

A. E. O'BRIEN.
ANTIFRICTION DEVICE.
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1,046,841.

Patented Dec. 10, 1912.

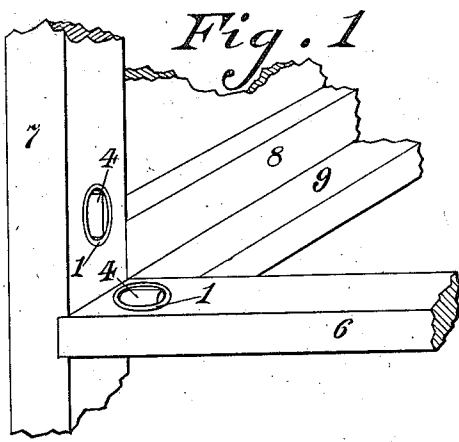


Fig. 2.

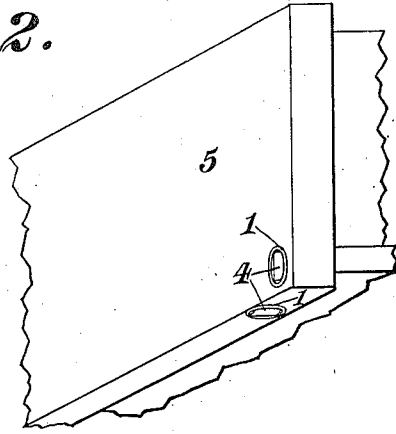


Fig. 3.

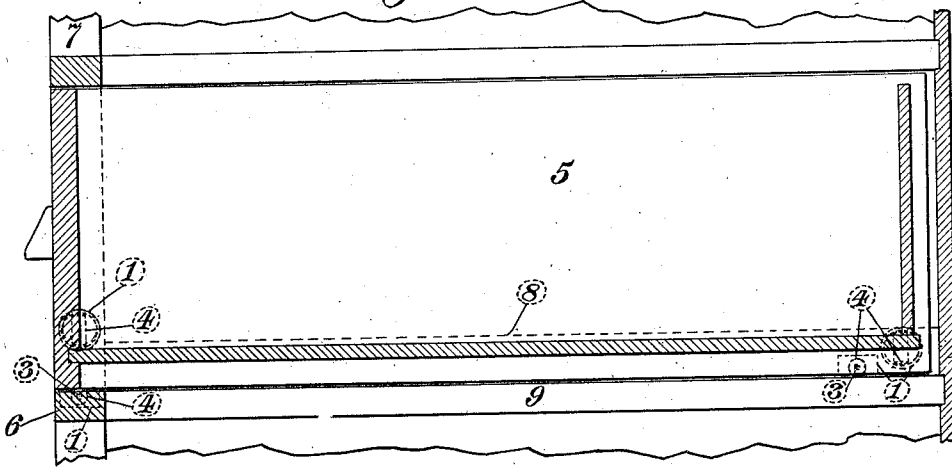


Fig. 4.

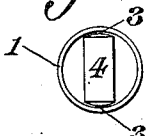


Fig. 5.

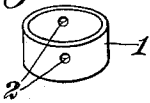


Fig. 6.



Fig. 7.

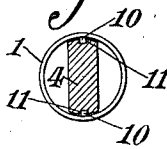


Fig. 8.



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ANTIFRICTION DEVICE.

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To all whom it may concern:

Be it known that I, ADELAIDE E. O'BRIEN, a citizen of the United States, residing at the city of St. Louis and State of Missouri, have
5 invented certain new and useful Improvements in Antifriction Devices, of which the following is a specification.

This invention relates to improvements in desks, dressers, bureaus, cabinets, and other
10 pieces of furniture having sliding drawers or other movable members, and has for its objects to provide the drawers or other movable members with improved anti-friction devices which facilitate the opening and
15 closing of same.

One object of the present invention resides in the provision of a simple and inexpensive anti-friction device of the character described that can be readily applied to a
20 piece of furniture without the necessity of using nails, screws, or the like for holding same in place.

Sometimes, it is unnecessary to apply anti-friction devices for sliding drawers or the
25 other movable members of a piece of furniture at the time it is constructed, but weather conditions, irregularities in the support on which the piece of furniture rests, the use to which the piece of furniture is
30 put, and other causes have such effect upon the piece of furniture that it is necessary to apply anti-friction devices for the sliding drawers or the other movable members thereof after it has been used for some time.
35 Ordinarily, it is necessary to apply anti-friction devices for sliding drawers or the other movable members of a piece of furniture while the latter is being constructed, but this invention makes it possible to apply
40 anti-friction devices of the character described to any piece of furniture either at the time the latter is being constructed or after the same has been completed.

Further, the present invention consists of
45 the novel features of construction and arrangement of parts that will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings forming
50 part of this specification, in which like num-

bers of reference denote like parts wherever they occur, Figure 1 is a perspective view of one of the lower corners of an opening for a sliding drawer or other movable member of a piece of furniture, said opening being
55 equipped with anti-friction devices embodying the present invention; Fig. 2 is a perspective view of a lower rear corner of a sliding drawer or other movable member equipped with these anti-friction devices; 60
Fig. 3 is a longitudinal vertical sectional view of a drawer equipped with these anti-friction devices; Figs. 4, 5, and 6 are detailed views of these anti-friction devices; and Figs. 7 and 8 are detailed views of an
65 alternate form of the said anti-friction device.

