

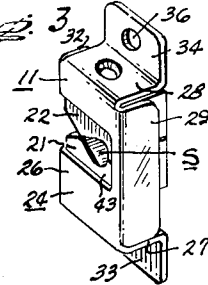
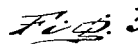
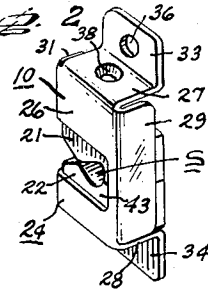
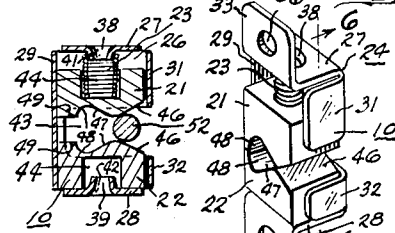
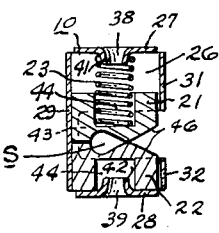
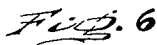
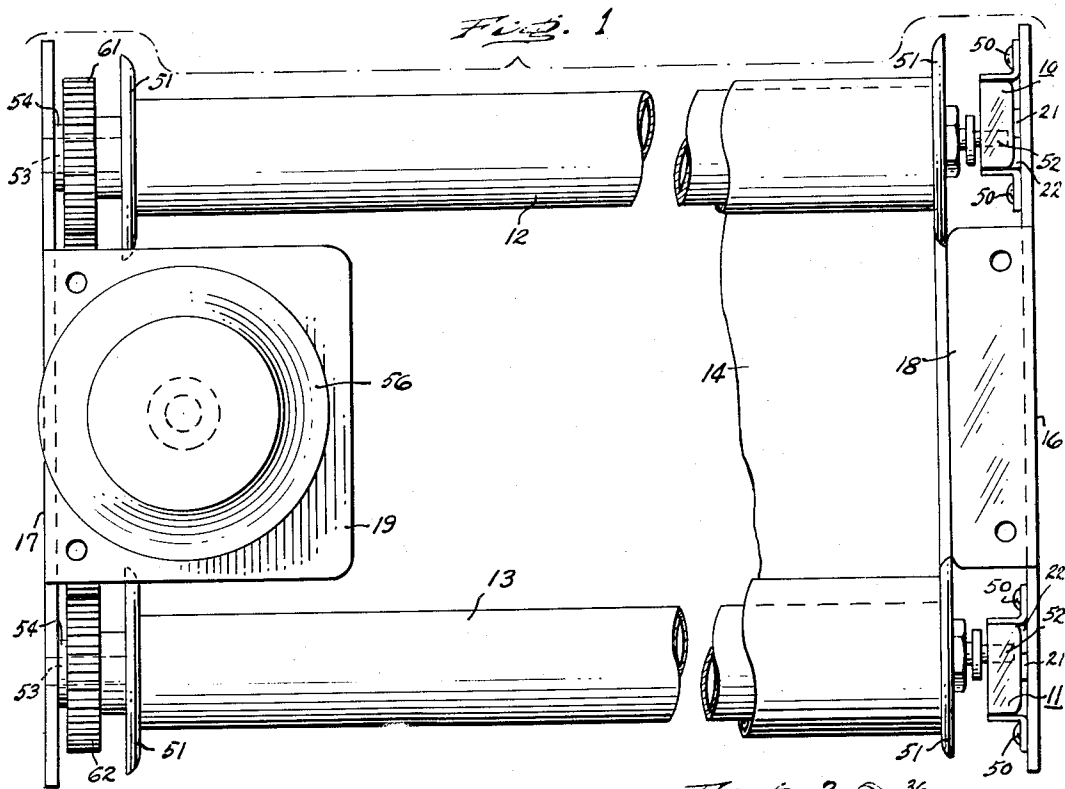
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VEHICLE DESTINATION SIGN MECHANISMS

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VEHICLE DESTINATION SIGN MECHANISMS

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This invention relates generally to vehicle destination sign mechanisms and is more particularly concerned with means for mounting the curtain rollers thereof.

