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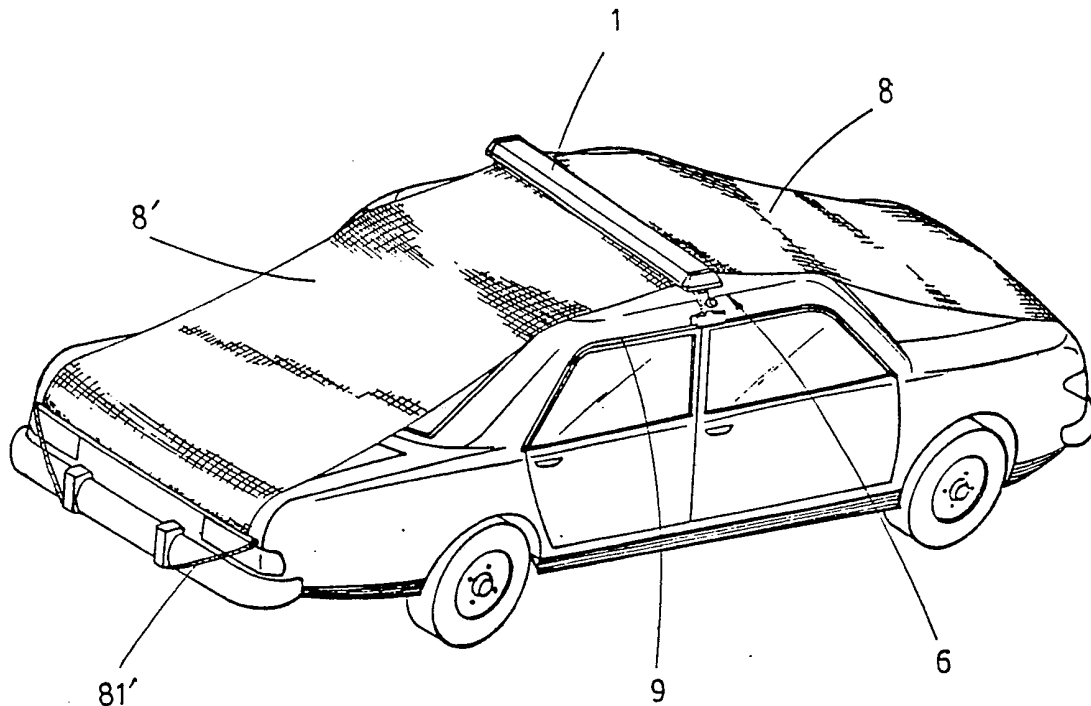
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(54) **Vehicle covering device with clamping frame**

(57) A vehicle covering device with a clamping frame is designed to be clamped and fixed onto the gutters on the sides of the roof of a vehicle. The device comprises a canvas rolling and storing device (1) which is fixed in the middle on the top of the car. The canvas is divided into two rolls (8, 8') which are placed together inside the rolling device (1), one of them being adapted to be pulled forward and the other rearwards with respect to the vehicle. A cover is thus formed to shade the top of the vehicle and means are provided for automatically and speedily rolling back the canvas when holding means (81') are released.



**FIG. 7**

The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy.

