Oct. 4, 1955 O. A. PENBERTHY 2,719,693

MOTOR VEHICLE HOOD SUPPORTS

Filed Aug. 15, 1952

FIG. 2.

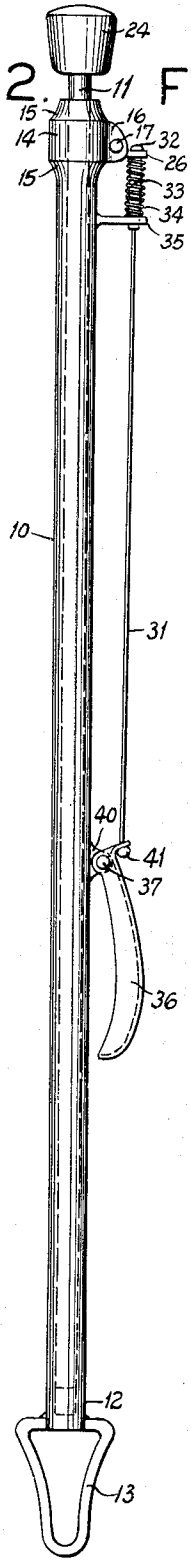


FIG. 3.

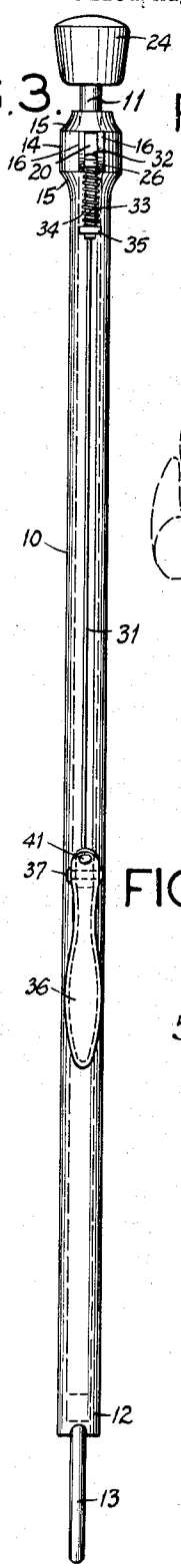


FIG. 1.

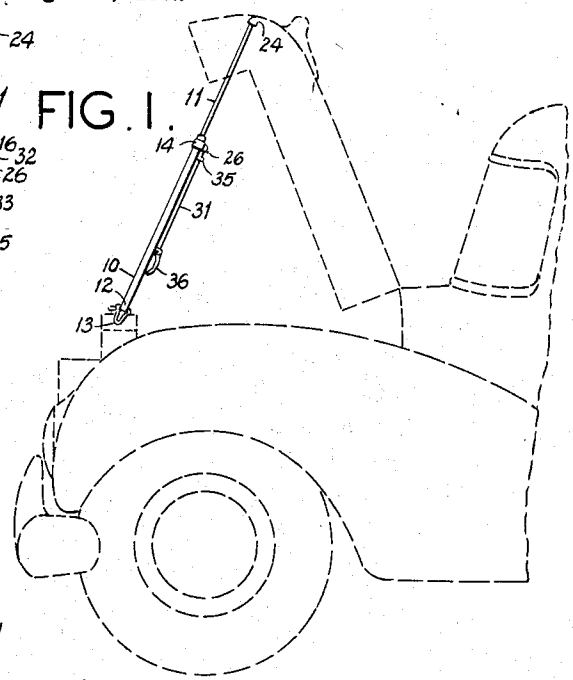


FIG. 4.

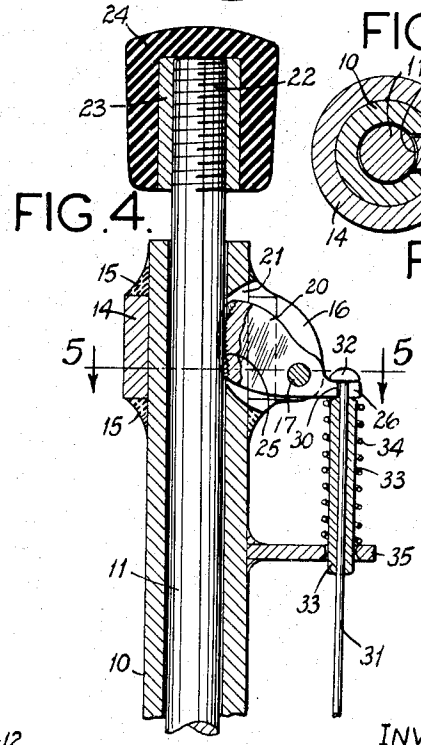


FIG. 5.

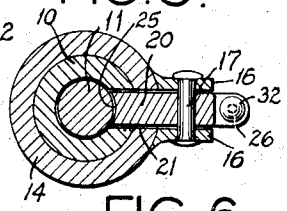
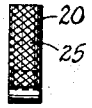


FIG. 6.



