

W. F. WAGNER.
SUPPORTING AND GUIDING DEVICE FOR FURNITURE DRAWERS.
APPLICATION FILED FEB. 24, 1909.

977,349.

Patented Nov. 29, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

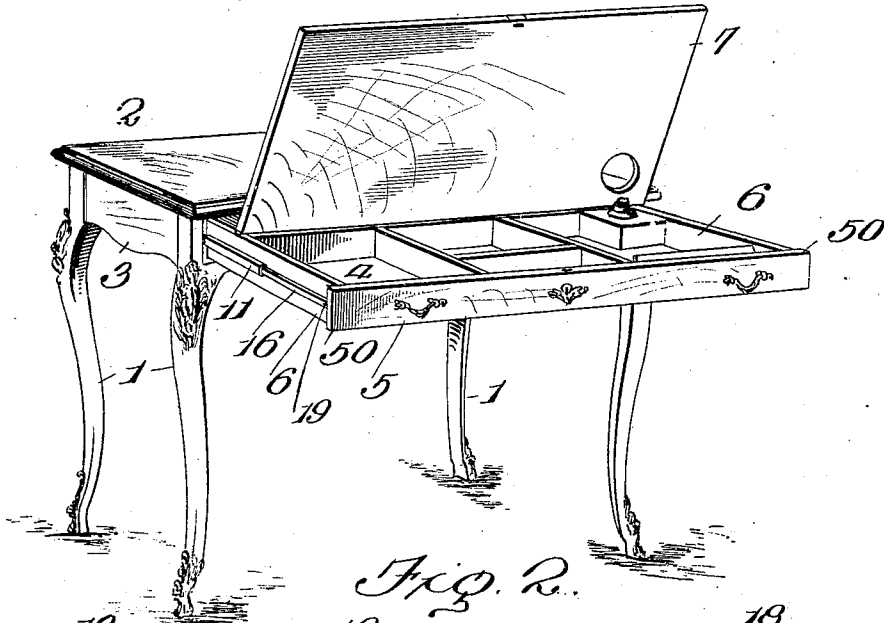
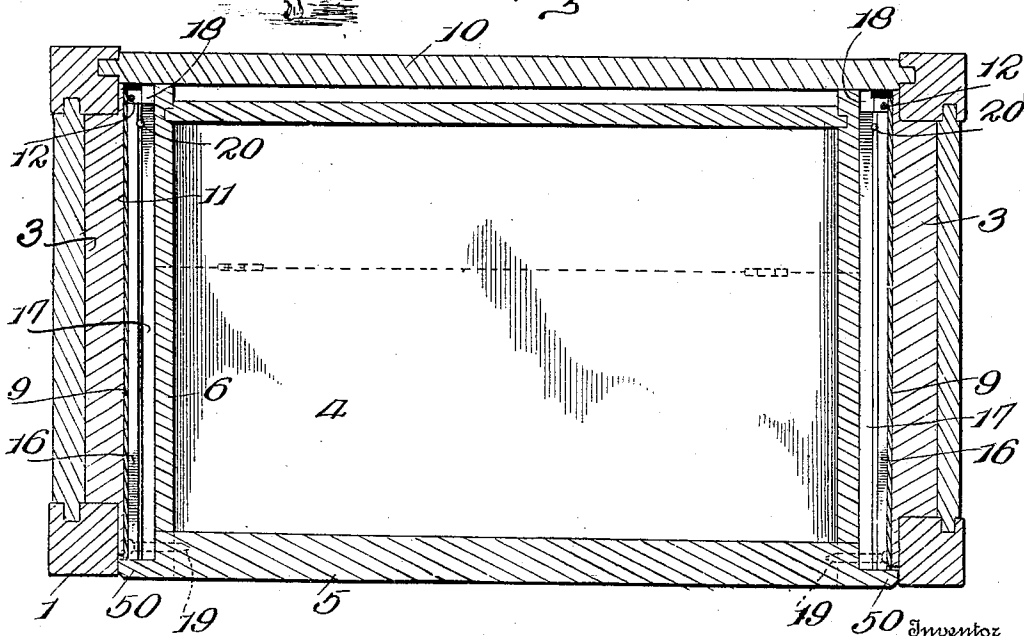


Fig. 2.