A principal object of this invention is to provide a curtain roller of a vehicle destination sign mechanism with means whereby the roller may be released by the use of one hand.

Another object of this invention is to provide such a curtain roller wherein said means is of the quick detachable type.

And another object of this invention is to provide a curtain roller bearing which is comparatively simple in design and construction and which is comparatively simple and inexpensive to manufacture.

Other objects of the present invention will be apparent from the following description, it being understood that the present invention consists substantially in the combination, construction, location and relative arrangement of parts, or described in detail hereinafter, as shown in the accompanying drawing and as finally pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a rear view of a vehicle destination sign mechanism embodying the present invention, parts being omitted or broken away to better expose others;

Figure 2 is a perspective view of the upper bearing shown in Figure 1 looking at the bearing from the rear thereof;

Figure 3 is a perspective view of the lower bearing shown in Figure 1 looking at the rear thereof;

Figure 4 is a perspective view of the upper bearing shown in Figure 1 looking at the front thereof;

Figure 5 is a perspective view of the lower bearing shown in Figure 1 looking at the front thereof;

Figure 6 is a sectional view on line 6—6 of Figure 4 showing the bearing blocks positioned to abut one another; and

Figure 7 is similar to Figure 6 but shows the bearing blocks separated by the roller shaft.

Now referring particularly to the drawing, it will be seen that the vehicle destination sign mechanism of the present invention essentially comprises a frame structure mounting a pair of bearings 10 and 11, a pair of rollers 12 and 13 associated respectively with bearings 10 and 11, a curtain 14 on the rollers and a mechanism for shifting the curtain 14 on the rollers 12 and 13.

The frame structure of the general combination comprises a pair of horizontally spaced side members in the form of rigid plates 16 and 17 provided respectively with flange parts 18 and 19 through the medium of which the plates 16 and 17 are connected together by a transversely extending member (not shown).

The pair of bearings 10 and 11 mounted by the frame structure are made opposite hand to one another but otherwise are alike. Consequently, a description of the bearing 10 should suffice for the purpose of this disclosure. Referring particularly to Figures 2, 4, 6 and 7, it will be seen that the bearing 10 comprises a pair of bear-

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ing blocks 21 and 22, a coil spring 23 and a retaining member 24.

The latter is preferably a single sheet metal stamping having a main body portion in the form of a housing which accommodates the bearing blocks 21 and 22 and the coil spring 23. The housing is provided with a vertically disposed main wall 26 which is generally rectangular in shape and side walls 27, 28, 29, 31 and 32 which are turned in the same direction out of the plane of the main wall 26 and disposed normal thereto. The side walls 27 and 28 are further disposed in parallel vertically spaced opposed relation to one another, and the side walls 29 on the one hand and 31 and 32 on the other hand are further disposed in parallel horizontally spaced opposed relation to one another, the side walls 31 and 32 being still further disposed in a common plane and in spaced relation to one another. The side walls 27 and 28 are respectively provided with outwardly turned flanges 33 and 34 disposed in a common plane which is parallel to the main wall 26, and which are apertured as at 36 and 37. The side walls 27 and 28 are respectively provided with opposed coaxially related apertures 38 and 39, the edges of which are pressed inwardly to respectively form spring seat elements 41 and 42. A portion of the main wall 26 intermediate the side walls 27 and 28 is cut out to provide a notch 43, the opposed edges of which are in horizontal continuation of the spaced inner edges of the side walls 31 and 32.

The bearing blocks 21 and 22 are identical. They are preferably made of brass bar stock which is rectangular in transverse cross section, the latter being such as to afford vertical shifting movement of the bearings when they are disposed one over the other within their housing. The remote end portions of the bearing blocks 21 and 22 are respectively provided with sockets 44—44 which are coaxially related to the spring seat elements 41 and 42. Referring particularly to Figure 7, it will be seen that the proximate surfaces of bearing blocks 21 and 22 are each formed with reversely inclined surface portions 46 and 47, which merge to form a rounded projection 48 which is spaced forwardly of a horizontal surface portion 49 of the rear or inner end of the block. Now referring particularly to Figure 6, it will be seen that when the bearing blocks 21 and 22 are disposed in close adjacent relation to one another the diverging surface portions 46—46 together form a tapered entrance way between the side walls 31 and 32 leading into a closed seat S for receiving one end of the curtain roller shaft, said seat being normally closed at its forward end by the abutting projections 48—48 and at its rear end by the abutting horizontal surface portions 49—49 of the opposed bearing blocks 21 and 22.

