

No. 676,748.

Patented June 18, 1901.

R. G. HARGRAVE.  
FURNITURE DRAWER.

(Application filed Nov. 30, 1900.)

(No Model.)

2 Sheets—Sheet 1.

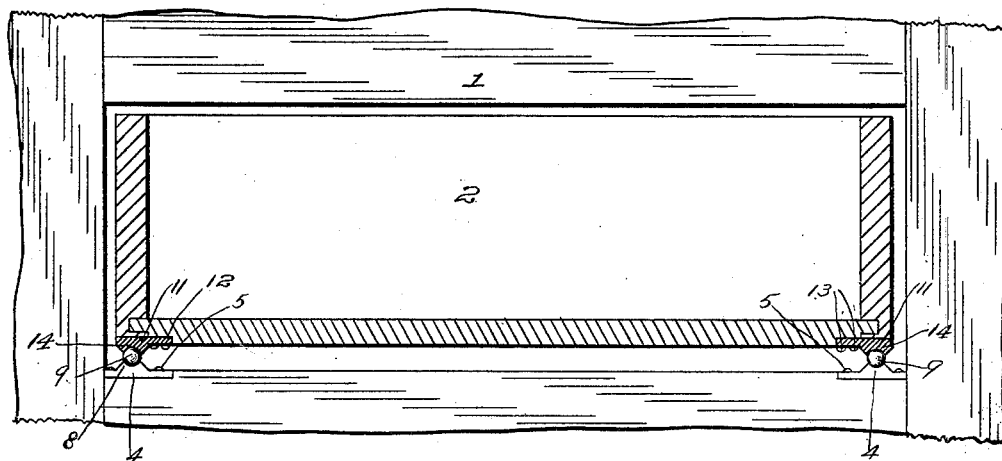


Fig. 1

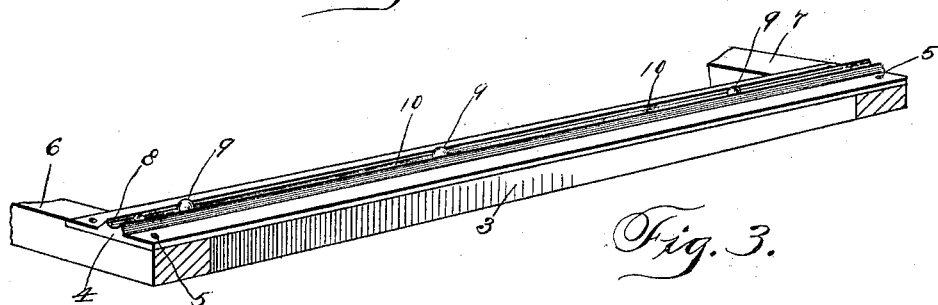


Fig. 3.

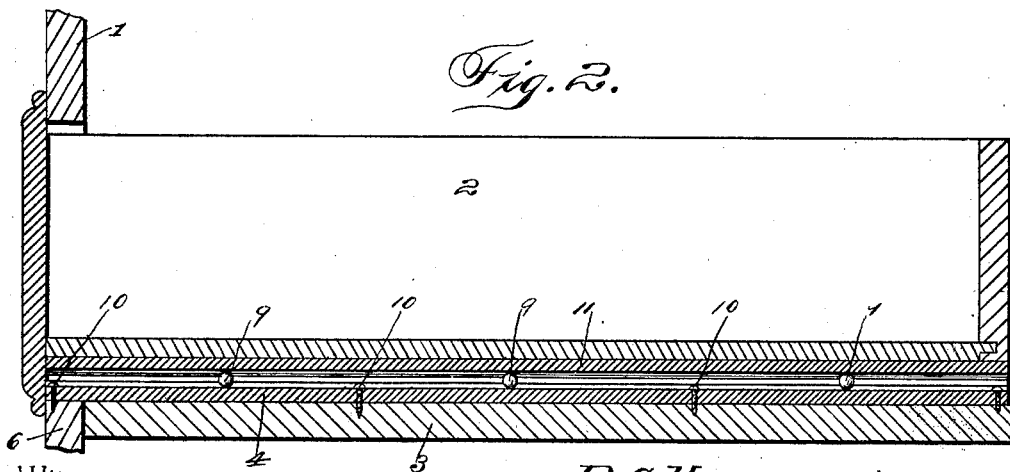


Fig. 2.

Witnesses

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2 Sheets—Sheet 2.

