C. E. ROYCROFT.

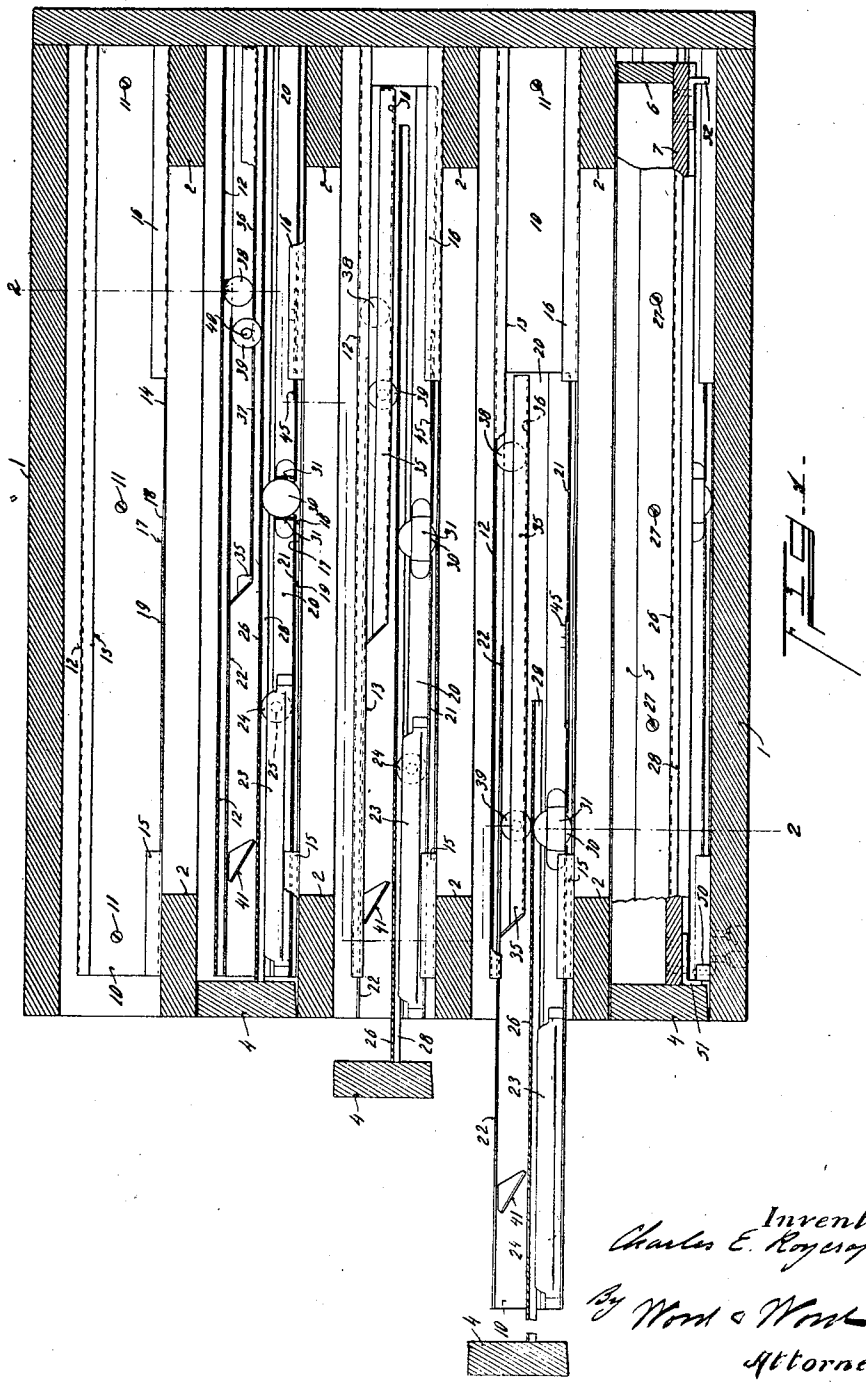
EXTENSION SLIDE CABINET DRAWER.

APPLICATION FILED JUNE 27, 1918.

1,285,800.

Patented Nov. 26, 1918.

2 SHEETS—SHEET 1.



Inventor.
Charles E. Roycroft
By Wood & Wood
Attorneys.

C. E. ROYCROFT.

EXTENSION SLIDE CABINET DRAWER.

APPLICATION FILED JUNE 27, 1918.

1,285,800.

