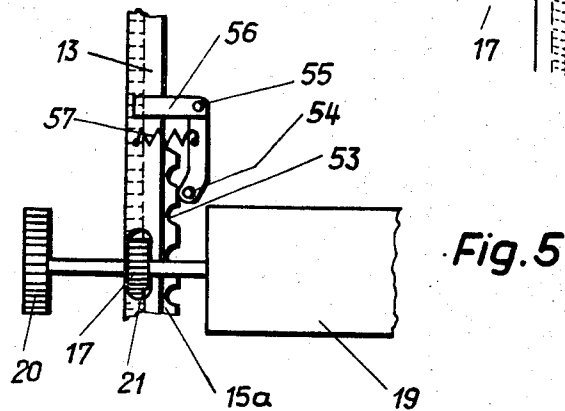
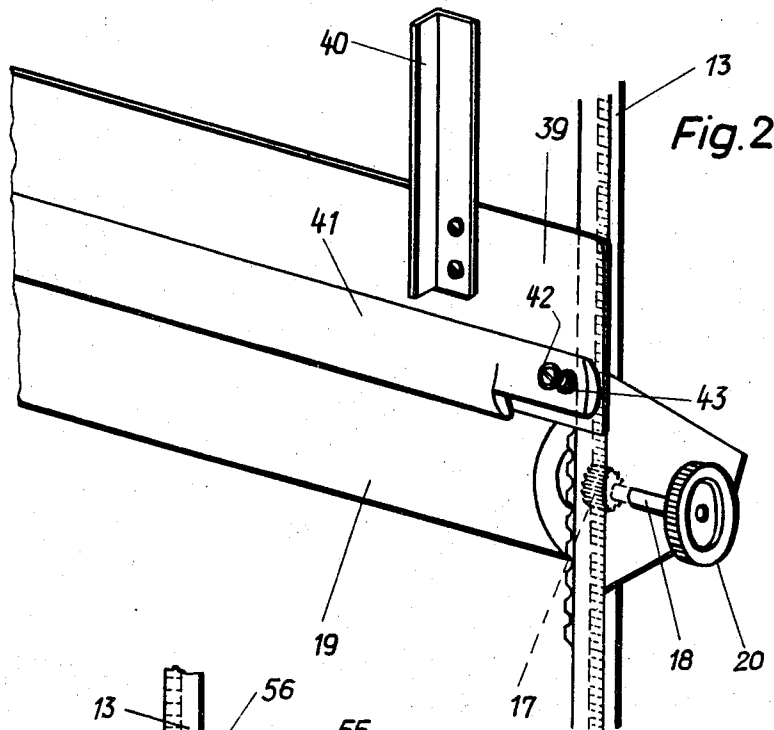
M. ZOLLIKER

