April 21, 1964 C. G. KANZELBERGER 3,129,988

DRAWER SUPPORT

Filed Jan. 22, 1962 2 Sheets-Sheet 1

Fig. 1.

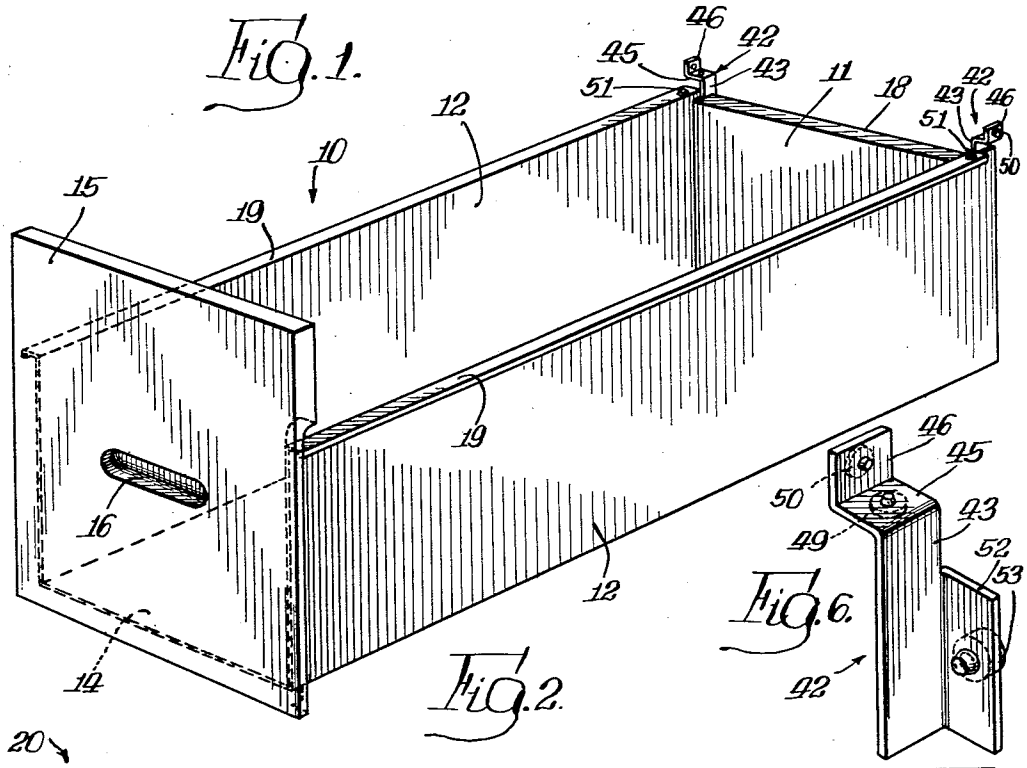
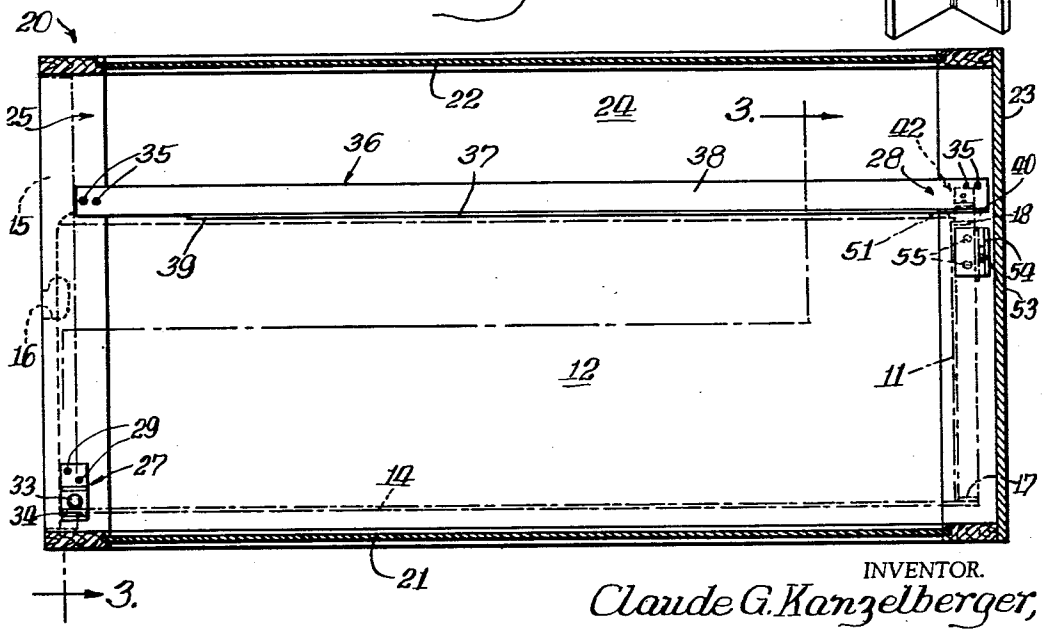


