

J. S. HUNTER.  
 TYPE WRITER DESK.  
 APPLICATION FILED MAR. 24, 1911.

1,072,121.

Patented Sept. 2, 1913.

3 SHEETS—SHEET 1.

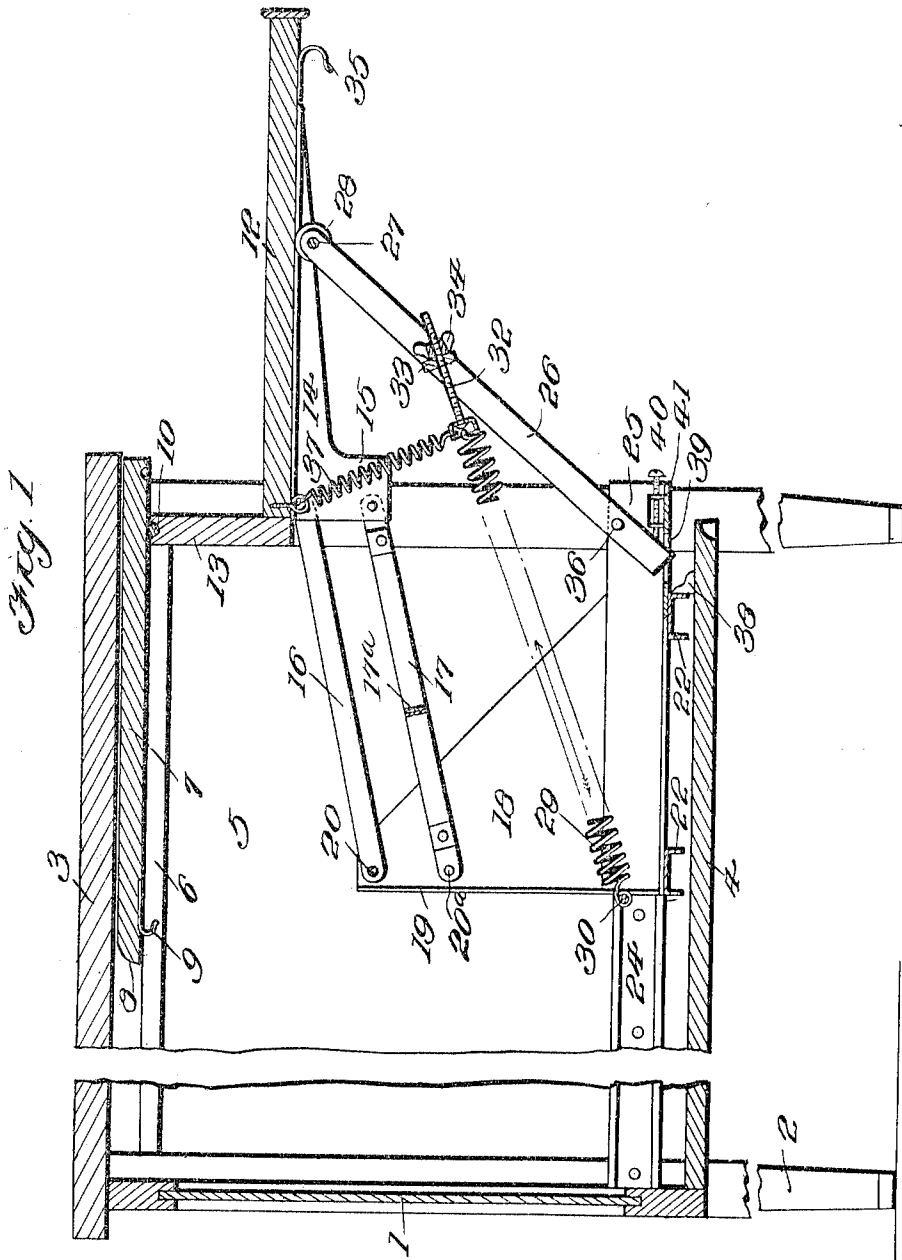


Fig. 1

WITNESSES:  