The anti-friction device consists of a ring 1 having a pair of oppositely-located perforations 2 to receive and afford bearings for
70 the lugs 3, borne by the ends of roller 4 and located centrally of the ends of said roller, so as to form the axis of rotation of said roller. The ring 1 is preferably formed of a narrow band of metal, and preferably of
75 spring metal, though, if desired, it may be formed of non-resilient metal, or may be a casting. When the ring 1 is formed of a narrow band of spring metal, it is only necessary, in order to assemble the device, to
80 apply pressure to the opposite sides of said ring between the perforation 2, so as to lengthen the distance between said perforations sufficiently to permit of the insertion of the lugs 3 on roller 4 into the same, after
85 which the pressure is released from the sides of said ring, with the result that same resumes its normal shape as depicted in Fig. 4 and thereby holds the lugs 3 in the perforations 2. The perforations 2 are located a
90 little above the middle of the ring 1 so that the periphery of the roller extends a little above the upper edge of said ring and, also, so that there will be a space left between the bottom of said roller and the lower edge of
95 said ring, for the purpose hereinafter described. The ends of the roller 4 are preferably so rounded as to be substantially concentric with the ring 1, and, by this arrangement, the edges of said roller are pre- 100

vented from cutting into said ring, though a roller with non-rounded ends can be used if made short enough not to touch the band.

In order to apply the device to a piece of furniture, an opening is bored in the particular member that is to support the device, which opening is preferably of such size relative to the external diameter of the ring 1 that it is necessary to drive said ring into the opening. The ring 1, with the axis of the roller 4 disposed at substantially a right-angle to the line of travel of the drawer or movable member 5, is driven such depth into the opening in the member that is to support same that the upper edge of same is substantially flush with the surface of said member. When the ring 1 is formed of a thin band of metal, the lower end of said ring which is the particular end that is driven into the bore in the member which is to support the device will, when driven into the bore, trim, as with a knife-edge, the walls of said bore smoothly so that the latter will adhere to the sides of said ring and thereby hold said ring firmly in place in same. This will be partially true even if the ring is formed of a casting having a sharp external lower edge. Furthermore, because of a space being left between the lower edge of the ring 1 and the lower line of the roller 4, the lower end of said ring can be driven into the bottom of the bore in the member that is to support the device, *i. e.*, when said bore is slightly less in depth than the width of said ring. Under such circumstances, the lower end of said ring will cut its way into the bottom of said bore and thereby form an annular groove in the bottom of said bore, the sides of which groove will adhere to the lower end of said ring, thus affording an additional means for holding said ring in place in said bore, it being, of course, understood that said ring would not be driven so far into said bore that the roller would touch the bottom of same, but that a space would be left between the bottom of said bore and the lower part of the roller 4, so that the latter is permitted to rotate freely in said ring. The hereinabove-described means for causing the said ring to fit tightly in the bore and to be held therein secure it against falling out of a position in which it is inserted roller downward—*i. e.*, upside down.

When the ring 1 is driven into a bore in the member that is to support same, the former will be held firmly in place in said bore without the use of nails, screws, or the like, and can occupy either an upright, an inclined, a horizontal, or an inverted position, without any danger of falling or working out of said bore.

The devices may be located near the front of the opening in the piece of furniture in

which the drawer or other movable member 5 slides and, also, at the rear of said drawer or member, and elsewhere adjacent to said drawer or member. Some of the various locations in which these devices can be placed are shown in Figs. 1, 2, and 3 of the drawings, but these positions are obviously not the only ones in which said devices can be advantageously used. For instance, one or more of these devices may be located in what in this specification is called the upright position in rail 6, as shown in Figs. 1 and 3. When thus located in rail 6, it may be preferable to have one at each end of said rail 6, although even one at either end will be an advantage. If a device inserted in rail 6 be located in the middle thereof, it may be found necessary to provide a cleat or rail running longitudinally the length of the drawer and located about the middle of the bottom thereof, which cleat or rail is not shown in the drawings. If the device located about the middle of the rail 6 is to be used in connection with a slab or some other kind of movable members, said cleat or rail will be unnecessary. One or more of these anti-friction devices may be located in the side member 7 adjoining the drawer or movable member, as shown in Figs. 1 and 3, and when thus located may either be a substitute for, or an auxiliary of, such device or devices located in rail 6 or in the movable member itself. These anti-friction devices may be placed in the drawer or movable member itself, in which case the rail 4 will either roll along the member 8 or ride upon the rails 9 or other suitable surface or surfaces. In Fig. 2 is shown two illustrative locations for these anti-friction devices when borne by the movable member itself, one being shown in what in this specification is called the inverted position, which adapts the roller 4 to ride upon rail 9, in Figs. 1 and 3, and the upper device in Fig. 2 being given what in this specification is termed the horizontal position, adapting roller 4 thereof to roll along the member 8 in Figs. 1 and 3, or some similar member. It will be readily understood that this invention is not limited to the number or position or location of these anti-friction devices in connection with any particular drawer or movable member, but that there may be many variations in the number of these devices used and in their location and position.