Fig. 2.

Fig. 6.



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Fig. 3.

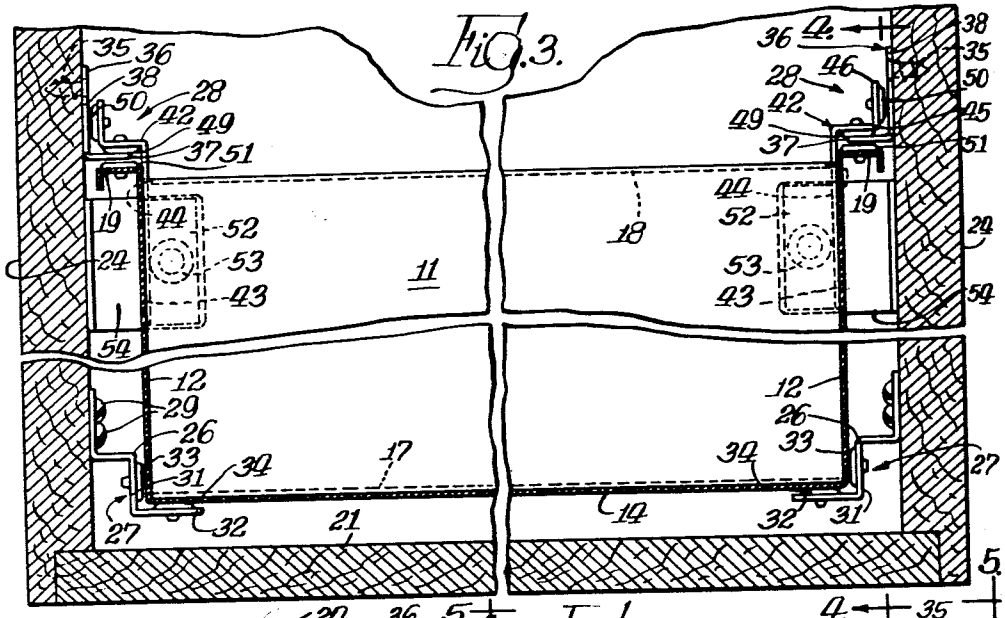


Fig. 4.

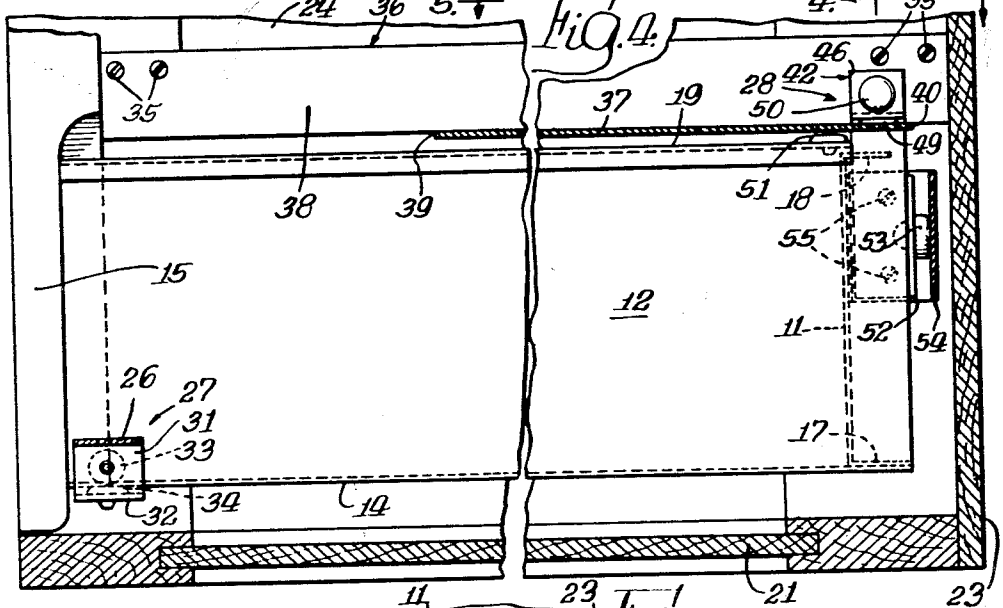
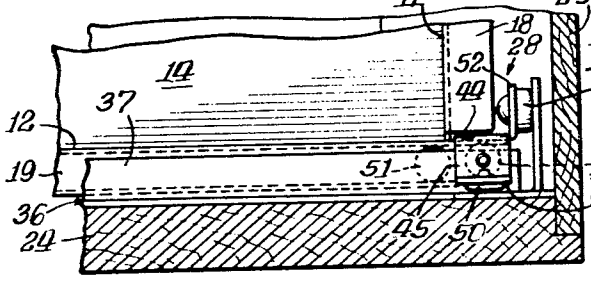