The bearing block 22 is mounted flush against the side wall 28, the spring seat element 42 projecting upwardly into the associated socket 44. For urging the bearing block 21 downwardly upon the block 22 a coil spring 23 is provided, this coil spring 23 being disposed to react between the side wall 27 and the bearing block 21 with its upper end embracing the spring seat element 41 and its lower end seated in the socket 44.

As stated hereinbefore, the bearings 10 and 11 are made opposite hand to one another, and consequently when they are secured to the inside of rigid plate 16, as by rivets 50 projected through the apertured flanges of the retaining members and through plate 16, with the tapered entrance ways thereof presenting in the same direction, i. e., forwardly, the spring pressed bearing blocks 21—21 are positioned respectively proximate the top and bottom of the frame structure.

The pair of rollers 12 and 13 associated respectively with the bearings 10 and 11 are each provided with a pair of flanges 51—51 disposed at opposite ends thereof

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and are each further provided with shaft parts 52 and 53 coaxially related thereto and extending beyond the flanges 51—51. The shaft parts 52—52 are engaged respectively with the bearings 10 and 11, each being projected into the normally closed seats S formed by the surface portions 47—47 and 48—48 of the associated bearing blocks 21 and 22. The shaft parts 53—53 are respectively projected into sleeve bushings 54—54 carried by rigid plate 17 which is apertured to suitably amount the same.

The curtain 14 is provided with opposite end portions suitably secured respectively to the rollers 12 and 13, the curtain being of such a width as to fit between the flanges 51 and being of such a length as to normally have portions thereof wound on each roller 12 and 13.

For shifting the curtain upwardly or downwardly a mechanism is provided for rotating the rollers 12 and 13 in the same direction for selectively drawing the curtain from one roller and simultaneously winding it upon the other. This mechanism includes parts carried by the frame structure and operatively connecting a hand actuated operating knob 56 with the rollers 12 and 13 through a gear train including spur gear 61 and 62 associated respectively with rollers 12 and 13. A more detailed description of this shifting mechanism is deemed to be unnecessary to a full understanding of the present invention. However, it should be noted that the rollers 12 and 13 are respectively spring loaded and idler members, the latter being secured against rotation except through manual operation of the knob 56, by the shifting mechanism, and the former acting to maintain the curtain taut.

In operation, when the knob 56 is turned in either direction the aforementioned gear train is actuated and rollers 12 and 13 are thereby rotated for shifting the curtain 14 from one roller to the other. The shaft parts 52—52 and 53—53 rotate as required with the rollers 12 and 13, the latter turning in sleeve bushings 54—54 and the former in the bearings 10 and 11.

When it is desired to remove the roller 12 from its working position, it is grasped by one hand and turned slightly to develop some slack in the curtain 14. Then the operator presses upwardly thereon, thereby forcing the bearing block 21 of bearing 10 to shift upwardly against the pressure of coil spring 23, the bearing block 21 being guided in its shifting movement by the proximate face of plate 16 and the main wall 26 and the side walls 29 and 31 of the housing. Finally, the operator draws the roller 12 forwardly from between the bearing blocks 21 and 22 and shifts it to one side to free its shaft portion 53 from the associated sleeve bushing 54.

When it is desired to remove the roller 13 from its working position, the operator presses downwardly thereon, thereby causing the roller 12 to turn slightly against the pressure of its spring means to unwind a portion of the curtain, and thereby forcing the bearing block 21 of bearing 11 to shift downwardly in a manner similar to that already described with regard to the removal of roller 12. Finally, the operator draws the roller 13 forwardly from between the bearing blocks 21 and 22 and shifts it to one side to free its shaft portion 53 from the associated sleeve bushing, as in the case of the removal of shaft 12.