*W. J. Woodson*  
*G. L. Hart*

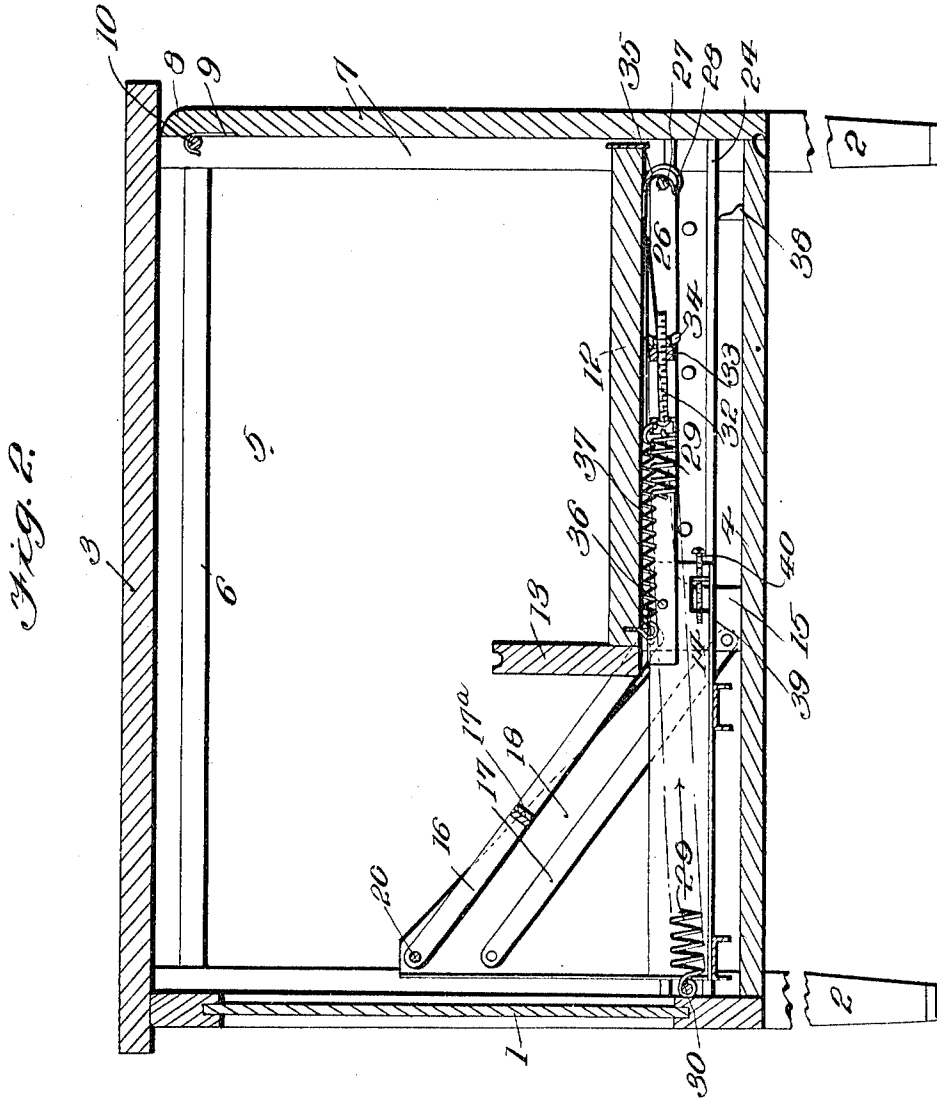
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INVENTOR:  
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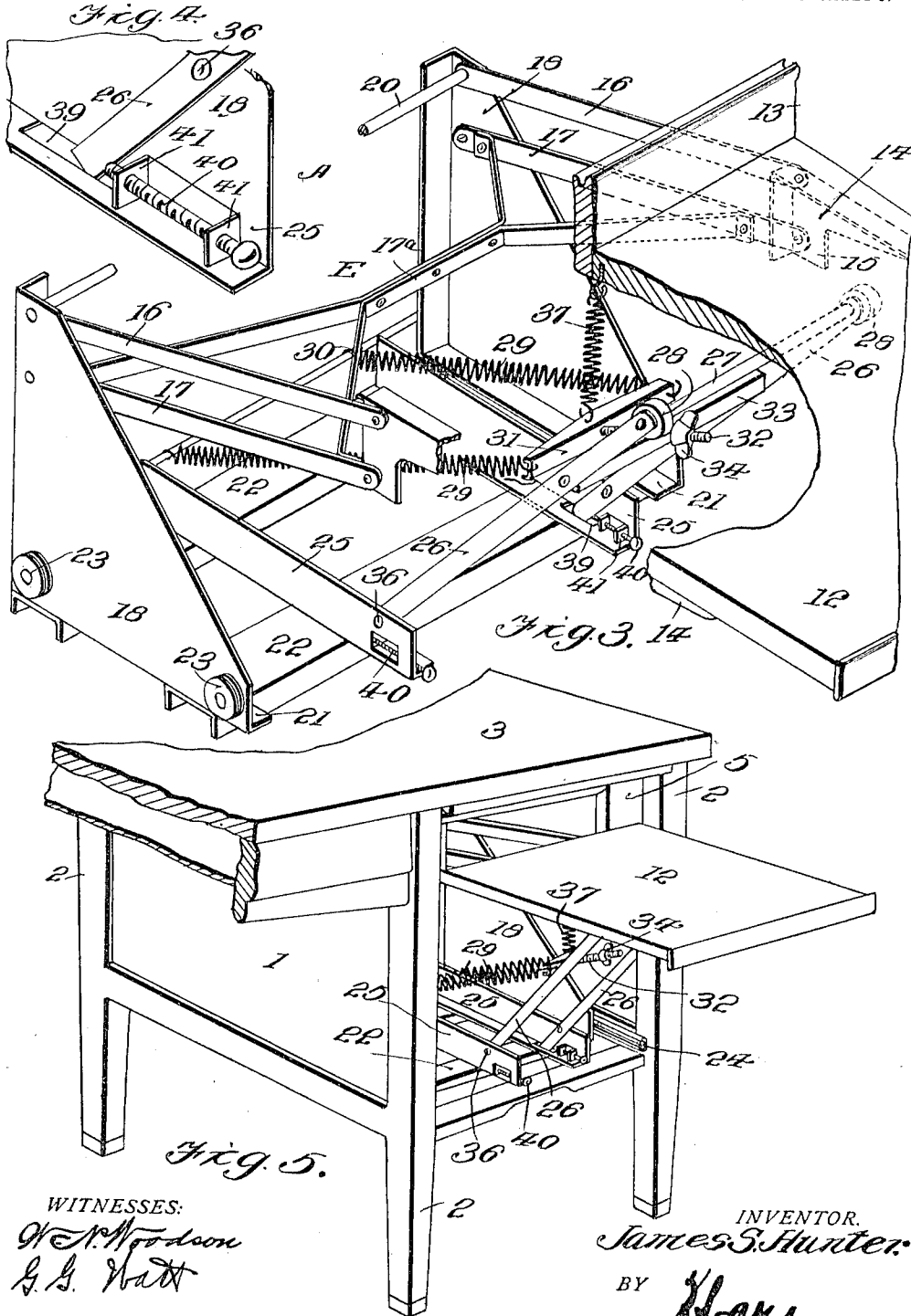
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3 SHEETS—SHEET 3.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JAMES S. HUNTER, OF SOMERVILLE, MASSACHUSETTS.

