(No Model.)

J. BERKEY & W. R. FOX.

FURNITURE CASTER.

No. 345,613. Patented July 13, 1886.

Fig. 1.

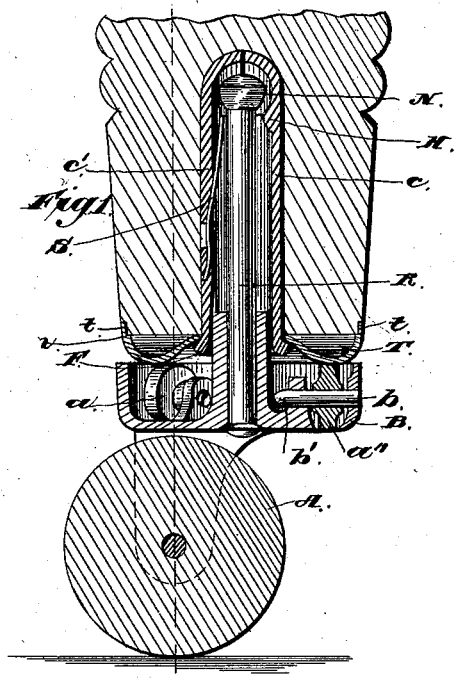


Fig. 2.

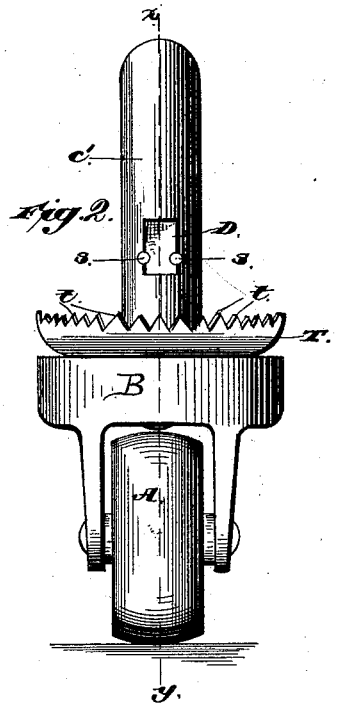


Fig. 3.

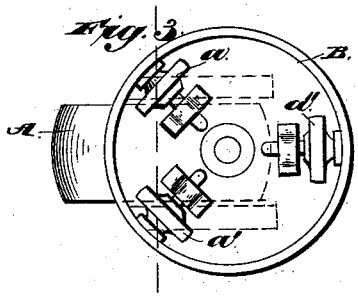


Fig. 4.

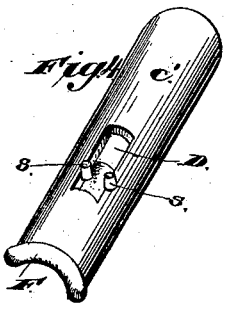


Fig. 5.

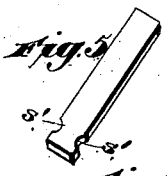


Fig. 9.

Fig. 6.

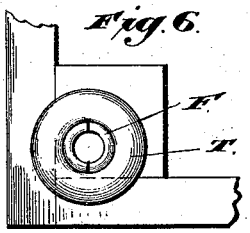


Fig. 7.

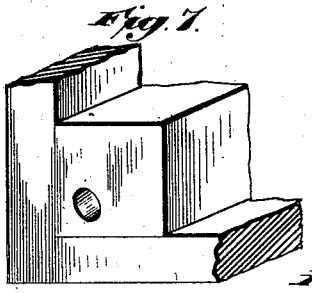
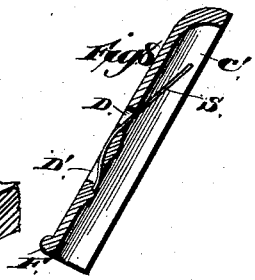


Fig. 8.



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By Drummond
Atty.

UNITED STATES PATENT OFFICE.

JULIUS BERKEY AND WILLIAM R. FOX, OF GRAND RAPIDS, MICHIGAN; SAID FOX ASSIGNOR OF ONE-HALF HIS RIGHT TO SAID BERKEY.

FURNITURE-CASTER.

SPECIFICATION forming part of Letters Patent No. 345,613, dated July 13, 1886.

Application filed July 29, 1885. Serial No. 172,993. (No model.)

To all whom it may concern:

Be it known that we, JULIUS BERKEY and WILLIAM R. FOX, both citizens of the United States, and residents of the city of Grand Rapids, in the county of Kent and State of Michigan, have jointly invented certain new and useful Improvements in Furniture-Casters, of which the following is a specification.

Our invention relates to removable furniture-casters; and its objects are, first, to provide a cheap and efficient means for automatically holding the shank of the caster in the socket and permitting its easy removal; second, to provide an improved track-plate for the anti-friction wheels, which plate serves also as a furniture-protector; third, to secure the track-plate to the furniture without the use of screws or nails; fourth, to provide improved anti-friction wheels and method of arranging the same; and, fifth, to provide a suitable caster-spindle with a ball on the top when such spindle cannot be cast integral with the caster-frame. We attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical sectional view of the caster when inserted, taken on the line X Y of Fig. 2. Fig. 2 is a front view of the caster, track-plate, and socket attached together and removed from the furniture. Fig. 3 is a top plan view of the frame holding the anti-friction wheels. Fig. 4 is a perspective view of one part of the socket. Fig. 5 is a perspective view of the spring for holding the shank of the caster in position. Fig. 6 is a bottom view of a bureau or other piece of furniture having a caster-block with the track-plate and socket attached. Fig. 7 is a perspective view of the same without the track-plate and socket. Fig. 8 is a sectional view of another form of the half-socket and spring, and Fig. 9 a view of the shank when made separate from the caster-frame.