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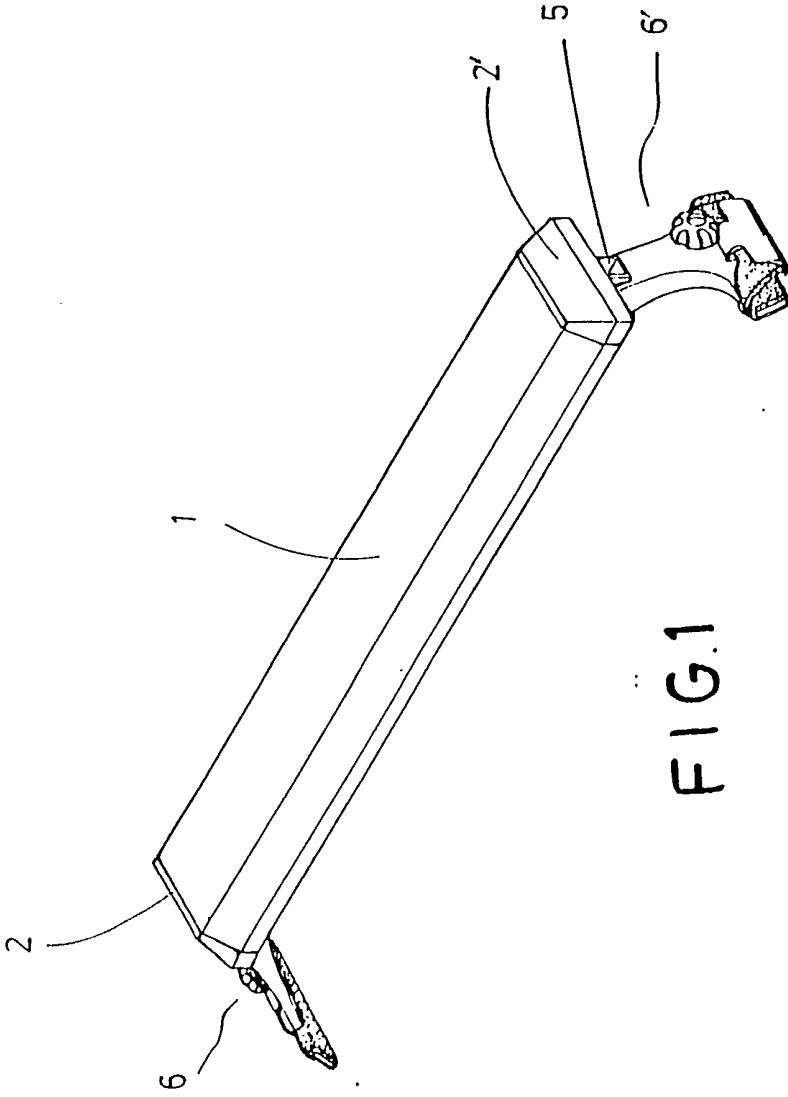


