

Jan. 27, 1942.

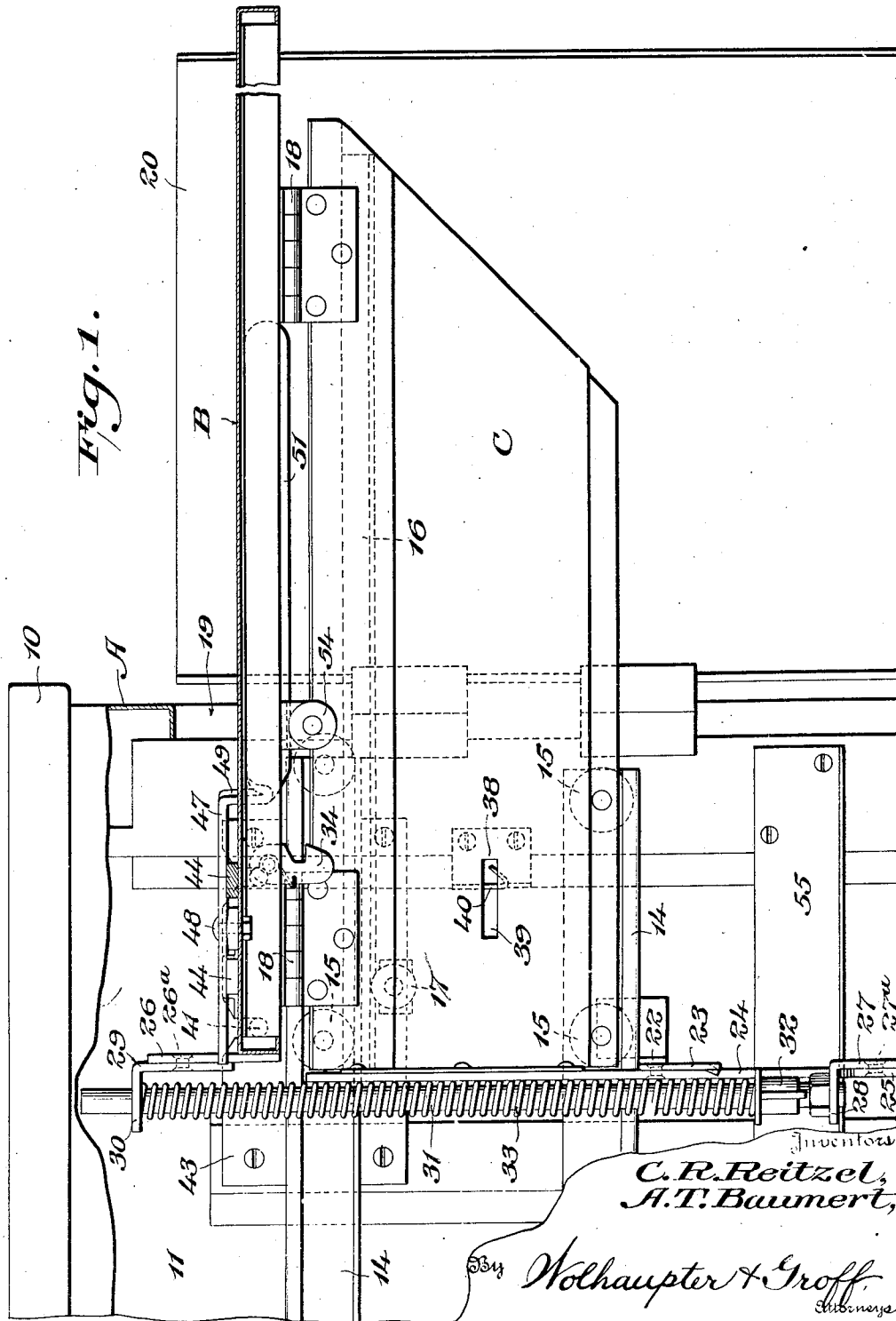
C. R. REITZEL ET AL

2,271,241

TYPEWRITER ATTACHMENT FOR ARTICLES OF FURNITURE

Filed May 21, 1941

5 Sheets-Sheet 1



2,271,241

5 Sheets-Sheet 2

Fig. 2.