## TYPE-WRITER DESK.

1,072,121.

Specification of Letters Patent.

Patented Sept. 2, 1913.

Application filed March 24, 1911. Serial No. 616,669.

*To all whom it may concern:*

Be it known that I, JAMES S. HUNTER, citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Type-Writer Desks, of which the following is a specification.

My invention relates to desks and particularly to typewriter desks in which a shelf is provided which in one position is entirely contained within the desk or table and in the other position is projected out therefrom.

Generally speaking, the object of my invention is the provision of a desk of this character in which the typewriter may be entirely housed or protected while not in use and without the necessity of inverting the machine and thus subjecting the parts to undue strain.

The primary object of the invention is to improve upon the construction described and illustrated in my application for patent, Serial No. 571,533, filed July 11, 1910, in which a typewriter desk was illustrated provided with a leaf or shelf adapted to support a typewriter, which shelf when lowered is moved horizontally into or out of the pedestal of a desk and which when withdrawn from the interior of the pedestal is moved vertically up to the required height and there supported.

Another object of the invention is to simplify the construction illustrated in my prior application above referred to, and further to provide means whereby the impetus given to the shelf when moving from its raised to its lowered position or vice versa may be checked to thus eliminate all jar or shock and eliminate the slamming of the shelf and the consequent shock to the typewriter.

Other objects of the invention will appear in the course of the following description.

An embodiment of my invention is illustrated in the accompanying drawings wherein:

Figure 1 is a longitudinal vertical section of a desk constructed in accordance with my invention with the supporting shelf withdrawn and raised. Fig. 2 is a like view to Fig. 1 but showing the supporting shelf as lowered and housed within the desk. Fig. 3 is a perspective view of the typewriter supporting mechanism removed from the desk. Fig. 4 is an enlarged detail perspective view of one of the supporting angle

irons to which one of the shelf supporting levers are pivoted. Fig. 5 is a perspective view of a desk constructed in accordance with my invention, the shelf being raised and projected from the pedestal.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to these drawings, 1 designates the sides of a desk or like article of furniture of any suitable character provided with legs 2 and having the top 3 and preferably a solid bottom 4, though this last is not necessary except to prevent dust settling upon the machine housed within the desk.

The sides, top and bottom of the desk enclose a compartment 5 in which the typewriter shelf and the operative parts therefor are contained. This compartment opens upon the front of the desk. The opposite sides of the desk near their upper ends are formed in any suitable manner to provide longitudinally extending horizontal guides 6 in which moves a sliding door 7, the rear edge of which is rounded as at 8 so as to permit the door to be turned down into a vertical position. The under face of the door near its rear margin is provided with a pair of hooks 9 adapted to engage with a transversely extending stop rod 10 which extends across the opening of the compartment and limits the outward movement of the door, and also provides a pivot upon which the door may be turned to its closed position, as illustrated in Fig. 2.

The typewriter supporting shelf 12 has at its inner or rear end the upwardly extending transverse back piece 13 which when the shelf is in its raised position closes the space between the rear edge of the shelf 12 and the under face of the door 7. The upper edge of this back piece 13 is grooved so as to engage with the stop rod 10 as illustrated in Fig. 1 when the shelf is in its raised position. This rod 10 thus prevents any accidental rearward movement of the shelf and tends to brace the shelf against any rearward movement. The bottom of the shelf is provided with oppositely disposed spaced parallel brackets 14 preferably made of light angle iron, the rear ends of which extend downward as at 15. Pivotaly connected to the rear ends of the brackets 14 are the superposed links 16 and 17. The links 16 extend rearward and are pivoted at their

rear ends to a slide which is slidably mounted in the compartment 5. In detail, the slide preferably consists of oppositely disposed, approximately triangular side pieces 18, the upwardly extending rear edges of which are connected as by the cross bars 20 and 30. The links 17 are pivoted directly to the sides 18 of the slides and the links 16 are pivotally mounted upon the cross bar 20 which connects the side pieces 18 at their upper ends, and which assists in bracing the slides and the side pieces of the slides. The links 17 are connected by transverse braces 17<sup>a</sup> which are formed in the embodiment of my invention illustrated in the drawings by convergent bars riveted to each other as illustrated in Fig. 3. The lower edges of the side pieces 18 are angularly flanged as at 21 and riveted or otherwise attached to transversely extending inverted channel irons 22. Each channel iron acts to hold the side pieces in spaced relation and form a base therefor.

