B. F. BARNES.

SHIELD OR SCREEN.

APPLICATION FILED MAY 15, 1908.

1,094,049.

Patented Apr. 21, 1914.

2 SHEETS—SHEET 1.

Fig. 1

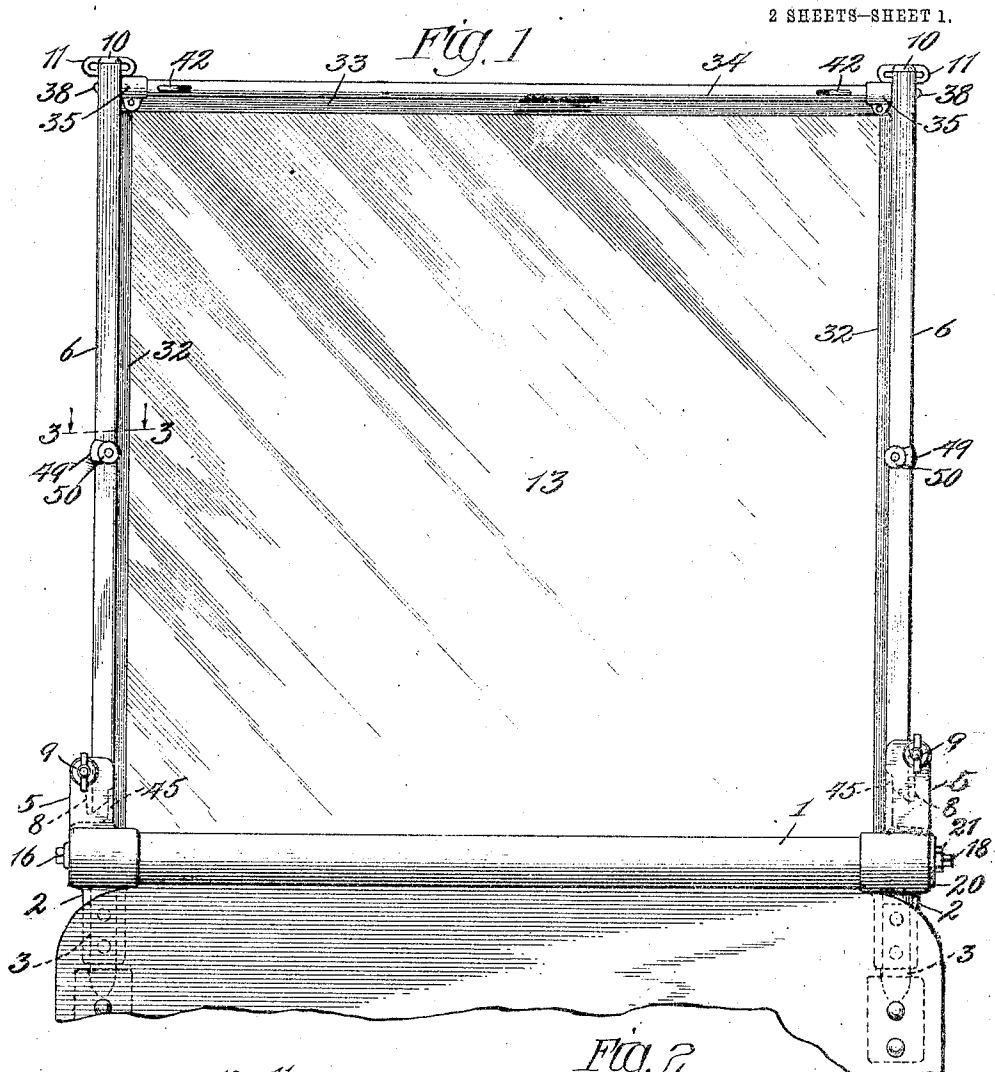
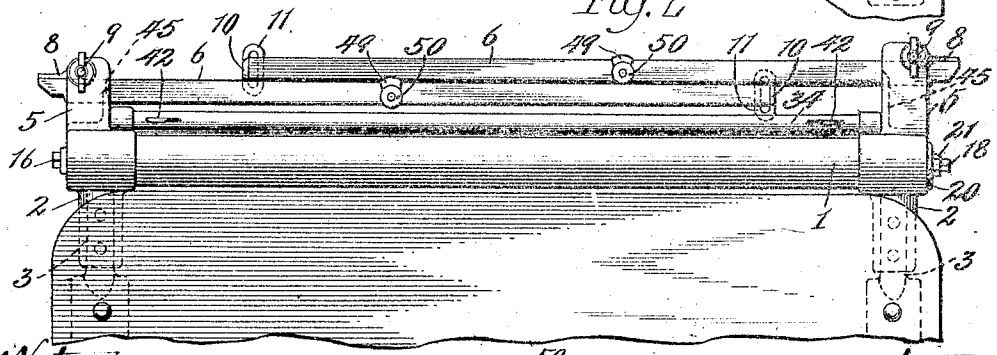


