

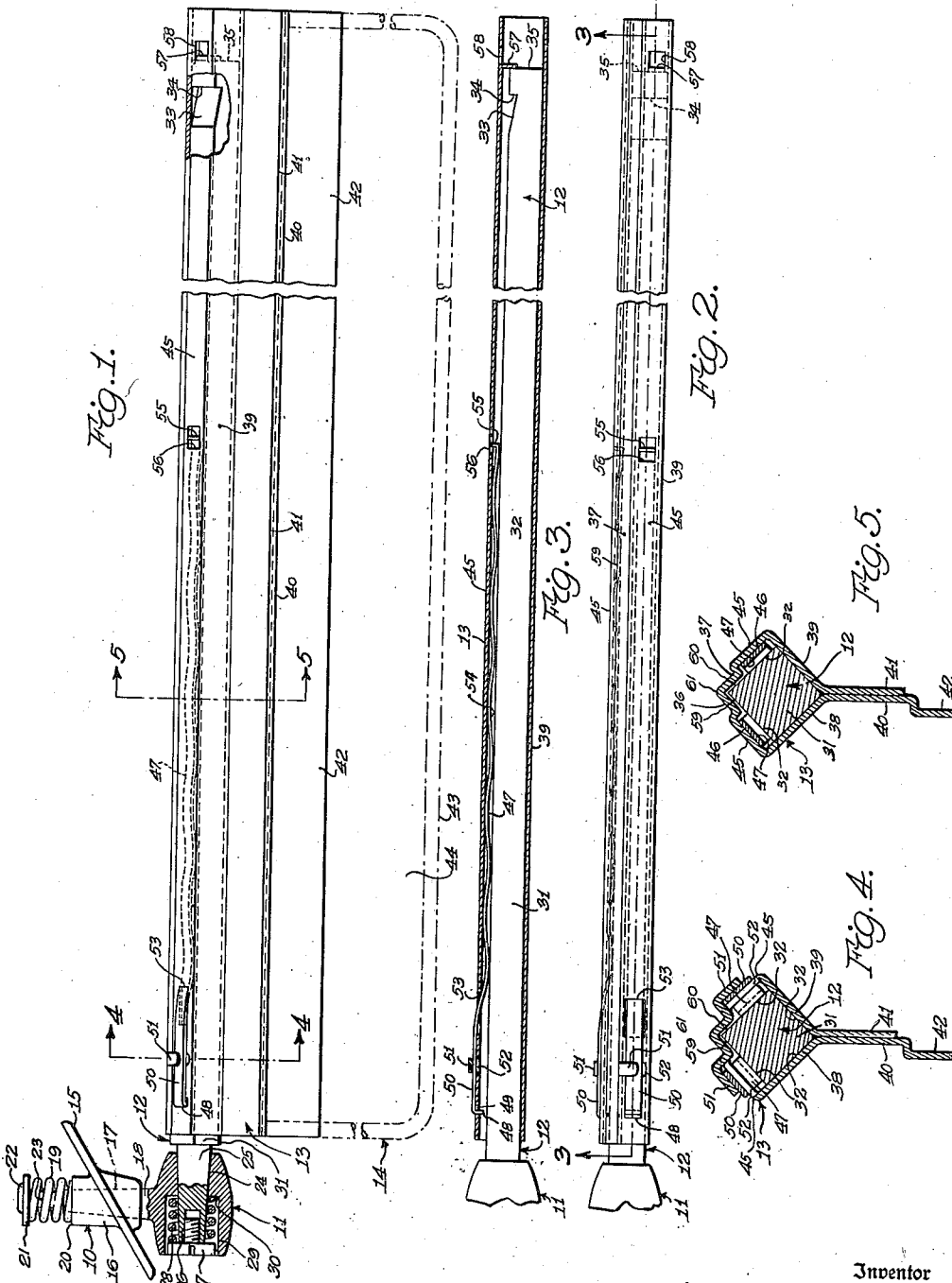
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VISOR

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VISOR

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This invention relates to visors or glare shields and particularly to visors or glare shields which swing around an axis as well as slide longitudinally along the axis.