Mounted upon the outer faces of the side pieces 18 are the rollers 23 which engage with the rearwardly extending, horizontally disposed rails 24 illustrated in Fig. 5, these rails being constructed as illustrated in my prior application.

Extending from front to rear and mounted upon the channel irons 22 are the angle irons 25. Pivoted upon the vertical flanges of these angle irons and at the forward ends of the same are the upwardly extending supporting levers 26. It will be seen that these levers are spaced inward from the side pieces 18 so that they move between the pairs of links 16 and 17. The upper ends of the levers are connected by a transverse bar 27, which not only provides a handle whereby the levers may be easily raised or lowered, but also constitutes a brace spacing the upper ends of the levers from each other. The bar 27 also provides a support for the rollers 28 which at all times bear against the under face of the shelf 12.

It will be seen that the construction so far described includes a shelf which is supported upon a slide movable within the interior of the desk in such manner that the shelf may be moved vertically and that the shelf and slide may be moved in a horizontal plane into and out of the shelf containing compartment.

To provide means for holding the levers 26 either in their raised or lowered position, and means which shall automatically act to raise the shelf 12 when released from its lowered and locked position, I provide a plurality of springs 29. Preferably the springs are two in number and are attached at their rear ends to the transverse rod 30 attached to the lower ends of the side pieces 18 at the rear thereof. The springs 29 are retractile coil springs and the forward ends thereof are attached to a yoke 31, preferably made

of channel iron as illustrated in Fig. 1. From the middle of this yoke projects a screw 32 which passes loosely through a cross bar 33 pivoted between the levers 26. This cross bar is preferably located about midway the length of the levers. The screw 32 is provided with a wing nut 34. By turning this wing nut up or down, the yoke 31 may be drawn toward or allowed to move away from the cross bar 33, thus increasing or decreasing the tension upon the springs 29, as plainly evident from Fig. 1.

Located upon the outer end of the shelf 12 is a stop hook 35. This hook engages the cross bar 27 when the shelf is down and prevents the spring from pulling the supporting levers entirely away from the bottom of the shelf and slamming the supporting levers downward, which it would otherwise do. It is to be noted in this connection that the pivots 36 for the levers 26 are raised above the channel irons 22 to permit the outer ends of the levers to move into a position parallel with the angle irons 25, as illustrated in Fig. 2. If the stop 35 was not provided, as soon as the springs 29 passed to a position below the pivots 36, the springs would act to draw the outer ends of the levers 26 downward and away from the lower face of the shelf 12. This is prevented by the cross piece 27 coming in contact with the hook 35. Thus the levers 26 are prevented from moving downward to a position beyond that illustrated in Fig. 2 where they are nearly in line with the angle irons 25.

The operation of the parts as described is as follows. In order to depress and house the shelf, the shelf is forced downward, thus turning the levers 26 upon their pivots 36 from an upwardly and outwardly inclined position to a nearly horizontal position and thus expanding the contractile springs 29. When the parts have been moved to the position shown in Fig. 2, it will be seen that the springs 29 pass below the pivotal points 36 and therefore act to hold the desk in its depressed position. The slide, carrying with it the shelf and the lever 26, is then moved into the compartment 5 as illustrated in Fig. 2. In order to raise the shelf, the shelf is withdrawn, drawing with it the slide, and the shelf is lifted. When the springs 29 are lifted above the pivotal points 36 of the levers 26, the springs 29 tend to draw the levers 26 to an upwardly and outwardly inclined position, thus lifting the shelf 12 until it takes the position shown in Fig. 1.