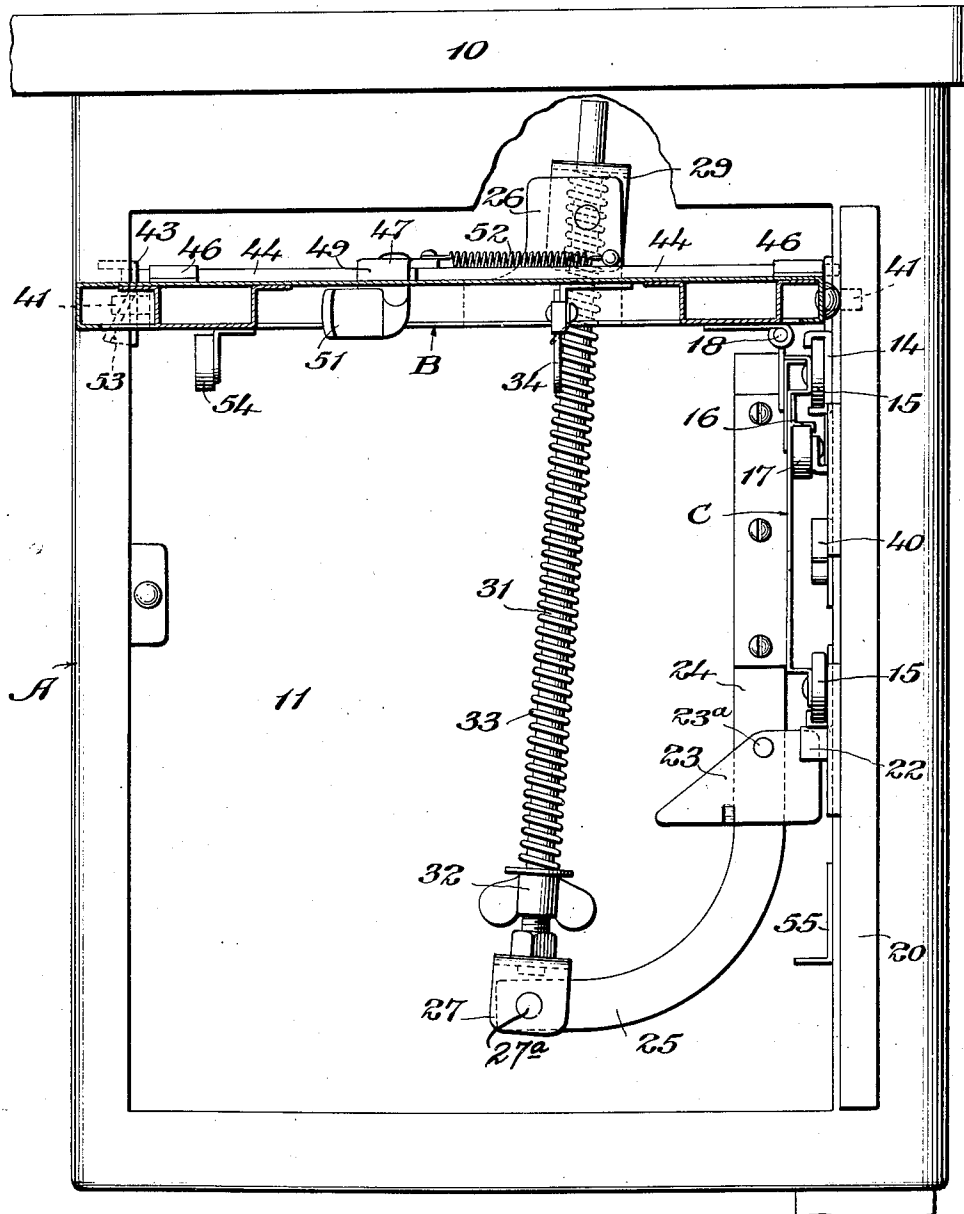
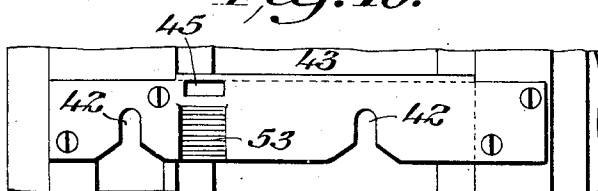


Fig. 10.



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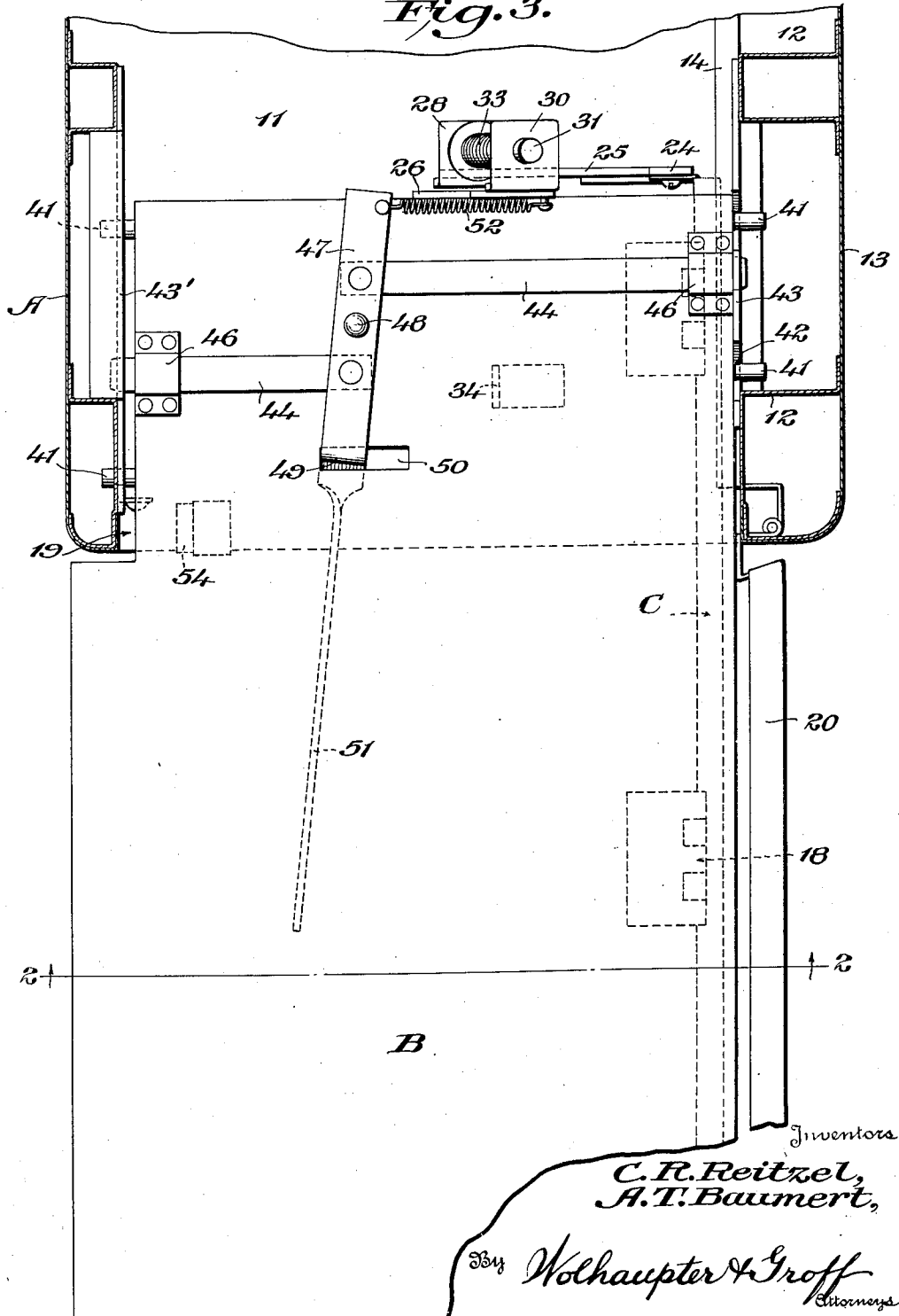
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TYPEWRITER ATTACHMENT FOR ARTICLES OF FURNITURE

