

Feb. 6, 1934.

L. P. WARDER ET AL

1,946,374

PARCEL RACK

Filed Aug. 17, 1932

2 Sheets-Sheet 1

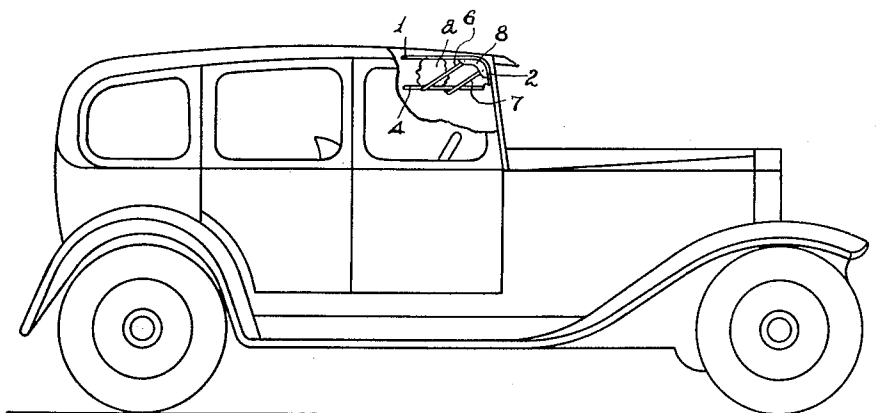


Fig. 1.

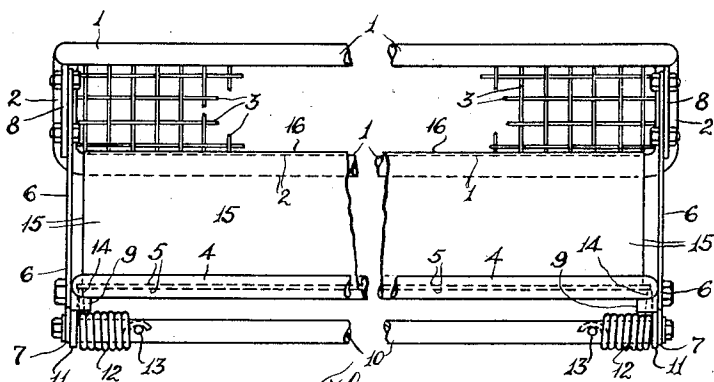


Fig. 3.

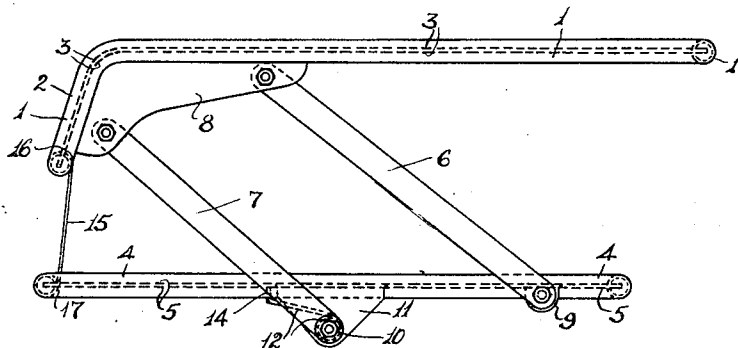


Fig. 2.

Witness:

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2 Sheets-Sheet 2

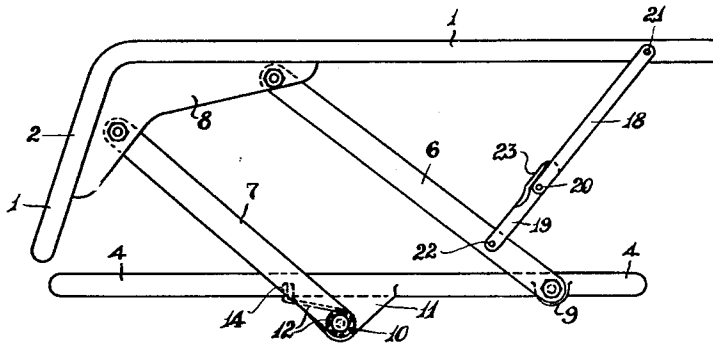


Fig. 4.