Similar letters refer to similar parts throughout the several views.

A is the caster-wheel, attached in the usual manner to the frame B, said frame carrying the anti-friction wheels *a*, *a'*, and *a''*, located above the top of the floor-wheel.

To the frame B is riveted the shank or spindle R, having at its top the ball or enlarged head N.

The anti-friction wheels revolve on the lowest portion of the track-plate T, which is constructed in the curved form shown, and has on its upper and outer edge the teeth *t t*, and is held up in position by the flange F on the socket *c c'*. This socket is constructed in two equal parts, one, *c*, having the projection or collar H, which may be semi-annular or of any suitable form, the other, *c'*, having the spring S attached, as follows: The half *c'*, when malleable iron is used, is made in the form shown in Fig. 4, with the opening D and lug or lugs *s s*, and the spring S, made of sheet-steel or other suitable metal, and cut by one operation of the press, has notch or notches *s' s'*, to fit the lugs *s s*. The spring S is inserted through the opening D with the lugs *s s* in these notches and the spring projecting up on the inside of the socket. The lugs are then riveted down on the spring, holding the latter firmly in position. These notches on the spring prevent the possibility of any longitudinal slipping of the spring after riveting. One notch and lug will accomplish the same purpose, though not so securely.

When the half-socket *c'* is made of cast or gray iron, we construct it in the form shown in Fig. 8, with the two openings D and D'. The lower end of the spring is passed down and out through the opening D and down and in through D', and prevented from slipping up or down by a lug and notch, as shown in Fig. 4, or by any suitable catch. So far as we know, all practical devices heretofore used for automatically holding the shank in place by a spring have the spring attached to the socket by drilled holes and inserted rivets. Our object is to do away with both of these.

The track plate T may be cast in the form shown or cut from sheet metal, and then formed up. In the latter case it would not have the shoulder shown at *n* in Fig. 1. The teeth on the outer and upper edge attach the plate to the wood, prevent the latter from splitting, and also assist in holding the plate and socket together in position on the furniture. The socket *c c'* has a flange, F, on its lower end, which, when the socket is driven into position, combines with the teeth to hold the track-plate firmly against the wood. This track-plate is especially valuable when used on furniture requiring a caster-block, as a portion of the

teeth engage the frame of the furniture and the remainder engage the block, holding it securely in place. When used with the common caster, without the anti-friction wheels, the track-plate is still of service in assisting to hold the socket more firmly in the wood, and in preventing the latter from splitting.

On account of the peculiarly curved form of the track-plate, as shown, it serves as a shoe, permitting the easy sliding of the furniture when the caster is temporarily removed, preventing the flange F from catching on the floor, and avoiding the necessity of chamfering the edges of the bottom of the leg.

The frame B carries a series of two or more anti-friction rollers supported on axles, the ends of which are journaled one in the outer rim of the frame and the other in an annular collar or series of lugs rising from the bottom plate of the frame. One of these axles is shown in the drawings, lettered *b b'*, which is retained in position by having the end *b'* bent downward after insertion. The internal collar of the frame, which surrounds the shank, as shown, prevents the pin *b b'* from slipping any farther inward. The shape of the frame generally used in anti-friction casters prevents heading down this pin, and screws of various forms have been used to form the axes for the anti-friction wheels; but we consider the device shown both cheaper and more secure. When only two of these anti-friction wheels are used, they are arranged, as shown by *a* and *a'* in Fig. 3, so that their centers are both in the same vertical plane with the center of the floor-wheel, and as the floor-wheel and anti-friction wheels are rigidly attached to the frame B the centers of these three wheels will always be in the same vertical plane, thus always securing the distribution of the weight of the furniture between two anti-friction wheels. When one or more similar wheels, as *a''*, are added to the series, the two wheels *a* and *a'* are located outside of the aforesaid vertical plane, so as to give a part of the weight to the additional wheels, and they are thus located upon or outside of this vertical plane irrespective of the relative distances between the wheels of the series. In devices now in use, where the anti-friction wheels are located equidistant one from the other, it is impossible to secure, having two of them always on or outside of the vertical plane of the floor-wheel, without making the caster too large.

The shank shown in Fig. 9 is made of wrought or malleable iron, with the ball N or equivalent enlargement at the top. When used in connection with a caster-frame this shank may also have the shoulder *m;* but the shoulder is not essential in all forms of casters. On account of its peculiar form it is sometimes impossible to cast such a headed shank integral with the caster-frame. This difficulty we avoid by making it of malleable or wrought iron, as described, and then securing it to the frame.

Having thus described our invention, what we claim to have invented, and desire to secure by Letters Patent, is—

1. In a furniture-caster, the combination, with a socket having an opening in its side, of a spring rigidly secured to said socket and passing through the opening therein, having bearing places both on the inside and outside of said socket, substantially as described.

2. In a furniture-caster, the half-socket *c'*, provided with the opening D and lug *s*, in combination with the spring S, provided with the notch *s'*, to engage the lug.

3. In a furniture-caster, the combination of a socket having a flange and a track-plate with its central portion sufficiently depressed to receive the entire flange above the lowest surface of the plate when in position, substantially as and for the purpose described.

4. In a furniture-caster, a track-plate having the outer portion of its lower surface of the annular convex form, and the central portion of the depressed form, shown and described.

5. In a furniture-caster, the combination of a track-plate and a socket having a flange adapted to engage the said plate and hold the same onto the furniture, substantially as described.

6. In a furniture-caster, the combination of the track-plate T, provided with teeth *t t*, and the socket *c c'*, provided with flange F, the flange adapted to hold the plate securely against the wood, and the teeth to prevent the wood from splitting, and to hold both more firmly, substantially as described.

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