Fig. 2

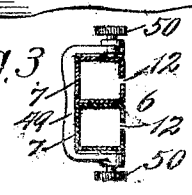


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Fig. 3



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2 SHEETS—SHEET 2.

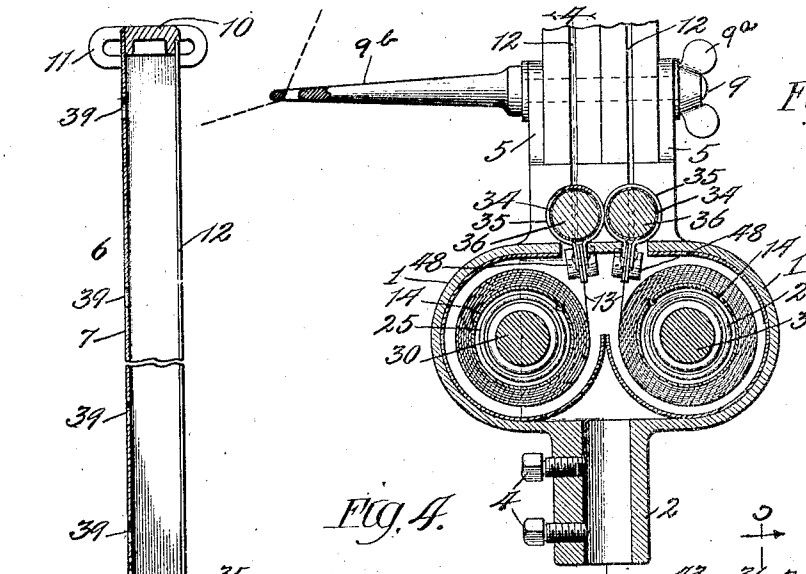


Fig. 5.

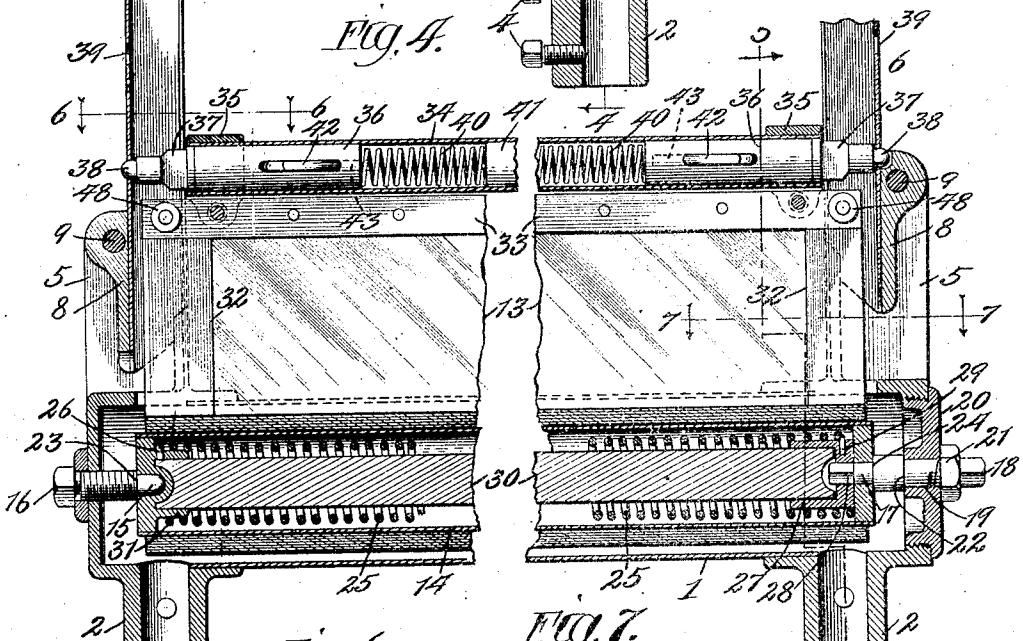


Fig. 4.