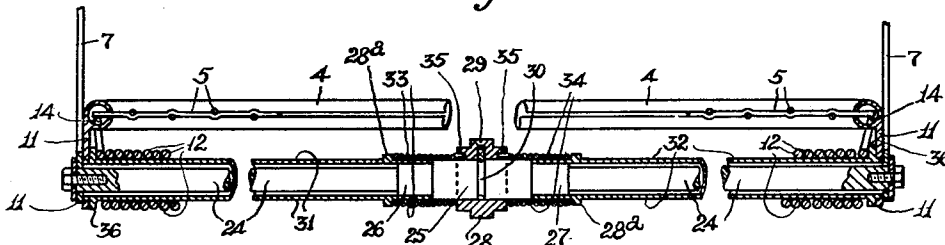


Fig. 5.

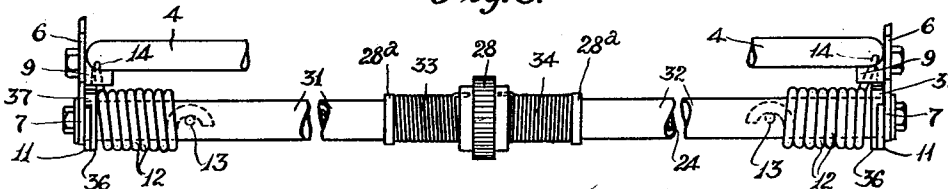


Fig. 6.

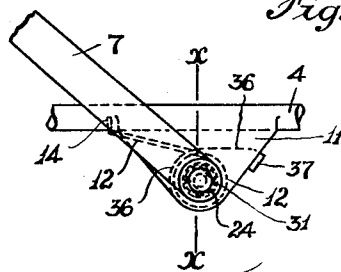


Fig. 7.

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UNITED STATES PATENT OFFICE

1,946,374

PARCEL RACK

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Application August 17, 1932, Serial No. 629,232,
and in the Union of South Africa August 21,
1931

6 Claims. (Cl. 224—29)

This invention relates to parcel racks or carriers for vehicles. It is applicable to wheeled road vehicles, including motor cars and other mechanically propelled vehicles, to railway vehicles, to aeroplanes, airships, and other aircraft, and to boats, ships and other sea craft.

The object of the invention is to construct a simple and effective parcels rack or carrier for vehicles, which will automatically collapse or close when not in use, and can be readily opened or extended to receive and grip, or hold and retain, one or more parcels, or other objects or articles.

Another object is to construct the device in such a way that it can be secured in an open or extended position.

A further object is to construct the device so that the spring means which operate automatically to collapse or close it can be rendered completely inoperative, when the device will remain fully open without any tendency to close or collapse, and so that the tension of the spring means can be controlled or regulated and the gripping or retaining effect thereby adjusted.

The invention will be more fully explained with the aid of the accompanying drawings, wherein practical embodiments are illustrated which include the several features thereof. In the drawings,

Fig. 1 is a diagrammatical side elevation of a motor car fitted with the invention, portion of the car structure being broken away to expose the device.

Fig. 2 is a side elevation of the form of the device shown in Fig. 1.

Fig. 3 is a front elevation of Fig. 2, with portion of the device broken away at the centre.

Fig. 4 is a side elevation of the device, illustrating the provision of means for retaining the device in the fully open position.

Fig. 5 is a front part-sectional elevation of the lower collapsible portion of the device, incorporating the means for controlling or removing the tension of the collapsing springs, the plane of section being indicated by the dotted line $x-x$ in Fig. 7.

Fig. 6 is a front elevation of the parts shown in Fig. 5, and

Fig. 7 is a side elevation of the parts shown in Fig. 5.

