

Feb. 12, 1952

C. B. LUNDSTROM
TYPEWRITER CABINET

2,585,566

Filed Oct. 27, 1947

2 SHEETS--SHEET 1

FIG. 1

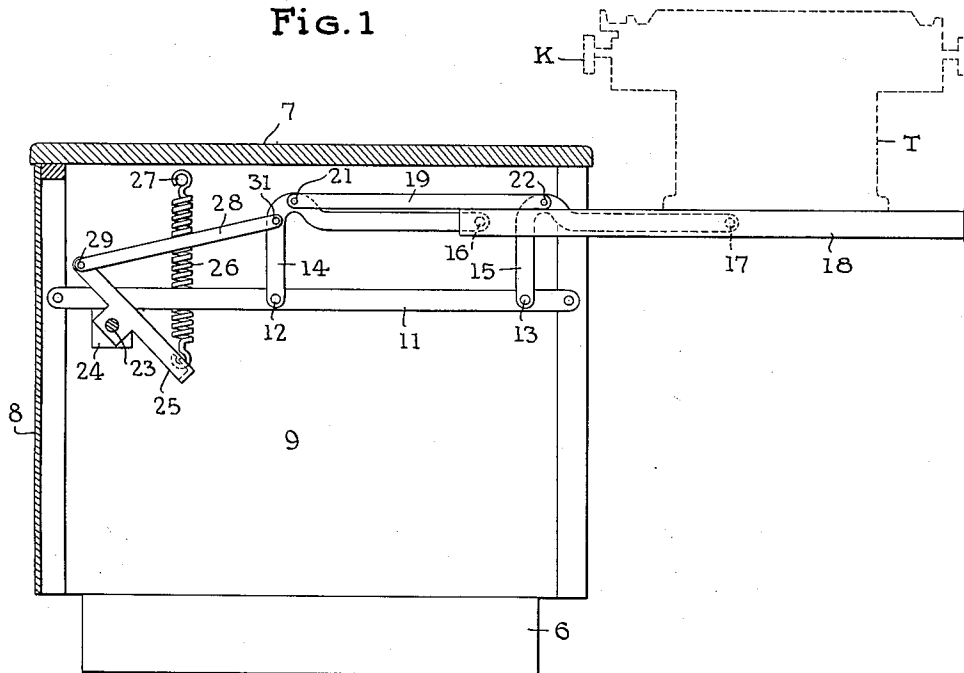
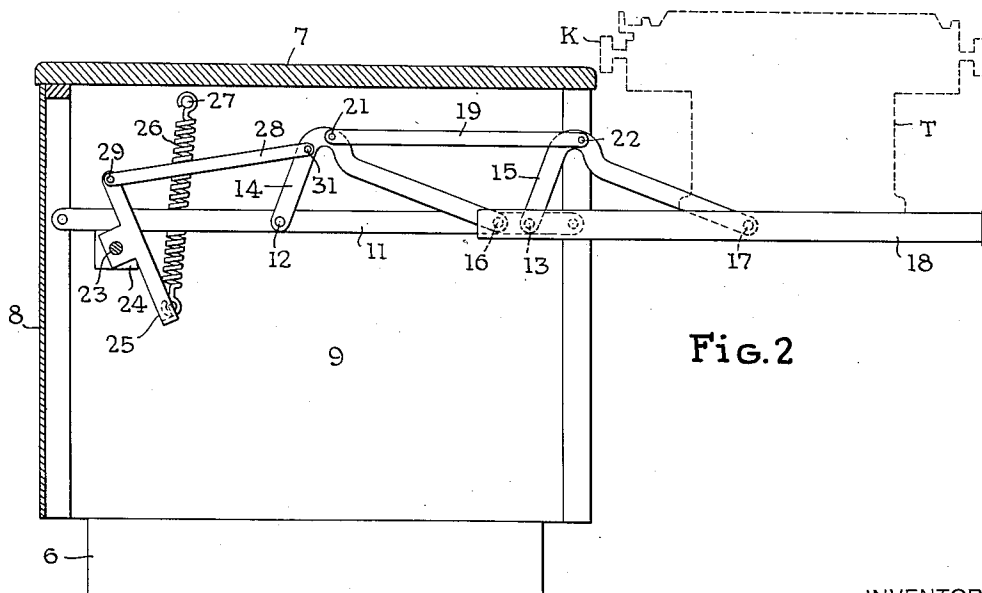