FIG.1

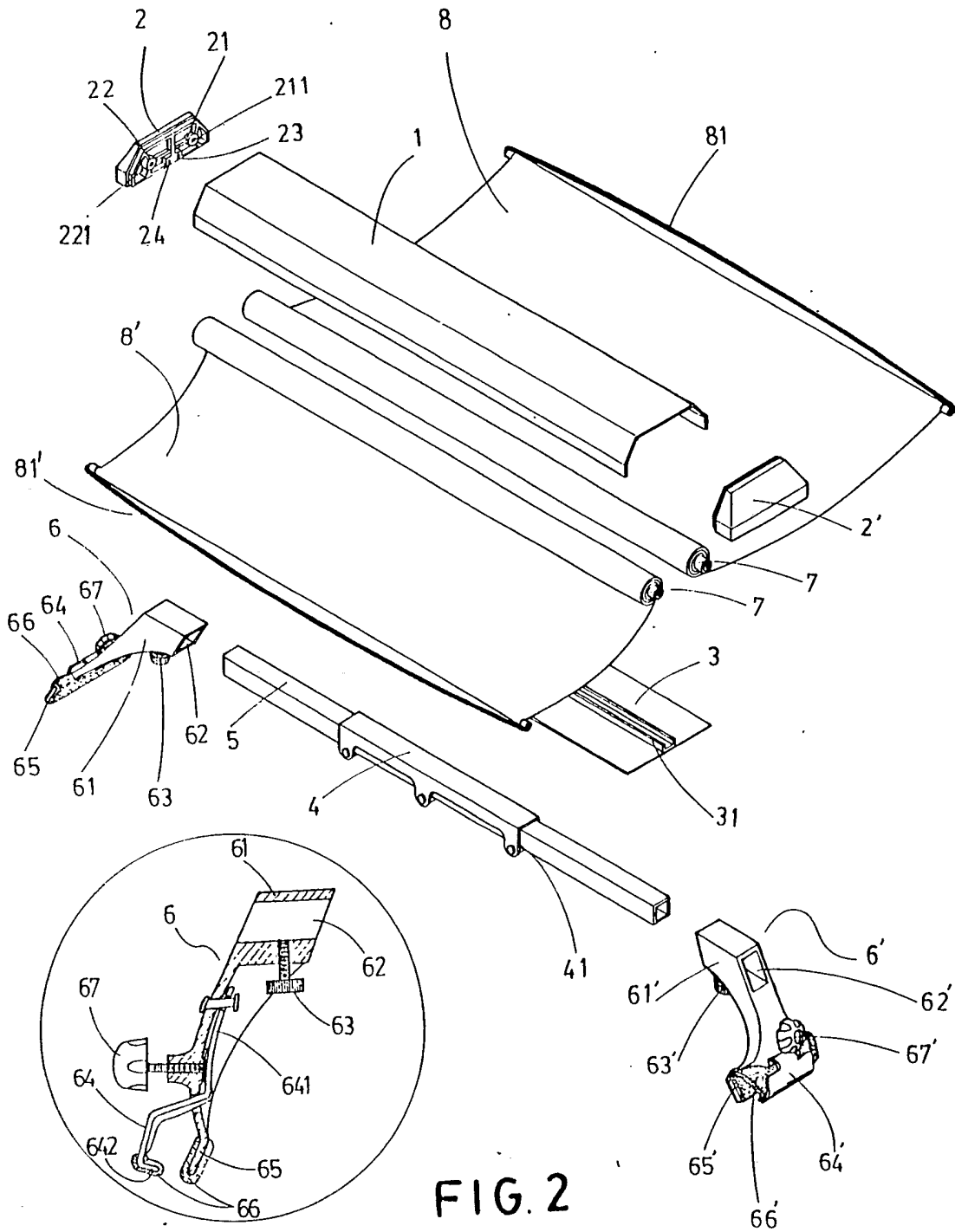


FIG. 2

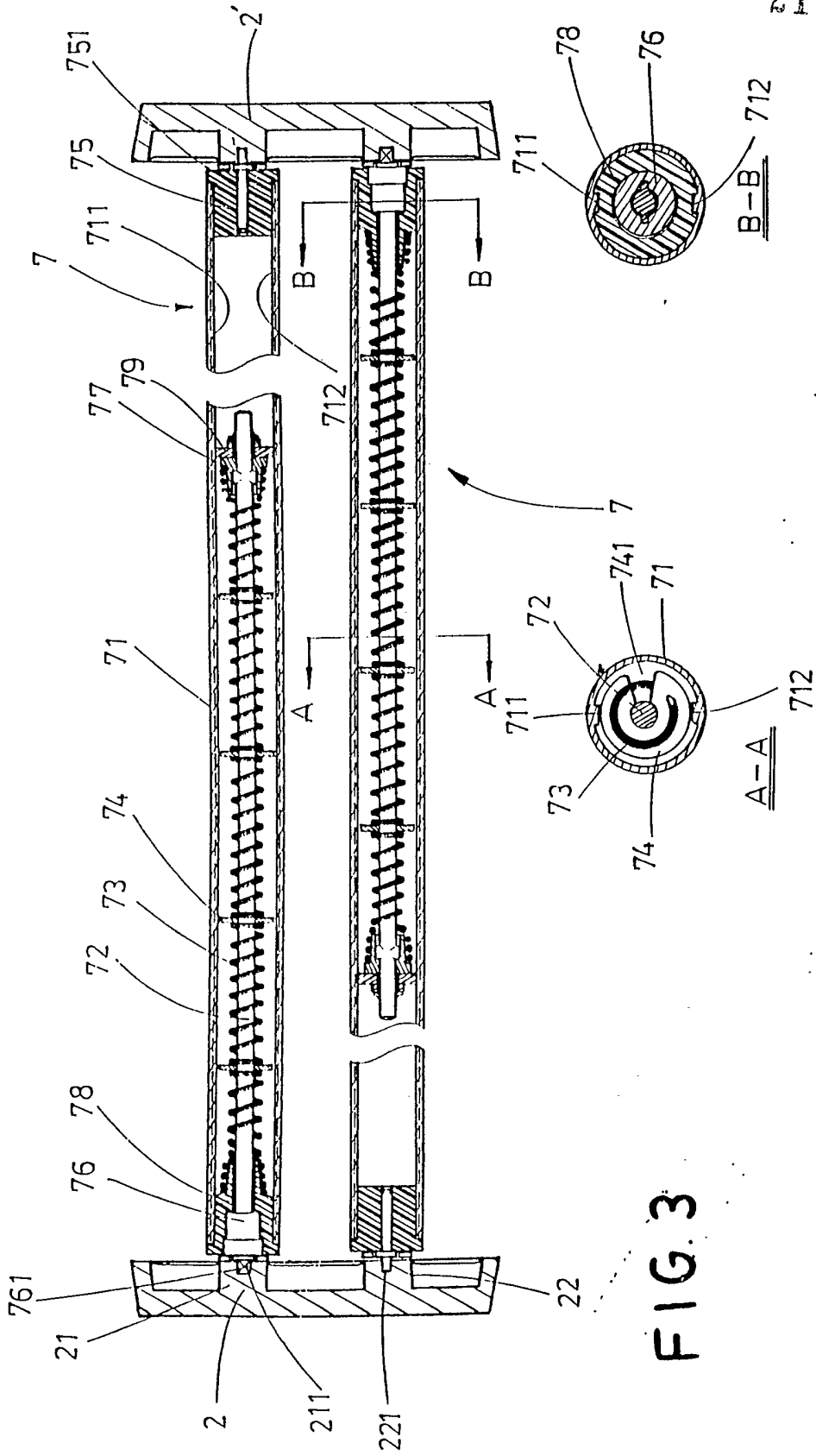


FIG. 3

FIG. 4

FIG. 5

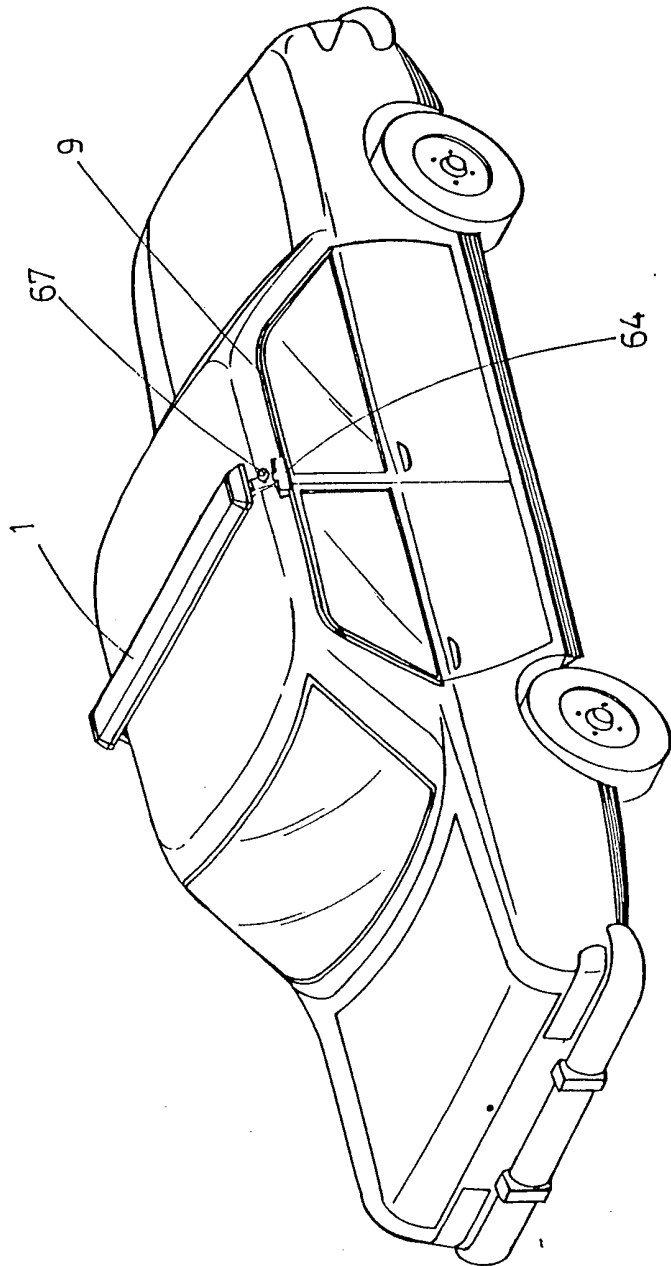


FIG. 6

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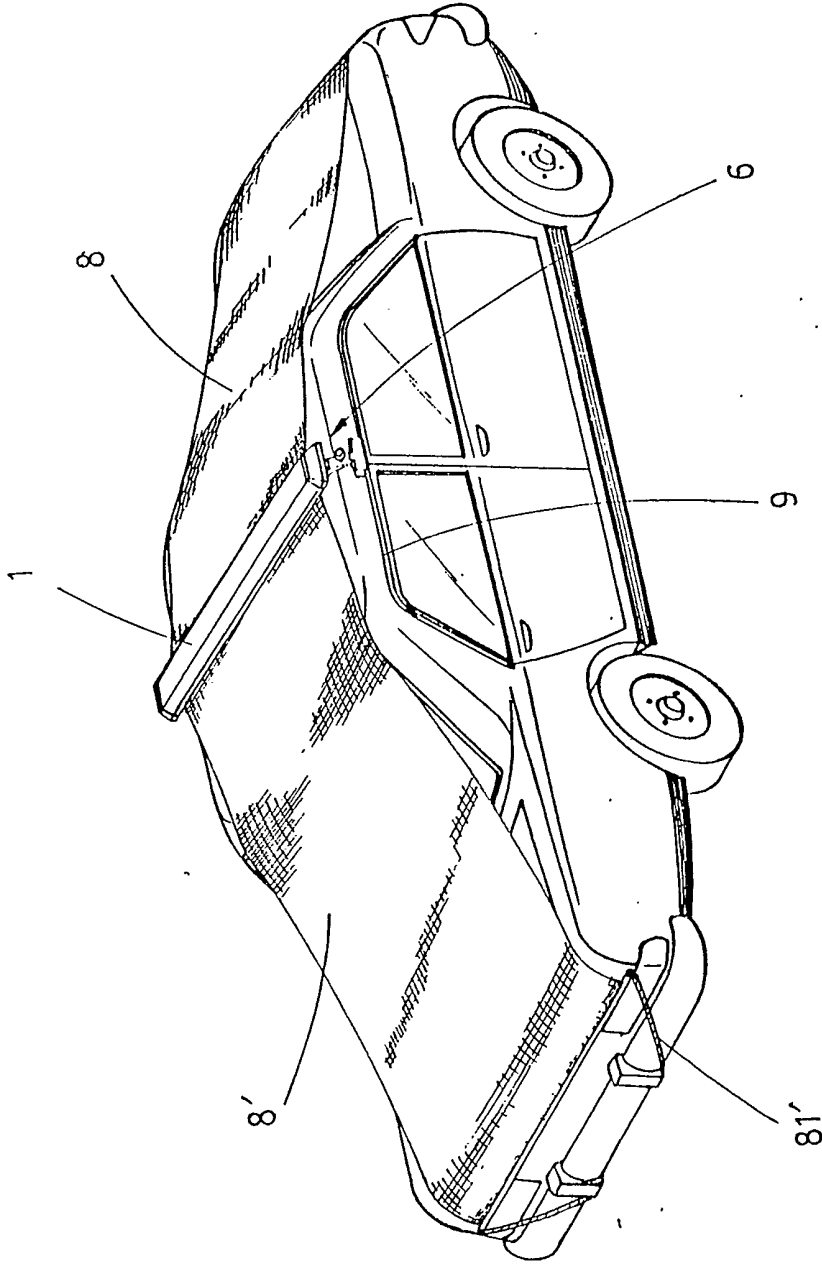


FIG. 7

## SPECIFICATION

**A vehicle sun shield device with clamping frame**

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Motor vehicles are ceaselessly increasing in numbers with the rise in living standards in the modern world. The shortage of covered car parks and other covered areas has led to many people parking their cars in the roads or outside. Under such conditions, cars suffer from erosion by the climate because they are directly exposed to sunshine and to rainy weather. A traditional canvas cover may help to solve the problem. However, such a cover is rather troublesome to open and to pack up and takes some time to use to cover a car and to be packed away after use. It is also a problem to find a place to store the cover. If it is stored in the boot or luggage compartment, it could get dirty from dust inside the compartment. Conversely, it is possible for a wet cover to make the boot or luggage compartment dirty. For this reason, most people do not use covers to protect their cars, without regarding whether or not the weather is good. However, in summer time, the hot sun can heat the interior of a car to almost furnace-like conditions if the car is parked outside under the sunshine for a while, thus making the driver and passengers feel uncomfortable when subsequently entering the car. In addition, it is bad for cleanliness, outlook and maintenance for a car to be continually directly exposed under the changing atmosphere and, as a result, the life of a car can be shortened.