Referring to the construction illustrated in Figs. 1 to 3 of the drawings, we illustrate the device in a form designed for use in a motor car, in which case it may, as shown in Fig. 1, be conveniently positioned under the hood or

roof at the rear of the wooden windscreen winding panel, above the windscreen glass. Alternatively, it may be arranged in any other convenient position.

The device includes protecting means for the roof or inside of the top of the hood (to prevent the roof or hood being damaged by the parcels), shown in the form of a framework 1 of metal tubing, bent downwardly at one end, as indicated at 2, to fit against and be suitably secured to the winding panel. The tubing 1 is slotted at the inside of the framework to receive and secure a preferably rigid suitably shaped sheet of woven wire, or sheet or piece of wire screening 3. The protecting arrangement may be secured in position against the hood or roof of the car and windscreen winding panel by any suitable fixing means.

The movable or collapsible element which constitutes the parcel carrying, supporting or holding portion of the device is in the form of a similar rectangular frame 4, fitted with a grid or skeleton filling piece or screen 5, and is of substantially the same construction and size as the upper portion of the hood or roof protecting grid or structure.

The parcel carrying structure 4, 5, is arranged beneath the protecting grid and is movably attached thereto at each end by means of a pair of arms or links 6, 7. The arms 6, 7, at their upper ends are bolted or otherwise pivotally attached to a corner plate or bracket 8, fixed in a groove formed in the underside of the tubular frame 1 of the protecting grid. The lower forward ends of the arms or links 6 are similarly pivotally attached to lugs 9 provided on the frame 4, and the lower ends of the arms 7, below the structure 4, are connected by means of a tube or rod 10 which is non-rotatably attached thereto. The tube or rod 10 is journalled near its ends in triangular plates or brackets 11 fixed to the underside of the end members of the frame 4.

Around the tube or rod 10, near the ends thereof, are arranged a pair of oppositely coiled springs 12. One end of each of the springs 12 engages with a pin or projection 13 fixed in the rod 10, and the other ends of said springs 12 engage in holes 14 formed in the underside of the frame 4. The springs 12 are so constructed and arranged that when the parcel carrying structure 4, 5, is pulled down in order to open the device to allow of the insertion of a parcel or parcels between the elements 1, 3, and 4, 5, the tension of the springs 12 is increased.

In Fig. 2 the device is shown in the fully open position, in which position the end of the frame 4 of the parcel carrying structure lies beneath the lower edge of the downwardly shaped portion 2 of the protecting means. The opening between the frames 1 and 4 is closed by means of a piece of leather or other suitable material 15 which is attached along its upper edge to the tubular frame 1 of the protecting means at 16, and at its other and lower edge to the tubular frame 4 at 17. This piece 15 forms a collapsible closure for the opening and permits the frame 4 to be collapsed against the frame 1, or to take up any intermediate position in order to allow the grids 3, 5, to grip any parcel or article placed between them. The piece 15 at the same time serves as a stop for the structure 4 in its lowermost position, when the device is fully open.

Instead of employing sheets of woven wire, or sheets or pieces of wire screening in the frames 1, 4, we may use an arrangement of rods, bars or laths, placed at suitable distances apart and secured to the frames, or any suitable arrangement of members to form skeleton or grid-like structures with the frames.

By constructing the parcel carrying grid of skeleton or open construction, the parcels or articles are left open to view and the accumulation of dust and dirt on the surface of the parcel carrying grid or rack prevented.

If preferred, instead of constructing the parcel carrying grid and protecting grid of skeleton form, either or both of them may be in the form of a plate of thin sheet metal, or any other preferred material suitable for the purpose.

In the operation of the embodiment of the invention shown in Figs. 1 to 3, the springs 12 act on the parcel carrying grid or structure to keep it in its normal closed position immediately beneath and parallel to the protecting grid or structure. To bring the device into use the parcel carrying grid or structure is pulled in a downward direction to a sufficient extent to allow the parcel *a*—see Fig. 1—to be placed between the skeleton grids or elements 3 and 5. During this downward movement of the grid structure 4, 5, a slight rotary movement of the rod 10 ensues, which increases the tension of the springs 12. The parcel carrying grid is then released, or allowed to be raised by the action of the springs 12, until the parcel *a* is gripped or held and retained between the grids 3 and 5.