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5 Sheets-Sheet 3

Fig. 3.



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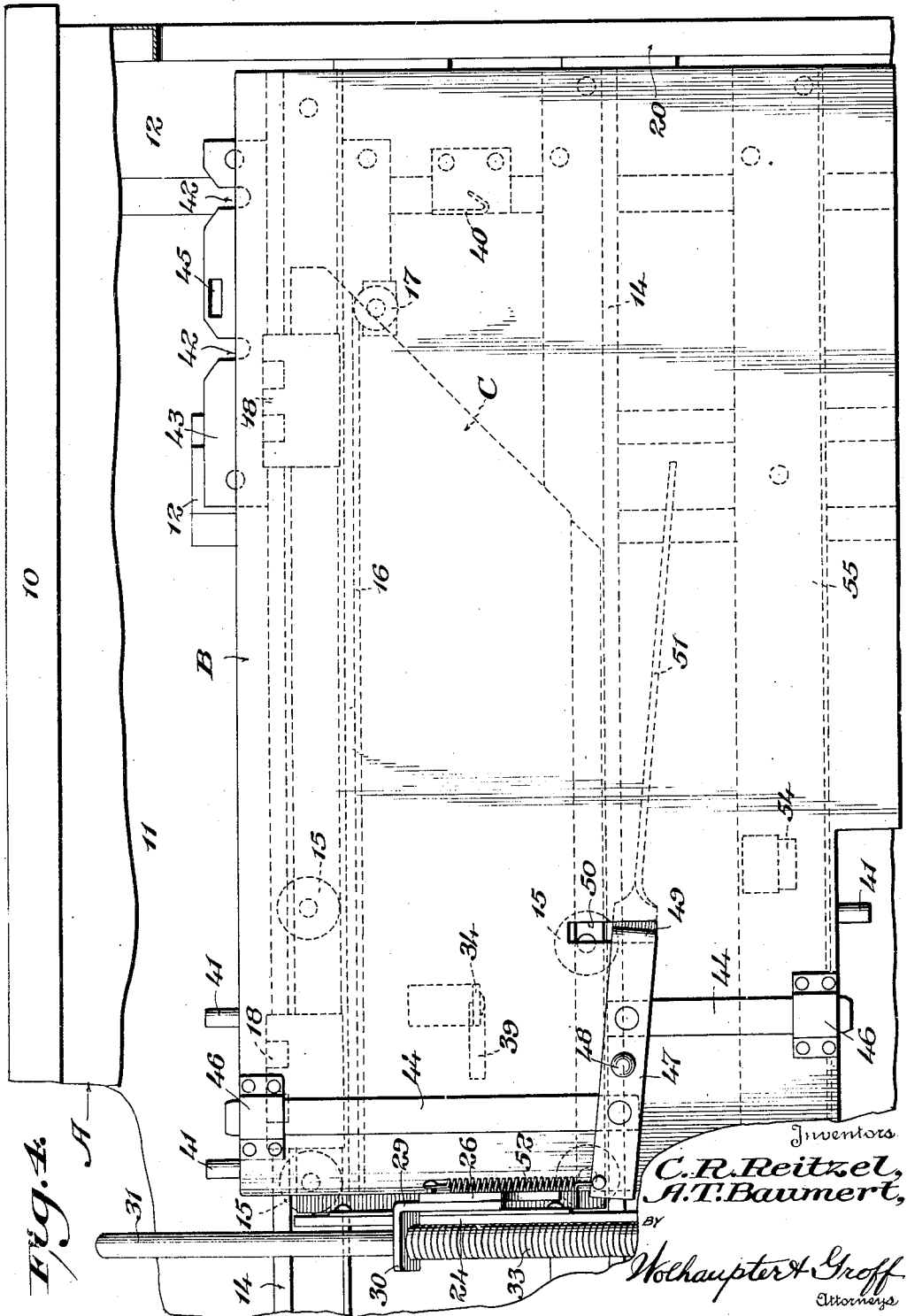
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2,271,241