The present invention seeks to solve the problem by providing a cover for a motor vehicle which can be quickly opened, folded and easily stored.

According to the invention, there is provided a vehicle sun shield device comprising a canvas rolling and storing device and clamping pieces at both ends thereof, wherein the canvas rolling and storing device comprises two sets of rolled canvas, rollers, spindles, springs and supporting elements of the rollers; wherein the spindles are located at the central axes of associated rollers and a respective spring surrounds each spindle, one end of each spring being secured to the associated roller and the other end secured to the associated spindle; and wherein the clamping pieces are provided with mounting devices to hold the canvas rolling and storing device and with hook clamps in order to fix the device onto the roof of a vehicle in such a manner that, when said canvas rolling and storing device is fitted to a vehicle, the two canvas rolls can be pulled respectively to the front and rear of the car, against the action of the springs on the spindles, the canvas rolls being provided with means adapted to be attached to the front and rear bumpers of the car in order to

cover the whole of the upper surfaces of the car; and the springs being effective, when the attachment means at the ends of the canvas rolls are released, to roll back the rollers automatically to return the canvas rolls to the canvas rolling and storing device.

The invention will now be further described, by way of example, with reference to the drawings, in which:

Fig. 1 is an exploded perspective view of one embodiment of a sun shield device for motor vehicles according to the present invention;

Fig. 2 is a section, to an enlarged scale, of a clamping piece forming part of the device shown in Fig. 1;

Fig. 3 is a section through part of a canvas rolling and storing device of the embodiment shown in Fig. 1;

Fig. 4 is a section taken on the line A-A in Fig. 3 in the direction of the arrows;

Fig. 5 is a section taken on the line B-B in Fig. 3 in the direction of the arrows;

Fig. 6 is a perspective view of a sun shield device according to the invention fitted on the roof of a vehicle and showing the device in the stowed position; and

Fig. 7 is a perspective view, corresponding to Fig. 6, but showing the device in its position of use.

Referring to the drawings, the sun shield device according to the invention includes a canvas rolling and storing device which comprises a cover lid 1, lateral lids 2 and 2' and a base plate 3 all of which form a space to store the rolled canvas. The lateral lids 2 and 2' are assembled at both ends of the cover lid 1 and internal mounts 21 and 22 on the upper portions and strip-shaped slots 23 and 24 on the lower portions are integrally formed on the inwardly facing surfaces of the lids 2 and 2' preferably by injection moulding (see Fig. 2 and Fig. 3). A U-shaped groove track 31 is provided on the upper surface of the base plate 3 on which the strip-shaped slots 23 and 24 of the two lateral lids 2 and 2' can be mounted. At this point, the base plate 3 links the bottom edges with the lateral lids 2 and 2'. A gap for pulling out the canvas is formed between the bottom edges of the cover lid 1 and the base plate 3. The internal mounts 21 and 22 of the two lateral lids 2 and 2' support spindles 72 and rollers 71 of canvas rolls 7 via supporting elements. As a result, two sets of canvas, rollers, spindles, springs and supporting elements are accommodated in the space which is formed by the cover lid 1, lateral lids 2 and 2' and base plate 3.

Under the base plate 3 is a long connecting piece 4, having an inverted U-shaped cross-section. Along its axis is a slot 41, which holds a link rod 5. The link rod 5 is longer than the canvas rolling and storing device. Lateral clamping pieces 6 and 6' are fixed to both ends of the rod 5 by means of slots 62

and 62' in mount connectors 61 and 61'. At the bottom of the mount connectors 61 and 61 there are provided positioning bolts 63 and 63. In the lower portion of the two lateral clamping pieces 6 and 6' there are engaged clip hook pieces 64 and 64'. One end 641 of each clip hook piece is locked at the internal side of the clamping piece, while the other end 642 of the clip hook pieces is produced as a hook holder end which forms a hook clamp together with the extending part 65 or 65' of the lateral clamping pieces. Sockets 66 and 66' of soft material are provided for covering the hook ends 642 and extending parts 65 and 65'. Bolts 67 and 67' are provided on the external side of the clamping pieces 6 and 6' in order to fasten or loosen the formed clamping hooks 64 and 64'.