In Fig. 4 we illustrate the device provided with means for retaining it in the fully open position. This means consists of a stay comprising the two parts 18, 19, pivotally connected at 20. The upper end of the part 18 is pivotally attached at 21 to the frame 1, and the opposite or lower end of the part 19 is similarly pivotally attached to the arm or link 6 at 22. The part 19 is constructed with a right-angled projection 23 which serves as a stop by engaging with the other part 18 when the stay is brought into the position in which it is shown, to retain the device in the fully open position against the action of the springs 12. The stay can be used for keeping the device in the fully open position whilst arranging parcels on the grid 5, or for any other purpose.

In Figs. 5, 6 and 7 we illustrate the means for controlling or removing the tension of the collapsing springs 12. The arrangement includes a rod 24, which at its ends is non-rotatably secured to the lower ends of the arms or links 7 at both ends of the device. The rod 24 is constructed at the centre of its length with an enlarged portion

25, and at the ends of said portion 25 with two slightly reduced portions 26, 27. Around the portion 25 there is rotatably arranged a collar 28, which is secured thereon by means of a screw 29 engaging in an annular groove 30 in the portion 25. Around the rod 24 at opposite ends of the portion 25 there are arranged two tubes 31, 32, which at their contiguous inner ends abut the shoulders formed by the ends of the portion 25 of the rod 24, and rotatably fit the reduced portions 26, 27.

33, 34, are two oppositely coiled springs which at their outer ends abut collars 28*a* on the tubes 31, 32, and tightly encircle portions of the inner ends of said tubes 31, 32, and portions of the portion 25 of the rod at the sides of the collar 28. The springs 33, 34, act to lock the rod 24 to the two tubes 31, 32, in such a way as to ensure them rotating together in one direction, whilst allowing of relative movement between them in the reverse direction. Projection 35 formed on the ends of the springs 33, 34, engage in recesses in the sides of the rotatable collar 28, so that the rotary movement of said collar 28 in one direction tends to uncoil or increase the diameter of the springs 33, 34, and so release their normal grip on the end portions of the part 25 of the rod at the sides of the collar 28, in this way permitting relative movement in both directions between the rod 24 and tubes 31, 32.

The main or collapsing springs 12 are oppositely arranged around the outer ends of the tubes 31, 32, with their outer ends engaging in the holes 14 in the frame 4, and their other and inner ends engaging the pins 13 in the tubes 31, 32, in a similar manner to the construction described in connection with Figs. 1 to 3.

The outer ends of the tubes 31, 32, are constructed with flanges 36 on which are formed extensions 37 which operate as stops, by engaging the sides of the triangular brackets 11, to prevent rotation of the tubes 31, 32, in one direction. The stops 37 will be retained in contact with the sides of the brackets 11 by the slight initial tension kept on the springs 12, and will act to maintain this initial tension on said springs 12. With the device acting normally, or the means for removing the tension inoperative, as the frame 4 is lowered to open the device the springs 12 are put in increased tension so that they act automatically to raise the frame 4 to grip the parcel, or to close the device.

In actuating the arrangement in order to control or remove the tension of the springs 12 on the rod 24, the collar 28 is rotated slightly in a direction to uncoil or increase the diameter of the springs 33, 34. This releases the grip of the springs 33, 34, on the centre rod 24 and allows said rod 24 to rotate within the tubes 31, 32, when the frame 4 is lowered. This has the effect of controlling to the desired extent, or removing the action of the tension of the springs 12 on the rod 24, and consequently the pressure exerted by them to raise the frame 4 or close or partially close the device.