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Filed May 21, 1941

5 Sheets-Sheet 4



Jan. 27, 1942.

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2,271,241

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Filed May 21, 1941

5 Sheets-Sheet 5

Fig. 5.

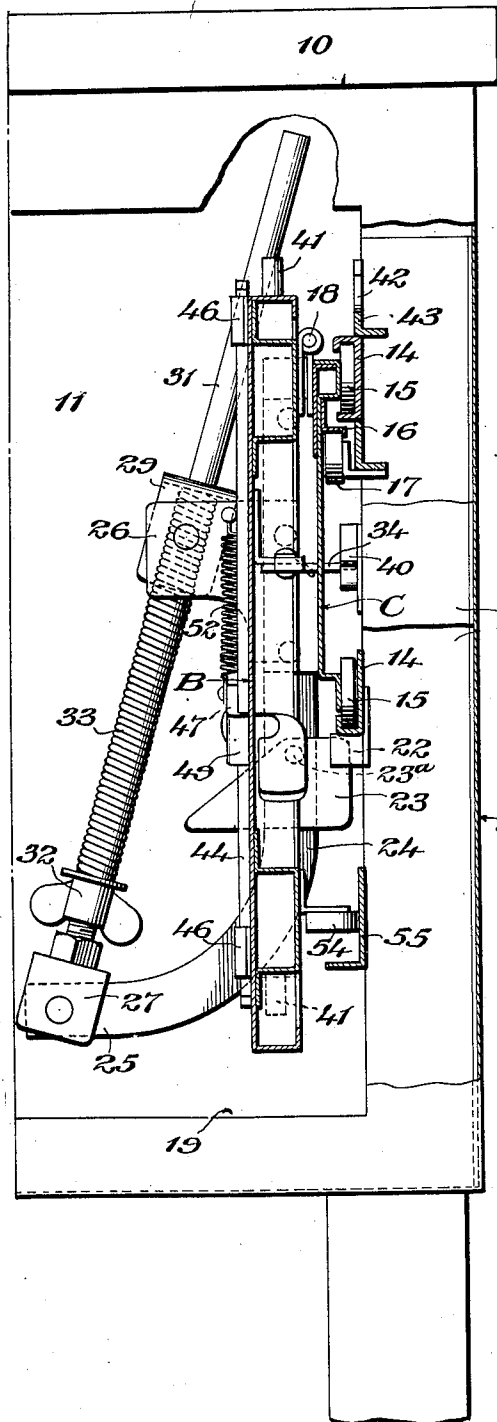


Fig. 6.

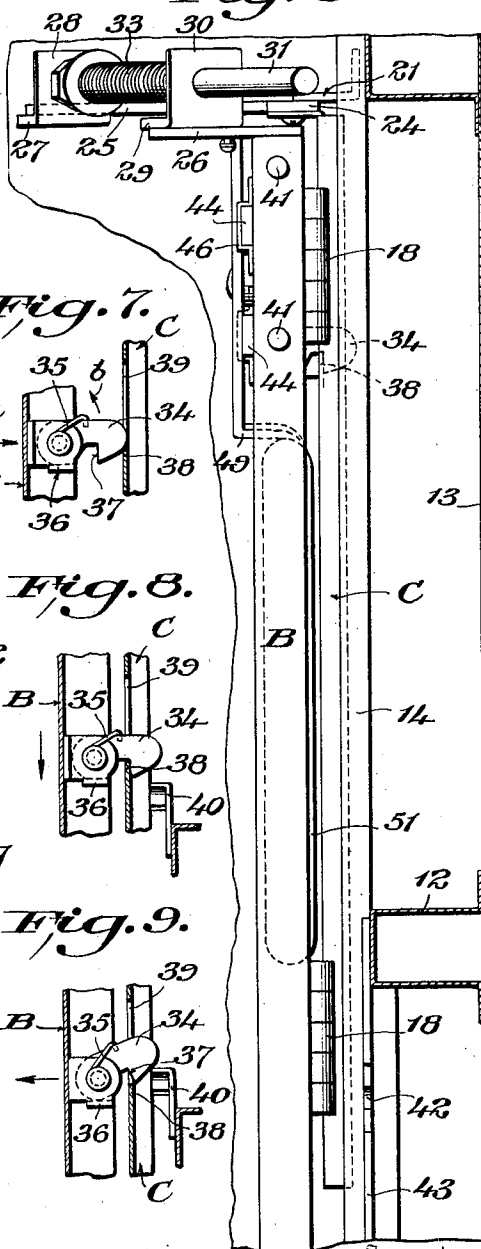


Fig. 7.