Patented Nov. 26, 1918.

2 SHEETS—SHEET 2.

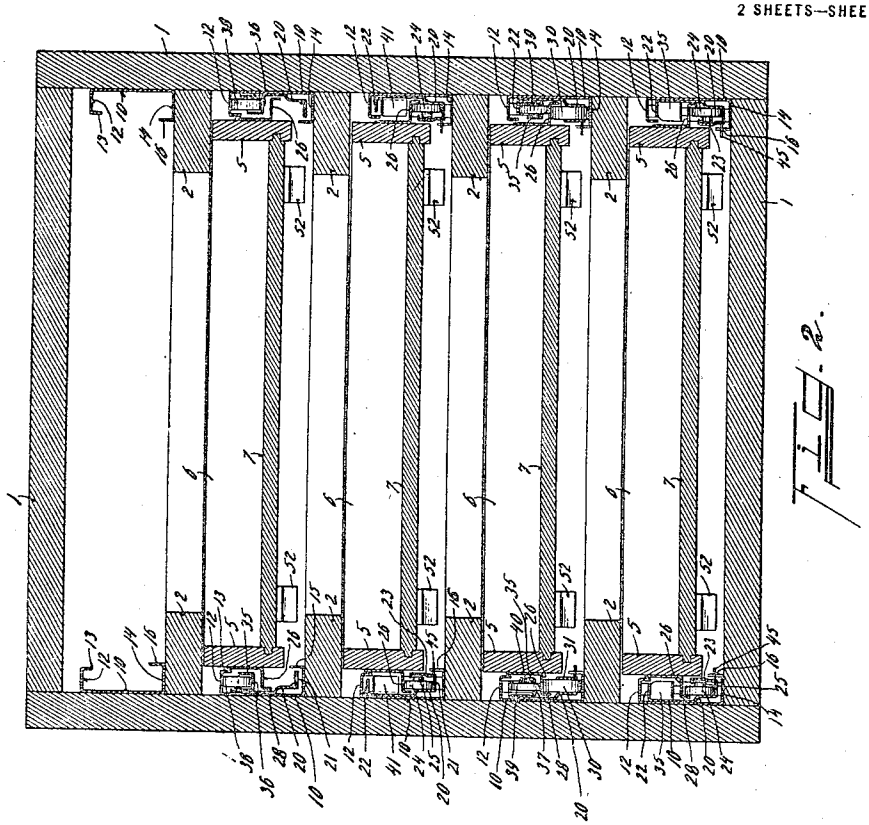


FIG. 2.

Inventor.
Charles E. Roycroft
By Wm. Work
Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES E. ROYCROFT, OF COVINGTON, KENTUCKY, ASSIGNOR TO THE GLOBE-WERNICKE COMPANY, OF NORWOOD, OHIO, A CORPORATION OF OHIO.

EXTENSION-SLIDE CABINET-DRAWER.

1,285,800. Specification of Letters Patent. Patented Nov. 26, 1918.

Application filed June 27, 1918. Serial No. 242,271.

To all whom it may concern:

Be it known that I, CHARLES E. ROYCROFT, a citizen of the United States, and residing at Covington, in the county of Kenton and State of Kentucky, have invented a new and useful Improvement in Extension-Slide Cabinet-Drawers, of which the following specification is a full disclosure.

My invention relates to improvements in drawer supporting mechanism for cabinets and other articles of furniture and is more particularly directed to the roller-bearing extension-slide type, permitting the drawer to be withdrawn to expose its full length without any material sagging thereof.

An object of the invention is to provide an extension-slide drawer support embodying floating roller bearings arranged to distribute the load of the drawer thereon to insure a free non-binding operation.

Another object is to provide means whereby the rebound of the drawer upon being closed, may be checked, and also whereby the drawer, when partially opened, by its rebound or otherwise, may be automatically entirely closed.

A further object is to provide a device of this character, of closely compact design, special attention being given to promoting economy in manufacture by the elimination of screws, studs and of numerous assembling operations.

These and other objects are accomplished by my invention in the manner and by the mechanism described in the following specification and set forth in the appended claims, a preferred embodiment being illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical longitudinal section through a drawer cabinet provided with my improved extension-slide mechanism; and in which the top drawer and extension-slide is removed to clearly show the stationary channel plate; the next three drawers are shown in different operative positions, only the front panel and left drawer rail of each drawer being shown, the bottom drawer is shown in full, partly broken away at each end.

