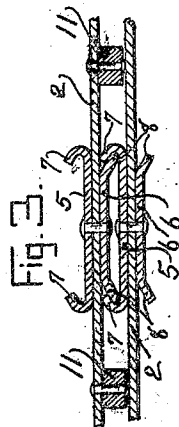
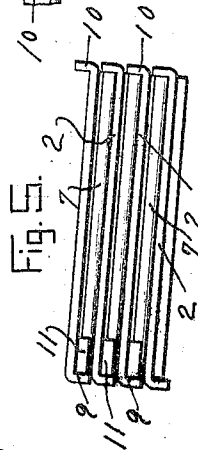
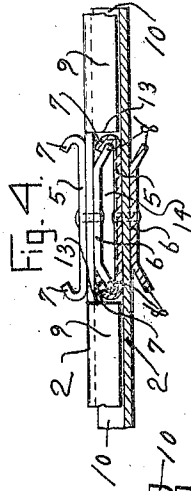
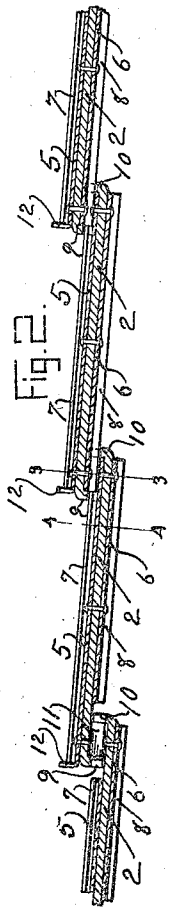
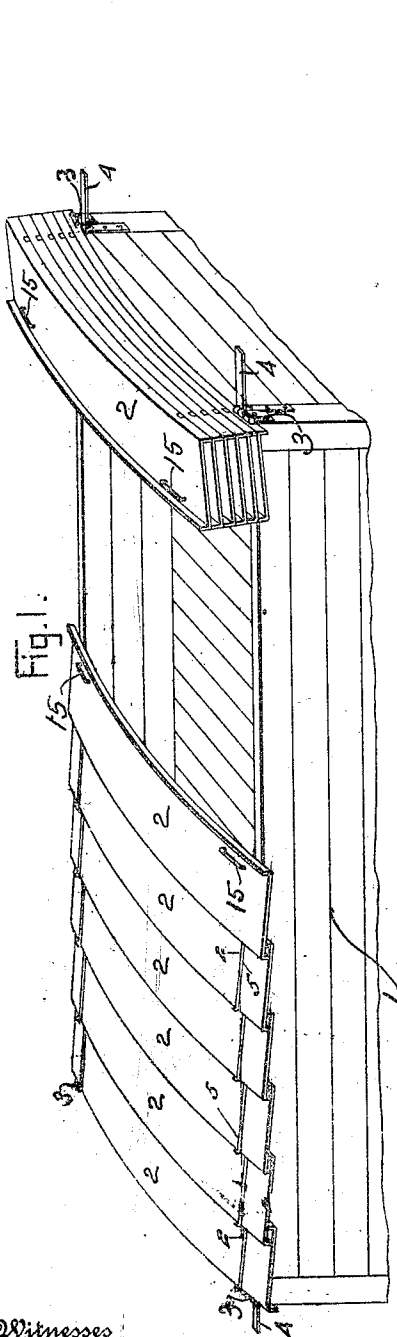


W. R. DAVIS & J. J. KAIN.
 COLLAPSIBLE AND EXTENSIBLE ROOF FOR OPEN TOP RAILWAY CARS, &c.
 APPLICATION FILED JULY 25, 1910.

1,015,146.

Patented Jan. 16, 1912.



Witnesses
 C. H. Reichenbach.
 Lula D. Lundy

Inventors
 William R. Davis
 John J. Kain
 Greeley McKintire Attorney

UNITED STATES PATENT OFFICE.

WILLIAM R. DAVIS AND JOHN J. KAIN, OF MAYSVILLE, KENTUCKY.

COLLAPSIBLE AND EXTENSIBLE ROOF FOR OPEN-TOP RAILWAY-CARS, &c.

1,015,146.

Specification of Letters Patent. - Patented Jan. 16, 1912.

Application filed July 25, 1910. Serial No. 573,661.

To all whom it may concern:

Be it known that we, WILLIAM R. DAVIS and JOHN J. KAIN, citizens of the United States, residing at Maysville, in the county of Mason and State of Kentucky, have invented certain new and useful Improvements in Collapsible and Extensible Roofs for Open-Top Railway-Cars, &c.; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to collapsible and extensible roofs for open top railway cars, wagons, and similar vehicles, the same being also applicable to stationary tanks and similar receptacles; and the object of our invention is to provide an improved roof of the type specified the same being illustrated in the accompanying drawing, described in the following specification, and particularly claimed in the clauses of the concluding claim.