Fig. 5.



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3,129,988
DRAWER SUPPORT

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8 Claims. (Cl. 312—345)

This invention relates generally to drawer structures and, more particularly, to an apparatus for suspending a drawer in a cabinet or the like.

The primary object of this invention is to provide an improved drawer suspension apparatus that is inexpensively manufactured and easily installed.

It is another object to provide an improved drawer suspension apparatus of the foregoing character that also guides the movement of the drawer between open and closed positions and prevents the drawer from tilting when it is in the open position.

It is still another object to provide an improved drawer suspension apparatus of the foregoing character that permits a drawer to be readily removed from a cabinet and reinserted when desired.

A still further object is to provide an improved drawer suspension apparatus of the foregoing character whereby a drawer may be mounted in various types of cabinets or other frame structures.

Other objects and advantages of the invention will become apparent from the following detailed description taken in conjunction with the accompanying figures of the drawings, in which:

FIG. 1 is a perspective view of a drawer and part of a suspension apparatus embodying the features of the invention;

FIG. 2 is a longitudinal sectional view of a frame structure and a drawer suspended therein;

FIG. 3 is an enlarged sectional view of the frame structure and drawer, taken generally on the line 3—3 of FIG. 2;

FIG. 4 is a sectional view taken generally on the line 4—4 of FIG. 3;

FIG. 5 is a sectional view taken generally on the line 5—5 of FIG. 4; and

FIG. 6 is a perspective view of a part of the suspension apparatus.

In general, a suspension apparatus embodying the features of the invention is adapted to slidably suspend a drawer in an opening formed in a cabinet or other frame structure. The apparatus comprises a front support and a rear support for each side of the drawer. The two front supports are fastened to the frame structure adjacent the front of the opening in the frame structure; they preferably extend underneath the drawer and provide bearing surfaces for the bottom of the drawer to ride on. The two rear supports slidably interconnect the back of the drawer, preferably at the two upper corners, with the frame structure, and each includes means for preventing both downward and upward movement of the back of the drawer. Both the front and rear supports further include means for preventing substantial lateral movement of the drawer.

The suspension apparatus may also include means to permit the drawer to be readily removed from the frame structure when desired, and resilient bumpers at the back of the drawer to cushion the impact between the frame structure and the drawer when the drawer is pushed to the closed position.

In greater detail, FIG. 1 shows a drawer, indicated generally by the numeral **10**, having a back **11**, two sides **12**, a bottom **14** and a front **15**. The two sides **12** and the bottom **14** are preferably formed of a single sheet of metal which is fastened to the front **15** by any desired

means. The front **15** may be made of wood and may have a routed pull **16** formed in it. The back **11** is preferably formed of sheet metal and has two outturned flanges comprising a lower flange **17** and an upper flange **18**, FIGS. 2 and 4. The bottom flange **17** is fixed to the bottom **14** of the drawer and the edges of the back **11** are fixed to the sides **12** as by spot welding. The upper edges of the two sides **12** are turned outwardly and downwardly to form horizontal flange portions **19**.

FIGS. 2 and 3 show one type of frame structure **20** adapted to receive the drawer **10**. This frame structure includes a bottom **21**, a top **22**, a back **23** and two sides **24** which may be secured together by any desired means. The frame structure has one open end, indicated generally by the reference numeral **25**, FIG. 2.