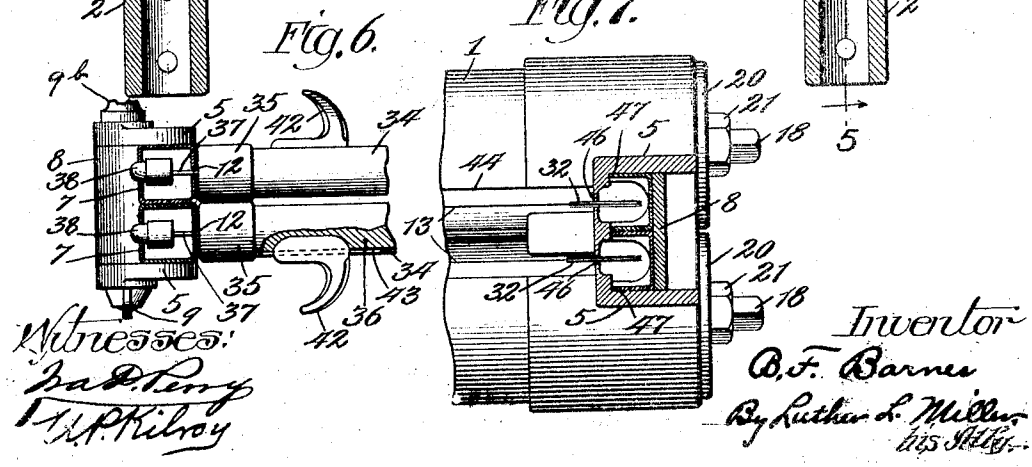


Fig. 6.

Fig. 7.

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UNITED STATES PATENT OFFICE.

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SHIELD OR SCREEN.

1,094,049. Specification of Letters Patent. Patented Apr. 21, 1914.

Application filed May 15, 1908. Serial No. 433,088.

To all whom it may concern:

Be it known that I, BENJAMIN F. BARNES, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Shields or Screens, of which the following is a specification.

This invention relates to shields or screens, and particularly to structures of this class which are intended for use upon automobiles and other vehicles.

One of the objects of the invention is to provide a shield or screen that may be quickly and conveniently collapsed or folded, and as easily restored to operative condition.

Another object is to provide means permitting the use of shields or screens of different characters, such as a shield of transparent material and a screen of wire mesh, or a plurality of screens of the same nature, as, for instance, two wire screens.

The invention also relates to the other improvements in shields or screens hereinafter set forth.

In the accompanying drawings, Figure 1 is a rear side view of a shield or screen embodying the features of my invention and showing the same in operative position. Fig. 2 is a view of the device in collapsed or folded condition. Fig. 3 is a section on dotted line 3 3 of Fig. 1. Fig. 4 is a fragmental sectional view taken substantially on the plane of dotted line 4 4 of Fig. 5. Figs. 5, 6 and 7 are sections on dotted lines 5 5, 6 6 and 7 7, respectively, of Fig. 4.

That embodiment of the invention which is herein shown comprises two flexible shields or screens, one of which may be of celluloid and the other of wire mesh. Each screen is mounted upon a roller and is arranged to be unwound from its roller against the tension exerted upon said roller by a spring, and may be drawn upward to fill a frame arranged above a casing containing the rollers. The frame alluded to is made collapsible in order that when the shields or screens are retracted into the roller-containing casing, said frame may be reduced to small compass.

For the sake of brevity I shall hereinafter use the term "screen" to designate any suitable flexible sheet that may be desirable for use in a shield or screen.

Referring now to the drawings, 1 denotes the roller-containing casing which may be mounted upon the dash of an automobile or any other desired support by any common or preferred means, such as the tubular attaching stems 2, said stems being adapted to receive posts 3 secured to the dash. Set screws 4 secure the stem 2 against displacement from the posts 3. Upon the upper side of the roller-containing casing and at the ends thereof are pairs of pivot lugs 5, the lugs at one end of the casing being of less height than those at the other end, in order that one side bar 6 of the collapsible frame may fold below the other side bar. Each of said side bars comprises, in this instance, two square tubes 7 connected together side by side in any suitable way and attached at their lower ends to a hinge member 8 which is pivotally mounted between two of the lugs 5 upon a bolt 9. The wing nut 9^a provides means for rigidly clamping the side bar in upright position. The upper ends of the tubes constituting each side bar may be closed by a cap 10. If desired, a loop 11 may be secured to the upper end of each side bar to provide means of attachment for straps or stays extending through eyes in the forward ends of rigid arms 9^b to points forward of the shield. Each said eye is preferably located in alinement with the axis of the adjacent side bar, to obviate the necessity for detaching the straps before folding said bars, and the arm 9^b may be integral with the pivot 9, as shown. In the inner side of each of the tubes 7 is formed a slot 12.