Witnesses

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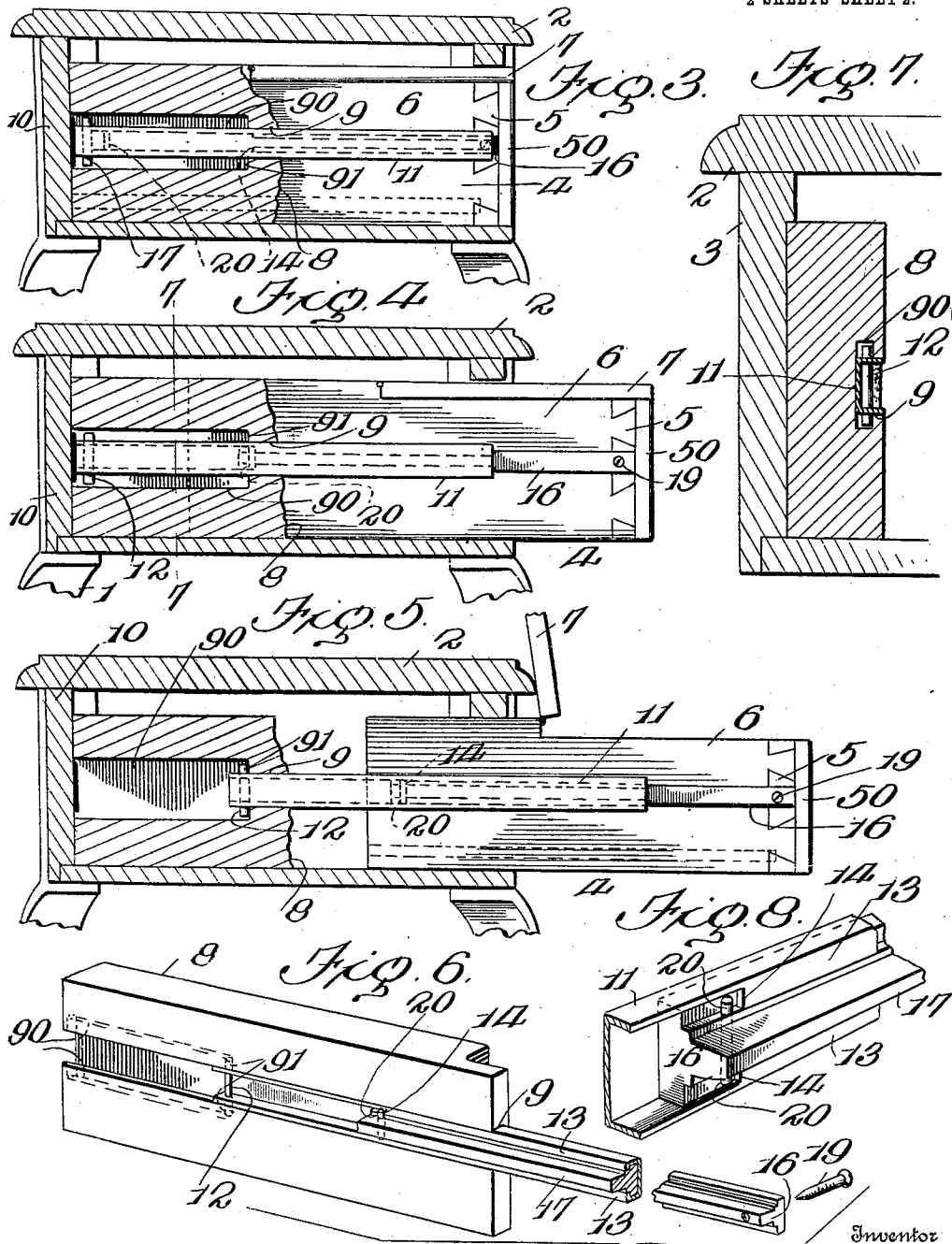
Attorney

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UNITED STATES PATENT OFFICE.

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SUPPORTING AND GUIDING DEVICE FOR FURNITURE-DRAWERS.

977,349.

Specification of Letters Patent.

Patented Nov. 29, 1910.

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To all whom it may concern:

Be it known that I, WILLIAM F. WAGNER, a citizen of the United States, residing at Philadelphia, Philadelphia county, Pennsylvania, have invented certain new and useful Improvements in Supporting and Guiding Devices for Furniture-Drawers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in furniture, and more particularly to supports for drawers; and the objects and nature of my invention will be readily understood by those skilled in the art in the light of the following description of the accompanying drawings illustrating what I now consider my preferred embodiment from among other formations and arrangements within the spirit and scope of my invention.