3,426,356

TYPEWRITER FOR TYPING ON STIFF DOCUMENTS

Filed Dec. 2, 1965

Sheet 2 of 3



Feb. 4, 1969

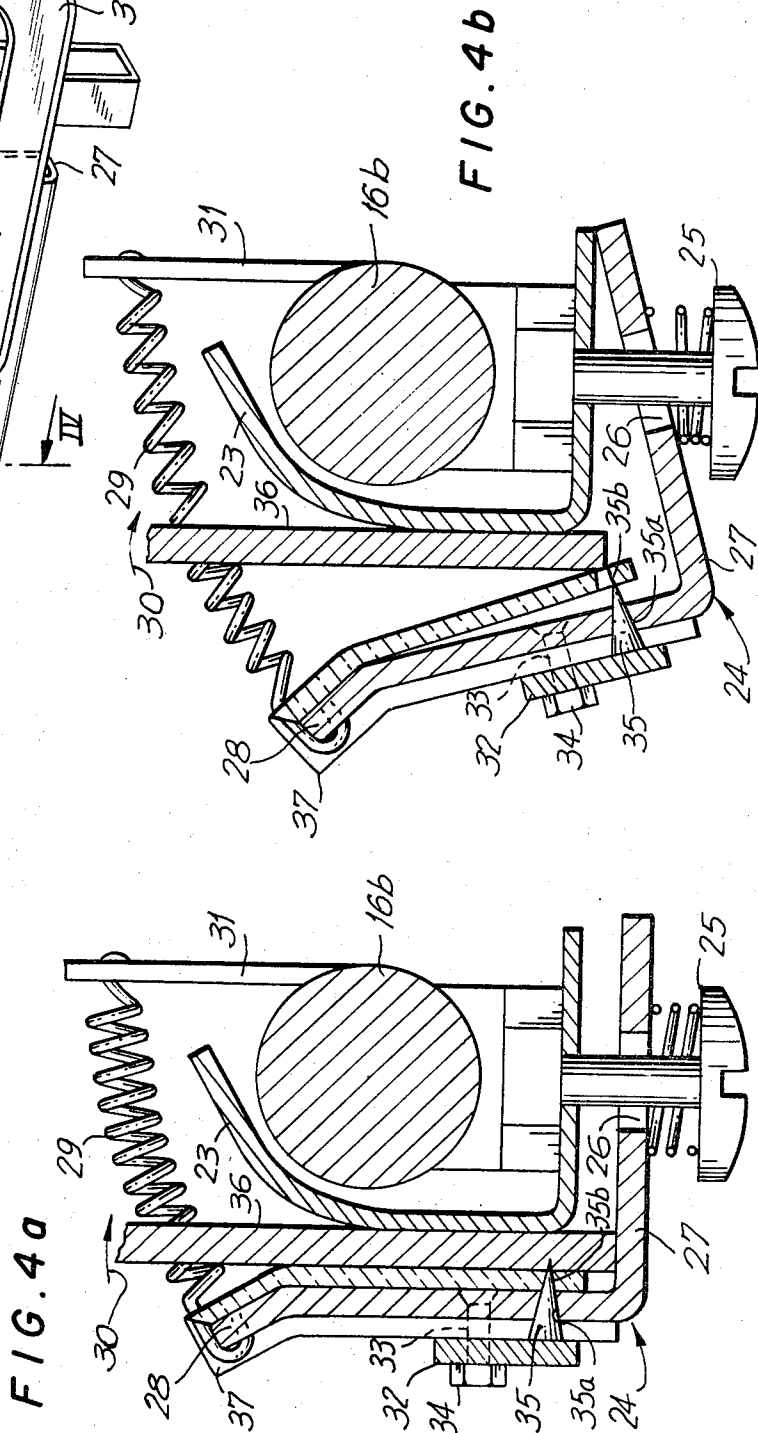
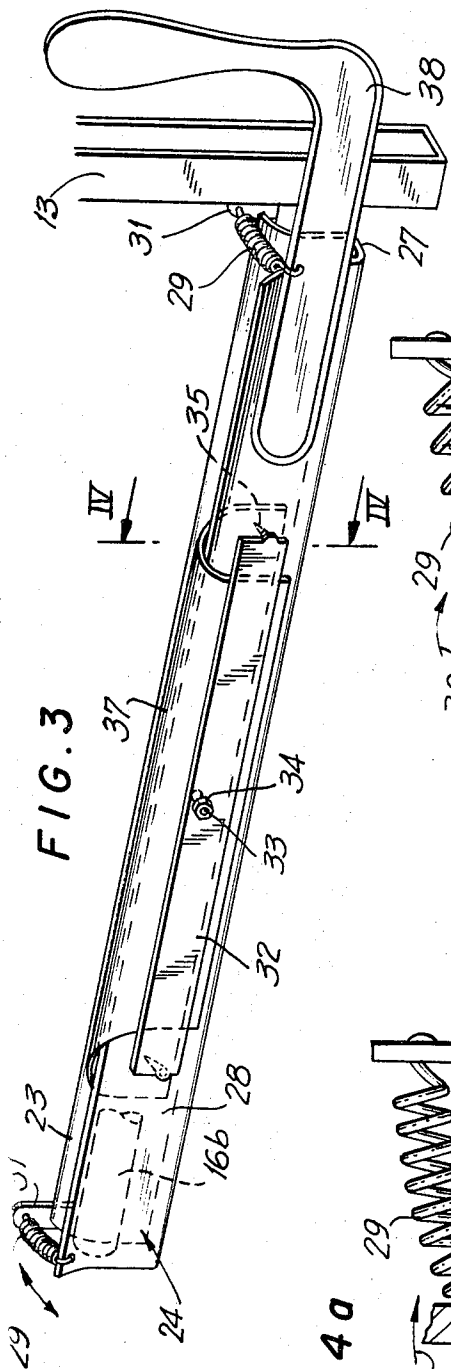
M. ZOLLIKER