One object of this invention is to provide a visor or glare shield having a panel which swings around a rod and also slides longitudinally along the rod, means being provided externally of the visor tube for exerting a frictional holding effect for holding the panel in its adjusted position.

Another object is to provide a visor or glare shield supported on a rod which has means at the outer end of the rod cooperating with the bracket for applying friction to the rod to hold it in an adjusted position obtained by swinging the glare shield or visor around the axis of the rod.

Another object is to provide a visor or glare shield as set forth in the preceding object wherein the bracket and supporting rod are provided with mating external and internal conical surfaces, together with resilient means for maintaining these surfaces in frictional engagement.

Another object is to provide a visor or glare shield having means at the outer end of the supporting rod cooperating with a support to provide a swinging frictional holding effect, and wherein separate means is provided within the visor tube surrounding the rod for exerting a longitudinal frictional effect, so that the visor may be held in its adjusted position either when it is swung around the axis of the rod or slid along the rod.

Another object is to provide a visor or glare shield wherein a bracket and a support are provided with mating internal and external conical surfaces and wherein the support and the visor supporting rod are also provided with mating internal and external conical surfaces, the two sets of conical surfaces being arranged at an angle to each other so that one set provides for swinging around an axis, whereas the other set provides for swinging around another axis in a different direction.

Another object is to provide a visor or glare shield as set forth in the object immediately preceding, wherein the axis of the two sets of mating conical surfaces are substantially at right angles to each other and wherein resilient means is provided for urging the conical surfaces of each set into frictional engagement.

Another object is to provide a visor or glare shield wherein the visor supporting rod has longitudinally extending surfaces at an angle to each other and engaged by elongated springs within

the visor supporting tube so as to provide for frictional sliding engagement therebetween.

Another object is to provide a visor or glare shield as set forth in the object immediately preceding wherein one or more stops are provided for limiting the sliding motion of the visor along the rod.

In the drawing:

Figure 1 is a front elevation of a preferred embodiment of the visor of this invention, with the visor support and the tube partly in section.

Figure 2 is a partial top plan view of the visor shown in Figure 1.

Figure 3 is a vertical section along the line 3—3 in Figure 2.

Figure 4 is a vertical cross section along the line 4—4 in Figure 1.

Figure 5 is a vertical cross section along the line 5—5 in Figure 1.

In general, the visor or glare shield of this invention is intended to provide means external of the visor supporting tube and rod for providing rotational friction so as to hold the visor panel in its adjusted position of swinging around the rod. Hitherto, such friction has been exerted by springs and other devices within the visor tube, but the space for such devices is so cramped that the devices have given unsatisfactory service. Some of them have been subject to rattling after the visor had been in service for a certain length of time, and in other visors the amount of friction exerted was uncertain, so that one visor would swing too easily while another one would swing with too much difficulty. Additional difficulties arose when it was attempted to enable the visor to slide longitudinally along its supporting rod as well as swing around the axis thereof. The constricted space inside the visor tube proved to be inadequate to properly apply a sufficient amount of friction to hold the visor in its adjusted position both along the rod and around it.

According to the present invention, the end of the visor supporting rod outside the visor supporting tube to which the visor panel is attached is provided with a conically tapered end which mates with a conically tapered bore in a visor support, the two being urged into frictional engagement by a coil spring within the support. The support is preferably provided with a conically tapered surface at an angle to its conically tapered bore, this conically tapered surface mating with a conically tapered bore in the visor bracket by which the visor is attached to a vehicle. By this means the rod may be rotated

relatively to its support and the support swung relatively to its bracket, yet both of these will be held in their adjusted positions by means of the friction generated between the mating conical surfaces. The bracket is likewise preferably provided with a coil spring for urging the mating conical surfaces together.