It is necessary to overcome the tendency to slam when the shelf arrives at its raised or lowered position and which is due to the tension on the springs 29, and hence I have provided a spring 37 which acts to counteract to a certain extent the tension of the

springs 29. Without this counteracting spring 37, the upward movement of the shelf 12 acquires a speed which would increase in proportion to the distance traveled until the main springs 29, if permitted to do so, would pull the supporting levers entirely backward. In the same manner, though to a somewhat less degree when the shelf is depressed, the springs 29 after they had passed the pivotal points 36 would tend to draw the levers 26 quickly downward and thus snap the levers into their lowered position. The spring 37, however, counteracts this action, both when the shelf is raised to its full height and when it is lowered. The spring 37 is attached at its upper end to the rear end of the shelf 12 and the other end of the spring is connected to the middle of the yoke 31, as illustrated in Fig. 3.

It will be obvious that when the shelf is in the position midway of its travel, the end of the shelf is nearer to the yoke 31 than at any other point and as a consequence the spring 37 is in a neutral position. Now as the shelf moves up, the rear end of the shelf to which the spring is attached is separated more and more from the yoke 31 and consequently the tension of the spring 37 is continuously increased, resisting therefore the lifting of the shelf and tending to keep the links down and hence counteracting the tension of spring 29, thus softening the shock between the back piece 13 and the bar 10. The spring 37 thus governs the upward action and expands as the distance increases between the links and the supporting levers at points in the direct line of the spring where the spring is attached. Exactly the same action takes place when the levers 26 move down from the middle point of their travel to the fully lowered position. As the shelf is lowered from its middle position, the rear end is moved rearward with relation to the forward edge of the slide, while as the levers 26 are lowered, the yoke 31 is moved outward with relation to the forward end of the slide, and as a consequence the spring 37 is expanded as the springs 29 are expanded. The spring 37 tends to pull the free ends of the links 16 upward, even when the springs 29 have passed below the pivotal point 36, thus cushioning the final downward movement of the shelf. The provision of this spring 37 prevents the shelf from going up too rapidly or coming down too rapidly and stops the shelf with ease in the exact position it is intended to eventually take. One of the particular advantages incident to using the spring 37 in connection with the yoke 31 attached to the screw threaded rod 32 is that for a light machine there is much less tension on the spring 37 than where a heavy typewriter is placed on the shelf 12. Where a heavy machine is used, the tension on the springs 29 is increased by

screwing inward the wing nut 34 and this increases the tension on the spring 37, thus increasing its cushioning action. This greater cushioning action is a very desirable feature, particularly where the machine is heavy. The spring 37 may be thus adjusted to the conditions to which it is intended to meet.

For the purpose of limiting the outward movement of the slide, I provide the stop 38 which is attached to the bottom 4 and projects up in the path of movement of the outer channel iron 22. The lower ends of the levers 26 below the pivots 36 are extended and pass through slots 39 cut in the bottom plate of the angle irons 25, as illustrated in Fig. 4. The forward edge of this slot acts of course to limit the upward movement of the lever 26 and by prolonging this slot toward the front of the slide, or by shortening the slot, the amount of upward movement of the levers may be increased or decreased. I may also use for this purpose a stop screw 40, as illustrated in Fig. 4, passing through ears 41 shown as struck up from the vertical flanges of the angle irons 25. By turning these screws 40 inward, the upward movement of the levers 26 is limited and by turning the screws outward, the levers are permitted to move up to a higher position. I have thus provided means permitting the shelf to be adjusted for a machine which may have a low or a high keyboard, or to be adjusted in accordance with the fancy of the operator. It will, of course, be necessary under these circumstances to change the back piece 13 to suit the high or low position of the shelf. If the shelf is intended to be high, the back piece 13 must be relatively narrow; if the shelf is intended to be low, the back piece must be widened.

Ordinarily, the shelf will be supported at a height of twenty-five inches from the floor, or by filing out the slot 39, the shelf may be lifted higher. This is particularly desirable where an Oliver machine is mounted upon the shelf, as this machine has a low keyboard. It is to be particularly observed that the pivots 36 for the levers 26 are slightly higher than the bar 30 to which the inner ends of the springs 29 are attached, thus permitting the levers 26 to be turned downward into a slightly angular relation with the angle irons 25 so that the direct line of tension on the springs 29 is slightly below the pivotal point 36, so that the springs 29 will act to hold the device in its lowered position.