Each of the screens 13 is attached at one end to the periphery of a tubular roller 14, one end of which roller is pivotally supported, in the present embodiment, upon the reduced inner end 15 (Fig. 4) of a screw 16 which is seated in one end of the roller-containing casing 1. The other end of said roller is herein shown as pivotally supported upon the cylindrical portion 17 of a screw 18 lying within an opening 19 in one end of the casing. In this instance, that portion of the wall through which the screw 18 passes is in the form of a nut or screw cap 20 of larger diameter than the roller 14 in order to provide means for inserting said roller in said casing. The screw 18 is locked against rotation by means of a nut 21 arranged to draw the annular shoulder 22 of said screw against the inner side of the screw cap 20. The outer end of the screw

18 has a square head to receive a wrench or other means for turning. The roller 14 is held against longitudinal movement by means of the annular shoulders 23 and 24 upon the screws 16 and 18, respectively. The roller is arranged to be rotated to roll up the screen attached thereto by means comprising, in this instance, a torsion spring 25 secured at the end 26 to one end of the roller 14 and at its other end to a stationary point, such as the inner end of the screw 18. I have herein shown a cap 27 having a non-circular opening therein to receive the correspondingly shaped inner end 28 of the screw 18. One end of the torsion spring 25 is attached to said cap at 29. Said spring is shown as supported upon a rod 30 extending from one end of the roller 14 to the other, said rod lying at one end within the cap 27 and at its other end within a socket 31 upon the inner side of the end wall of the roller. When it is desirable to adjust the tension of the springs 25 the screws 18 are rotated to increase or decrease the tension of said springs and fixed in adjusted position by means of the lock nut 21.

Each side edge of each screen is preferably strengthened by means of strips 32 attached thereto in any suitable way, and its free end is likewise reinforced by strips 33 which may be riveted together and to the screen. The free end of each screen is attached to a rod 34, for example, by means of loops 35 encircling said rod and attached to the reinforcing strips 33. The rod 34 is of suitable length to extend from one side bar 6 to the other, and may be tubular as herein shown to afford support within it for plungers 36, one being arranged at each end of said rod. Said plungers have thin webs 37 adapted to move through the slots 12 in the side bars 6. At its outer end each plunger is provided with a projection 38 adapted to lie within any one of a number of locking openings 39 in said side bars. The plungers 36 are normally held in locking engagement with the side bars 6 by means of coiled springs 40 within the tubular rod 34, said springs bearing at their outer ends against the plungers 36 and at their inner ends against a suitable fixed abutment, such as a rod 41 lying within said tubular rod. Suitable means may be provided for retracting the plungers 36, such as a finger hold 42 mounted upon each plunger and extending through an elongated opening 43 in the tubular rod 34. The upper side of the roller-containing casing 1 has slots 44 therein through which the screens 13 extend.

The pivotal movement of the side bars 6 in one direction is limited by stops 45 (Fig. 1) rising from the casing 1, which stops have slots 46 therein (Fig. 7) to receive the vertical edges of the screws and the webs 37 of the locking plungers 36. At the lower ends of the tubes 7 the inner walls thereof are cut away, as at 47 (Fig. 7) to permit the lower ends of the side bars to swing outwardly out of engagement with the heads of the plungers 36. When the screen is extended, inward movement of the upper ends of the side bars 6 is prevented by the rod 34, and said bars are prevented from springing outwardly by stops 48 attached to each side edge of the screen and lying within said side bars.

In order to prevent the screen or screens 13 from bagging under the air pressure to which they are subjected when the vehicle is moving, suitable means may be provided for attaching the edges of the screens to the side bars 6. I have herein shown U-shape clamp members 49 adapted to fit over the side bars 6 and provided with screws 50 by means of which the sides of the side bars may be pressed inwardly to clamp the edges of the screens between the walls of the slots 12. When the plungers 36 are held out of engagement with the side bars 6 the spring 25 tends to wind up the screen 13 and draw the rod 34 downward against the upper wall of the casing 1 and clear of said side bars, which latter may then be folded inwardly as shown in Fig. 2. When the screen is to be used, the side bars 6 are placed in an upright position, the rod 34 pulled up to the desired height, the locking plungers 36 permitted to engage in openings 39 in said side bars, and the edges of the screen secured in place by means of the clamps 49. If desired, both of the screens may be employed at the same time.