To enable the visor panel to be slid longitudinally along the visor supporting rod, the latter is preferably made of square cross section or is provided with two elongated surfaces at an angle to each other, these being engaged by two elongated springs attached to and extending within the visor tube to which the visor panel is attached. These springs exert a frictional effect upon the rod so that the visor tube and its panel are held in any position to which they may be slid along the rod. One or more stops are provided to limit the motion of the visor along its supporting rod.

Referring to the drawing in detail, Figure 1 shows a preferred embodiment of the visor or glare shield of this invention as consisting of a bracket generally designated 10, a visor support generally designated 11, a visor supporting rod generally designated 12, a visor supporting tube generally designated 13, and a visor panel generally designated 14. The bracket 10 is provided with a base plate 15 by which it may be mounted upon the header or other suitable portion of a vehicle top, such as by bolts or screws. Extending at an angle to the base plate 15 (Figure 1) is a boss 16 containing an internal conical bore 17. The visor support 11 is provided with a conically tapered portion 18 corresponding to and mating with the internal conical bore 17 and urged into frictional engagement therewith by a coil spring 19 disposed between one end 20 of the boss 16 and a washer 21 held against the enlarged end 22 of the shank 23 extending outwardly from the tapered portion 18. By this means, the support 11 may be swung relatively to the bracket 10 and frictionally held in the adjusted position.

The visor support 11 is provided with an internal conical bore 24 with its axis at an angle to the axis of the conically tapered portion 18, preferably at right angles thereto. The bore 24 receives a correspondingly conically tapered portion 25 forming one end of the visor supporting rod 12 and provided with a threaded bore 26 receiving a screw 27 serving as an abutment for a coil spring 28 mounted in a counterbore 29 and abutting the inner end 30 thereof. In this manner the visor supporting rod may be swung or turned relatively to the support 11 and yieldingly and frictionally held in the adjusted position, this adjustment being independent of the frictional adjustment between the visor support 11 and bracket 10 and around a different axis.

The visor supporting rod 12 is provided with a main portion 31 preferably of substantially square cross section (Figures 4 and 5) and having flat elongated surfaces 32 thereon. The end of the rod 12 opposite its tapered portion 25 is provided with a notch 33 having a shoulder 34 serving as a stop, the end surface 35 of the rod 12 also serving as a stop in a manner hereinafter set forth.

Surrounding the squared portion 31 of the visor supporting rod 12 is the visor supporting tube 13, which is internally of approximately square cross section corresponding to and mating

with the square portion 31 of the visor supporting rod 12. For this purpose, the visor supporting tube 13 is provided with upper portions 36 and 37 and lower portions 38 and 39 (Figure 5) terminating in the mutually engaging parallel portions 40 and 41 which are secured to each other, as by welding. The portion 40 is provided with an extension flange or lip 42 serving for the attachment of the frame member 43 over which the covering 44 of the visor panel 14 is mounted. The frame 43 may likewise be secured to the flange 42 by welding.

The upper surfaces 36 and 37 of the visor supporting tube 13 are bent upwardly and outwardly as at 45 (Figures 4 and 5) to provide longitudinally elongated pockets 46 serving to receive undulating or serpentine springs 47 housed therein and frictionally engaging the flattened upper surfaces 32 of the visor supporting rod 12. One end of the undulating spring 47 is bent as at 48 (Figure 3) and enters an aperture 49 in the tube 13 whereby it is anchored against longitudinal motion. The spring 47 is also provided with a straight portion 50 which is held against the tube by a tab 51 struck up from an aperture 52 in the upper surface of the tube 13 and pressed downwardly against the spring portion 50 in the assembling operation. Beyond the straight portion 50, the spring 47 passes through an aperture 53 into the pocket 46 where its undulations 54 frictionally engage the flattened surfaces 32 of the square rod 12.

The free end 55 of the spring 47 is bent relatively thereto and is guided by an aperture 56 formed in the upper surface of the tube 13. The latter is also provided with an inwardly extending portion 57 struck out of the aperture 58 and serving to engage the end 35 of the rod 12 to act as a stop to limit the motion of the visor toward the bracket 10. The bent end 55 of the spring 47 similarly acts as a stop when it engages the wall 34 of the notch 33 to limit the motion of the visor away from the bracket 10 (Figure 3).