The operation of my invention will be evident from what has gone before. In its closed position, the shelf 12 with the operative mechanism therefor is contained within the compartment 5 which is closed by the door 7. When it is desired to use the shelf, the door 7 is raised and pushed

inward to the position shown in Fig. 3 and the shelf and the levers 26 are pulled outward and raised to the position shown in Fig. 1. Only a very slight elevation of the shelf is necessary to carry it past the neutral point of the springs 29. After it has passed this neutral point, the spring 29 will act to draw the levers 26 upward and the shelf will be raised. As the shelf is raised or as it is released from its lowest position, it is drawn forward so that when it has fully risen, the back piece 13 will engage with the stop rod 10. When it is desired to return the shelf and its operative mechanism to the interior of the compartment 5, the shelf is entirely depressed and pushed inward. When the shelf has reached its lowered position, the parts take the position shown in Fig. 2.

While I have shown what I believe to be the best form of my invention, I do not wish to be limited thereto as it is obvious that many changes might be made in the form, construction and arrangement of parts without in any way departing from the spirit of the invention.

What I claim is:

1. In a desk, a horizontally disposed vertically movable shelf, a supporting lever, one end of which engages beneath the shelf, means tending to urge the supporting lever into an upward position to hold the shelf raised, and cushioning means operatively connected between the shelf and the supporting lever increasingly resisting the movement of the supporting lever and the shelf as the shelf and supporting lever near either their raised positions or their lowered positions.

2. In combination with a desk, a slide shiftably mounted therein, a horizontally disposed shelf withdrawably housed therein, a shelf supporting element pivoted to the slide, means tending to hold the shelf supporting element in its raised position or when depressed beyond a certain point to draw it to its fully lowered position, and cushioning means operatively connected between the shelf and the shelf supporting element acting to increasingly resist the upward movement of the shelf and shelf supporting element as the shelf and supporting element near their raised positions or the downward movement of the shelf and supporting element as the shelf and supporting element near their lowermost positions.

3. A desk having a compartment open at one end, a slide mounted in the lower portion of the compartment, a lever pivoted at its lower end to the slide, a vertically movable shelf beneath which the lever projects and with the under side of which it has sliding contact, pivoted links connecting the shelf with the slide, means disposed within the compartment urging the outer end of

the lever upward and thereby raising the shelf, and a contractile spring operatively connected at one end to the rear end of the shelf and operatively connected at its other end to the middle portion of the lever.

4. A desk having a compartment open at one end, a slide mounted therein, an outwardly and upwardly projecting lever pivoted at its lower end to the slide, a vertically movable shelf beneath which the lever projects and with the under side of which it has sliding contact, pivoted links connecting the shelf with the slide, means acting to draw the outer end of the lever upward and raise the shelf to its uppermost position, and a contractile spring operatively connected at one end to the rear end of the shelf and operatively connected at its other end to the middle portion of the lever and resisting the upward movement of the shelf as the shelf nears its raised position or the downward movement of the lever as the lever nears its lowermost position.

5. A desk having a compartment open at one end, a slide in the compartment, a lever pivoted at its lower end to the slide and upwardly and outwardly projected, a vertically movable shelf beneath which the lever projects and with the under side of which it has sliding contact, a contractile spring attached at its rear end to the slide and at its outer end operatively connected to the lever, and a contractile spring operatively connected at one end to the rear end of the shelf and at its other end operatively connected to the spring first mentioned.