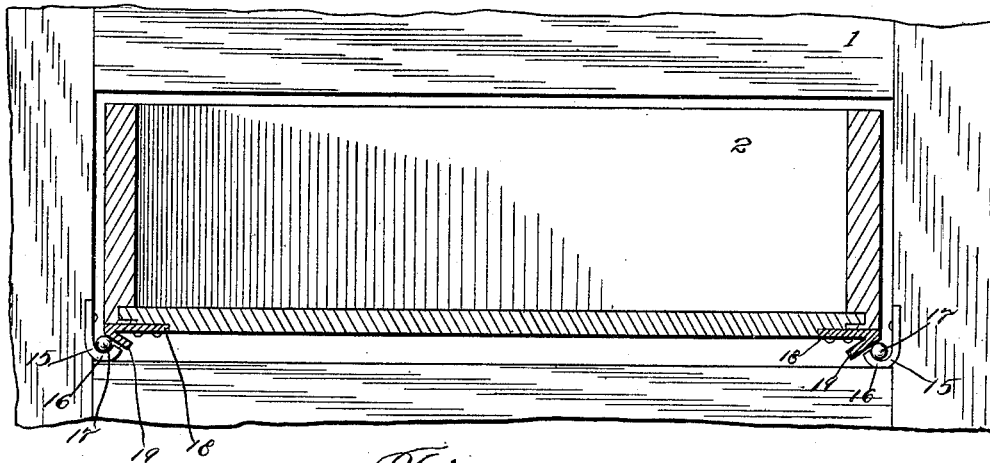


Fig. 4.

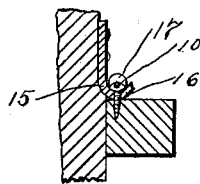


Fig. 7.

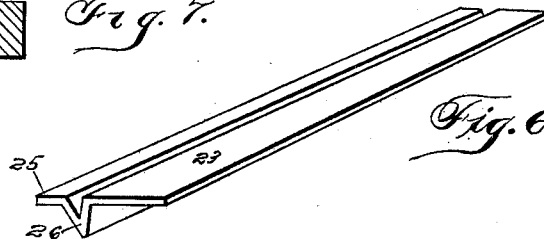


Fig. 5.

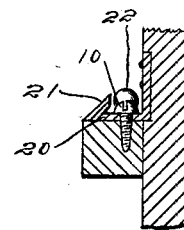
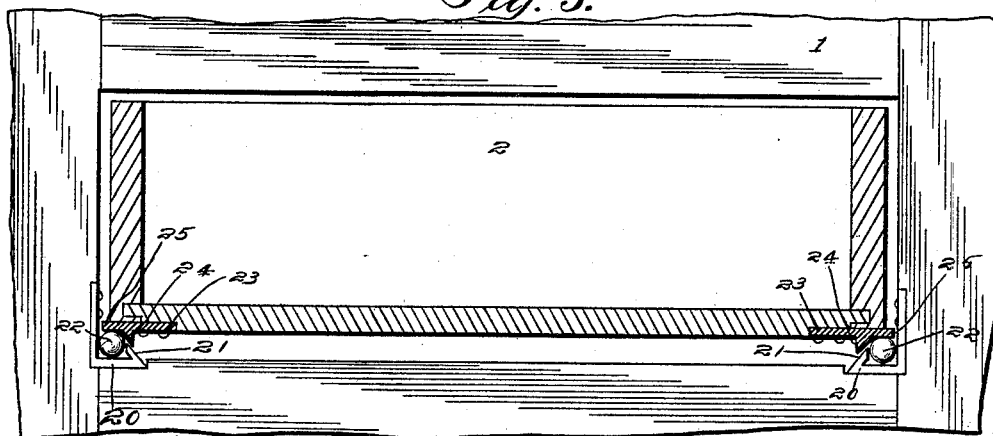


Fig. 8.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## FURNITURE-DRAWER.

SPECIFICATION forming part of Letters Patent No. 676,748, dated June 18, 1901.

Application filed November 30, 1900. Serial No. 38,220. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD G. HARGRAVE, a citizen of the United States, residing at Colfax, in the county of Whitman and State of Washington, have invented a new and useful Furniture-Drawer, of which the following is a specification.

This invention relates to furniture-drawers, and has for its object to provide improved means for slidably mounting the same with the minimum amount of friction, so as to facilitate the opening and closing thereof and to prevent the drawer from jamming upon the supports thereof. It is furthermore designed to provide the drawer-mounting means in the nature of an attachment, so that it may be applied to ordinary drawers now in common use without altering or changing the same in any manner.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claim, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claim without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a front elevation of a portion of an article of furniture having the improved drawer-mounting means applied thereto, the drawer being in section. Fig. 2 is a longitudinal sectional view taken through one side of the drawer and through the support thereof. Fig. 3 is a detail perspective view of one of the tracks upon which the drawer slides. Fig. 4 is a view similar to Fig. 1 and shows a modified form of the device. Fig. 5 is a similar view of another modified form. Fig. 6 is a detail perspective view of a modified form of drawer-plate struck from a sheet of metal. Fig. 7 is a detail transverse sectional view of the track shown in Fig. 4. Fig. 8 is a similar view of the track shown in Fig. 5.