A tough, flexible shield or screen such as those herein described possesses important advantages over the glass shields heretofore employed upon automobiles, one of which advantages is that there is less liability to injury to the occupants of the vehicle if the shield encounters an obstruction.

I claim as my invention:

1. In a shield or screen, in combination, a frame comprising two side members, each of said side members comprising a slotted tube; a sheet; a rod to which one end of said sheet is attached, the side edges of said sheet lying in the slots in said side members; and means for clamping said edges between the walls of said slots.

2. A shield or screen comprising two slotted side bars; a roller; a sheet attached at one end to said roller; a rod attached to the other end of said sheet, the edges of said sheet extending through said slots; and means for compressing the side walls of said slots to clamp said sheet.

3. A vehicle shield or screen comprising two side bars pivotally supported to fold downward transversely of the vehicle; means at the upper end of each of said side

bars for attaching a stay thereto; and means located forward of said side bars and in alinement with the axes of said side bars, to receive such stays.

4. In a shield or screen for vehicles, the combination of slotted side bars; a flexible sheet having its side edges extending into the slots in said side bars; and means for clamping said edges in said slots.

5. A shield or screen comprising a casing having a pair of upstanding lugs at each end thereof; slotted side bars pivoted near their lower ends to said lugs at different heights from said casing so as to fold downwardly on said casing, one upon the other; stop lugs on said casing arranged to engage the lower ends of said side bars for limiting the outward movement of said bars; a roller rotatably mounted in said casing; a sheet attached at one end to said roller; a rod attached to the opposite end of said sheet, said rod being slidable longitudinally on said side bars and preventing collapsing movement of said bars; means carried by said rod for locking it in various positions along said side bars; and means for preventing the upper ends of said bars from springing outwardly.

6. A shield or screen comprising a casing; upstanding lugs at opposite ends of said casing; tubular slotted side bars pivotally mounted near their lower ends upon said lugs; stop means on said casing against which the lower ends of said side bars are arranged to abut in their unfolding movement for limiting outward movement of said bars; a roller rotatably mounted in said casing; a sheet attached at one end to said roller; a rod attached to the opposite end of said sheet, said rod being slidable longitudinally on said side bars; and spring-pressed plungers carried by said rod, said plungers extending through the slots in said side bars and having heads of greater width than said slots adapted to engage in a series of openings in said bars, the inner sides of the lower ends of said side bars being cut away to permit said lower ends to pass said plunger heads in swinging outwardly to fold up the shield.

7. A shield or screen for vehicles comprising a pair of tubular side bars pivoted to fold downwardly transversely of the vehicle; stop means adjacent the lower ends of said bars for limiting unfolding movement thereof; a roller; a sheet attached at its lower end to said roller; a rod attached to the upper end of said sheet and being slidable along said side bars, said rod preventing inward movement of said bars; and stops secured to the edge of said sheet and lying within said tubular side bars for preventing outward movement of said bars.

8. A vehicle screen or shield comprising a pair of side bars; pivot pins upon which said side bars are mounted to fold downwardly transversely of the vehicle; and means at the upper end of each of said side bars for attaching a stay thereto, said pivot pins having extensions thereon provided with eyes to receive such stays.

9. In a vehicle shield or screen, the combination of a casing adapted to be attached to the vehicle; tubular side bars pivotally mounted upon the ends of said casing to fold downwardly transversely of the vehicle; a roller rotatably mounted in said casing; a sheet attached at its lower end to said roller; a hollow rod attached to the upper end of said sheet and slidable along said side bars, each of said side bars having a slot in its inner wall, and having a plurality of openings in its outer wall, the side edges of said sheet extending through the slots in said bars; spring-pressed plungers slidably mounted within said hollow rod, said plungers comprising thin portions lying in the slots of said side bars and having heads adapted to engage in the openings in said bars for locking said rod in various positions along said side bars, the ends of said rod preventing inward movement of said side bars; and stops secured to the side edges of said sheet and lying within said side bars for preventing outward movement of said bars.

10. A wind shield comprising spaced supports, means to sustain the latter, said supports being foldable toward each other beyond their sustaining means, a flexible shield, and means to detachably connect said shield with said supports beyond their foldable joints and brace said supports, and a roller for the flexible shield.