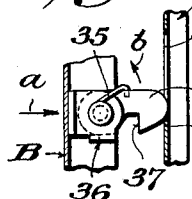


Fig. 8.

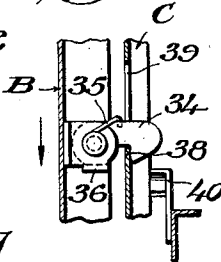
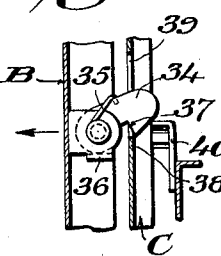


Fig. 9.



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UNITED STATES PATENT OFFICE

2,271,241

TYPEWRITER ATTACHMENT FOR ARTICLES
OF FURNITURE

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Application May 21, 1941, Serial No. 394,540

9 Claims. (Cl. 312—21)

This invention relates to desks, cabinets, tables or the like, and has particular reference to improvements in desks, cabinets, tables or the like in which a shelf for supporting a typewriter or other machine or device is mounted adjacent to one side thereof beneath the top of the desk, cabinet, table or the like for forward sliding movement and upward swinging movement to a projected, substantially horizontally disposed, operative position at the front of the said top to dispose the machine or device for convenient use, and for downward swinging movement and rearward sliding movement to a substantially vertically disposed, retracted position beneath the said top to dispose the machine or device in a stored or out-of-the-way position, preferably but not necessarily in a suitable compartment beneath the top.

According to the invention, spring means is provided to tend constantly to swing the shelf upwardly and latch means is provided to hold the shelf in its downwardly swung position for movement to and from its retracted, machine-storing position, and in this connection one special object of the invention is to provide means whereby the latch means is released in response to the final portion of forward sliding movement of the shelf from its retracted position to permit the spring means to act to swing the shelf upwardly to its operative position in which the machine or device carried thereby is disposed for convenient use. In other words, according to the present invention, mere forward sliding movement of the shelf from its retracted, machine-storing position results in the same being swung upwardly to its operative position in which the machine or device is disposed for convenient use.

Another special object of the invention is to provide simple means which is rendered effective by upward swinging movement of the shelf to its operative position to securely lock same in such position, and which may be readily released manually to permit the shelf to be swung to and latched in its downwardly swung position for rearward movement thereof to its retracted position.

Another special object of the invention is to provide a desk, cabinet, table or the like having a shelf structure as generally described which is simple, practical, of low production cost, strong, durable, unlikely to get out of order and thoroughly reliable in use.

With the foregoing and other objects in view, which will become more fully apparent as the nature of the invention is better understood, the

same consists in the novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

In the accompanying drawings, wherein like characters of reference denote corresponding parts in the different views:

Figure 1 is a longitudinal sectional view illustrative of the typewriter shelf or support attachment mounted within a compartment of a desk and shown in its forwardly projected position beyond and out of said compartment with the shelf swung upwardly in operative position.

Figure 2 is a front end view of the attachment, in its operative position, and partly in section on the line 2—2 of Fig. 3.

Figure 3 is a horizontal sectional view showing the shelf in its forwardly disposed, upwardly swung operative position.

Figure 4 is a longitudinal sectional view through the compartment of the desk, illustrating the entire attachment withdrawn or retracted within said compartment, with the shelf or machine support downwardly swung.

Figure 5 is a view similar to Fig. 2 showing the shelf in its downwardly swung position.

Figure 6 is a horizontal section showing the shelf in its downwardly swung latched and retracted position.

Figures 7, 8 and 9 are detail sectional views illustrating different positions of the latch means for releasably holding the shelf in its downwardly swung position; and

Figure 10 is an elevation of one of the keeper plates of the invention.

Referring to the drawings in detail, A designates generally a portion of an article of furniture having a top 10, and B designates, generally, a shelf for supporting a typewriter or other machine or device which shelf is mounted adjacent to one side thereof beneath said top 10 for forward sliding movement and upward swinging movement to a projected, substantially horizontally disposed, operative position at the front of said top to dispose a machine or device carried thereby for convenient use, and for downward swinging movement and rearward sliding movement to a substantially vertically disposed, retracted position beneath the top 10 to dispose the machine or device in a stored or out-of-the-way position beneath said top.

In the drawings the portion of the article of furniture illustrated is the right hand part of a desk having a compartment 11 to accommo-

date the shelf B and the machine or device (not shown) carried thereby when the shelf is in its retracted position. As will hereinafter become fully apparent, however, the compartment 11 is not necessary since the shelf, and a machine or device carried thereby, would be disposed equally as well in a stored or out-of-the-way position beneath the top 10 whether the compartment 11 is or is not provided. Accordingly, while in most instances the shelf B will be associated with a desk having a compartment such as the compartment 11, as illustrated in the present instance, it is to be understood that this is merely by way of example and not limiting as the article of furniture A may equally as well be a cabinet, a table or the like.

