(No Model.)

J. H. KNAUS.

DRAWER EQUALIZER.

No. 427,331. Patented May 6, 1890.

Fig. 1.

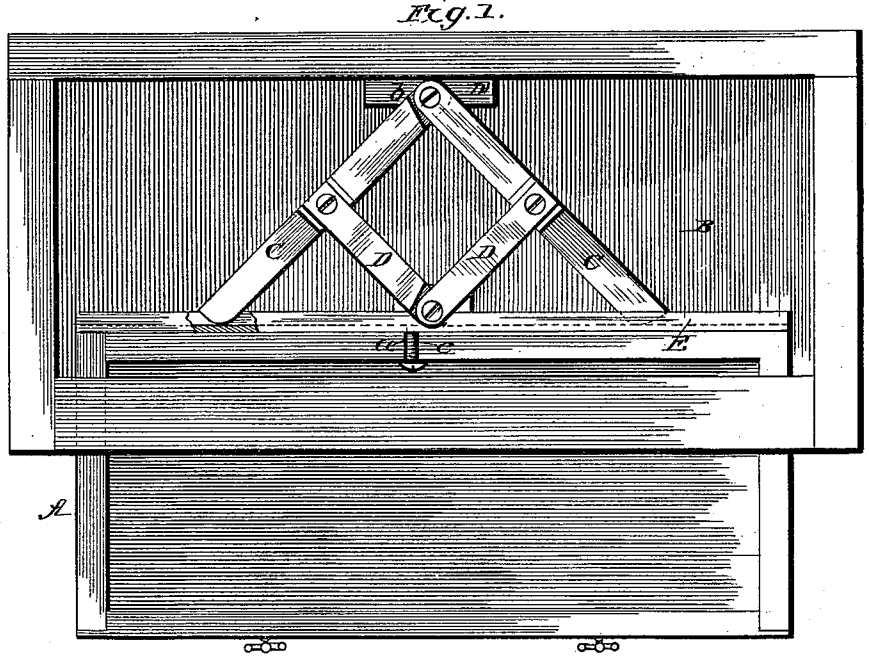


Fig. 2.

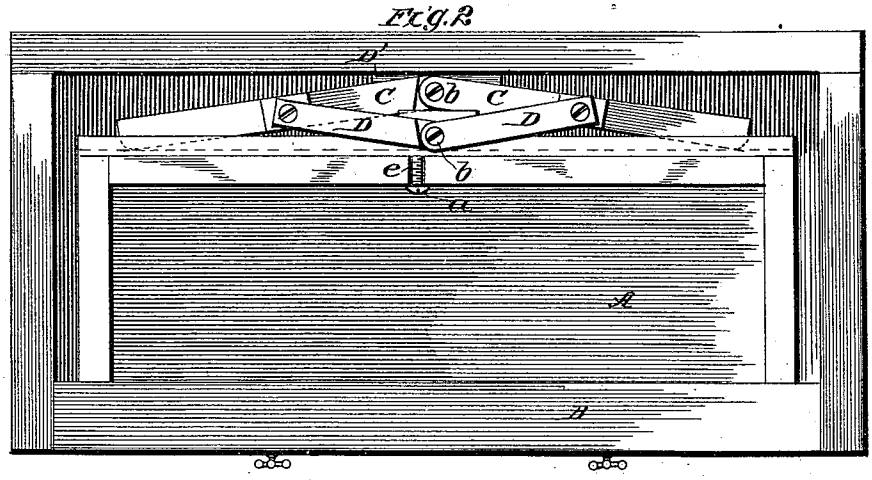


Fig. 3.

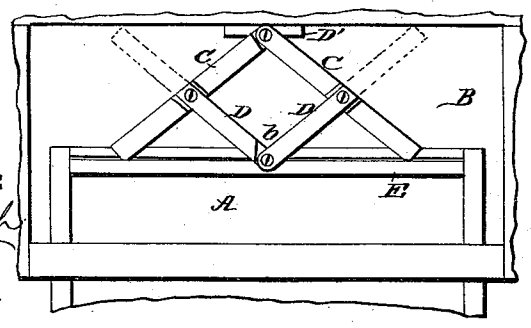
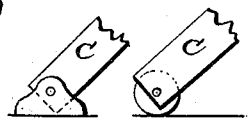


Fig. 4.



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JOSEPH H. KNAUS, OF FAYETTE, MISSOURI.

DRAWER-EQUALIZER.

SPECIFICATION forming part of Letters Patent No. 427,331, dated May 6, 1890.

Application filed January 30, 1889. Serial No. 298,140. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. KNAUS, of Fayette, in the county of Howard and State of Missouri, have invented a new and useful Improvement in Drawer-Equalizers, of which the following is a specification.

The object of my invention is to provide an improved drawer-equalizer for securing the even and regular movement of furniture-drawers, which when pulled from one side or the other of their centers of gravity are liable to become jammed or cramped.