The apparatus for slidably suspending the drawer **10** within the frame structure **20** such that the drawer **10** may be inserted into or pulled out of the open end **25**, comprises two front supports **27** and two rear supports **28**, best shown in FIGS. 2 to 4. Each front support **27** comprises a front bracket **26** of stepped form, fastened by screws **29** to a side **24** of the frame structure **20**, adjacent the open end **25** and preferably adjacent the bottom **21** of the frame structure **20**. Each stepped bracket **26** includes a vertical portion **31**, a horizontal portion **32**, a front support glide **34** fastened to the horizontal portion **32** and a lateral support glide **33** fastened to the vertical portion **31**. These glides **33** and **34** are preferably formed of a smooth low-friction material such as nylon. The front support glides **34** are positioned underneath the drawer **10** and the lateral support glides **33** are spaced from each other laterally of the drawer **10** a distance slightly greater than the outside width of the bottom portion of the drawer. As shown in FIG. 3, the drawer bottom **14** rests on the bearing surfaces provided by the front support glides **34** while the bearing surfaces provided by the lateral support glides **33** prevent substantial lateral movement of the drawer **10**.

Each rear support **28** includes an angle shaped run **36**, FIGS. 2 to 4, fastened by screws **35** to a side **24** of the frame structure **20** parallel to and above the flange **19** of the adjacent drawer side **12**. The horizontal portion **37** of each run **36** extends inwardly toward the center of the cabinet and is preferably positioned slightly above the horizontal flange **19**. The vertical portion **38** of each run **36** may extend nearly the entire length of the frame structure **20** while the horizontal portion **37** of each run **36** may be terminated at the point **39** adjacent the front of the frame structure and at the point **40** adjacent the rear of the frame structure, as shown in FIG. 2.

Each rear support **28** also includes a rear bracket **42** illustrated in FIGS. 3 to 6. Each rear bracket **42** includes a flat mounting portion **43** that is fastened, as by welding, to the inner face of a side **12** of the drawer **10** preferably adjacent the upper edge and outside of the back **11**. The upper flange **18** of the drawer back **11** is notched adjacent the sides **12** of the drawer **10** to provide two openings **44** for the respective rear brackets **42** (FIGS. 3 and 5).

The upper end of each rear bracket **42** is turned outwardly and upwardly from the mounting portion **43** to form a horizontal portion **45** and a vertical portion **46**. The rear brackets **42** are secured to the drawer in such position that the horizontal portions **45** are vertically spaced above the horizontal flange portions **19** of the drawer sides **12**. Holes are formed in the horizontal portions **45** and the vertical portions **46** of the rear brackets **42**, which receive upper glides **49** and lateral glides **50**, respectively, also preferably made of a smooth low friction material such as nylon. A lower glide **51** made of a similar material is fastened in a hole formed in the horizontal flange portion **19** of each drawer side **12**, the lower

glides 51 being offset a short distance toward the front of the drawer from the rear brackets 42. The bearing surfaces of the upper glides 49 face downwardly and the bearing surfaces of the lower glides 51 face upwardly, the glides 49 and 51 being spaced apart a distance slightly greater than the thickness of the horizontal portions 37 of the runs 36. The lateral glides 50 on the vertical portions 46 of the rear brackets 42 are spaced a short distance from the vertical portions 38 of the runs 36.

Also formed on each rear bracket 42 is a bumper mounting portion 52 comprising a lateral extension of the mounting portion 43. The two bumper mounting portions 52 preferably extend inwardly from the sides of the drawer and are parallel with and spaced rearwardly from the back 11 of the drawer. The bumper mounting portions 52 carry bumpers 53 and two angle-shaped stops 54, FIGS. 2 and 4, are fastened as by screws 55 to the sides 24 of the frame structure 20 adjacent the back 23 and at the same height as the bumpers 53, so that the bumpers 53 engage the stops 54 when the drawer is pushed all the way to the closed position.