3,426,356

TYPEWRITER FOR TYPING ON STIFF DOCUMENTS

Filed Dec. 2, 1965

Sheet 3 of 3



1

2

## 3,426,356 TYPEWRITER FOR TYPING ON STIFF DOCUMENTS

Max Zolliker, Zurich, Switzerland, assignor to

August Baggenstos, Zurich, Switzerland

Filed Dec. 2, 1965, Ser. No. 511,031

Claims priority, application Switzerland, Sept. 28, 1965,  
13,380/65

U.S. Cl. 197—135

2 Claims

Int. Cl. B41j 13/12, 11/20

### ABSTRACT OF THE DISCLOSURE

A typewriter for stiff documents having a chassis bearing an adjustable pivotal support and a guide frame mounted in transversely movable carriage on the support and in turn supporting a slide assembly for the documents in front of a counter-pressure platen mounted in the carriage. The support is adjustable to vary the position of the document relative to the types to adjust the force of impact of the types on the document.

The present invention relates to typewriters for typing on stiff documents and has the primary object of providing the correct force of impact of the types on the document, regardless of its thickness.

With this and other objects in view, which will become apparent later from this specification and the accompanying drawing, I provide a typewriter for typing on stiff documents, comprising in combination: a chassis, a key board and a plurality of types operated by said keyboard mounted on said chassis, a support mounted in said chassis pivotally about a transverse axis, an adjustment device mounted on said chassis and operatively engaging said support so as to adjust the rotational position of said support relative to said chassis, a transversely movable carriage on said support, a guide frame mounted substantially vertically on said carriage, a slide in operation carrying the documents guided in said frame and a counter pressure platen journaled in said carriage about a transverse axis behind said frame and in operation backing said documents against the force of impact of said types on the front thereof, said adjustment device adapting the position of the front of the documents relative to said types so as to attain the correct force of impact thereof on said documents when typing thereon.

These and other features of my said invention will be clearly understood from the following description of an embodiment thereof given by way of example with reference to the accompanying drawing, in which:

FIG. 1 is a diagrammatic side elevation view of a typewriter according to the invention,

FIG. 2 is a perspective view of the counter pressure platen and of some of the adjacent components,

FIG. 3 is a perspective view of an arrester mechanism for the documents,

FIG. 4a is a section on line IV—IV of FIG. 3 showing the arrester mechanism in closed position,

FIG. 4b is a similar section showing the arrester mechanism in open position, and

FIG. 5 is an elevation view of a detail.

The typewriter illustrated, of which only those parts are shown which are required for the understanding of the present invention, comprises according to FIG. 1 a chassis 1, on which a key board 2 of the usual kind with the associated mechanisms and types is mounted. One type is shown in the impact position, and is denoted 2a. A vertical frame 3 is fixedly connected at its rear lower end with a central horizontal rail 4, from which moreover two symmetrical stiffener struts 5, which in FIG. 1