In some cases, if a device should be located in such position in the opening in which the drawer or member 5 slides, intermediate the front and rear ends of said opening, that the rear end of the drawer or member 5 would ride over the roller 4, when said drawer or member is drawn outwardly or moved inwardly in said opening, the rear end of said drawer or member would drop

off the roller 4, when said drawer or member is drawn outwardly, and, also, would bump against the roller 4, when said drawer or member is moved inwardly. In such cases, it would be preferable and most advantageous to fasten one or more of the devices to the drawer or member 5, instead of locating same in the framework or body surrounding the opening in which said drawer or member slides. In order to fasten a device to the drawer or member 5, the ring 1 of the device is driven into a bore provided therefor in said drawer or member. Said device may be located in the bottom or either side or both sides of said drawer or member, and, also, either near the rear end or the front end of said drawer or member or intermediate the ends of same, and, if desired, any number of such devices may be fastened to said drawer or member. One way in which the device may be arranged when fastened to the drawer or member 5 is depicted in Fig. 2, for the purpose of illustration. In this arrangement, two devices are preferably located near each lower rear corner of the drawer or member 5, one being driven into a bore in the side of said drawer or member and another being driven into a bore in the bottom of said drawer or member, so that the rollers 4 in the rings 1 in the sides of said drawer or member will roll along the members 8, and the rollers 4 in the rings 1 in the bottom of said drawer or member will ride upon the rails 9.

While it is preferable to provide the roller 4 with end lugs 3 to fit in the perforations 2 in ring 1, yet, it should be understood that said roller may be revolvably supported by said ring in any other suitable manner, such, for example, as depicted in Figs. 7 and 8. In the arrangement depicted in said figures, the ring 1 is provided with a pair of oppositely-located lugs 10, which lugs project from the inner face of ring 1 into sockets or depressions 11 or the like in the ends of roller 4.

When a piece of furniture having a sliding drawer or other movable member is equipped with anti-friction device or devices as hereinabove described, the friction which it is usually necessary to overcome in moving the drawer or member inwardly or outwardly in the opening in which same slides is reduced to the minimum and the moving of said drawer or member is greatly facilitated.

It will be evident that these anti-friction devices can be more easily and more quickly applied to any piece of furniture having a sliding drawer or other movable member than anti-friction devices heretofore known, and can be manufactured and applied at a relatively lower cost, one of the great ad-

vantages of these devices being that the same can be applied to a piece of furniture without the use of screws, nails, or the like, notwithstanding which they can be located in an inverted or side-wise position as well as an upright one. Other advantages are that they are so simple and inexpensive and easily applied that they can be attached to a completed piece of furniture of any kind as well as to one while being constructed.

While these anti-friction devices are primarily intended for use in connection with sliding drawers, in order to facilitate the opening and closing of same, yet it should be understood that they can be advantageously used for a similar purpose in connection with other articles that are adapted to slide like a drawer, such, for example, as a sliding desk-slab, card-table slab, shelf, bread-board, flexible apron for roller-top desk, and the like.

The device is neat for the reason that the ring 1 is formed of a relatively narrow and thin band of metal and does not bear any projections or flanges, as do other devices designed for this purpose. Furthermore it is not necessary to provide a specially designed angular opening in the member that is to support the device for the latter to fit therein, as is essential for other devices for this purpose, it only being necessary to make a relatively shallow bore in said member, with an ordinary bit or other suitable tool, for the ring 1 to be driven into same.

When these anti-friction devices are used, it is unnecessary to provide runways for the devices either in the drawer or other movable member of a piece of furniture or in the opening in which said drawer or member slides, as is necessary when other anti-friction devices are used. These devices are simple and easy and cheap to manufacture, because they are formed of fewer parts than other devices for a like use. One reason that these devices are so simple and easy to construct is because the ring 1 can be cut from a metal tube and the roller 4 mounted therein in the manner hereinabove described, thus obviating the necessity of cutting and bending plates to form supports and bearings for the rollers as in the construction of other anti-friction devices.

I claim:

1. An anti-friction device comprising a resilient compressible ring open at each end, a roller within the ring, one of said elements having openings and the other having a pair of lugs received in said openings, the ring when compressed allowing the lugs to enter the said openings or to be removed therefrom.

2. In combination with a support having

a bore, an anti-friction device comprising a ring open at each end thereof, a roller revolvably supported in the ring and disposed so that its bottom is spaced from the inner end of the ring, the extreme edge of said inner end of the ring being for driving engagement into the bottom wall formed by said bore in the support so as to extend in the latter beyond the bore to frictionally hold the ring in position. 10

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

ADELAIDE ELIZABETH O'BRIEN.

Witnesses:

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HARRY H. REISS.