When the drawer 10 is in the closed position, the front support glides 34 of the front brackets 26 bear the weight of the front of the drawer 10 and the upper glides 49 of the rear brackets 42 rest on the horizontal portions 37 of the runs 36 and bear the weight of the back of the drawer 10. Substantial lateral movement of the front and the back of the drawer is prevented by the two lateral support glides 33 of the front brackets 26 at the front and the two lateral glides 50 of the rear brackets 42 at the back. The glides 33 and 50, therefore, guide the movement of the drawer as it is moved within the frame structure 20. When the drawer 10 is pulled nearly all the way out of the frame structure 20, the weight of the front part of the drawer 10 tends to cause the drawer to tilt downwardly at the front and hence causes the upper glides 49 to lift off of the upper surfaces of the horizontal portions 37 of the runs 36 and the lower glides 51 of the rear brackets 42 to move upwardly against the bottom surfaces of the runs 36. The lower glides 51, therefore, bear against the runs 36 and prevent the front of the drawer from tilting downwardly to any substantial extent when the drawer is pulled out.

A conventional drawer stop (not shown) may be provided to prevent the drawer from being accidentally pulled completely out of the frame structure. In the event the drawer 10 is to be completely removed from the frame structure 20, the drawer stop, if one is provided, is disengaged and the drawer is pulled outwardly to the point where the rear brackets 42 pass the terminating points 39 of the horizontal portions 37 of the runs 36. The drawer 10 can then be lifted manually and removed from the frame structure 20. The drawer 10 may be readily reinserted into the frame structure 20 by setting the bottom 14 of the drawer 10 on the front support glides 34 of the front brackets 26 and positioning the space between the upper and lower glides 49 and 51 of the rear supports 28 in alignment with the horizontal portions 37 of the runs 36. The drawer 10 is then in position to be pushed into the frame structure and to its closed position.

From the foregoing description, it is apparent that a novel and improved suspension apparatus for a drawer has been provided. The suspension apparatus makes it possible to mount the drawer in various types of frame structures by fastening the runs 36 and the front brackets 26 to the sides of the frame structure. When using a suspension apparatus of the type described, the frame structure does not have to be specially designed, other than as to size, to receive a certain type of drawer. This suspension apparatus has further important advantages in that it prevents substantial lateral movement of the drawer and also prevents the drawer from substantial tilting when it is pulled part way out. The low friction glides of the front and rear supports permit movement of the drawer with relative ease, and the drawer can be readily removed from the frame structure when desired.

I claim:

1. Apparatus for slidably suspending a drawer in an opening formed in a frame structure, comprising a pair of front supports adapted to be secured to the frame structure adjacent the opening, said front supports being adapted to be positioned on opposite sides of the drawer and having portions that are adapted to extend underneath the drawer and provide bearing surfaces for the underside of the drawer, and a pair of rear supports adapted to slidably connect the upper side edges of the drawer to the frame structure, said rear supports including a run adapted to be secured to the frame structure on each side of the drawer, each of said runs having a substantially horizontal portion adapted to extend longitudinally of the drawer adjacent an upper side edge of the drawer, upper and lower means providing surfaces adapted to be secured to the drawer adjacent the upper edge of each side thereof, said upper and lower means being vertically spaced a distance slightly greater than the thickness of said substantially horizontal portions of said runs and being respectively positioned over and under said substantially horizontal portions of said runs, means providing a lateral surface formed on each of said front supports, means providing a lateral surface formed on said upper means of each of said rear supports, said lateral surfaces being adapted to prevent substantially lateral movement of the drawer, and a glide fastened to each of said surfaces of said front and rear supports.

2. Apparatus for slidably suspending a drawer in an opening formed in a frame structure, the upper side edges of said drawer having outwardly extending flanges formed thereon, comprising a pair of front supports adapted to be secured to the frame structure adjacent the opening, said front supports being adapted to be positioned on opposite sides of the drawer and having portions that are adapted to extend underneath the drawer and provide bearing surfaces for the underside of the drawer, and a pair of rear supports adapted to slidably connect said upper side edges of the drawer to the frame structure, said rear supports including a run adapted to be secured to the frame structure on each side of the drawer, each of said runs having a substantially horizontal portion adapted to extend longitudinally of the drawer adjacent a flange on an upper side edge of the drawer, upper and lower means providing surfaces adapted to be secured to the drawer adjacent the upper edge of each side thereof, said upper and lower means being vertically spaced a distance slightly greater than the thickness of said substantially horizontal portions of said runs and being respectively positioned over and under said substantially horizontal portions of said runs, each of said front supports comprising a front bracket of stepped-form having horizontal and vertical portions, a glide fixed to the upper side of said horizontal portion, and a glide fixed to said vertical portion on its side facing the drawer.

