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O. E. NABHOLZ

2,590,341

FILING CABINET

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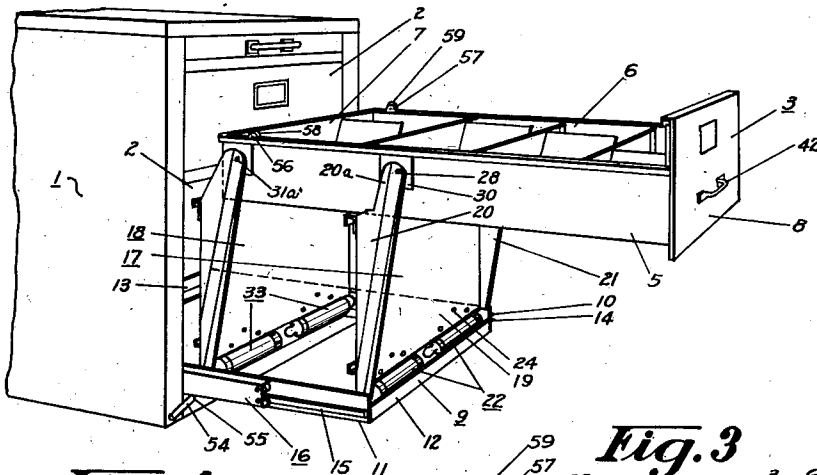


Fig. 1

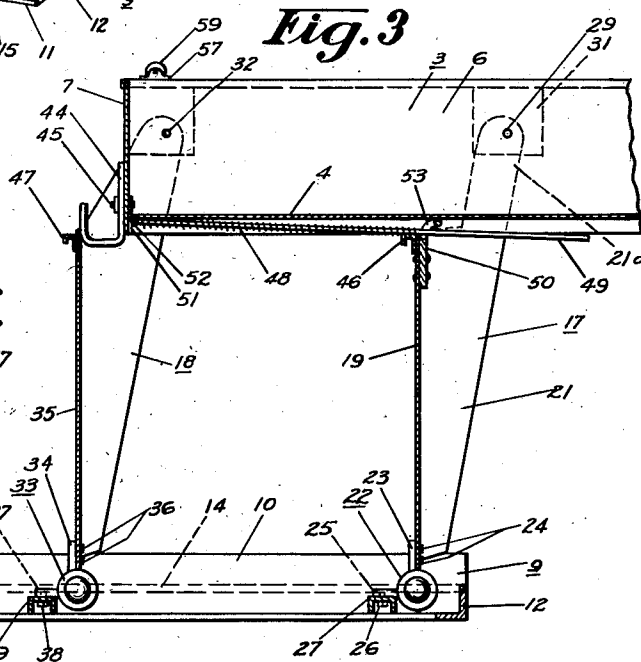


Fig. 3

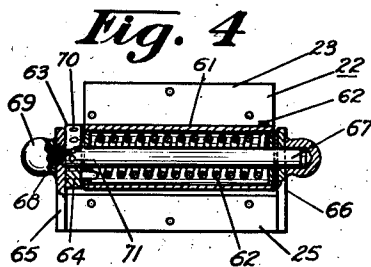


Fig. 4

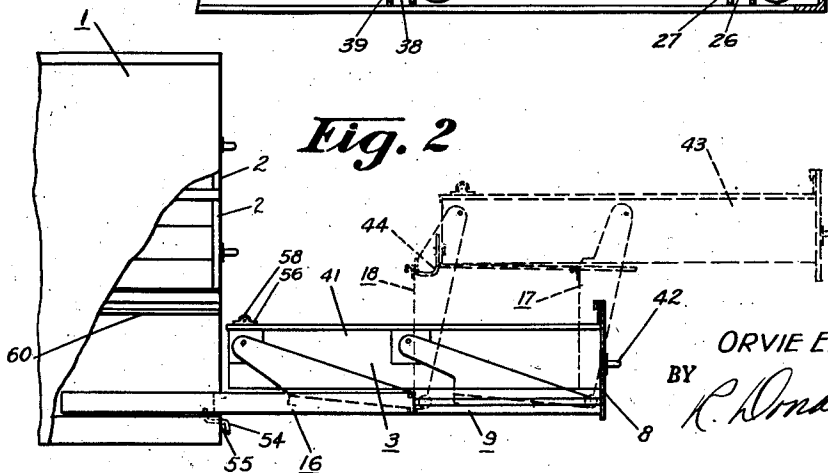


Fig. 2

INVENTOR.

ORVIE E. NABHOLZ

BY

BY *R. Donald Pitts*

AGENT

UNITED STATES PATENT OFFICE

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FILING CABINET

Orvie E. Nabholz, Shellsburg, Iowa

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2 Claims. (Cl. 312-266)

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This invention relates generally to filing cabinets and particularly to means for mounting the drawers of filing cabinets.