An object of the invention is to provide certain improvements in combinations and arrangements whereby a highly efficient and durable support will be provided for furniture drawers and the like, permitting maximum opening movement of said drawers and causing the drawers to open and close with an easy smooth sliding movement, reducing to the minimum liability of the drawers sticking, wedging or the like.

The invention consists in certain novel features in construction or in combinations of parts, as more fully and particularly pointed out hereafter.

Referring to the accompanying drawings:—Figure 1, is a perspective view of a desk table having my invention applied thereto, the drawer desk being shown pulled out. Fig. 2, is a horizontal section through the drawer and the article of furniture forming the drawer housing, the drawer being shown in closed position. Fig. 3, is a cross sectional view through the drawer housing, the drawer being shown in closed position, the drawer end being partially shown in elevation, an end wall of the drawer housing being partially broken away. Fig. 4, is a view similar to Fig. 3, but showing the drawer partially pulled out. Fig. 5, is also a similar view but showing the drawer completely opened. Fig. 6, is a detail perspective showing an

end wall or rail of the drawer housing, the hollow slide therein, a drawer head rail in said slide, and a securing screw for said rail. Fig. 7, is a cross section, somewhat enlarged, taken in the plane of the line 7—7, Fig. 4. Fig. 8, is a detail perspective showing portions of a hollow slide and a drawer-head rail therein.

In the drawings I show a desk table comprising supporting legs 1, table top 2, table ends 3, sliding drawer 4, having front 5, ends 6, and a hinged cover 7, forming the desk top. This drawer is slidable into and from the drawer housing or compartment arranged beneath the table top and having interior end walls or rails 8, parallel with the drawer ends 6. Said end walls 9, are each formed with a longitudinal horizontal groove or slideway 9, arranged usually about midway the height of said wall and extending throughout the length thereof from the housing back 10, to and through the front ends of said wall, so that the grooves or slideways 9, are open at their front ends. Each groove is longitudinally open at its inner side into the drawer receiving compartment, and from its front end inwardly for about one half its length each groove is right angular or U-shaped in cross section with parallel comparatively wide flat top and bottom longitudinal bearing faces or walls, while from its inner end outwardly, for about one half its length, each groove is undercut or laterally enlarged at its inner portion by the upper and lower lateral longitudinal grooves 90, which can be formed or cut by a suitable routing tool in a manner well understood by those skilled in the art. Rearwardly facing stop shoulders 91, are formed in the slideways 9, about midway the length thereof, where the undercut portions of the slideways meet the front or U-shaped portions of the grooves, although usually each groove is of uniform depth throughout its length.

Drawer supporting slides 11, are confined to and longitudinally slidable in said grooves and usually two similar slides are provided for each drawer, one slide in each groove. Each slide is in length about equal to the horizontal depth of the drawer and is also of about the same length as each groove 9, so that when the slides abut against the back 10, their front ends will not

project beyond the front open ends of the grooves 9, but usually terminate just within the same. These slides can be variously formed of any suitable material to freely
5 and easily slide longitudinally of said grooves and of the required strength and durability to properly perform their functions in supporting the drawer when pulled out to its limit.