3. Apparatus for slidably suspending a drawer in an opening formed in a frame structure, comprising a pair of front supports adapted to be secured to the frame stucture adjacent the opening, said front supports being adapted to be positioned on opposite sides of the drawer and having portions that are adapted to extend underneath the drawer and provide bearing surfaces for the underside of the drawer, and a pair of rear supports adapted to slidably connect the upper side edges of the drawer to the frame structure, said rear supports including a run adapted to be secured to the frame structure on each side of the drawer, each of said runs having a substantially horizontal portion adapted to extend longitudinally of the drawer adjacent an upper side edge of the drawer, upper and lower means providing surfaces adapted to be secured to the drawer adjacent the upper edge of each side thereof, said upper and lower means being vertically spaced a distance slightly greater than

the thickness of said substantially horizontal portions of said runs and being respectively positioned over and under said substantially horizontal portions of said runs, said upper means of each of said rear supports comprising a rear bracket adapted to be secured to a side of the drawer adjacent the upper edge thereof, said rear brackets being adapted to extend outwardly and upwardly from the upper side edges of the drawer, an upper glide fastened to the underside of the outwardly extending portion of each rear bracket, a lower glide adapted to be fastened to the upper edge of each side of the drawer below said upper glides, and a lateral glide fastened to the outside of said upwardly extending portion of each rear bracket.

4. Apparatus for slidably suspending a drawer, as in claim 3, wherein said rear brackets are adapted to be secured to the sides of the drawer adjacent the back of the drawer, and further including means formed on each of said rear brackets for supporting a resilient bumper spaced rearwardly from the back of the drawer.

5. Apparatus for slidably suspending a drawer in an opening formed in a frame structure in the front thereof, the upper side edges of the drawer having outwardly extending horizontal flanges formed thereon, comprising a pair of front brackets adapted to be fixed to said frame structure adjacent said opening, said front brackets being adapted to be positioned on opposite sides of the drawer and having portions adapted to extend underneath the drawer and provide bottom bearing surfaces for the drawer, and a pair of rear supports adapted to slidably connect the upper side edges of the drawer to the frame structure, said rear supports including a run adapted to be fixed to the frame structure on each side of the drawer, each of said runs having a substantially horizontal portion adapted to extend longitudinally of the drawer adjacent an uper side edge of the drawer, said rear supports further including a rear bracket adapted to be secured to each upper side edge of the drawer adjacent said runs, said rear brackets having portions adapted to extend outwardly from the sides of the drawer over the upper surface of said horizontal portions of said runs, said horizontal portions of said runs projecting between said outwardly extending portions of said rear brackets and the horizontal flanges formed on the sides of the drawer.

6. Apparatus for slidably suspending a drawer, as in claim 5, wherein said front brackets further include substantially vertical portions adapted to be positioned adjacent the sides of the drawer, and said rear brackets further include substantially vertical portions adapted to be spaced outwardly from the sides of the drawer.

7. Apparatus for slidably suspending a drawer, as in claim 6, wherein said rear brackets are adapted to be positioned adjacent the back of the drawer, and further include means fixed to said rear brackets for supporting a resilient bumper at the back of the drawer.

8. Apparatus for slidably suspending a drawer in an opening formed in a frame structure, comprising a pair of front brackets adapted to be fixed to the frame structure adjacent the opening, said front brackets being adapted to be positioned on opposite sides of the drawer and having portions adapted to extend underneath a portion of the drawer and provide bearing surfaces for the drawer, a plurality of glides secured to said bearing surfaces, and a pair of rear support means adapted to slidably connect the sides of the drawer to the frame structure, said rear support means including a run adapted to be fixed to the frame structure on each side of the drawer, each of said runs having a substantially horizontal portion adapted to extend longitudinally of the drawer adjacent a side of the drawer, said rear support means further including portions adapted to extend outwardly from the sides of the drawer over and under said horizontal portions of said runs, a plurality of glides secured to said outwardly extending portions of said rear support means, and each of said rear support means further including a bumper mounting portion at the back of the drawer, said bumper mounting portion of each of said support means being formed integrally with said portion of each of said rear support means adapted to extend over said horizontal portions of said runs.

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