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MOTOR VEHICLE HOOD SUPPORTS

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1 Claim. (Cl. 248—354)

This invention relates to improvements in motor vehicle hood supports, and more particularly to a tool for use as a strut or prop for automobile hoods incident to shop work. The device, with or without minor modifications, is susceptible of usage in a variety of fields requiring an adjustable-length tool for use as a prop or strut, with quick operating provisions for length adjustment.

A majority of present day automobiles and trucks are provided with a rear-hinged hood, and in connection therewith, a toggle linkage, a pivoted prop or other provision for retaining the hood in a lifted position. However, all such lifting and retaining means furnished as equipment, do not provide a sufficient degree of lift and thus fail to support the hood at a proper height for ease of access to all mechanism under the hood. Such equipment devices are notoriously inadequate to permit clear and safe working access to the rear portion of the motor, and to the accessories at the rear of the motor as well as those mounted on the fire wall. Accordingly, nearly all automotive mechanics require, unless the hood be entirely removed, an auxiliary prop or strut used to dispose same at an adequate working height. The present improvements are directed to this general purpose and objective.

A further and highly important object of the present invention is found in a telescopic strut for the purpose noted, which is rugged, safe against slippage, which may be adjusted infinitely between minimum and maximum lengths, and which lends itself to usage for a variety of purposes in automotive and other shops, as well as in other fields wherein a temporary adjustable-length brace or strut is needed.

A further important object and advantage of the present improvements is found in an improved spring-retained locking cam assembly for the retention of the telescopic sections of a variable length strut, in any preadjusted relation of the sections, and yet which is readily released by direct manual gripping movement.

A still further object of the present improvements is realized in a device for the general purposes noted, and which may be readily constructed at least for the most part, of easily obtainable stock materials, requiring but a minimum of machine and tool work incident to production, and hence such that it may be manufactured in quantity on an economical basis.

Further objects and advantages of the invention will more clearly appear from the following detailed description of a currently preferred embodiment, particularly when considered in connection with the accompanying drawing, in which:

Fig. 1 is a side elevational view of the hood region of an automobile, with the hood lifted, and in which the extensible prop embodying present improvements is shown in full lines with the parts of the car in dotted lines;

Fig. 2 is a side elevational view of the adjustable strut or prop embodying present improvements;

Fig. 3 is a top or plan view of same;

Fig. 4 is an enlarged longitudinal sectional view, partly

in elevation, showing details of the locking cam and actuating mechanism therefor;

Fig. 5 is a transverse sectional view located by line 5—5 of Fig. 4, and

Fig. 6 is a plan view of the clamping face of the locking cam utilized to maintain the telescopic elements of the assembly in adjusted relation.

Referring now by numerals of reference to the drawing, the two major telescopic sections or elements of the assembly may be designated as an outer, elongate, tubular member **10**, smoothly slidable within the bore of which, with not much more than easy working clearance, is a rod element **11**. If desired, this latter may also, for lightness, be of tubular construction, both parts preferably being of metal.

The lower end **12** of the member **10** is preferably closed, and welded or otherwise fixedly attached to the portion **12** is a lower abutment member which may be formed of a wire or rod stock and indicated at **13**. The upper part of member **13** consists of a transverse bridge piece attached diametrally to the adjacent lower end of the tube **10**. The divergent sides of the abutment **13** enable this element readily to interfit the usual hood-latch socket or other convenient recess in the forepart of the hood region.

At the opposite end of the tubular section **10** is an enlarged annular head **14**, assembled, for example, as by fillet welds **15**, best appearing in Fig. 4. This head or collar structure further includes a pair of spaced ears or projections **16** apertured to receive a pivot pin **17** serving the locking cam **20** as will later appear. The cam **20** is arranged for a minor rocking movement about the pin **17**, and is actuated in a manner later to be described. To permit entrance of the frictional clamping portion of the cam **20** to a region immediately adjacent the inner telescopic element **11**, the head portion **14** is provided with a longitudinal slot **21**, the length of this slot being at least somewhat greater than the length of the frictional clamping surface of the cam. This latter will later be more particularly described.

Further with reference to the inner telescopic element such as rod **11**, this latter may approximate the length of the cooperating member **10** by which the rod is telescopically received. The piece **11** is by preference of a uniform circular section, or of other section complemental to that of the bore of member **10**. As shown, the outer or upper end of the rod **11** is threaded as at **22** (Fig. 4) to receive an internally threaded bushing **23** bonded into a soft cap **24** which may be of a molded rubber or other composition possessing a good degree of antifriction qualities. The cap **24** constitutes, as will appear from Fig. 1, an upper abutment, or direct rest for the hood when in raised position.