In the operation of the visor, the operator may swing the entire assembly around the axis of the bracket bore 17 in order to move the visor panel 14 from its position adjacent the windshield to a position adjacent the side window of the vehicle. The visor panel 14, its tube 13, and its supporting rod 12 may be swung around the axis of the visor support 11 by the engagement of the conical frictional surfaces 24 and 25, the friction serving to hold the visor panel 14 in the position to which it has been swung. Thus, by this motion, the visor may be raised or lowered so that it screens out the rays of the rising or setting sun or of approaching vehicles while at the same time permitting the operator to look in other directions.

Finally, the operator may slide the panel 14 and visor tube 13 bodily along the squared portion 31 of the visor-supporting rod 12, thereby moving the visor panel 14 along the windshield or window in order to bring it into a screening position against glare coming from different angles relatively to the windshield or window. The undulating or serpentine springs 47 engage the squared shaft and exert a frictional effect which holds the visor panel 14 in its adjusted position. If the latter is pushed too far to the left (Figures 1 and 3), the inwardly struck portion 57 engages the end 35 of the rod 12 and halts the motion. Similarly, if the visor panel 14 is moved too far to the right, the bent portions 55

of the undulating springs 47 slide downwardly into the notches 33 into engagement with the shoulders 34, halting the motion. The undulating springs 47 exert frictional effects at a plurality of locations along the rod 12 and thereby effectively prevent rattling as the vehicle is driven over rough roads.

In practice, the visor tube 13 of approximately square cross section is made slightly larger than the cross-sectional dimensions of the visor supporting rod 12 so that slight clearances 59 and 60 will occur inside the visor tube adjacent the top ridge 61 thereof (Figures 4 and 5). These clearances allow for warping as well as for manufacturing variations.

It will be understood that the longitudinally sliding provisions of the visor may be omitted, if desired, and the swinging motion alone permitted between the visor supporting rod 12 and the visor support 11 on the one hand and between the visor support 11 and the visor bracket 10 on the other hand.

While a specific embodiment of the invention has been described and illustrated, it will be understood that various modifications may be made within the scope of the appended claims without departing from the spirit of the invention.

It will be further evident from Figures 4 and 5 that the flat portions and corner portions of the visor tube 13 and rod 12 take the torsional load off the friction springs 47 when the visor panel 14 is turned or tilted about its axis.

What I claim is:

1. In a visor structure, a bracket and a visor support having mutually engaging tapered frictional surfaces, a visor supporting rod, said rod and said visor support having mutually engaging frictional surfaces disposed with their axis at an angle to the axis of the bracket frictional surface, the frictional surface of said rod being co-extensive therewith, spring means for urging the frictional surfaces together, at least one of said spring means being concealed, and a visor connected to said visor supporting rod, one of said spring means encircling said co-extensive friction surface for urging said second-mentioned frictional surfaces together.

2. In a visor structure, a bracket and a visor support having mutually engaging frictional surfaces, a visor supporting rod having a co-extensive tapered friction surface, said visor support having a mutually engaging frictional surface disposed with its axis at an angle to the axis of the bracket frictional surface, concealed spring means encircling the co-extensive friction surface for drawing the said frictional surfaces together, a visor connected to said visor supporting rod, and resilient means within the confines of the bracket for urging said bracket and visor support frictional surfaces into frictional engagement.

3. In a visor structure, a bracket and a visor support having mutually engaging frictional surfaces, a visor supporting rod having a co-extensive tapered frictional surface, said visor support having a bore with a tapered frictional surface to receive said co-extensive tapered surface disposed with its axis at an angle to the axis of the bracket frictional surface, concealed spring means encircling said tapered co-extensive surface of said rod for drawing the said frictional surfaces together, and a visor connected to said visor supporting rod, at least one set of said mutually engaging frictional surfaces comprising mating conical surfaces, said spring means being within the confines of the visor support.