FIG. 2



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2 SHEETS—SHEET 2

Fig.3

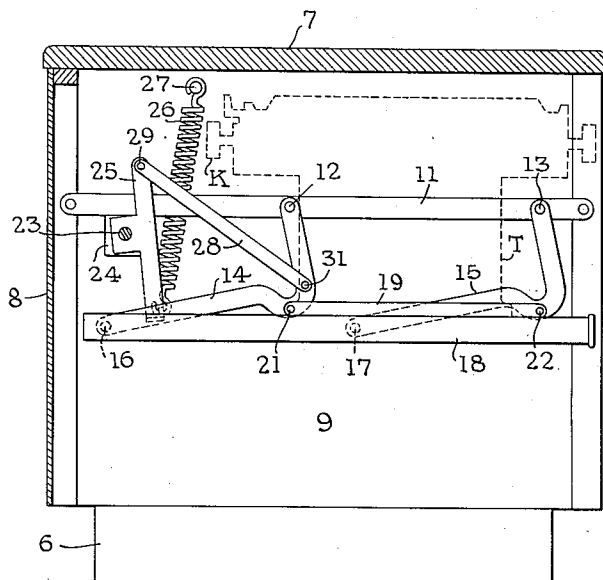
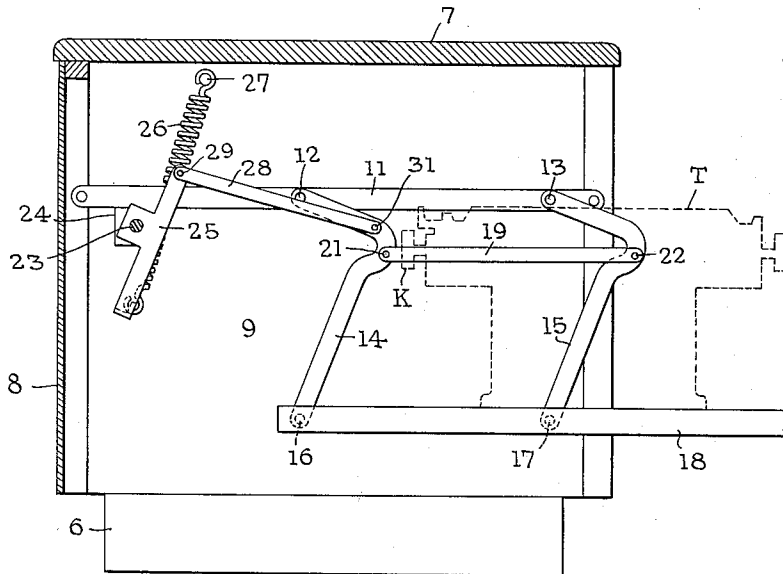


Fig. 4

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TYPEWRITER CABINET

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Application October 27, 1947, Serial No. 782,331

2 Claims. (Cl. 312-27)

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This invention relates to cabinets of the disappearing instrument type and particularly to typewriter desks of that type in which a platform is guided in one continuous movement, and by a parallel motion linkage pivoted to the desk, from an active position in which it projects from an opening in the front of the desk to a storage position in which it is wholly within the desk.

The development of typewriter-desk equipment for use by clerical forces of large corporations has two conflicting trends. Conservation of floor space dictates the use of desks of minimum dimensions, whereas the need for filling out rather large forms frequently requires the use of wide-carriage typewriters.

The object of the invention is to afford a mechanism of the type mentioned which will be simple and which will house a wide-carriage typewriter in a desk which, measured from front to back, is small. Rather complicated mechanisms to meet this condition have been manufactured. One well known device of this type has a carriage on which the platform is rolled out to the front of the desk, and then elevated by the operation of a parallel-motion linkage. These devices are expensive and unduly complicated. The present invention permits the use of a parallel-motion linkage without any carriage.

How effective the invention is, may be gauged by the fact that, whereas in all prior art devices known to me and involving the use of a linkage without a carriage the maximum width of typewriter which can be accommodated in a 30-inch desk is the so-called 11 inch size, whereas a 30-inch desk constructed according to the invention will accept a machine having a 14 inch carriage. This comparison is based on the dimensions of the so-called "noiseless" type of machine manufactured by the Underwood Typewriter Company, in which the overall width of the 11 inch size machine is 16 $\frac{1}{2}$ inches and the overall width of the 14 inch machine is 20 $\frac{1}{4}$ inches.

The result is accomplished by pivoting the swinging arms of the parallel-motion linkage to the desk in a horizontal plane which is spaced below the top of the desk a distance approximately equal to the height of the platen axis of the typewriter above the machine-supporting surface.

Another feature of the invention is the use of L-shaped levers whose form will be described in some detail.

The effect of the stated location of the supporting fulcrum is to cause the guided platform

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to swing outward in the initial part of its motion from the extended position toward the housed position. In this way the platen knob of the typewriter is caused to clear the front edge of the desk without objectionably limiting the retreat of the platform into the cabinet during the latter portion of the housing motion.

The invention will now be described by reference to the accompanying drawings, in which

10 Figure 1 is a sectional view through a desk showing the platform in its projected or working position. The silhouette of the supported typewriter is indicated by dotted lines. In this view the platform is shown in elevation and only that parallel motion which is at the far edge of the platform appears. It will be understood, of course, that in accordance with the usual practice there are identical linkages at each side of the platform.

20 Figure 2 is a similar view showing the platform in an intermediate position in its motion from projected to housed position. This position is the one in which the platform has moved furthest outward as demonstrated by the fact that the pivot connections between the supporting levers in the platform are in a plane with the pivot connection between the supporting levers and the desk.

30 Figure 3 is a similar view illustrating the lowest position reached by the platform.

Figure 4 is a similar view showing the platform at the limit of its inward motion.

