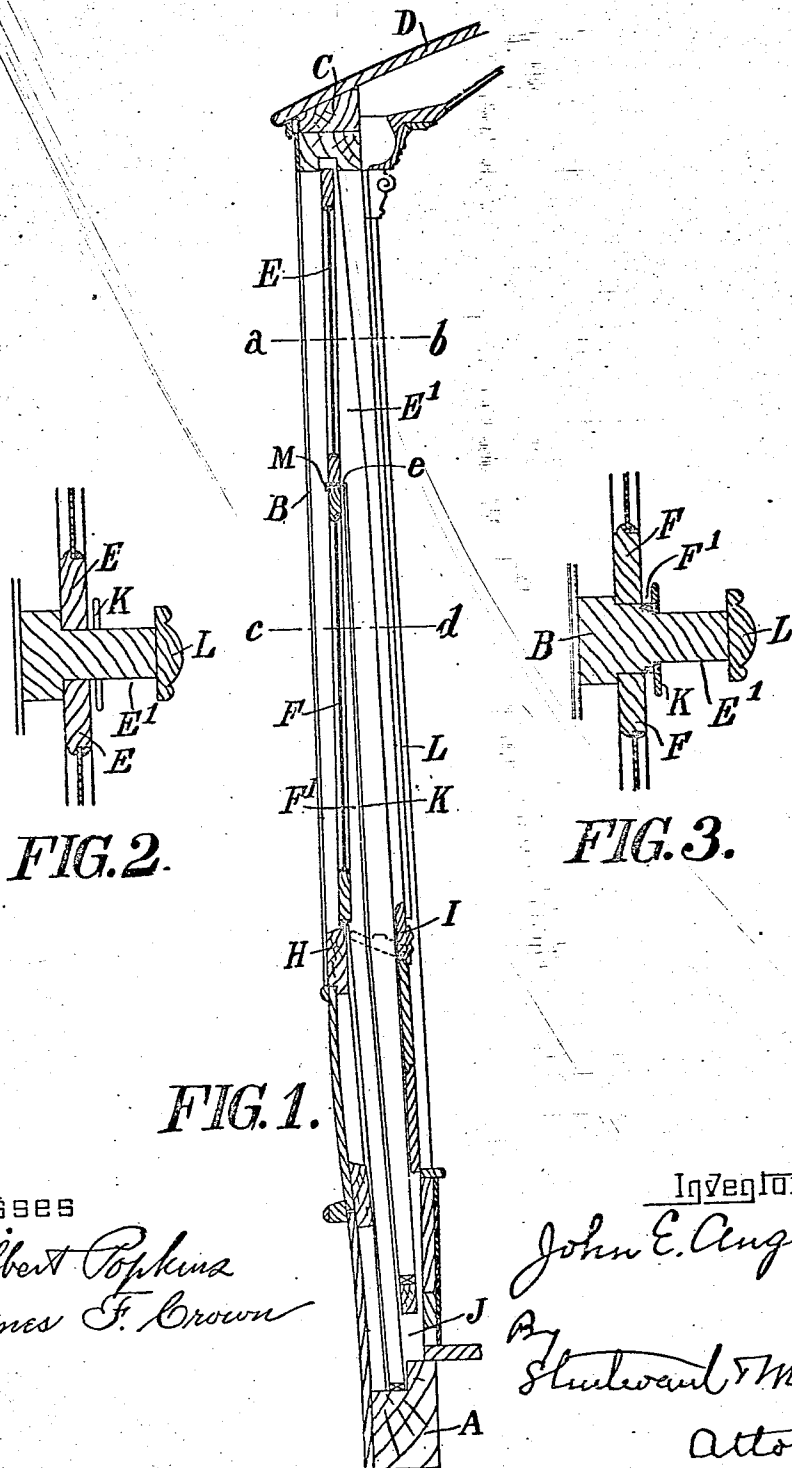


J. E. ANGER.  
 CAR STRUCTURE.  
 APPLICATION FILED JULY 29, 1907.

Patented Sept. 15, 1908.

898,952.



Witnesses

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# UNITED STATES PATENT OFFICE.

JOHN EDWARD ANGER, OF PRESTON, ENGLAND.

## CAR STRUCTURE.

No. 898,952.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed July 29, 1907. Serial No. 386,054.

*To all whom it may concern:*

Be it known that I, JOHN EDWARD ANGER, a citizen of the United States of America, residing at Preston, in the county of Lancaster, in the Kingdom of England, works manager, have invented certain new and useful Improvements in Car Structures, for which application has been made in Great Britain, No. 15,255, dated July 2, 1907.