4. In a visor structure, a bracket and a visor support having mutually engaging frictional surfaces, a visor supporting rod having a coextensive tapered portion at one end thereof, said visor support having a bore with a conical frictional surface for receiving said co-extensive tapered portion, said co-extensive tapered portion and said bore being disposed with their axis at an angle to the axis of the bracket frictional surface, concealed resilient means encircling the co-extensive tapered portion for urging the frictional surfaces together, and a visor connected to said visor supporting rod, said spring means being located within an enlarged portion of said bore.

5. In a visor structure, a bracket and a visor support having mutually engaging conical frictional surfaces, a visor supporting rod having a coextensive tapered end portion, said visor support having a bore with a conical frictional surface to receive said co-extensive tapered end portion, said end portion and bore being disposed with their axis at an angle to the axis of the frictional surface of the bracket and visor, concealed spring means located in an enlarged portion of said bore for urging the frictional surfaces of the rod and visor support together, said spring means being located within the confines of the visor support, spring means for urging the first-mentioned mutually engaging surfaces together, and a visor connected to said visor supporting rod.

6. In a visor structure, a bracket and a visor support having mutually engaging frictional surfaces, a visor supporting rod having a co-extensive tapered end portion, said visor support having a tapered bore for the reception of said end portion, said tapered end portion of the rod and tapered bore providing mutually engaging surfaces disposed with their axis at an angle to the axis of the frictional surfaces of the bracket and visor support, concealed spring means located in an enlarged portion of said bore for urging the frictional surfaces thereof together, said spring means being located within the confines of the visor support, spring means for urging the first-mentioned mutually engaging surfaces together, and a visor connected to said visor supporting rod, the axes of the two sets of said frictional surfaces being disposed substantially at right angles to each other.

7. In a visor structure, a bracket and a visor support having mutually engaging conical frictional surfaces, a visor supporting rod having a co-extensive tapered end portion, said visor support having a tapered bore to receive said tapered rod end portion, said co-extensive tapered end portion and tapered bore providing mutually engaging conical frictional surfaces disposed with their axis at an angle to the axis of the bracket frictional surface, concealed spring means located within an enlarged portion of said bore for urging the frictional surfaces thereof together, spring means for urging the first-mentioned mutually engaging surfaces together, and a visor connected to said visor supporting rod, said concealed spring means being within the confines of the visor support for urging the frictional surfaces of said tapered end portions and tapered bore into frictional engagement.

8. In a visor structure, a visor support having a tapered bore, a visor supporting rod having a co-extensive tapered end portion for reception in said bore, said tapered bore and end portion forming mutually engaging frictional surfaces

for retaining said rod in a predetermined position, concealed spring means encircling said tapered end portion located within an enlarged portion of said bore for drawing said frictional surfaces together, said spring means being located within the confines of the visor support, and a visor connected to said visor supporting rod longitudinally of said frictional surfaces.

9. In a visor structure, a visor support having a tapered bore and a visor supporting rod having a coextensive tapered end portion for reception in said bore forming mutually engaging conical frictional surfaces, concealed spring means for drawing said frictional surfaces together, said spring means being located within the confines of the support and received in an enlarged portion of said tapered bore, and a visor connected to said visor supporting rod externally and longitudinally of said frictional surfaces.

10. In a visor structure, a visor support having a tapered bore, a visor supporting rod received in said bore having a co-extensive tapered portion extending to the end thereof, said co-extensive tapered portion and bore defining mutually engaging frictional surfaces, a visor connected to said visor supporting rod longitudinally of said frictional surfaces, and concealed resilient means within the confines of the support and located in an enlarged portion of said bore for urging said frictional surfaces into frictional engagement.