10 In the specific example illustrated, the two slides are similar in structure, dimensions and form, and each is composed of a strong straight metal bar preferably approximately rectangular in cross section and having compar-
15 paratively wide flat longitudinal top and bottom bearing faces or walls to engage the corresponding walls of the grooves cut in the drawer housing ends. Each slide fits in its groove with its outer face about flush
20 with the inner side face of the housing end, and is longitudinally channeled from end to end and of uniform thickness and depth throughout having flat longitudinal inner and side faces to freely and easily slide in
25 the grooves 9, although I do not, as at present advised, wish to so limit the broad features of my invention. Each hollow or channeled slide is longitudinally open throughout the length of its side adjacent
30 the drawer end, and each slide, at its inner end, is confined to reciprocation in its groove 9, and against lateral movement therefrom by any suitable means. For instance, I show rigid vertical pins 12, passed through the
35 inner ends of the slides and fixed therein to traverse the hollow interiors or channels of the bars and form internal stops therein, and to project vertically above and below the end portions of the slides and form studs projecting loosely into the lateral enlargements
40 or undercut portions of said grooves 9, to reciprocate longitudinally thereof as the slides move with the drawer. The outward movement of the slides is limited by the engagement of said projecting pin ends with the stop shoulders 91 formed where the undercut portions terminate about midway the
45 lengths of the slideways 9. Each slide at its inner side next to the drawer end is formed longitudinally open, but said side opening, in the specific example illustrated, is of varying widths, that is, from the front end of the slide rearwardly to a point about mid-
50 way the length of the slide, the opening is contracted in width to form the slide longitudinally undercut, while from the rear end of the slide forwardly to the inner or rear end of said contracted portion, said side opening is enlarged. The front or under-
55 cut portion of the slide is formed by the opposite longitudinal overhanging preferably vertical side flanges 13, forming the reduced side opening and one or more stop shoulders 14, at the front end of the en-
60 larged longitudinal side opening of the

slide. Suitable means are provided for slidably connecting the drawer to and supporting the same from said slides. For instance, in the specific example illustrated, I show
each drawer end, usually although not nec- 70
essarily about midway its vertical depth, provided with a projecting horizontal rail 16, arranged preferably throughout the length of the drawer end. This rail is usu-
75 ally T shaped in cross section or otherwise formed with an outer enlarged longitudinal portion, although I do not wish to so limit all features of my invention.

The two rails project beyond or are arranged at the exteriors of the drawer ends 80
and are formed to fit and slide longitudinally within the slides, and said rails are confined within the slides and the slides are confined against lateral movement from the
85 drawer ends, by the enlarged rail heads fitting under the slide flanges 13. Each rail is formed along its side next to the drawer end with the longitudinal rib or fin 17, extending through the longitudinal side opening
90 of the adjacent slide and forming the means whereby the rail is secured to the drawer end.

In the specific example illustrated, each rail is composed of a straight strong metal
95 bar in length approximately equal to the length of the drawer end, and preferably of the same cross sectional shape and dimensions throughout its length, and throughout its length each rail is secured to the drawer
100 end. For instance, I show each drawer end, formed with an exterior longitudinal socket or groove 18, and into these grooves the ribs 17, of the rails 16 are longitudinally fitted, and the rails can be fixedly secured in
105 these sockets by any suitable means, for example, one or more screws 19, passed through perforations in the rails and into the drawer ends. The straight grooves 18, can be accurately cut in the drawer ends by
110 a suitable machine, and the slideways 9, can also be accurately cut by machinery so that when the parts are assembled, these various grooves will be properly positioned and will accurately receive the drawer supporting
115 rails and slides. The rails can be inserted into the slides through the rear ends thereof, before the application of the stop pins to the rear ends of the slides; and the slides containing the rails can be inserted into the
120 slideways 9, through the rear ends thereof before the application of the back to the article of furniture. The rails can then be fitted throughout their lengths into the drawer end grooves 18, and secured therein
125 by the screws 19, arranged say, at the front ends of the rails. However, I do not wish to limit my invention to any particular method of assembling the parts.

In the specific example illustrated, the inward movement of the rails within the 130

slides is limited by the engagement of the inner ends of the rails with the vertical pins 12, traversing the inner ends of the slides, while the independent outward movement of the rails within the slides is limited by engagement of the rigid lateral pins or lugs 20 projecting vertically from the rear end portion of the ribs of the rails, with the stop shoulders 14, formed by the rear ends of the slide flanges 13. These lugs or pins 20 carried by the rear end portions of the rail ribs, usually move in the enlarged side openings of the slides as the rails reciprocate in the slides although I do not wish to limit my invention to projecting each pin 20, both above and below the rail nor to cutting away both flanges 13 of a slide. The arrangements of the parts are preferably such that when the drawer is completely withdrawn into its compartment or housing, the rails will extend throughout the lengths of the slides, and the slides will extend throughout the lengths of the slideways 9, and the rails, slides and front ends of the slideways will be concealed from the front of the drawer, by the projecting end flanges or lips 50, of the front, covering the front edges of the walls or rails 8, containing the slideways 9. The front ends of the rail receiving grooves in the drawer ends and the rails therein are preferably arranged behind said lips, and the front of the article of furniture can be rabbeted at the ends of the drawer opening, to receive the lips 50. When the drawer is pulled out, the rails will first move outwardly in the slides until the rail lugs 20, engage the slide stop shoulders, 14, thereupon the rails and slides will move outwardly together until the slide pins 12, engage the stop shoulders 91, and thereby limit further opening movement of the drawer. The drawer when thus opened to its limit will be most firmly upheld by the rails having usually over one half of their lengths confined in the slides and by the slides having usually over one-half of their lengths confined in the slideways 9, while the rails are usually throughout their entire lengths fitted or embedded in the drawer ends, whereby the strain is widely and uniformly distributed along the drawer ends and rails. When the drawer is being closed, the rails will usually slide freely through the slides until the inner ends of the rails engage the pins 12, and the slides will then move in with the rails until the drawer is completely withdrawn or closed.