Like characters of reference designate corresponding parts in all of the figures of the drawings.

Referring more particularly to the first three figures of the drawings, 1 designates the front

portion of an article of furniture, having an ordinary slidable drawer 2, supported upon the usual transverse rails 3.

Ordinarily the bottom of the drawer is in frictional contact with the rails, but in carrying out the present invention there is provided a metal track 4, which is applied to the upper side of the rail and is secured thereto by means of the terminal fastenings 5, which enter the respective front and rear drawer-supporting ledges 6 and 7, commonly found in all articles of furniture having drawers. Extending for the entire length of the upper intermediate portion of the track is a thickened upstanding longitudinal rib 8, which is provided with a longitudinal concaved groove or gutter for the reception of antifriction-balls 9. These balls are prevented from becoming bunched by means of suitable spaced stops or obstructions—as, for instance, by means of headed fastenings 10—which pass through the grooved portion of the track and enter the rail 3, the heads of said fastenings being projected into the groove, so as to limit the paths of the respective balls.

At each longitudinal edge of the drawer there is provided a bearing-plate 11, that is let into the bottom of the drawer and flush with the outer side thereof, and has an inner flange portion 12 for the reception of fastenings 13, whereby the plate is held in place. The under side of this plate has a grooved longitudinal rib 14, similar or corresponding to the rib of the track, and is located adjacent to the outer side or edge of the plate, so as to form the attaching-flange 12. The groove in the plate receives the upper portions of the balls, whereby the tracks and the plates are spaced out of contact and the plates run upon the balls, so as to form an antifrictional slidable bearing for the drawer. As the balls are seated in the grooves of the tracks and the bearing-plates, the drawer is guided in its longitudinal movement and is held against lateral movement, so as to prevent the sides of the drawer from becoming jammed against portions of the article in which the drawer may be mounted, thereby insuring a free slidable movement of the drawer. It will be observed that there is no frictional engagement between wooden parts, as the contacting parts are the metal tracks, balls, and plates, which

are extremely hard, and thereby render the movement of the drawer smooth and delicate.

It will be noted that the body portions of the plates and the tracks are let into the drawer and the rails, respectively, so that there may be as small a space as possible between the rails and the bottom of the drawer.

The modified form of the device shown in Fig. 4 of the drawings has a track 15 arranged vertically edgewise and let into the adjacent edge of the drawer-opening in the article of furniture and has its lower longitudinal edge bent upwardly, so as to form a groove or gutter 16 for the reception of the antifriction-balls 17. The adjacent bottom edge of the drawer is provided with a bearing-plate 18, which has a longitudinal inwardly-beveled flange 19, pendent from the outer edge of the plate and designed to bear against the adjacent side of each antifriction-ball to form a bearing for the drawer and to prevent the latter from having any sidewise play.

In the other modified form, as shown in Fig. 5, the track is formed by an angle-plate 20, mounted as in the first modification and having the outer edge of its horizontal part provided with an upstanding inwardly-inclined flange or shoulder 21 to form a groove for the reception of the balls 22. The bearing-plate 23 is provided with an intermediate longitudinal pendent beveled flange or shoulder 24, which bears against the adjacent sides of the balls, as and for the purpose described for the first modification. In addition the plate 23 has an outer projecting longitudinal edge portion 25, which extends beyond the side of the drawer, so as to form a stop for engagement with the upright side of the track, and thereby prevent the drawer from binding sidewise. In some instances it may be desirable to form the plate 23 from sheet

metal, as shown in Fig. 6, in which the plate is provided with an intermediate crease or bend 26, which is pressed in the sheet, so as to form a pendent substantially V-shaped rib corresponding to the flange 24.

From the foregoing description it will be apparent that all of the forms have a grooved track for the reception of antifriction-balls and a flanged bearing-plate to travel upon the balls and having the flange bearing against the adjacent inner sides thereof to prevent lateral play of the drawer. It will of course be understood that the grooved tracks of the modified forms of the device also have similar fastenings to those designated by the numeral 10 for the first form, so as to prevent bunching of the antifriction-balls.

What is claimed is—

Means for the slidable support of furniture-drawers, consisting of a track having a longitudinal groove provided upon the upper face thereof and forming a ball-race, fastenings piercing the track, the heads of some of the fastenings lying in the groove and forming stops dividing the groove or race into separate sections, antifriction-balls loosely mounted in the respective sections of the groove or race, and a wear-plate constructed for application to the bottom of a drawer and to travel upon the tops of the balls, and also having a longitudinal pendent guard-flange constructed for frictional engagement with corresponding sides of the balls to prevent lateral displacement of the plate from the balls.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

RICHARD G. HARGRAVE.

Witnesses:

W. W. RENFREW,  
GEO. M. CAREY.