My invention consists in the peculiar construction and arrangement of an equalizer, arranged in rear of the drawer and composed of links and levers jointed together after the manner of toggle-levers, as will be hereinafter fully described.

Figure 1 is a plan view of a drawer and its casing with my invention applied, the drawer being pulled open. Fig. 2 is a similar view with the drawer closed, and Figs. 3 and 4 are modifications.

In the drawings, A represents the drawer, and B is its case.

C C are two levers, which at their rear ends are jointed upon the same vertical axis to the rear middle portion of the casing and at their front ends bear against and slide along the rear side of the drawer as the latter is opened and closed. To the middle of each of these levers there is jointed a link-bar D, which two link-bars are jointed at their forward ends to the same axis of articulation which is fixed in the middle of the rear side of the drawer. In opening and closing the drawer the rear half of each lever C forms with the links D a set of toggle-levers. As the drawer is drawn out to its opened position the points of articulation *b b* of the toggles move toward each other, and the front ends of the levers C C slide from the ends of the drawers toward the center at right angles to the motion of the drawer. When the drawer is closed, the reversed movement takes place. Now, when the drawer is pulled out, (it matters not whether it is pulled by one or both handles,) the pull at either end of the drawer causes both levers C C to move to the center equally, and consequently their front ends bear equally against and push forward to the same extent both ends of the drawer, thus effectually preventing it from becoming cramped or jammed by an unequal draft. The two levers C C may be jointed at the rear upon a pin or axis fixed directly in the back of the case, and the front ends of links D may be jointed upon a vertical pin or axis fixed directly in the back of the drawer; but to better adapt my equalizer to drawers and casings made by different manufacturers, or to furniture already in use, I prefer to joint the levers C to a block D, which may be attached by glue or screws to the casing, while the front ends of link D′ are jointed to a vertical pin or axis carried by a bar E, which is detachably fastened to the back of the drawer, and for which purpose of detachability a headed pin or screw *a*, fast in the bar E, is arranged to drop into a slot or notch *e* in the upper edge of the drawer. The rear side of bar E is also made grooved to receive and guide the ends of the levers C as they slide to and from the center. This equalizer also forms a stop to prevent the drawer from being accidentally pulled out too far and dropped, for when the drawer has reached the limit of outward movement allowed for it the ends of the levers C C lock against the back of the drawer to prevent further movement.

If it be desired to disconnect the drawer from the equalizer, so as to take out the drawer entirely to clean it, this may be easily done by simply lifting the headed pin or screw *a* from the slot *e* in the rear edge of the drawer.

Instead of having the ends of levers C C to move in a grooved strip outside of the drawer, a plain strip E may be placed inside the drawer and the ends of the levers arranged to extend in front of the rear side of the drawer, to be supported in their movement as shown in Fig. 3. I may also provide the ends of the levers C with rollers or shoes, as in Fig. 4, to reduce friction in sliding to and from the middle of the drawer. It is not necessary, furthermore, that the rear ends of the levers C should be pivoted upon the same axis, as they may be jointed upon separate pins or axes. As a further modification, also, the positions of the levers C and links D may be reversed—*i. e.*, the levers C, instead of being pivoted to the back of the case, may be pivoted to the front of the case between the drawers, while the links D are pivoted to the front side of the back of the drawer, and the sliding ends of

the levers C also work against the front side of the back of the drawer, and in this arrangement the equalizer may be arranged on the level of the top of the drawer or just beneath its bottom. I may also extend the links D across the levers C, so that the rear ends of links bear against and slide along the back of the case, as in dotted lines in Fig. 3.

Having thus described my invention, what I claim as new is—

1. The combination, with a drawer and its casing, of a pair of levers hinged or jointed to the casing at their rear ends and having their front ends bearing against the rear of the drawer, and a pair of links jointed to the rear of the drawer and also to the levers, substantially as shown and described.

2. The combination, with a drawer and the casing, of a pair of levers hinged upon the same axis to the middle of the casing and bearing at their front ends against the rear of the drawer, and a pair of link-bars hinged or pivoted upon the same axis to the middle of the rear part of the drawer and also to the levers, substantially as and for the purpose described.

3. The combination, with a drawer and its casing, of a pair of levers hinged to the casing at their rear ends and having their front ends bearing against the rear of the drawer, links hinged or pivoted to the rear parts of the drawer and also to the levers, and horizontal supports or guides for holding the front ends of the levers against dropping, as described.

4. The combination of levers C C, block D′, pivoted thereto, links D D, jointed to the levers, and the bar E, jointed to the links and adapted to be applied to a drawer and its casing, as described.

5. A drawer-equalizer consisting of the combination of the two levers C C and two links D D, pivoted to the middle of levers C after the manner of toggle-arms, the free ends of levers C being arranged to slide against the drawer at right angles to its direction of movement, substantially as described.

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Witnesses:
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