lie one behind the other, lead to the frame 3. The components 3-5 form a support, which by means of two mutually aligned hinges 6 (not shown in detail) is mounted pivotally about a transverse axis 7 passing through the aligned hinges. On the upper part of the frame 3 a carriage guide 8 is mounted which with the aid of two rows of ball bearings 9 serves for guiding a carriage 10, which upon actuation of a key and after the impact of the type 2a is transversely shifted in the usual manner a step at a time corresponding to the width of one type. On the carriage 10 a flat cross member 11 is attached, which has its ends turned up at right angles to form two jaws 12 on which two mutually parallel guide rails 13 of U-profile are attached. These U-profile rails 13 are connected with one another by means of two transverse bars 14 arranged outside the legs of the profile rail 13 so as to form a rigid guide frame, which stands in an almost vertical position. The two U-profile rails 13 are open towards the interior of this frame, and in the drawing the forward U-profile rail 13 and the components adjacent to it have been omitted, so that the rear U-profile rail 13 is visible from inside.

In the two U-profile rails 13 there are mounted two tooth racks 15a and 15b (see also FIG. 5), which are fixedly connected with one another by two transverse bars 16a and 16b, so that a slide assembly 15 is formed, which is adjustable in the vertical direction. For adjusting the vertical position of the slide assembly 15 two pinions 17 are provided, which mesh with the toothed racks 15a, 15b and are mounted on a shaft 18, on which a counter pressure platen or roller 19 of the usual kind is mounted. The shaft 18 is journaled in the two jaws 12, and is provided at each of its ends with a knurled knob 20 (see FIG. 2). The pinions 17 each through corresponding apertures 21 in the rear of legs 22 of the U-profile rails 13. The lower cross bar 16b of the slide is, in accordance with FIGS. 4a and 4b, covered at its forward side by a curved sheet metal strip 23, which is fixedly connected with it in any suitable manner as for example by being welded thereto. Moreover a substantially rectangular profile sheet metal strip 24 is provided, both strips 23 and 24 extending over the full width of the slide assembly 15. Two screws 25 reach with ample clearance through two holes 26 of a horizontal leg 27 of the outer sheet metal strip 24, and are secured to strip 23, and two tension springs 29 engaging on the ends of vertical leg 28 urge the same in the direction of the arrow 30, making use of the aforesaid clearance of the screws 25 in the holes 26. The springs 29, on the other hand, engage lugs 31 (see FIG. 3), which are fixed on the transverse bar 16b. An elongated small plate 32 is attached on the outside of the leg 28 by means of a screw 33 and a nut 34 and it carries two pointed elements 35 extending through corresponding holes 35a of the leg 28. These pointed elements 35 serve for contacting and retaining the lower margin of a document 36 in the pocket formed by the sheet metal strips 23 and 24. Engaged in this pocket 23, 24 from above is the rear leg of a U-shaped protective strip 37 of celluloid or the like, whose forward leg is clamped between the vertical leg 28 of the sheet metal strip 24 and the small plate 32. The rear leg of the protective strip 37 (which is wider than the front leg as shown in FIG. 3) is provided with holes 35b for the passage of the pointed elements 35. An angular handle 38 (shown in FIG. 3 but omitted in FIGS. 4a and 4b) is attached to the outer sheet metal strip 24, to rotate the strip 24 in a direction opposite arrow 30, and thus to open the pocket 23, 24. The protective strip 37, has the shape as shown in FIG. 3 and is resilient so that when the strip 24 is rotated by handle 38, the pointed elements 35 retract into the holes in the rear leg of strip 37 whereby contact of a document 36 being inserted into the open pocket, with elements 35 is presented.

Returning to FIG. 2, it should be noted that the guide rails 13 are connected with one another also by a transverse plate 39. On this plate 29 two angle-profile rails 40 are screwed symmetrically in relation to the middle plane of the vertical slide assembly 15. The rails 40 serve as lateral guides for the document 36. Along the lower edge of the plate 39 and spaced in front of it, a transverse resilient document guide 41 is attached on the rails 13 by means of two screws 42; springs 43 are mounted on these screws and urge the guide 41 very close to the plate 39.

The front face of the plate 39 lies substantially tangentially relative to the counter pressure platen 19, so that, when the document slides downward between the plate 39 and the guide 41, it rests on the rear in the range of action of the type 2a, on the counter pressure platen 19.