What we claim as our invention and desire to protect by Letters Patent is:—

1. A parcel rack or carrier for vehicles and the like, including a movable parcel carrying element, a fixed part, a pair of arms at each side of said movable element for pivotally connecting it to the fixed part, spring means which operate yieldingly to keep the said element in its collapsed and inoperative position against the fixed part, permit it to be moved away from said fixed

part to receive the parcel, and cause it automatically to grip and retain the parcel between it and the fixed part when it is released, and a rod connecting corresponding arms of each pair, the collapsing springs being arranged on said rod so that said springs operate the movable element through the medium of the arms, as set forth.

2. A parcel rack or carrier for vehicles and the like, including a movable parcel carrying element, a fixed part, a pair of arms at each side of said movable element for pivotally connecting it to the fixed part, spring means which operate yieldingly to keep the said element in its collapsed and inoperative position against the fixed part, permit it to be moved away from said fixed part to receive the parcel, and cause it automatically to grip and retain the parcel between it and the fixed part when it is released, a rod connecting corresponding arms of each pair, the collapsing springs being arranged on said rod so that said springs operate the movable element through the medium of the arms, and means for limiting the movement of the movable element comprising a piece of flexible material attached along its upper edge to the fixed part, and along its lower edge to the movable element, said piece also serving to close the opening between the element and part, as set forth.

3. A parcel rack or carrier for vehicles and the like, including a movable parcel carrying element, a fixed part, spring means which operate yieldingly to keep the said element in its closed and inoperative position against the fixed part, permit it to be moved away from said fixed part to receive the parcel, and cause it automatically to grip and retain the parcel between it and the fixed part when it is released, and means for retaining said parcel carrying element in its fully open position, as set forth.

4. A parcel rack or carrier for vehicles and the like, including a movable parcel carrying element, a fixed part, a pair of arms at each side of said movable element for pivotally connecting it to the fixed part, spring means which operate yieldingly to keep the said element in its collapsed and inoperative position against the fixed part, permit it to be moved away from said fixed part to receive the parcel, and cause it automatically to grip and retain the parcel between it and the fixed part when it is released, a rod connecting corresponding arms of each pair, the collapsing springs being arranged on said rod so that said springs operate the movable element through the medium of the arms, and means

combined with the rod for controlling or removing the tension of the collapsing springs, as set forth.

5. A parcel carrier or rack for vehicles and the like, including a movable parcel carrying element, a fixed part, a pair of arms at each side of said movable element for pivotally connecting it to the fixed part, spring means which operate yieldingly to keep the said element in its collapsed and inoperative position against the fixed part, permit it to be moved away from said fixed part to receive the parcel, and cause it automatically to grip and retain the parcel between it and the fixed part when it is released, a rod connecting corresponding arms of each pair, and means combined with the rod for controlling or removing the tension of the collapsing springs including a pair of tubes arranged around the rod connecting the arms, around which tubes the collapsing springs are arranged and to which they are connected at one end, a pair of oppositely coiled springs tightly fitting around the inner ends of the tubes and portions of the rod, and means engaging the contiguous ends of the latter springs for moving them in the direction to uncoil them to increase their diameter, as set forth.

6. A parcel rack or carrier for vehicles and the like, including a movable parcel carrying element, a fixed part, a pair of arms at each side of said movable element for pivotally connecting it to the fixed part, spring means which operate yieldingly to keep the said element in its collapsed and inoperative position against the fixed part, permit it to be moved away from said fixed part to receive the parcel, and cause it automatically to grip and retain the parcel between it and the fixed part when it is released, a rod connecting corresponding arms of each pair, and means combined with the rod for controlling or removing the tension of the collapsing springs including a pair of tubes arranged around the rod connecting the arms, around which tubes the collapsing springs are arranged and to which they are connected at one end, a pair of oppositely coiled springs tightly fitting around the inner ends of the tubes and portions of the rod, means engaging the contiguous ends of the latter springs for moving them in the direction to uncoil them to increase their diameter, and means attached to the tubes which engage with the parcel carrying element to limit the rotary movement of the tubes in one direction, as set forth.

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