6. A desk having a compartment, a slide mounted therein, an outwardly projecting lever pivoted at its lower end to the slide, a vertically movable shelf beneath which the lever projects and with the under side of which it has sliding contact, means connecting the rear end of the shelf with the slide and permitting a vertical movement of the shelf, a contractile spring attached at its rear end to the rear end of the slide and at its forward end operatively connected to the middle portion of the lever and acting to draw the lever upward and into its raised position, and means operatively connected at one end to the rear end of the shelf and at its other end operatively connected to the middle portion of the lever and acting to increasingly resist the upward movement of the lever as the lever nears its raised position.

7. A desk, a horizontally disposed vertically movable shelf supported on the desk, a supporting member disposed within the desk, a shelf supporting lever fulcrumed near its lower end upon said supporting element and projecting upward beneath the shelf but being independently movable with

relation thereto, a contractile spring operatively connected at one end to the rear end of the shelf and at the other end operatively connected to the lever above its fulcrum, and means constantly urging the free end of the lever upward.

8. A desk having a compartment, a supporting element mounted therein, a shelf supporting lever fulcrumed near its lower end upon said supporting element, a horizontally disposed, vertically movable shelf beneath which the lever projects and with which it has sliding contact, means urging the free end of the lever upward and tending to raise the shelf, and a contractile spring operatively connected at one end to the rear end of the shelf and at the other end operatively connected to the lever above its fulcrum, said spring acting to resist the upward movement of the shelf as the shelf nears its raised position, or the downward movement of the lever as the lever nears its lowermost position.

9. In a desk, a vertically movable shelf, a slide, a self-supporting lever pivoted to the forward end of the slide, the upper end of the lever having sliding engagement with the under face of the shelf, a contractile spring operatively engaged with the lever and tending to hold the lever in its raised position, means for increasing or decreasing the tension of the spring, and a spring operatively connected at one end to the rear end of the shelf and at its other end to the first named spring and acting to increasingly resist the upward movement of the lever as the lever nears its raised position.

10. A desk having a compartment open at one end, a slide mounted in the compartment, a self-supporting lever pivoted at its lower end to the forward end of the slide, a vertically movable shelf beneath which the lever projects and with the under side of which it has sliding contact, an adjusting screw operatively connected to the lever, a contractile spring connected at its rear end to the rear end of the slide and at its forward end to said adjusting screw and acting to raise the lever to its lifted position, and a contractile spring attached at one end to the rear end of the shelf and at its other end operatively connected to said first named

spring at the point of connection between the spring and the adjusting screw.

11. A desk having a compartment open at one end, a vertically movable shelf, a slide mounted on the bottom of the compartment, a lever pivoted at its lower end to said slide and having sliding engagement at its upper end with the under side of the shelf, and a spring tending to raise the lever to its highest position, the slide being slotted to accommodate the lower end of the lever, the walls of said slots acting to support the lever from lateral movement when in its raised position.

12. In a desk, a horizontally movable slide, a pair of parallel angle irons on the slide, a pair of upwardly and outwardly projecting levers pivoted intermediate their ends to the vertical flanges of the angle irons, a vertically movable horizontally disposed shelf supported upon said levers, yielding means engaging said levers to draw them into an upwardly and outwardly extending position, vertically disposed screw threaded bearings mounted upon the horizontal flanges of the angle irons in front of said levers, and screw threaded adjustable stops mounted in said bearings and adapted to engage with the lower ends of the levers to thereby limit the upward movement of the free ends of the levers.

13. A desk having a compartment open at one end, a slide mounted in the compartment, a pair of parallel angle irons on the slide, a pair of upwardly and outwardly projecting levers pivoted intermediate their ends to the vertical flanges of the angle irons, the horizontal flanges of the angle irons being slotted to accommodate the lower ends of the levers to thereby support the lower ends of the levers against lateral movement when the levers are in their raised position, a vertically movable, horizontally disposed shelf supported upon said levers, and yielding means engaging said levers to draw them into an upwardly and outwardly extending position.

In testimony whereof, I affix my signature in presence of two witnesses.

JAMES S. HUNTER. [L. s.]

Witnesses:

P. H. SWEETSER,  
A. B. HARRINGTON.