Fig. 2 is a vertical transverse section on line 2, 2, Fig. 1.

In the following description the terms "secured to" or "attached to" will be taken to mean, electric spot welded, unless otherwise specifically amplified, for the reason that welding cannot be illustrated in the drawings.

In my present invention, particular attention has been given to economy of manufacture, especially for quantity production, and to this end the present embodiment of the invention provides a structure in which the assembling operations have been reduced to a minimum by the elimination of pivot studs, rivets and screws, except in so far as screws are necessary for attachment to the wood cabinet and drawers.

While I have shown the invention applied to a wood cabinet it is obvious that it is equally adapted for use in connection with cabinets and other articles of furniture of metal or other material.

The cabinet 1 comprising the main supporting structure is subdivided to provide drawer chambers by the partition slats 2 and operating in each chamber is a drawer having a front wall or panel 4 which normally closes the front of said chamber, side walls 5, 5, rear wall 6, and a bottom wall 7, the width of the drawer in rear of its front panel being slightly less than that of the chamber at the same point, so as to accommodate the drawer supporting mechanism between the casing and each drawer side wall.

The mechanism at each side of the drawer being of duplicate construction, the following description will be confined to the singular and limited to an explanation of one drawer unit, the other being identical with the exception of the differences of right and left hand parts.

As most clearly shown in the top drawer chamber, I provide a stationary track member 10 secured to the casing by screws 11. This member is formed of a single sheet metal stamping, the upper marginal edge of which is bent laterally and downwardly to form a channel providing a track 12 and guide ledge 13. The lower marginal edge is also bent laterally to form a track 14, which at each end is provided with upwardly turned guide ledges 15, 16. The track 14 is slightly raised at 17 to form from this point a short rearwardly inclined portion 18 and a gradual forwardly inclined portion 19.

Arranged to travel in the stationary track member 10, is an extension-slide member 20 of sheet metal, having its lower marginal edge bent laterally to form a shelf 21, and

the major forward portion of its upper marginal edge bent laterally to form a track 22. Secured to the forward portion of the slide member 20, adjacent the shelf 21, is a roller retaining plate 23, forming with said member, a roller receiving channel in which a roller 24 is adapted to travel, the roller 24 is provided with a hub or boss 25, and the plate 23 has its upper edge turned inwardly to retain said roller within its channel, (see Fig. 2). The roller 24 travels on the shelf 21 of the slide member 20 and supports the forward end of the drawer upon the slide member by engagement with the under side of a horizontal drawer rail 26, which has an upturned flange portion attached to the drawer side wall 5 by screws 27 and a downturned marginal lip 28 extending closely adjacent the slide member 20 to limit the sidewise play of the drawer.

A main drawer supporting roller 30 is retained in a pocket formed by the slide member 20 and a clevis strap 31 fixed to said slide member, providing an upper pocket throat of lesser longitudinal length than the diameter of the roller 30 to prevent the roller being pushed upwardly out of its retaining pocket. The roller 30 projects downwardly through an opening cut in the shelf 21 of the slide member and engages the track 14, said opening also being of lesser length than the diameter of the roller to retain the roller within its pocket while at the same time allowing a slight vertical play of the roller independent of the slide member 20.

This roller 30 also engages the lower surface of the drawer rail 26, and in its normal position, when the drawer is closed, is immediately in rear of the inclined portion 18 of the stationary track 14. Attached to the upper rear portion of the slide member is a U-shaped channel plate 35 having closed ends and a longitudinal slot 37 cut in the forward portion of its lower wall, the rear portion thereof forming a track 36. A floating roller 38 travels freely in the rear portion of the channel formed by this plate 35, said roller engaging the track 36 thereof and the track 12 of the stationary track member 10. A floating roller 39 travels within the forward portion of said channel and projects through the slot 37, it being retained against dropping through said slot by a hub or boss 40. The roller 39 is engaged by the drawer rail 26 and in turn engages the under surface of the track 22 of the slide member 20, thereby serving as a means for supporting the slide member upon the drawer rail.

An inclined flange 41 is secured to the forward end of the slide member 20 and serves as a guide for initially inserting the drawer into the cabinet and also as a stop to limit an upward tilting of the drawer relative to the slide member.