In the drawing; Figure 1 is a view showing in perspective the body of an open top railway car with our improved roof applied thereto; Fig. 2 is a view taken upon a plane normal to the roof and intersecting the same along the line 2—2 Fig. 1, showing three sections of the roof in their extended condition; Fig. 3 is a view taken upon a plane extending longitudinally of a roof section and at right angles thereto as indicated by the line 3—3 Fig. 2; Fig. 4 is a similar view taken upon a parallel plane indicated by the line 4—4 Fig. 2, and Fig. 5 is a side elevation showing the sections collapsed.

In the drawing, 1 is the body of an open top railway car.

The characters 2 represent a series of plates which, when extended, form a roof for the car, it being preferable to employ two such roofs as are described and shown, one secured to each end of the car and which roofs, when extended, meet at the center of the car. A more compact roof for the entire car is thus procured, and one which may be more easily manipulated. However, hereinafter and in the clauses of the claim, the term "roof" is used with reference to one only of the two sections above contemplated.

The plates 2 above referred to extend entirely across the car body and over the upper edges of the sides far enough to carry

water over the edges as will be understood, and said plates although capable of moving with reference to one another as will hereinafter appear are permanently secured together so that they collectively form a unitary roof structure. The said plates, after the first or one at the left, are capable of being moved into a position such that each overlies the next preceding plate of the series, all the plates, when thus collapsed, being piled in a vertical column as shown at the right, Fig. 1. The plates 2 are preferably curved slightly in the direction of their length, so that water will quickly run off them. The left hand plate 2, being the first of the series, is secured to the end of the car body by means of hinges 3, and 4 are brackets secured to the ends of the car body. It will be obvious that the plates when collapsed may be permitted to rest upon the ends of the sides of the car as shown, or may as a whole be turned about the hinges 3 through 90° and permitted to rest upon the brackets, each method of support having advantages peculiar to itself.

Guides are provided for securing smoothness of operation of the plates 2 as the roof is extended or collapsed. These guides extend substantially the entire width of the plates 2 and as many rows or lines of guides will be used as is thought desirable, two such rows being shown in the roof illustrated. These guides are made up of cooperating guide members 5, 6, the member 5 having converging side flanges 7 and the member 6 having diverging side flanges 8, which flanges 7 and 8 engage one another in the manner illustrated in the sectional views, Figs. 3 and 4, whereby guides are produced which are free to move over one another in a direction longitudinally of the roof, but which are otherwise restrained from movement. Each plate 2, except the first and last of the series, will have a guide upon both its upper and lower surfaces as shown.

The edges of the plates 2 are bent substantially at right angles to the plate to form flanges 9, 10, and flanges 9 and 10 of adjacent plates will move into positions as close as possible to one another without the guides 5, 6 becoming disengaged. Stops 11 will preferably be employed to prevent the guides 5, 6 from becoming separated, and a part of the guide 5 will be turned up, as shown at 12, or some other form of stop will be used to prevent the guides from run-

ning past one another when the roof is collapsed. The flanges 9 are cut away as shown at 13, 14, Fig. 4, to clear the guides. 15 are handles to take hold of in collapsing or extending the roof.

By the use of our invention cars may be constructed without the usual stationary roof and yet be used for transporting materials which have to be protected from the weather. The wholly open top secured when the roof is folded or collapsed facilitates loading or unloading the car; and the fact that the roof when collapsed occupies but little space and that it is then securely supported at the ends of the car enables an open car equipped with our invention to remain open when used to transport goods which need not be protected from the weather and when so used the roof is not subjected to wear and tear.

Having thus described our invention and explained the operation thereof, we claim and desire to secure by Letters Patent:

1. In an extensible and collapsible roof for cars and similar vehicles, an open top car body; a series of plates permanently secured together and of sufficient length to extend across the car body and each plate after the first of the series being capable of being moved into a position such that it overlies the next preceding plate, said plates when extended being adapted to form a roof for the car; and series of guides each comprising U-shaped section one secured to

the upper and one to the lower surface of said plates, the guide upon the upper surface of a plate being in engagement with the guide upon the lower surface of the next following plate of the series whereby said plates are maintained in proper relation as the roof is extended or collapsed.

2. In an extensible and collapsible roof for cars and similar vehicles, an open top car body; a series of plates permanently secured together and of sufficient length to extend across the car body and each plate after the first of the series being capable of being moved into a position such that it overlies the next preceding plate, said plates when extended being adapted to form a roof for the car, and the edges of said plates being bent in opposite directions and substantially at right angles to the plate to thereby form flanges; and guides secured to adjacent plates of said series of plates and in engagement with one another for maintaining said plates in proper relation with one another as the roof is extended or collapsed.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM R. DAVIS.

JOHN J. KAIN.

Witnesses as to William R. Davis:

LOUIS ZECH,

EARL LAY.

Witnesses as to John J. Kain:

EDNA LEONARD,

R. M. WALLINGFORD.