11. In a visor structure, a visor support having a tapered bore, a visor supporting rod having a co-extensive tapered portion extending in the direction of the end thereof received in said bore, said tapered portion and bore defining mutually engaging conical frictional surfaces, concealed spring means for urging said conical frictional surfaces together, and a visor connected to said visor supporting rod externally and longitudinally of said frictional surfaces, said conical surfaces being disposed substantially co-axially with said rod and said spring means being located wholly within the confines of the visor support in an enlarged portion of said bore.

12. In a visor structure, a visor support having a tapered bore, a visor supporting rod having a co-extensive tapered end portion received in said bore, said bore and end portion defining mutually engaging conical frictional surfaces, a visor slidably connected to said visor supporting rod externally and longitudinally of said frictional surfaces, said conical surfaces being disposed substantially co-axially with said rod, and concealed resilient spring means for urging said frictional surfaces into frictional engagement, said spring means being located within the confines of the visor support and in an enlarged portion of said bore.

13. In a visor structure, a visor support having a tapered bore, a visor supporting rod having a tapered end portion extending in the direction of termination, said tapered bore and tapered end defining mutually engaging frictional surfaces, concealed spring means located in an enlarged portion of said bore for urging said frictional surfaces together, a visor supporting tube mounted on said rod for sliding motion therealong and swinging motion therewith and disposed longitudinally of said frictional surfaces, and a visor connected to said visor supporting tube whereby sliding movement of the visor in

one direction will tend to separate said mutual frictional surfaces for rotational adjustment.

14. In a visor structure, a visor support having a tapered bore, a visor supporting rod having a tapered end portion extending in the direction of termination, said tapered bore and tapered end defining mutually engaging frictional surfaces, concealed spring means located in an enlarged portion of said bore for urging said frictional surfaces together, said rod having a longitudinally elongated flattened surface therealong, a visor supporting tube mounted on said rod for sliding motion therealong and swinging movement therewith and disposed longitudinally of said frictional surfaces whereby sliding movement of the visor tube in one direction will tend to move said frictional surfaces apart to facilitate rotational adjustment, and a visor connected to said visor supporting tube.

15. In a visor structure, a visor support having a tapered bore, a visor supporting rod having a tapered portion extending in the direction of the end of said rod, said tapered rod being adapted to be received in said bore and defining mutually engaging frictional surfaces, concealed spring means located in an enlarged portion of said bore for urging the frictional surfaces together, said rod having a longitudinally elongated flattened surface therealong, a visor supporting tube mounted on said rod for sliding motion therealong and swinging movement therewith and disposed longitudinally of said frictional surfaces whereby sliding movement of said tube in one direction will urge said frictional surfaces apart for rotational adjustment, a visor connected to said visor supporting tube, and resilient means within said tube and engaging said rod for frictionally holding the visor in its longitudinally adjusted position.

16. In a visor structure, a visor support having a tapered bore, a visor supporting rod having a tapered portion extending in the direction of the end of said rod, said tapered rod being adapted to be received in said bore and defining mutually engaging frictional surfaces, concealed spring means located in an enlarged portion of said bore for urging the frictional surfaces together, said rod having a longitudinally elongated flattened surface therealong, a visor supporting tube mounted on said rod for sliding motion therealong and swinging movement therewith, and disposed longitudinally of said frictional surfaces whereby sliding motion of said tube in one direction will urge said frictional surfaces apart for rotational adjustment, a visor connected to said visor supporting tube, and resilient means within said tube and engaging said rod for frictionally holding the tube in its adjusted position, said tube having a flattened portion engaging the flattened portion of said rod whereby to prevent relative rotation therebetween.

17. In a visor structure, a visor support having a tapered bore, a visor supporting rod having a tapered portion extending in the direction of the end of said rod, said tapered rod being adapted to be received in said bore and defining mutually engaging frictional surfaces, concealed spring means located in an enlarged portion of said bore for urging the frictional surfaces together, a visor supporting tube mounted on said rod for sliding motion therealong and swinging movement therewith and disposed longitudinally of said frictional surfaces whereby sliding movement of said tube will urge said frictional surfaces apart to facilitate rotational adjustment,

a visor connected to said visor supporting tube, and an undulating spring disposed between said tube and said rod for frictionally holding the tube in its adjusted position.