A leaf spring stop member 45 is fixed to the shelf 21 of the slide member 20 and projects laterally so as to alternately engage the opposing edges of the guide ledges 15, 16, of the plate 10 to limit the travel of the slide member. To remove the slide member from the cabinet, the spring member 45 is raised to clear the guide ledge 15. To limit the movements of the drawer, I provide a rubber covered bumper 50 which is secured to the cabinet by screws, as shown, and which is adapted to be alternately engaged by a pair of opposing stop plates 51, 52, secured to the bottom wall 7 of the drawer.

The main roller 30 is located in rear of the center of the drawer and the drawer rail 26, using said roller as a pivot presses upwardly on the roller 39, which by its engagement with the track 22 exerts an upward pressure upon the rear portion of the slide member 20. This upward pressure, through the track 36, holds the roller 38 in contact with the stationary track 12 and acting against said roller as a pivot, exerts an upward pressure on the forward end of the slide member to contact the forward roller 24 with the drawer rail.

It may be stated that the roller 30 is the main load roller, as it at all times bears the major portion of the drawer load and the opposite rollers 24 and 38 may be termed secondary load rollers, they serving to keep the drawer level by preventing the drawer from tilting.

As previously stated the normal position of the main roller 30 is just in rear of the inclined portion 18 of the stationary track 14. This inclined track portion causes the drawer to automatically close from a partially open position or to return to closed position after its rebound, gravity forcing the roller 30 and supported parts rearwardly down said inclined track portion. The gradually inclined portion 19 assists in the opening movement of the drawer and to a degree checks a forceful closing thereof.

It will be noted that the secondary load rollers 24, 38, are normally positioned at the end of their respective tracks closest to the main load roller 30, and as the drawer is withdrawn they become further separated, providing increasing and compensating stability of the mechanism as the overhanging load of the withdrawn drawer increases.

The vertical free play of the roller 30, relative to the slide member 20 compensates for the elevation thereof when riding over the raised portion 17 of the track 14 and allows a free compensating movement of the slide member 20 to keep the drawer in an even horizontal plane.

Having described my invention, I claim:—

1. In a device of the class described, a casing having a stationary track, an extension-slide member, a drawer having a horizontal

rail and a series of floating rollers supporting the drawer upon the stationary track and the slide member upon the drawer rail.

2. In a device of the class described, a casing having a stationary track, an extension-slide member, a drawer having a horizontal rail, a drawer supporting element engaging the track, a slide member supporting element engaging the drawer rail, and a pair of compensating elements traveling in the same direction relative to the stationary track and in opposite directions, relative to the drawer supporting element.

3. In a device of the class described, a casing having a stationary track formed with an incline, an extension-slide member, a drawer having a horizontal rail, a main load roller engaging the track normally in rear of the track incline and supporting the drawer, means supporting the slide member upon the drawer rail, and a pair of compensating elements mounted to travel upon the slide member in opposite directions from the main load roller and engaging the drawer rail and stationary track respectively.

4. In a device of the class described, a casing having a stationary track, an extension-slide member, a drawer having a horizontal rail, means supporting the slide member upon the drawer rail, a main load roller engaging the track and the drawer rail, and a pair of compensating floating rollers adapted to be moved in opposite directions relative to the main load roller to stabilize the drawer.

5. In a device of the class described, a casing having a drawer chamber, a drawer adapted to travel therein and having a horizontal rail, a stationary track member having an upper track and a lower track provided with an inclined portion, an extension-slide member intermediate said tracks, a main load roller normally engaging the lower track in rear of the inclined portion thereof, said roller being loosely retained on the slide member and in engagement with the drawer rail, a floating roller freely movable on the slide member and supporting said slide member on the drawer rail, and a pair of secondary load rollers freely movable on the slide member, one thereof engaging the drawer rail and the other engaging the upper track of the stationary track member.

6. In a device of the class described, a casing having a drawer chamber, a drawer adapted to travel therein and having a drawer rail, a stationary track member, an extension-slide member having a plurality of tracks, a main load roller loosely carried by the slide member and engaging the stationary track member and the drawer rail to support the drawer on the stationary track member, a floating roller engaging the slide member and drawer rail to support the slide member on the drawer rail, and a pair of floating compensating rollers operating in opposite directions relative to the main load roller, one coöperating with the slide member and drawer rail and the other with the slide member and stationary track member.

In witness whereof, I hereunto subscribe my name, as attested by the two subscribing witnesses.

CHARLES E. ROYCROFT.

Witnesses:
D. DRACHENBERG,
L. A. BECK.