According to the specific, practical embodiment of the invention illustrated in the present instance, vertically disposed channel members 12 are suitably fastened against the inner face of the outer side wall 13 of the compartment 11 and have suitably fastened thereto forwardly and rearwardly extending track members 14 with which are engaged rollers 15 carried by a carriage designated generally as C, whereby said carriage is mounted for free and easy forward and rearward sliding movements. In this connection and in order to assist the track members 14 and the rollers 15 in firmly yet slidably supporting the carriage C, said carriage, which is in the form of an elongated plate, preferably is provided with a forwardly and rearwardly extending track member 16 which is engaged by a fixedly positioned roller 17. However, said track member 16 and roller 17 are not essential and may be eliminated if desired.

The shelf 2 is hinged in the present instance adjacent to its outer or right hand edge to the carriage C adjacent to the top of the latter, as indicated at 18, and therefore is movable forwardly and rearwardly with said carriage. Moreover, due to its hinged connection with the carriage C, said shelf B is swingable upwardly and inwardly to a substantially horizontally disposed position, as shown in Figs. 1, 2 and 3, and downwardly and outwardly to a substantially vertical position as shown in Figs. 4, 5 and 6.

In the front of the compartment 11 is a doorway 19 through which the shelf B, the carriage C and a typewriter or other machine or device carried by said shelf are movable, while controlling said doorway is a hinged door 20.

Rearward movement of the carriage C is limited by a suitable fixed stop element 21 (Fig. 6), while forward movement of said carriage is limited by a suitable fixed stop element 22 engageable by a plate 23 carried by said carriage, said plate being pivoted as at 23^a so that it may be swung to permit the carriage C to be removed from and to be operatively mounted in the compartment 11 and having a normal position which it assumes under the influence of gravity so that when it is released following operative mounting of said carriage in said compartment it thereafter acts in cooperation with said stop element 22 to limit forward sliding movement of said carriage.

Suitably fastened to the carriage C at the rear end thereof is a bar 24 the lower end portion of which is in the form of an inwardly extending arm 25, while suitably fastened to the rear end of the shelf B is a plate 26. Pivoted at 27^a to the inner end of the arm 25 for swinging movement about a forwardly and rearwardly extending axis is an angle member 27 having a sub-

stantially horizontal flange 28, while pivoted at 26^a to the plate 26 for swinging movement about a forwardly and rearwardly extending axis is an angle member 29 having a substantially horizontal flange 30.

Fastened at its lower end to the flange 28 of the angle member 27 is a rod 31 which extends upwardly through an opening in the flange 30 of the angle member 29 and which has threaded thereon near its lower end a thumb nut 32, while surrounding said rod between the flange 30 and said thumb nut 32 is an expansion coil spring 33 which tends constantly to swing the shelf B upwardly and inwardly. The thumb nut 32 constitutes, of course, an adjustable means for regulating the force of the spring 33 so that when said spring is permitted to act it will positively swing the shelf B upwardly to its operative position at a desired rate of speed.

Pivoted to the shelf B for forward and rearward swinging movement is a latch 34 which is constantly urged forwardly by a suitable spring 35 to a position at substantially right angles to said shelf against suitable stop means 36 and which is recessed or otherwise suitably formed at its front edge to provide a lip or hook 37 for engagement with a suitable keeper carried by the carriage C, said keeper being constituted in the present instance by a portion 38 of the carriage C at the forward end of a slot 39 in said carriage through which the free end portion of the latch 34 passes when the shelf B is swung downwardly to its substantially vertically disposed position. In this connection it will be observed by reference to Figs. 7 to 9 of the drawings that the front edge of the free end portion of the latch 34 is inclined upwardly and forwardly to the lip 37 and that the edge of the carriage C at the front end of the slot 39 is disposed to be engaged by the said inclined front edge of the latch 34 when the shelf B is swung downwardly to its vertical position. Accordingly, the final portion of downward swinging movement of the shelf B, as indicated by the arrow *a* in Fig. 7, will result in the latch 34 being swung rearwardly as indicated by the arrow *b* in said figure until the lip 37 is disposed at the outer side of the plate comprising the carriage C, whereupon the spring 35 will act to swing said latch forwardly to engage the lip 37 with the keeper 38 and thus latch the shelf 34 in its downwardly swung, substantially vertically disposed position against the force of the spring 33 as illustrated in Fig. 8.

When the shelf B is latched in its downwardly swung, substantially vertically disposed position it may be slid, by reason of its carriage support, entirely into the compartment 11 as shown in Fig. 4 to dispose a typewriter or other machine or device mounted thereon in a stored or out-of-the-way position in said compartment, and the door 20 may then be closed. Likewise, by first opening the door 20, said shelf B may be slid forwardly to dispose the typewriter or other machine or device carried thereby forwardly of the front of the compartment 11 so that when the shelf then is swung upwardly to its substantially horizontally disposed position the typewriter or other machine or device will be disposed in a position for use. In this connection it will be noted that the latch 34 is disposed near the rear end of the shelf B and that a fixed latch releasing element 40 is mounted near the front of the compartment 11 in a position to be engaged by the front edge of the free end portion of said latch in response to forward

movement of the shelf B and just prior to said shelf reaching its limit of forward movement as determined by engagement of the plate 23 with the stop element 22. Accordingly, the final portion of forward sliding movement of the shelf B results in the latch 34 being swung rearwardly by the latch releasing element 40 to disengage the lip 37 from the keeper 38 (see Figs. 8 and 9) and when release of said latch thus is automatically effected, the spring 33 then is free to act to swing the shelf upwardly to its substantially horizontally disposed operative position.