The rollers 12 and 13 are remounted in the same manner. For example, to remount the roller 12, its shaft part 53 is inserted in the associated sleeve bushing 54, and then its shaft part 52 is placed in the mouth of the bearing 10 and pushed therethrough into the seat S formed by the surface portions 47—47 and 48—48 of bearing blocks 21 and 22. As the shaft part 52 moves through the mouth of the bearing 10 the bearing block 21 shifts upwardly against the pressure of coil spring 23, and as continued movement positions the shaft part 52 in the aforementioned aperture the bearing block 21 returns to its former position under the influence of coil spring 23, in which position the seat S formed by the surface portions 47—47 and 48—48 of bearing blocks 21 and 22

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embraces the shaft part 52 for rotation of the latter therein. This remounting operation, it will be noted, is also a one hand operation.

It should be obvious now that means have been provided for quick-detachably mounting a curtain roller of a vehicle destination sign mechanism by the use of one hand, and that a curtain roller bearing has been provided which is simple and inexpensive to manufacture by reason of its open-housing made of a single stamping of sheet material and its having duplicate bearing blocks, all of which features simplify assembly problems.

The present invention is susceptible to various changes, modifications and applications which may be made from time to time without departing from the principles thereof and it will be understood that it is intended to claim the invention broadly, as well as specifically, as indicated by the appended claims.

What is claimed as new and useful is:

1. In a vehicle destination sign mechanism of the character described, a frame structure, a roller shaft carried by said frame structure, and means for quick detachably mounting said roller shaft upon said frame structure, said means including a bearing unit comprising a one-piece sheet material housing secured to a portion of said frame structure which extends crosswise of said shaft, said housing having a main wall and side walls extending laterally from said main wall for maintaining said main wall in spaced relation to said frame structure portion, a pair of bearing blocks each disposed in close adjacent relation to said main wall and shiftably fitted between said main wall and frame structure portion on opposite sides of a terminal portion of said roller shaft projected through said main wall, the proximate surfaces of said bearing blocks being complementally formed for conjointly receiving said terminal roller shaft portion, and said main wall and one of the sidewalls of said housing being notched to permit shifting movement of said terminal roller shaft portion laterally of its axis into said bearing to its position aforesaid between said bearing blocks, and means in said housing for biasing one of said bearing blocks toward the other.

2. In a vehicle destination sign mechanism of the character described, a frame structure, a roller shaft carried by said frame structure, and means for quick detachably mounting said roller shaft upon said frame structure, said means including a bearing unit comprising a one-piece sheet material housing having a main wall and side walls extending laterally from said main wall and secured to a portion of said frame structure which extends crosswise of said shaft, the main wall of said housing being thereby spaced inwardly from said frame structure portion, a pair of identical one-piece bearing blocks in said housing shiftably fitted between said main wall and frame structure portion on opposite sides of a terminal portion of said roller shaft projected through said main wall, the proximate surfaces of said bearing blocks being complementally formed for conjointly receiving said terminal roller shaft portion, and the main wall and one of the side walls of said housing being notched to permit shifting movement of said terminal roller shaft portion laterally of its axis into said bearing to its position aforesaid between said bearing blocks, and spring means between another of said side walls and one of said bearing blocks for biasing the latter toward the other bearing block.

3. In a vehicle destination sign mechanism of the character described, a frame structure, a roller shaft carried by said frame structure, and means for quick detachably mounting said roller shaft upon said frame structure, said means including a bearing unit comprising a one-piece sheet material housing having a main wall and a frontal wall extending laterally from said main wall, said housing being secured to a portion of said frame structure which extends crosswise of said shaft, and said main wall being thereby disposed in spaced relation to said frame structure portion, a pair of identical one-piece

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bearing blocks in said housing adapted to be shiftably fitted between said main wall and frame structure portion on opposite sides of a terminal portion of said roller shaft projected through said main wall, the proximate surfaces of said bearing blocks being complementally formed for conjointly receiving said terminal roller shaft portion and to provide a tapered entrance-way into said bearing, said main and frontal walls being notched in registry with said tapered entrance-way into said bearing, and spring means for biasing one of said bearing blocks toward the other, said means being operative to yieldingly press said blocks together to retain said terminal roller shaft portion against lateral displacement from said bearing and to permit separation of said bearing blocks upon lateral shifting of the terminal roller shaft portion inwardly and outwardly of said tapered entrance-way and its registering notch in the housing for said bearing blocks.