11. A wind shield comprising spaced supports foldable toward each other between their ends, a flexible shield, means for adjustably connecting one part of said shield with said supports at points on opposite sides of the foldable joints thereof, said means maintaining said supports in spaced extended relation against lateral displacement, and a roller for supporting the other part of said shield.

12. A wind shield comprising supports spaced apart, normally free at their outer parts and foldable toward each other between their ends, a flexible shield, means to adjustably connect said shield with said supports, beyond their foldable joints and brace said supports in spaced extended relation, and a roller to sustain the shield below the foldable joints of the supports.

13. A wind shield comprising spaced supports, means to support the latter at their lower parts, said supports being foldable toward and from each other beyond their supporting means, a roller provided with a flexible shield, and means connected with the outer end of said shield for attachment

to said supports on opposite sides of their foldable joints.

14. A wind shield comprising spaced supports, means to support the latter at their lower parts, a roller journaled below the foldable joints of said supports and provided with a flexible shield, said supports being foldable above their supporting means and over said roller, said shield being provided with means for adjustable connection with said supports above their foldable joints.

15. A wind shield comprising spaced supports foldable toward each other, the foldable joint of one support being higher than the foldable joint of the other support, a flexible shield, a roller adjacent said joints for supporting one end of the shield, and means for adjustably connecting the other end of the shield with said supports and bracing the latter above their joints against lateral displacement.

16. A wind shield comprising spaced supports, foldable toward each other above their supporting means, a roller journaled below the foldable joints of said supports, a flexible shield connected with said roller and provided with a rod at its free end, means for slidably guiding said rod in connection with said supports, means for maintaining said rod in connection with said supports above their foldable joints, and means for maintaining said rod below the foldable joints of said supports, said supports being foldable relatively to said rod.

17. A wind shield comprising spaced foldable supports, a roller journaled on one side of the foldable joints of said supports, a flexible shield connected with the roller, a rod connected with the free end of said shield and provided with guides mounted to slide along said supports, past said joints, and means for sustaining said rod in adjusted position upon said supports on opposite sides of said foldable joints.

18. A wind shield comprising spaced supports having hinges between their ends, a flexible shield, a roller connected with said shield and extending between said supports adjacent said hinges, and a rod connected with said flexible shield and slidable along said supports for carrying the flexible shield therebetween, and adapted to pass the joints of said supports, the latter being foldable over said rod and roller when the rod is lowered below the hinges.

19. A wind shield comprising spaced supports having hinges between their ends beyond their supporting points to permit the supports to fold toward each other, means to brace said hinges when the sections of the supports are alined, a roller journaled on one side of said hinges, a flexible shield connected with said roller, and means slidable past said hinges for connecting the free end of said shield with the supports on the side of the hinges opposite the roller, said means simultaneously sustaining the flexible shield and bracing the supports beyond their hinges.

20. A wind shield comprising spaced supports having hinges between their ends to permit the supports to fold toward each other, means to brace said hinges when the upper sections of the supports are raised, a roller journaled below said hinges, a flexible shield connected with said roller, said shield having a rod at its free end, and means for guiding said rod along said supports past said hinges and sustaining the rod in adjusted position, said rod simultaneously sustaining said flexible shield and bracing said supports beyond their hinges.

21. A wind shield comprising spaced supports having joints to permit the supports to fold toward each other, a flexible shield, means slidable along said supports for carrying said shield and adapted to pass the joints of said supports, and to engage said supports to retain the flexible shield thereon, and a roller connected with said shield.

22. A wind shield comprising spaced supports having hinges between their ends to permit the supports to fold toward each other, a roller journaled below said hinges, and a flexible shield attached to the roller, said shield having a rod at its free end, said rod having guides at its ends slidable along said supports on opposite sides of and past said hinges, and means to sustain said rod at different heights upon said supports.

23. In a vehicle, the combination of extensible wind shield means, a frame therefor having edge guiding flanges projecting from its face and between which said wind shield means is extensible, and clamping strips adjacent said flanges for securing the wind shield means in extended position.

24. A shield or screen comprising a roller casing, means for attaching the casing to a vehicle; two side bars having a hinge connection with the ends of the casing and adapted to fold downwardly on the casing; a roller mounted in the casing; a sheet attached at one end to the roller; a rod attached to the opposite end of said sheet, said rod being movable longitudinally of the side bars, the side bars and the side edges of the sheet being engaged with each other when the sheet is unrolled; and means carried by said rod for locking it in position.

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