When the shelf B is at its limit of forward movement the rear end portion thereof is disposed in the front end portion of the compartment 11 as shown in Fig. 1 and in this connection it will be observed that the said rear end portion of said shelf has projecting from each side edge thereof a pair of pins 41 to enter flaring-mouth recesses 42 in a pair of keeper plates 43 and 43', the former of which is fixedly mounted at one side of the compartment 11 and the latter of which is inverted relative to the former and is fixedly mounted at the opposite side of the compartment 11, whereby upward movement of the shelf under the influence of the spring 33 is limited and whereby said shelf also is positioned and is held effectively against forward or rearward movement when it is disposed in its upwardly swung substantially horizontal position. (Figs. 1, 2 and 3.)

To lock the shelf against downward swinging movement from its substantially horizontal position said shelf is provided with a pair of locking bolts 44 to enter openings 45 in the keeper plates 43 and 43' when said shelf reaches its limit of upward swinging movement as determined by engagement of the pins 41 with the bottoms of the recesses 42. These locking bolts 44 are disposed transversely of the shelf B at the top thereof and at or near their outer ends are slidable in guides 46 carried by said shelf and at their inner ends are connected with a lever arm 47 to opposite sides of a pivotal connection 48 of said lever arm with said shelf. Thus, by swinging movement of said lever arm in one direction the bolts 44 are projected and by swinging movement of said lever arm in the opposite direction said bolts are retracted. (Figs. 1, 3 and 4.) The lever arm 47 includes an offset portion 49 extending downwardly through a slot 50 in the shelf B and a handle portion 51 extending forwardly beneath said shelf from said offset portion so that it may readily be grasped to swing said lever to retract the bolts 44 when the shelf is in its horizontal position.

Suitable spring means 52 tends constantly to swing the lever arm 47 in a direction to project the bolts 44 and any suitable means may be provided to limit swinging movement of said lever arm by said spring means. For example, one end of the slot 50 may constitute a stop engageable by the offset portion 49 of said lever arm for this purpose. In any event, the bolts 44 are normally projected, and in this connection it is pointed out that either or both of the plates 43 may have an inclined or cam portion 53 (Figs. 2 and 10) leading to the related opening 45 to be engaged by the end of the related bolt 44 during the final portion of upward swinging movement of the shelf whereby the bolts are retracted to be projected into the openings 45 when they become aligned therewith as the shelf reaches its limit of upward movement.

Upon projection of the bolts 44 into the openings 45 the shelf B becomes effectively locked in its horizontal or operative position, thereby securely supporting the typewriter or other machine or device in a position for use. However, by means of the handle portion 51 of the lever arm 47 said lever arm may readily be swung to retract the bolts 44, and when said bolts are retracted the shelf then is free to be pressed downwardly and outwardly to its substantially vertically disposed position preparatory to being slid rearwardly to store the machine or device carried thereby in the compartment 11.

As the shelf is swung downwardly it is moved slightly rearwardly so as to avoid interference of the element 40 with engagement of the latch 34 with the keeper 38. Accordingly, when the shelf reaches its downwardly swung vertical position it becomes latched in such position as heretofore explained and all that then is necessary to be done to store the machine or device is to push or slide the shelf into the compartment 11. The door 20 may then be closed. On the other hand, to again position the machine for use, the door 20 is opened and the shelf simply is slid forwardly until the latch 34 is released by the element 40, whereupon the spring 33 acts automatically to swing the shelf upwardly to its horizontal position, the pins 41 become engaged in the recesses 42, and the bolts 44 automatically enter the openings 45.

Preferably, but not necessarily, the shelf B is provided with a roller 54 to engage a trackway 55 when the shelf is swung downwardly to and latched in its vertical position to thereby assist in supporting and guiding the shelf and carriage for rearward and forward sliding movements.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

We claim:

1. In an article of furniture having a top, a machine-supporting shelf, means mounting said shelf adjacent to one side thereof beneath said top for forward sliding movement and upward swinging movement to a projected substantially horizontally disposed operative position at the front of said top and for downward swinging movement and rearward sliding movement to a substantially vertically disposed retracted machine storing position beneath said top, spring means tending constantly to swing said shelf upwardly, releasable latch means to hold said shelf in its downwardly swung position when same is retracted, and means operable in response to forward sliding movement of said shelf to release said latch means and thus permit said spring means to swing said shelf upwardly to its said operative position.

2. In an article of furniture having a top, a machine-supporting shelf, means mounting said shelf adjacent to one side thereof beneath said top for forward sliding movement and upward swinging movement to a projected substantially horizontally disposed operative position at the front of said top and for downward swinging movement and rearward sliding movement to a substantially vertically disposed retracted machine storing position beneath said top, spring

means tending constantly to swing said shelf upwardly, releasable latch means to hold said shelf in its downwardly swung position when same is retracted, means operable in response to forward sliding movement of said shelf to release said latch means and thus permit said spring means to swing said shelf upwardly to its said operative position, stop means engageable by said shelf to prevent upward swinging movement thereof beyond its said operative position and also effective to prevent forward or rearward movement thereof when same is in its operative position, and manually releasable means for locking said shelf against downward swinging movement from its said operative position.