10 This invention relates more especially to that class of car which can be converted from the open type for summer use, into the closed type for winter use or vice versa, and has for its object to provide a car structure in which large openings can be made by lowering the window sashes or other closures in a vertical direction. Hitherto in this type of car, the sashes to open them, have been raised into storage boxes above the side openings and behind the ventilators and weather board, and the lower section of the sash when being raised came against abutments on the upper section so that the lifting of the lower sash lifted the upper one also. The objection of this arrangement was firstly—that the distance between the cant rail of the roof, and the upper belt rail that defines the top of the side openings of the car, had to be very considerable, so as to provide storage pockets deep enough to receive the sashes, and, secondly, the impact of the lower sash coming against the upper sash when raising them, was apt to strain or break the sashes or the glazing thereof, also the sashes were sometimes liable to stick when being changed from the open to the closed position or vice versa.

By the present invention I make the sliding sash in two sections as before, but arrange the structure so that they are lowered to open them instead of raising them.

15 In the accompanying drawings,—Figure 1 is a vertical section through the side of a car constructed in accordance with my invention; Fig. 2, a cross section on the line *a—b* of Fig. 1; Fig. 3, a cross section on the line *c—d* of Fig. 1.

20 In carrying the invention into effect, the car body may be of any convenient type. It is preferably provided with side sills A, to support the flooring, and stanchions or side posts B. The side posts are extended up to the cant rail C that supports the roof D, and the roof can be of the ordinary arched type or a monitor roof constructed on the usual lines with ventilators therein by which the

car is ventilated when the sashes are closed. Sliding vertically between the stanchions or side posts B are sashes E, F, there being two sashes between each side post, sliding in separate grooves or rabbets E' F'. The rabbets or grooves E' for the upper sashes E extend from or near the floor of the car upwardly to the cant rail C that defines the top of the side openings, and about half way up the length of the side openings this groove E' is widened considerably. The groove or rabbet F' for the lower sash extends from the floor of the car upwardly to a point about half way between the cant rail and the belt rail H, and in this is mounted the lower sash F which rests when in its raised position on the belt rail H, while its upper end lies immediately underneath the upper sash and flush with it. A weather strip M can be provided for the meeting edges of the sashes. The top sash E is made wider than the bottom sash F, and the grooves or rabbets E' for the top sash are therefore deeper than the grooves or rabbets F' as shown in Fig. 3, so that at the place *e* where the two sets of grooves meet in line, there will be abutments formed, which hold the top sash in the raised position and it cannot drop into the grooves of the lower sash. The two sets of grooves or rabbets are divided by a dividing strip K fastened to the side posts by screws. To lower the lower sash F, the sash is lifted up slightly, and then slid down the rabbet or groove in the side posts to below the level of the belt rail H. To lower the top sash E, it is necessary to lift it up slightly to clear the top of the metallic strip K, then draw it inwards, and slide it down in its side groove or rabbet E'. A hinged cover I can be provided which can be closed down on to the belt rail H when the sashes are lowered into their pocket J and thus hide and protect them. The inside grooves can have a bead or pilaster L on the outside to form the other edge of the inside grooves E'. By this invention the upper sash E can be opened or closed independently of the lower one F, or the lower one F opened or closed independently of the upper one E, or both lowered, thus giving an opening from the cant rail, to sash rail or belt rail H. Furthermore sticking of the sashes is prevented, and absolute freedom of movement secured, and the use of complex devices for causing the lower sections F to engage with and lift the upper portions E of the

sash are avoided. Also the objectionable cavities below the roof for storing the sashes out of the way are entirely done away with. Further all sash locks are dispensed with, thus effecting a saving in cost. Of course the invention is not confined to what are known as semi-convertible cars, as it can be applied to any car where the sashes are made in two or more sections. The rabbets in the stanchions for the upper and lower sashes being of different depths enables the metallic strips K to be screwed against the shoulder or side of one of the rabbets so as to form a division piece or guide for the lower sash, these metallic strips extending from the bottom of the grooves to the top of the lower sash only, so as to allow the top sash to be brought outwards and slid down on to the top of the lower sash.

I declare that what I claim is:—

1. In a car structure, side stanchions, rabbets in said stanchions for the upper and lower sashes made of different depths, the one for the lower sash being shallower than the one for the upper sash, and metallic strips screwed against the shoulder or the side of one of the rabbets so as to form a division piece or guide for the lower sash, these metallic strips extending from the bottom of the grooves to the top of the lower sash only, so as to allow the top sash to be brought in-

wards, and slid down on the inside of the lower sash, substantially as described.

2. In a car structure having side stanchions sash rabbets in said stanchions, a top sash whose movement is determined by one set of rabbets, a bottom sash made somewhat narrower and whose movement is also determined by the other set of rabbets, and the two sets of rabbets made of different depths to correspond to the sashes, whereby where the two sets of rabbets meet, abutments will be formed on which the top sash rests in the raised position, so that it cannot fall into the rabbets of the lower sash, substantially as described.

3. In a car structure, side stanchions, rabbets in said stanchions for the upper and lower sashes made of different depths, the ones for the lower sash being shallower than the ones for the upper sash, so that between these rabbets shoulders are formed, which will prevent the upper sash entering the rabbets of the lower one, substantially as described.

In witness whereof, I have hereunto signed my name, in the presence of two subscribing witnesses.

JOHN EDWARD ANGER.

Witnesses:

H. WATSON,  
H. COULSON.