18. In a visor structure, a visor support having a tapered bore, a visor supporting rod having a tapered portion extending in the direction of the end of said rod, said tapered rod being adapted to be received in said bore and defining mutually engaging frictional surfaces, concealed spring means located in an enlarged portion of said bore for urging the frictional surfaces together, a visor supporting tube mounted on said rod for sliding motion therealong and swinging movement therewith whereby sliding movement of said tube in one direction will urge said frictional surfaces apart to facilitate rotational adjustment, said rod having longitudinally elongated flattened surfaces disposed at an angle to each other, means disposed between said tube and said flattened surfaces for preventing relative rotation therebetween, resilient means disposed between said tube and rod for frictionally holding the same in longitudinal adjustment, and a visor connected to said visor supporting tube.

19. In a visor structure, a visor support having a tapered bore, a visor supporting rod having a tapered portion extending in the direction of the end of said rod, said tapered rod being adapted to be received in said bore and defining mutually engaging conical frictional surfaces, concealed spring means located in an enlarged portion of said tapered bore for urging said surfaces into frictional engagement, said rod having an elongated portion, a visor supporting tube mounted for frictional sliding motion along said elongated rod portion, and means for preventing relative rotation between said rod and tube, said tube when slidably moved in one direction being adapted to urge the conical frictional surfaces apart to facilitate rotational adjustment.

20. In a visor structure, a visor support having a tapered bore, a visor supporting rod having a tapered portion extending in the direction of one end of said rod, said tapered rod being adapted to be received in said bore and forming mutually engaging frictional surfaces, concealed spring means located in an enlarged portion of said bore for urging said surfaces into frictional engagement, said rod having an elongated portion, a visor supporting tube mounted for sliding motion along said elongated rod portion, means for preventing relative rotation between said rod and tube whereby sliding movement of said tube in one direction will urge said frictional surfaces

apart to facilitate rotational adjustment between the visor support and visor supporting rod, said visor support having a conical friction surface with its axis at an angle to the mutual frictional surfaces of the tapered portion of the visor supporting rod and tapered bore, and a bracket having a conical friction surface mating with the last-mentioned conical friction surface on said visor support, and spring means for urging said last-mentioned frictional surfaces together.

21. In a visor structure, a visor support having a tapered bore, a visor supporting rod having a tapered portion extending in the direction of one end of said rod, said tapered rod being adapted to be received in said bore and defining mutually engaging frictional surfaces, concealed spring means located in an enlarged portion of said bore for urging the surfaces into frictional engagement, a visor supporting tube mounted on said rod for sliding motion therealong and disposed longitudinally of said frictional surfaces, a visor connected to said visor supporting tube, and a friction spring disposed between said tube and said rod whereby sliding movement of said tube in one direction will urge said frictional surfaces apart to facilitate rotational adjustment of the rod with respect to the visor support, said tube and said rod having mutually contacting longitudinally-flattened portions whereby to take the torsional load off said spring while turning the visor around its axis.

22. In a visor structure, a visor support having a tapered bore terminating at one end in an enlarged recess, a visor supporting rod having a co-extensive tapered portion at one end thereof, said bore and tapered portion defining mutually engaging surfaces, a coil spring mounted in said enlarged bore portion for urging said mutual engaging surfaces axially into frictional contact, a visor supporting tube mounted on said rod for sliding motion therealong and disposed longitudinally of said frictional surfaces, a visor connected to said visor supporting tube, and an elongated friction spring disposed between said tube and said rod whereby sliding movement of said tube in one direction will urge said frictional surfaces apart to facilitate rotational adjustment of the rod with respect to the visor support, said tube and said rod having mating longitudinal ridge portions and mutually engaging longitudinal flat surfaces adjacent thereto, whereby to take the torsional load off said elongated spring while turning the visor around its axis.

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