4. In a vehicle destination sign mechanism of the character described, a frame structure comprising a pair of horizontally spaced rigid side members, a pair of vertically spaced roller shafts revolubly mounted between said side members, and a pair of bearing units mounted upon one of the side members of said structure, there being one such unit for each of said roller shafts, said units each comprising a one-piece sheet material housing having a main wall and side walls extending laterally from said main wall for maintaining said main wall in spaced relation to the associated side member of said frame, a pair of bearing blocks each disposed in close adjacent relation to said main wall and shiftably fitted between said main wall and the associated side member of said frame on opposite sides of a terminal portion of said roller shaft projected through said main wall, the proximate surfaces of said bearing blocks being complementally notched for conjointly receiving said terminal roller shaft portion, and said main wall and one of the sidewalls of said housing being formed to permit shifting movement of said terminal roller shaft portion laterally of its axis into said bearing to its position aforesaid between said bearing blocks, and means in said housing for biasing one of said bearing blocks toward the other, said bearing units being positioned each with its biased bearing block on the side of its terminal roller shaft portion remote from the other roller shaft.

5. In a unit of the character described, a bearing for operatively mounting a roller shaft upon a member which extends crosswise of said roller shaft, a one-piece sheet material housing having a main wall and sidewalls extending laterally from said main wall for maintaining said main wall in spaced relation to said member, a pair of bearing blocks each disposed in close adjacent relation to said main wall and adapted to be shiftably fitted between said main wall and member on opposite sides of said roller shaft projected through said main wall, the proximate surfaces of said bearing blocks being com-

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plementally formed for conjointly receiving said shaft, and said main wall and one of the side walls of said housing being notched to permit shifting movement of said shaft laterally of its axis into said bearing to its position aforesaid between said bearing blocks, and means in said housing for biasing one of said bearing blocks toward the other.

6. In a unit of the character described, a bearing for operatively mounting a roller shaft upon a member which extends crosswise of said roller shaft, a one-piece sheet material housing having a main wall and side walls extending laterally from said main wall for maintaining said main wall in spaced relation to said member, a pair of identical one-piece bearing blocks in said housing adapted to be shiftably fitted between said main wall and member on opposite sides of said roller shaft projected through said main wall, the proximate surfaces of said bearing blocks being complementally formed for conjointly receiving said shaft, and the main wall and one of the side walls of said housing being notched to permit shifting movement of said shaft laterally of its axis into said bearing to its position aforesaid between said bearing blocks, and spring means between another of said side walls and one of said bearing blocks for biasing the latter toward the other bearing block.

7. In a unit of the character described, a bearing for operatively mounting a roller shaft upon a member which extends crosswise of said roller shaft, a one-piece sheet material housing having a main wall and a frontal wall extending laterally from said main wall for maintaining said main wall in spaced relation to said member, a pair of identical one-piece bearing blocks in said housing adapted to be shiftably fitted between said main wall and member on opposite sides of said roller shaft projected through said main wall, the proximate surfaces of said bearing blocks being complementally formed for conjointly receiving said shaft and to provide a tapered entrance-way into said bearing, said main and frontal walls being notched in registry with said tapered entrance-way into said bearing, and spring means for biasing one of said bearing blocks toward the other, said means being operative to yieldingly press said blocks together to retain said roller shaft against lateral displacement from said bearing and to permit separation of said bearing blocks upon lateral shifting of the shaft inwardly and outwardly of said tapered entrance-way and its registering notch in the housing for said bearing blocks.

References Cited in the file of this patent

UNITED STATES PATENTS

830,135	Corman	Sept. 4, 1906
1,595,115	Myers	Aug. 10, 1926
1,614,714	Castille	Jan. 18, 1927
2,115,049	Suckel	Apr. 26, 1938
2,306,634	MacDonald	Dec. 29, 1942
2,337,567	North et al.	Dec. 28, 1943