It is a primary object of my invention to provide an improved means for mounting the drawers of a filing cabinet, particularly the lower drawers thereof.

It is another object of my invention to provide means for so mounting a lower drawer of a filing cabinet that it may be withdrawn from the cabinet and quickly and easily elevated to a more convenient height.

A still further object of my invention is the provision of a relatively simple and sturdy mechanism for accomplishing this purpose and a mechanism which is easy and simple to adjust.

Other and further features and objects of the invention will be more apparent to those skilled in the art upon a consideration of the accompanying drawings and following specification, wherein is disclosed a single exemplary embodiment of the invention, with the understanding, however, that such changes may be made therein as fall within the scope of the appended claims, without departing from the spirit of the invention.

In the drawings:

Figure 1 is a view in perspective of a file cabinet, the bottom drawer of which incorporates elevating mechanism constructed in accordance with my invention. The drawer is shown in its elevated position ready for use.

Figure 2 illustrates, schematically, the various positions of the drawer supporting mechanism.

Figure 3 is an enlarged view, in longitudinal section, of a portion of the drawer and its supporting and elevating mechanism, and

Figure 4 is a view in section of a spring hinge such as may be employed in the device illustrated in Figure 1.

Referring now to these drawings; a filing cabinet of a type suitable to properly utilize my invention is indicated generally at 1 and includes a plurality of drawers 2 and 3. The lower drawer 3, which would normally be entirely too low for convenient use by the operator, is so mounted as to permit it to be withdrawn from the cabinet and elevated to the position shown. The cabinet and drawer may be of usual construction, the drawer including a bottom 4, the side walls 5 and 6, a rear wall 7 and a front panel 8, all secured together in the usual fashion by welding or riveting.

A drawer mounting frame, indicated generally at 9, includes side frame members 10 and 11 and

forward and rear frame members 12 and 13 respectively. Runners 14 and 15 are secured longitudinally to the side frame members 10 and 11 and these rails 14 and 15 are slideably supported by ball-bearing suspension extension members, indicated generally at 16, which may be constructed in accordance with the usual practice. The extension members permit the drawer mounting frame 9 to be entirely withdrawn from the interior of the cabinet and this frame 9 is of approximately the same length as the drawer itself.

The elevating mechanism includes a pair of spaced supporting members 17 and 18 which pivotally connect the drawer 3 and its mounting frame 9. The supporting member 17 is generally in the form of a platelike cross member 19 with generally triangular shaped flanges 20 and 21 bent upwardly at the sides thereof. The supporting member 17 is pivotally connected, at its lower end, to the drawer mounting frame 9 by means of a pair of spring hinges 22, one leg 23 of each hinge being secured to the panel 19 of the supporting member by means of the bolts 24. The other leg 25, of each spring hinge, is bolted, as at 26, to a channel member 27 secured transversely of the mounting frame by welding to the side frame angles 10 and 11.

The spring hinges 22 are constructed in accordance with usual practice and include a spring arranged to bias the supporting member 17 upwardly and forwardly. The flanged side portions 20 and 21 of the supporting members 17 extend upwardly adjacent the sides 5 and 6 respectively of the drawer. Upper extensions 20-a and 21-a are aperture at their upper ends and bolts or rivets 28 and 29 employed to pivotally connect the said members to the reinforcing plates 30 and 31. These reinforcing plates are secured to the side walls 5 and 6 of the drawer by welding or the like.

The rear supporting member 18 is pivotally connected to the drawer in a similar manner by means of the pivots 31a and 32 and the spring hinges 33, the leg 34 of each hinge being secured to the transverse panel 35 of the supporting member by means of the bolts or rivets 36. The other leg 37 of each hinge is bolted, as at 38, to the transversely disposed channel 39, which member is secured between the side frame members 10 and 11 of the drawer mounting frame.

A spring hinge, suitable for use in my drawer elevating mechanism, is shown in Figure 4. The leg 23 is formed as a part of the cylindrical sleeve 61 which encloses the torsion spring 62. One

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end of this spring is secured to the sleeve by inserting a hooked end of the spring in an opening provided in the sleeve. The other end of the spring is similarly secured to a collar 63 by inserting the end of the spring in an opening 64 provided in the collar. The second leg 25 of the hinge has spaced ears 65 and 66, formed as part of the leg. These ears are apertured to receive the hinge pin 67, on end of the pin being threaded as at 68 to permit it to be locked to the ear 65 by means of the nut 69. The collar 63 is provided with a plurality of radially extending openings 70 through one of which, a pin may be inserted to engage in an aligned hole 71 in the hinge pin and thus adjustably secure the adjacent end of the spring to the hinge leg 25.