There are two rolls 7 of the canvas rolling and storing device each of which includes a roller 71, a spindle 72, a spring 73, positioning pieces 74, an end ring 75, a locating element 76, circular sockets 77 and 78 at the ends of the spindle and a connecting ring 79. The spindle 72 is located inside the roller 71 and is surrounded by the spring 73, the ends of which are engaged with the circular sockets 77 and 78 respectively. Positioning pieces 74 are disposed along the spindle for positioning the spring 73. On each positioning piece is a notch 741, which allows spring 73 to pass through it. One end of the spindle 72 is connected to the circular socket 78 at one end of the roller 71 while the other end of the spindle is connected to the circular socket 77. The socket 77 is provided at a suitable location inside the roller 71 and is engaged with the connecting ring 79 to position the spindle. The other end of the roller 71 is connected to the end ring 75. In the centre of the end ring 75 there is provided a revolving pin 751, one end of which is inserted into a hole 221 of the internal mount 22 of the lateral lids 2 and 2'. The locating element 76 is provided in the centre of the circular socket 78, said locating element having an outer end 761 which extends into a hole 211 of the internal mount 21 on the lateral lids 2 and 2'. Lengths of canvas 8 are wound on the external body of the roller 71 in cylindrical form. The inner end of each length of canvas is secured to a respective roller 71 and the canvas extends through the gaps formed between the bottom edges of the cover lid 1 and base plate 3. An elastic pulling string 81 and 81' is provided at the outer end of each length of canvas as a hook holder to engage the front and rear bumpers of a vehicle respectively and to fix the stretched canvas in position on the vehicle as shown in Fig. 7 of the drawings.

In addition, the inner wall of the roller 71 is provided with symmetrical strip-shaped cams 711 and 712. Grooves engageable with the strip-shaped cams 711 and 712 are provided on the end ring 75, circular socket 78 at one

end of the spindle, and connecting ring 79 at the other end of the spindle. By this means, when the lengths of canvas 8 and 8' are pulled, the rollers 71 rotate and the sockets 78 and connecting rings 79 revolve with the rollers. The locating element 76 and circular socket 77 at the other end of the spindle will not revolve with the roller 71. Circular sockets 77 and 78 respectively connect the two ends of the spring 73 and, as a result, the spring 73 will be gradually tensioned with rotation of the circular socket 78.

When the elastic pulling strings 81 and 81' at the outer ends of the lengths of canvas 8 and 8' are released from the vehicle bumpers, the springs 73 will return and force the rollers 71 to revolve, automatically and rapidly, causing the lengths of canvas 8 and 8' to be rewound on the rollers.

From the foregoing description, it can be seen that the device according to the invention can be placed in the centre on the roof of a car. By means of the clip hook pieces 64 and 64' of the clamping pieces 6 and 6' and the extending parts 65 and 65' under the clamping pieces, the device can be fixed onto the roof gutters 9 (see Fig. 6) on the top of a car.

When the bolts 67 and 67' are tightened, the clip hook pieces 64 and 64' are forced to press downward (see Fig. 2) thus fixing the device on the body of the car. By means of the slots 62 and 62' in the mount connectors 61 and 61' which serve to mount the connectors on the ends of the rod 5, the distance between the clamping pieces 6 and 6' at both ends can be adjusted. Consequently, the device according to the invention can be applied to cars of different sizes.

In conclusion, this invention provides a sun shield device for vehicles which can be directly fixed onto the roof of a vehicle by means of clamping pieces 6 and 6' without additional assembly work, and is applicable to vehicles of different sizes, and occupies no space in the vehicle or in its boot or luggage compartment. The device according to the invention is very convenient to use and reduces the effect of radiation from the sun, thus keeping the interior of the vehicle cool with resulting comfort for the driver and passengers. The device also serves to protect the vehicle from rain and dirt and can thus prolong the life of the vehicle.