35 In the drawings, the desk comprises a "sled base" 6, a top 7 and a back wall 8, enclosing the instrument compartment 9 open at the front. Any of the well known closures for the open front of the space 9 might be used, but since this is not a feature of the invention, no closure is illustrated.

40 Supported in a horizontal position at each side of the space 9 is a bar 11. This bar sustains one complete linkage but it will be understood that there are identical linkages similarly positioned and supported at each side of the space 9. Hinged at 12 and 13 on the bar 11 are two L-shaped levers 14 and 15. The swinging ends of these levers are pivoted to one edge of the platform at 16 and 17, the platform being indicated generally by the numeral 18.

50 To afford clearance for the drag link 19, which maintains parallelism of the levers 14 and 15, this link is connected to respective levers at the pivot points 21 and 22 located in bowed offsets formed in the levers, as clearly shown in the 55 drawing.

A rock shaft 23 is journaled at its ends in bearings 24 supported at the two sides of the space 9, and carries near each end a two armed lever 25, each lever being fixed to the rock shaft. One arm of a lever 25 is connected to a counterbalancing spring 26 which acts in tension between the lever and a support 27 fixed at the side of the cabinet. The other end of the lever 25 is connected by a drag link 28 with a corresponding lever 14. The pivotal connections of the drag link are indicated at 29 and 31.

The silhouette of the typewriter is indicated in dotted lines at T. The machine is shown centered on the platform 18 with its carriage in mid position. The platen knob nearest the desk is indicated at K. It will be observed that in Figure 1 the knob is directly above the desk top 7.

In the initial downward motion, the platform has an outward component of motion and at the limit of such outward motion shown in Figure 2 the knob K is clear of the edge of the desk 7. From the position of Figure 2 the platform 18 sinks rapidly with an increasing inward component of motion until it arrives in the lowermost position indicated in Figure 3. The final inward motion has an increasing rising component until the platform 18 reaches its fully housed position shown in Figure 4.

In the extreme outward position of Figure 1 the drag link 19 engages the upper face of the rear end of the platform and contributes to the rigidity of the platform. The link also engages the top of the platform at the other limiting position and so serves again as a stop. (See Figure 4.) The rock shaft 23 constrains the parallel lever linkages at the two sides of the platform to move strictly in unison.

In analyzing the motion of the linkage it is important to observe that the effective arm of lever 14 is the line 12—16 and the effective arm of lever 15 is the line 13—17. While the specific form of linkage illustrated in the drawings is preferred, the principle of the invention can be embodied in various different forms so that limitation to the illustrated embodiment is not implied.

It is probably unnecessary to explain that the spring 26 and the connected lever 25 and link 28 have a toggle action and afford a reversing bias. Thus the springs 26 serve to urge the platform to either of its two extreme positions.

What I claim is:

1. The combination of an open-front cabinet; an instrument-supporting platform movable reversely between a first limiting position in which the platform projects horizontally near the top of the open front of the cabinet, and a second limiting position within and above the bottom of the cabinet; guiding means for said platform comprising two parallel lever linkages, each such linkage comprising two similar generally L-shaped levers, the arms of the L-shaped levers being unequal in length, the short arms of the two levers being hinged to the cabinet at spaced points lying in a horizontal plane at a height intermediate the positions of the platform in said two limiting positions and the long arms of the two levers being hinged at their ends

to the platform at similarly spaced points, the parts being so arranged that in the first named limiting position the long arm is at least approximately horizontal and projects forward from the short arm and the short arm is at least approximately vertical and extends downward from the long arm to its pivoted connection with the cabinet whereby the initial motion of the platform from said first limiting position is forward with an increasing downward motion; drag links, one connected to the levers of each pair adjacent the junction of the two arms thereof, and so located as to engage the platform at each of said limiting positions and arrest motion thereof; and means serving to retain the platform in its respective limiting positions.

2. The combination of an open-front cabinet; an instrument-supporting platform movable reversely between a first limiting position in which the platform projects horizontally from and near the top of the open-front of the cabinet, and a second limiting position within and above the bottom of the cabinet; guiding means for said platform comprising two similar parallel-motion linkages, each linkage comprising a pair of guiding links serving to support a corresponding side edge of the platform, and a drag link connecting the two links of a pair, said guiding links each having three similarly spaced pivot connections, namely, a first pivot connecting the link with the cabinet, all said first pivots lying in a horizontal plane intermediate said first and second limiting positions, a second pivot connecting each link with an edge of the platform, the pivots of a pair of links being similarly spaced on the cabinet and on the platform, and a third pivot whose axis is parallel with the axes of the first and second pivots and is offset from an imaginary plane passing through the axes of the first and second pivots of one guide link, said third pivots connecting corresponding ends of the drag links with the guiding links, said drag links being positioned between pairs of guiding links so as to engage said platform in each of said limiting positions and thus serve as limit stops, said imaginary plane in said first limiting position extending forward and upward from the cabinet-supported pivots whereby the platform is guided to start moving from the first limiting position in a forward and increasingly downward direction.

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