The cam **20**, as will best appear from Fig. 4, is provided with an inner or lower surface normally engaging the rod **11** in clamping relation. In lateral aspect, the cam **20** is formed with a convex or rocker outline in its rod-engaging region. It will be noted that the axis of pivotal movement of the cam is distinctly offset from the median line of the cam, taken in either direction. It results from this eccentric location of the pivot and from the curvature of the rocker base, that as the cam is urged in a counterclockwise direction (Fig. 4) about the pivot **17** as by the spring later described, increased displacement in this direction will increase the clamping pressure against the rod **11**. The same is true as to the effect of increased compressive loading in an axial or endwise direction of the strut, any tendency to inward or downward displacement of the rod **11** serving frictionally to rock the cam **20** counterclockwise, in a tightening direction. This effect, and the degree of retentive engagement between the cam **20** and rod **11**

is markedly augmented by the provision of a transversely concave clamping surface on the cam, as will best appear from Figs. 5 and 6. The effect is still further enhanced by the provision of sharply apexed milled ridges on the concave base of the cam, as indicated by Fig. 6, the ends of such ridges appearing in Fig. 4, and the milled face being generally designated in Fig. 6 at **25**.

Experimental experience indicates that incident to shop usage, even with careful avoidance of lubrication, the rod **11** may become somewhat coated with a grease or dirt film, defeating the purpose of ordinary frictional holding means. The sharp milled ridges on the surface **25** will positively penetrate and bite through any such film, and will assure for an indefinite period a positive clamping action with retention of parts of the device and hence the hood or other supported element in predetermined relation.

The provision for remotely actuating the cam **20** need effect this movement through only a few degrees of partial rotation. In the present example, the cam **20** is provided with an outwardly projecting apertured ear, or extension best appearing in Fig. 4, and shown at **26**, with the aperture indicated at **30** for the reception of a pull rod **31** provided with a head **32**. Adjacent the projection **26** is a bushing **33**, by and around which is supported a compression coil spring **34**. One end of spring **34** engages as an abutment the ear **26**, and the opposite end of the spring bears against a fixed guide extension **35** apertured so as slidably to receive the bushing. It will thus appear that as rod **31** is retracted (being moved downwardly for release, Figs. 1, 3 and 4) the rod will rock the cam **20** clockwise or in a releasing direction. When the pull rod **31** is released, the spring **34** will act to move the locking cam **20** in a counterclockwise direction (Fig. 4) and into locking engagement with the rod **11**.

For convenience of remote actuation, the lower or opposite end of the pull rod **31** is connected to a handle **36**, pivoted as through a pin **37** to a fixed apertured projection **40** attached to the tubular section **10**. The pull rod **31** extends through the aperture of projection **40** adjacent the pivot **37**, and is headed as at **41**.

The manner of usage of the device is thought to have become fully apparent from the foregoing detailed description of its parts, but it may be noted for completeness that when it is desired to lift the hood to a position somewhat above the range normally provided for by the equipment hood linkage, the latter may be released if needed, the maximum desired hood lift determined, and the necessary length of the prop thus determined. For purpose of adjusting the device, the handle **36** is gripped to release the cam **20** and the rod **11** lifted or extended to the necessary degree, followed by release of the clamping mechanism. The device, now length-adjusted, is positioned first by locating the antifriction tip **24** in place beneath the hood, then locating the tapered abutment **13** in the hood latch socket. Release and removal of the device is again quickly effected merely by gripping the handle **36** for movement toward the tubular section **10**, whereupon the rod **11** is usually self-retracting by gravity. The member **13**, formed as an eye or loop, serves as a convenient hanger between periods of use.

Although the invention has been described by particular reference to a currently preferred embodiment, the detail of description should be understood in an instructive rather than in any limiting sense, numerous variants being possible within the fair scope of the claim hereunto appended.

I claim as my invention:

In a device adapted for use as a variable-length hood prop for automotive vehicles, an outer tube, an inner rod telescopically related to the tube, the tube being provided with a downwardly tapered abutment piece at its normally lowermost end, adapted to interfit a hood latch aperture, the rod being provided at the opposite end of the device with a nonslip friction tip, an enlarged head element carried at the normally upper end of the tube and provided with a longitudinal cam slot, said head element including a pair of apertured ears, a pivot pin transversely bridging said apertures, a clamping cam rockably movable about the pivot pin, the cam being provided with a longitudinal, curvilinear rocker face, the pivot pin being eccentrically related to said rocker face to provide a self-tightening characteristic of the cam as the prop is increasingly compressively endwise loaded, the face of the cam being further formed of a transverse sectional curvature conforming substantially to the outside curvature of the rod engaged thereby, and being provided with a plurality of sharp ridges, the cam being completely shielded by said ears inwardly of said pivot pin, an apertured projection on the cam outwardly of its pivot, a control rod located generally parallel and closely adjacent to the tube, and extending through the apertured cam projection, a stationary guide member located on the outer tube slightly spaced below said cam, and extending only slightly outwardly of the tube, said guide member being apertured to receive the control rod, a coil-type compression spring disposed between said cam projection and said guide member, a handle pivotally connected to a lower portion of the tube, the handle being located substantially parallel to the tube and rod, the handle including a short projection, the control rod being connected to the projection of said handle, and the handle being mounted only in slightly spaced relation to the tube so as to permit the handle and tube to be gripped by one hand incident to gripping actuation of the handle substantially at right angles to the tube.

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