The ribs of the rails are preferably of such width and are sunk in the drawer ends to such a depth, that the side faces of the drawer ends are held from rubbing engagement with the side faces of the walls 8, containing the grooves or slide ways 9, and hence the drawer can be mounted in the housing with a comparatively tight fit and

against undue looseness and yet danger of wedging or sticking by reason of dampness and swelling of the wood will be reduced to the minimum.

It will be noted that, in the specific example illustrated, the parallel flat top and bottom bearing faces of the slides travel on the corresponding parallel flat walls of the grooves in the housing ends, and hence are most strongly supported and said bearing faces do not tend to throw the slides laterally and force their inner vertical walls against the inner vertical walls of the grooves. Also that the rail heads have flat parallel top and bottom bearing faces traveling on the corresponding inner flat faces of the slides without a tendency to force the vertical faces of the rails and slides together. Also the vertical flanges of the slides are arranged parallel with the outer faces of the drawer ends and are closely adjacent thereto, and the longitudinal edges of said flanges do not project toward the drawer ends but form supporting or bearing edges for the drawer rails.

While I provide stops at the rear ends of the grooves in the housing ends yet I do not wish to limit my invention to utilizing the desk back for this purpose.

My improvements in drawer supports can be employed for drawers wherever adaptable and I merely show the same applied to a desk table for convenience in illustration.

It is evident that various changes, modifications and variations might be resorted to without departing from the spirit and scope of my invention as defined by the claims and hence I do not wish to limit myself to the exact constructions or arrangements disclosed.

What I claim is:—

1. In combination, a drawer housing having end slideways undercut from their inner ends outwardly for portions of their lengths, channeled slides set and slidable in said ways and having lateral projections at their inner ends in said undercut portions and limiting the movements of said slides to the lengths of said undercut portions, said slides having longitudinal side openings throughout their lengths, and longitudinal overhanging edges extending from their outer ends and terminating in stop shoulders forwardly from their inner ends, and a sliding drawer having exterior end rails longitudinally and slidably confined in said slides by said edges and having lateral projections to engage said shoulders and limit the independent outward movement of said rails in said slides.

2. In combination, a drawer housing having end slideways, hollow slides longitudinally movable in said ways, means to limit the outward movement of said slides in said ways, said slides having longitudinal side

openings and longitudinal overhanging edges terminating a distance from the inner ends of the slides to form stop shoulders, and a sliding drawer having longitudinal exterior rails fixed thereto and longitudinally slidable in said slides, said slides being confined to said rails by said edges, the inner end portions of said rails having vertical projections to engage said stop shoulders to limit the independent outward sliding movement of said rails in said slides, substantially as described.

3. In combination, a drawer housing having end slide grooves with parallel flat top and bottom longitudinal faces, slides confined to longitudinal movement in said grooves and having longitudinal parallel flat top and bottom walls bearing against said faces, said slides being longitudinally channeled and at their outer sides having longitudinal vertical overhanging flanges about flush with the inner faces of the housing ends, a sliding drawer having its ends arranged closely adjacent to said flanges, and drawer supporting rails confined in said slides in longitudinal sliding engagement and having flat parallel top and bottom longitudinal faces bearing against said walls and longitudinal ribs arranged between and bearing against the edges of said flanges and set and secured in the drawer ends.