The drawer 3 is first withdrawn from the cabinet to the full extent permitted by the ball-bearing-suspension members 16 the position occupied by the drawer being indicated at 41 in Figure 2. This is the opened position a lower drawer would normally occupy when constructed in the usual manner. A further pull exerted by the operator upon the drawer pull 42 will add sufficient force to that already applied by the spring hinges to cause the supporting members 17 and 18 to move upwardly and forwardly and cause the drawer 3 to take the position indicated at 43.

The springs of the spring hinges 22 and 33 are adjusted to apply sufficient force to the supporting members 17 and 18 to lift the drawer, when loaded, with a minimum of effort on the part of the operator.

A U-shaped latching member 44, pivotally connected by means of the bolt or rivet 45 to the rear wall 7 of the drawer, is now turned downwardly, as indicated in Figures 2 and 3, so as to extend between the rear of the drawer and the forward surface of the supporting member 18. The supporting members are thus prevented from collapsing rearwardly and the entire assembly, including the drawer, may now be pushed rearwardly to the position shown in Figure 1.

The transverse walls 19 and 35 of the two supporting members are broken over along their top edge for reinforcement or provided with a reinforcing channel secured along their top edges by welding or the like and as shown at 46 and 47. The broken edge or channel 46 of the forward supporting member serves as a stop to limit the forward movement of the drawer and is so positioned, relative to the pivots 28 and 29, that when the drawer is open, those pivots will lie slightly forward of a vertical plane passing through the lower pivots or hinge members 22. These reinforcing channels 46 and 47 also serve to support the members 17 and 18 and thus support the drawer when it is lowered and the supporting structure is in its folded position, that is, the position indicated at 41 in Figure 2.

In order to counteract the shock to the structure when the drawer is moved to its elevated position, I provide the spring 48. This spring is disposed over the spring guide-rod 49 and between the rear end of the drawer 3 and a guide bracket 50 which member is secured to the cross panel 19 of the forward supporting member. The spring guide-rod 49 is pivotally connected beneath the bottom of the drawer and to the rear wall thereof by means of the bracket 51 and the pivot pin 52. The guide 50 is curved at its upper end and slotted, as at 53, to receive the spring guide rod, the slotted opening permitting the drawer to be lowered without bending the

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guide rod. It will be understood that, as the spring hinges force the supporting members and the drawer upwardly and forwardly, the distance between the rear of the drawer and the bracket 50, mounted on the forward supporting member 17, will be shortened and the spring 48 will be compressed and will serve as a shock absorber to counteract the momentum of the drawer as it is propelled forwardly when opened. This shock spring becomes increasingly effective as the drawer approaches its elevated position. It is preferable that two such shock absorbers be employed—as widely spaced as possible beneath the drawer.

When the drawer is to be closed, the entire mechanism is again pulled as far forward as the extension supports 16 will permit and, in order to lock the lower frame in its extended position, while the drawer is being lowered, a latching member or brake 54 is employed. This member comprises a crank or foot pedal extending through an opening 55 near the base of the cabinet and adjacent the suspension members 16. The inner end of this brake engages the under-surface of the suspension bar and locks it in extended position until released.

The upper rear edges of the drawer are provided with a pair of brackets 56 and 57 in which the rollers 58 and 59 are mounted. These rollers engage with the under-surface of the angle rails 60, secured to the inside walls of the cabinet, as best shown in Figure 2 and prevent the rear end of the drawer from rising while the drawer is within the cabinet.

Although I have described a specific embodiment of my invention, it is apparent that modifications thereof may be made by those skilled in the art. Such modifications may be made without departing from the spirit and scope of my invention as set forth in the appended claims.

I claim as my invention:

1. In a cabinet, a drawer, a mounting frame, means for slidably mounting the said mounting frame in the said cabinet, supporting means including generally parallel supporting members spaced longitudinally of the said drawer and pivotally secured to said drawer, generally adjacent the rear thereof, spring-biased hinge means operatively connecting the said parallel supporting means to said mounting frame adjacent the forward portion thereof, the said spring-biased hinge means urging the said supporting means upwardly and forwardly to raise the drawer to an elevated position, and buffing means for the drawer comprising a guide rod pivotally secured to the drawer at the rear end thereof, the forwardmost of the parallel supporting members having means for guiding the forward portion of the guide rod and a compression spring mounted on the guide rod between the drawer and said guiding means.

2. In a filing cabinet having a drawer and a mounting frame slidable within the cabinet; means for mounting the drawer on the mounting frame comprising a pair of spaced parallel panel members having their lateral edges flanged for reception therebetween of the side walls of the drawer, spring-biased hinges securing each said panels along a transverse edge to said mounting frame, means pivotally securing the drawer between the flanged portions of the panel members, the forwardmost panel including means for limiting upward and forward movement of the drawer, a guide rod, and a compression spring mounted thereon and disposed between the rear end of

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said drawer and the forwardmost panel at a point thereon spaced from the point of pivotal attachment to the drawer.

ORVIE E. NABHOLZ.

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