In order to be able to allow for variation of the thickness of a document 36, e.g. book, booklet, pad or the like, the angular position of the support 3-5 relative to the chassis is adjustable by means of an adjustment device 44 illustrated in FIG. 1. This adjustment device comprises a rotatable knob 45 journaled on the front of the chassis 1 and provided with scale markings 46 in juxtaposition with a marking 47 fixed relative to the chassis. On the shaft 48 of the rotatable knob 45 there is mounted an eccentric cam 49, which co-operates with a sensing roller 50. This sensing roller 50 is mounted on an angle member 51, which is fixed on the forward end of the central rail 4 of the support 3-5. A leaf spring 52 arranged between the chassis 1 and the rail 4 urges the support 3-5 in a clockwise direction in FIG. 1, so that the sensing roller 50 is always kept in contact with the eccentric cam 49. When the knob 45 is turned in one direction or the other from the position illustrated (in which the sensing roller 50 is in its lowest position) the leaf spring 52 urges the support 3-5 correspondingly in the clockwise sense so that the guide frame 13, 14 with the vertical slide assembly 15 moves away from the type 2a. The thicker the document is, the further the guide frame 13, 14 will have to be adjusted rearwardly in order that the type strikes the document with the correct force of impact. Obviously between the type and the document there is provided a typewriter ribbon (not shown).

In order to shift the vertical slide assembly 15 at any time exactly one line spacing when turning the knob 20, the toothed rack 15a is provided with recesses 53 at the same spacing as the lines, in which a pawl 54 may rest, which is pivotally mounted at 55 on an arm 56, fixedly attached on the U-profile rail 13. The pawl 54 is urged by a spring 57 towards the rail 15a. It will be seen, that the pawl 54 tends to enter completely into a recess 53 when approaching the same, and that the knob 20 at the beginning of a line shifting movement has to overcome a considerably higher resistance than when continuing the shifting movement. It is clear, that instead of the device

for the line shifting of the counter pressure platen 19, other line shifting devices such as the usual ones, may be used.

What I claim as my invention and desire to secure by Letters Patent, is:

1. A typewriter for typing on stiff documents comprising in combination: a chassis, a key board and a plurality of types operated by said key board mounted on said chassis, a support mounted in said chassis pivotally about a transverse axis, an adjustment device mounted on said chassis and operatively engaging said support so as to adjust the angular position thereof relative to said chassis, a transversely movable carriage mounted on said support, a guide frame mounted substantially vertical on said carriage, a slide guided in said frame, two strips mounted on the lower end of said frame for relative pivotal movement and forming a pocket for the lower end of a document, spring means biasing the strips towards one another in the sense of closing said pocket, a hand grip attached to one of said strips for opening said pocket against the bias of said spring means, and projections in one of said strips directed towards the interior of said pocket for retaining said document in said pocket, and a transverse counter pressure platen journaled in said carriage behind said frame for backing said document against the force of impact of said types on the front of the document, said adjustment device being operative to vary the angular position of the front of the document relative to said types so as to attain the correct force of impact thereof on said document when typing thereon.

2. A typewriter as claimed in claim 1, wherein said projections are in the form of pointed elements, said typewriter comprising a protective element mounted on and covering the upper edge of said one of said pivotally mounted strips, said protective element being resilient and preventing the contact of said documents with said pointed elements when inserting the documents into said pocket, while the latter is kept open by means of said handgrip.

#### References Cited

##### UNITED STATES PATENTS

1,227,847	5/1917	Smith	197—135
1,252,820	1/1918	Kurowski	197—135
1,625,321	4/1927	Kurowski	197—135
1,725,542	8/1929	Schneider	197—135
2,062,236	11/1936	Schuler	197—149
3,123,194	3/1964	Facijs et al.	197—149 X

ROBERT E. PULFREY, *Primary Examiner*.

E. T. WRIGHT, JR., *Assistant Examiner*.

U.S. Cl. X.R.

197—149