4. In combination, a drawer housing having longitudinal slideway grooves cut throughout the lengths of its ends, said grooves being undercut from about midway their lengths to their rear ends, longitudinally hollow slides in said grooves and at their rear ends having vertical stops to enter said undercut portions, the rear ends of said grooves formed to permit insertion of the rear ends of the slides into the grooves and undercut portions, said slides having longitudinal openings at their outer sides, said openings being enlarged for portions of their lengths to form intermediate stop shoulders, and a sliding drawer arranged between the outer sides of said slides and having supporting rails formed with longitudinal exterior portions confined to reciprocation within said slides and with portions extending through said longitudinal openings and fixed to the drawer ends, said rails having stops to engage said stop shoulders.

5. In combination, a drawer housing having longitudinal slide-way grooves in the inner faces of its ends, said grooves being approximately rectangular in cross section, longitudinally hollow slides approximately rectangular in cross section interiorly and exteriorly and slidably confined in said grooves, and a drawer having supporting rails, said rails having longitudinal heads about rectangular in cross section and slidably confined within said slides and having

longitudinal ribs fixed to the drawer ends, said slides at their outer longitudinal sides having longitudinal side openings receiving said ribs and longitudinal edges bearing against said ribs, the longitudinal vertical outer side faces of said slides being approximately flush with the inner side faces of the drawer housing ends.

6. Supporting and guiding devices for drawers comprising a straight longitudinally hollow slide having its outer longitudinal wall formed throughout its length with an opening, said opening being increased in width from an intermediate point in the length of the slide to the rear end thereof, thereby forming an intermediate stop shoulder, and a drawer rail longitudinally arranged and slidable in said slide and having a drawer-engaging longitudinal portion extending laterally through and beyond said opening, said rail at its rear end having a stop movable in said enlarged portion of said opening to engage said shoulder.

7. In combination, a drawer housing having depressed slideways extending throughout the lengths of the housing ends, and formed with flat parallel top and bottom longitudinal walls, means closing the inner ends of said slideways, said slideways formed with longitudinal undercut portions extending from their inner ends and terminating short of the front ends of said ways and forming stop shoulders intermediate the lengths of the ways, slides rectangular in cross section and longitudinally slidable in said ways and at their inner ends adapted to engage said means to limit inward movement of the slides, said slides at their inner ends having means projecting into said undercut portions to confine the inner ends of the slides in said slideways and limiting the outward movement of the slides to the lengths of said undercut portions, a sliding drawer supported by said slides and having end rails in longitudinal sliding engagement with said slides, and means limiting the sliding movement of said rails with respect to said slides.

8. In combination, a drawer housing having end slideways formed with undercut portions extending longitudinally thereof from their inner ends outwardly and terminating short of the front ends of said ways, to form stop shoulders intermediate the lengths of the ways, longitudinally channeled slides slidable in said ways and at their inner ends having pins passed transversely through the slides and across the channels thereof and projecting into said undercut portions to limit the longitudinal movements of the slides in said ways to the lengths of said undercut portions, and a sliding drawer supported by said slides and having end rails slidably fitted in the chan-

nels thereof, the inward movement of said rails in said channels being limited by engagement with said pins.

9. In combination, a drawer housing having longitudinal grooves cut in the ends thereof, said grooves undercut for portions of their lengths to form vertical stop shoulder intermediate the lengths of the grooves, drawer supporting slides longitudinally movable in said grooves and having vertical stop portions extending into said undercut portions to confine the rear ends of the slides in said grooves and to limit the reciprocation of the slides to the lengths of said undercut portions and a sliding drawer provided with supporting end rails confined to said slides in sliding engagement, and holding the forward portions of said slides in said grooves and from rubbing engagement with said drawer ends, and the drawer ends from engagement with the housing ends.

10. In combination, a drawer housing having longitudinal end slideways having slide-engaging stops at their inner ends and stop

shoulders intermediate their lengths longitudinally channeled slides confined in said slideways and provided with exterior stop portions to limit the outward movement of the slides by engagement with said stop shoulders, said slides having internal stops in the inner ends of their channels and having exterior stop shoulders intermediate their lengths, and a sliding drawer having longitudinal end rails slidably confined within said channels and having inner end projections to limit the outward movement of said rails in the slides by engagement with said exterior stop shoulders, the inward movement of said rails being limited by the engagement of their inner ends with said internal stops at the inner ends of said channels.

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

WILLIAM F. WAGNER.

Witnesses:

FRANK B. STOCKLEY,
ERNEST E. CONRAD.