#### CLAIMS

1. A vehicle sun shield device comprising a canvas rolling and storing device and clamping pieces at both ends thereof, wherein the canvas rolling and storing device comprises two sets of rolled canvas, rollers, spindles, springs and supporting elements of the rollers; wherein the spindles are located at the central axes of associated rollers and a respective spring surrounds each spindle, one end of



each spring being secured to the associated roller and the other end secured to the associated spindle; and wherein the clamping pieces are provided with mounting devices to hold the canvas rolling and storing device and with hook clamps in order to fix the device onto the roof of a vehicle in such a manner that, when said canvas rolling and storing device is fitted to a vehicle, the two canvas rolls can be pulled respectively to the front and rear of the car, against the action of the springs on the spindles, the canvas rolls being provided with means adapted to be attached to the front and rear bumpers of the car in order to cover the whole of the upper surfaces of the car; and the springs being effective, when the attachment means at the ends of the canvas rolls are released, to roll back the rollers automatically to return the canvas rolls to the canvas rolling and storing device.

2. A vehicle sun shield device according to claim 1, wherein each clamping piece has a lower portion provided with a clip hook piece, one end of which is located at the internal side of the associated clamping piece, while the other end has a hook holder end which forms a hook clamp together with the extending part from the bottom of the clamping piece, bolts being provided on the outsides of the clamping pieces to fasten and loosen the hooks so formed.

3. A vehicle sun shield device according to claim 2, wherein sockets of soft material are provided for covering the hook holder ends and the extending parts of the clamping pieces.

4. A vehicle sun shield device according to any preceding claim, wherein the canvas rolling and storing device includes a cover lid, two lateral lids and a base plate which constitute a storing space, said lateral lids respectively being connected at both ends to the cover lid; each of said lateral lids being provided with inner sockets at an upper portion and strip-shaped slots at a lower portion, said base plate having a U-shaped groove engageable with the strip-shaped slots at the bottom of the two lateral lids thus linking both ends of the base plate with the bottom ends of the two lateral lids, gaps for pulling out the canvas being formed between the base plate and the cover lid; the sockets inside the two lateral lids providing bases for said rollers and spindles to fix onto supporting elements; thus forming a space, constituted by the cover lid, the lateral lids and the base plate, to house the two sets of canvas, rollers, spindles, springs and supporting elements.

5. A vehicle sun shield device according to claim 4, wherein the bottom face of the base plate of the canvas rolling and storing device is provided with a long connecting piece of inverted U-shaped cross section which holds a link rod, the rod being longer than the canvas rolling and storing device and the two ends of

the rod being engageable with the mounting devices, said mounting devices being horizontally adjustable along the link rod when they are combined together, in order to fit vehicles of different sizes, bolts being provided at the bottom of the lateral clamping pieces to position or lock the link rod with the mounting devices.

6. A vehicle sun shield device according to claim 4 or claim 5, wherein the internal wall of the roller is equipped with an axial symmetrical strip-shaped cam; the spindle is positioned in the centre of the roller and a spring surrounds the spindle, positioning pieces being positioned on the spindle and provided with notches to allow springs to pass therethrough, circular sockets provided at one end of the rollers and connecting rings provided at a suitable location at the end of the spindles within the rollers have an axial groove which receive the strip-shaped cams provided on the rollers so that the circular sockets and connecting rings will revolve when the rollers rotate, the spindles being held against rotation by the assembly of locating elements at the circular sockets at the ends of the rollers and circular sockets at the connecting rings at the ends of the spindles, both ends of the springs are respectively fixed at the circular sockets at the ends of the rollers and at the ends of the spindles so that the springs are tensioned when the rollers rotate and the rollers can be rotated under the action of the springs; one end of each roller being supported by an end ring and a revolving pin to engage with a socket provided on a lateral lid at one end of the canvas rolling and storing device and the other end of each roller being engageable in a socket provided on the lateral lid at the other end of the canvas rolling and storing device, the inner end of each roll of canvas being secured to a respective roller and each roll of canvas extending through a respective gap between the base plate and bottom edges of the cover lid.

7. A vehicle sun shield device according to claim 6, wherein the outer end of each roll of canvas is provided with an elastic pulling string to form a hook holder.

8. A vehicle sun shield device substantially as described herein with reference to the drawings.