3. In an article of furniture having a top, a carriage element mounted beneath said top for forward and rearward sliding movement relative thereto, a machine-supporting shelf element mounted adjacent to one side thereof upon said carriage element for forward movement therewith and upward swinging movement relative thereto to a projected substantially horizontally disposed operative position at the front of said top and for downward swinging movement relative thereto and rearward movement therewith to a substantially vertically disposed retracted machine-storing position beneath said top, spring means tending constantly to swing said shelf element upwardly relative to said carriage element, keeper means on one of said elements and latch means on the other of said elements engageable with said keeper means to hold said shelf element in its downwardly swung position relative to said carriage element when said carriage and shelf elements are retracted, and fixed abutment means operable by forward sliding movement of the carriage and shelf elements to engage said latch means and effect release thereof and thus permit said spring means to effect upward swinging movement of said shelf element.

4. An article of furniture as set forth in claim 3 including means to limit upward swinging movement of said shelf element beyond its operative position and to hold same against forward or rearward movement when it is in its upwardly swung operative position, and manually releasable means operable in response to upward swinging movement of said shelf to its operative position to lock same against downward movement from its operative position.

5. In an article of furniture having a top, a machine-supporting shelf, means mounting said shelf adjacent to one side thereof beneath said top for forward sliding movement and upward swinging movement to a projected substantially horizontally disposed operative position at the front of said top and for downward swinging movement and rearward sliding movement to a substantially vertically disposed retracted machine storing position beneath said top, spring means tending constantly to swing said shelf upwardly, releasable latch means to hold said shelf in its downwardly swung position when same is retracted, means operable in response to forward sliding movement of said shelf to release said latch means and thus permit said spring means to swing said shelf upwardly to its said operative position, fixed stop means, means carried by the shelf for cooperation with said stop means in response to upward swinging movement of the shelf to predetermine its operative position both with respect to swinging movement and forward and rearward movement, and manually releasable means operable in response to swinging

movement of said shelf to its operative position to lock same in its operative position.

6. In an article of furniture having a top, a machine-supporting shelf, means mounting said shelf adjacent to one side thereof beneath said top for forward sliding movement and upward swinging movement to a projected substantially horizontally disposed operative position at the front of said top and for downward swinging movement and rearward sliding movement to a substantially vertically disposed retracted machine storing position beneath said top, spring means tending constantly to swing said shelf upwardly, releasable latch means to hold said shelf in its downwardly swung position when same is retracted, means operable in response to forward sliding movement of said shelf to release said latch means and thus permit said spring means to swing said shelf upwardly to its said operative position, at least one pin projecting from at least one side of said shelf, a fixed stop element having a slot to receive said pin when said shelf is swung upwardly to its operative position whereby upward swinging movement of said shelf is limited and the shelf is held against forward or rearward movement from its operative position, and manually releasable means to lock said shelf in its operative position.

7. In an article of furniture having a top, a machine-supporting shelf, means mounting said shelf adjacent to one side thereof beneath said top for forward sliding movement and upward swinging movement to a projected substantially horizontally disposed operative position at the front of said top and for downward swinging movement and rearward sliding movement to a substantially vertically disposed retracted machine storing position beneath said top, spring means tending constantly to swing said shelf upwardly, releasable latch means to hold said shelf in its downwardly swung position when same is retracted, means operable in response to forward sliding movement of said shelf to release said latch means and thus permit said spring means to swing said shelf upwardly to its said operative position, at least one pin projecting from at least one side of said shelf, a fixed stop element having a slot to receive said pin when said shelf is swung upwardly to its operative position whereby upward swinging movement of said shelf is limited and the shelf is held against forward or rearward movement from its operative position, said stop element having a locking-bolt-receiving opening, a locking bolt carried by said shelf, spring means to project said locking bolt into said opening when the shelf is swung to its operative position, thereby to lock the shelf in its operative position, and a lever for manual operation to release said bolt.

8. In an article of furniture having a top, a machine-supporting shelf, means mounting said shelf adjacent to one side thereof beneath said top for forward sliding movement and upward swinging movement to a projected substantially horizontally disposed operative position at the front of said top and for downward swinging movement and rearward sliding movement to a substantially vertically disposed retracted machine storing position beneath said top, spring means tending constantly to swing said shelf upwardly, releasable latch means to hold said shelf in its downwardly swung position when same is retracted, means operable in response to forward sliding movement of said shelf to release said latch means and thus permit said

spring means to swing said shelf upwardly to its said operative position, at least one pin projecting from each side of said shelf, a pair of fixed stop elements each having a slot, said stop elements being disposed so that the slot of one receives the pin at one side of said shelf and the slot of the other receives the pin at the other side of said shelf when the shelf is swung upwardly to its operative position, thereby to predetermine its operative position, fixed keeper means, and manually releasable locking bolt means carried by the shelf for cooperation with

said keeper means in response to swinging movement of the shelf to its operative position to lock the shelf in its operative position.

9. An article of furniture as set forth in claim 3 in which a bar is fixed to the carriage and in which the spring means is interposed between said bar and the shelf, and in which manually releasable means is provided for locking the shelf in its operative position.

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