

March 2, 1937.

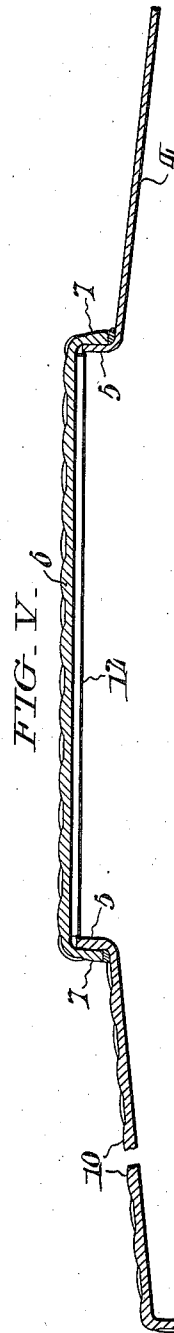
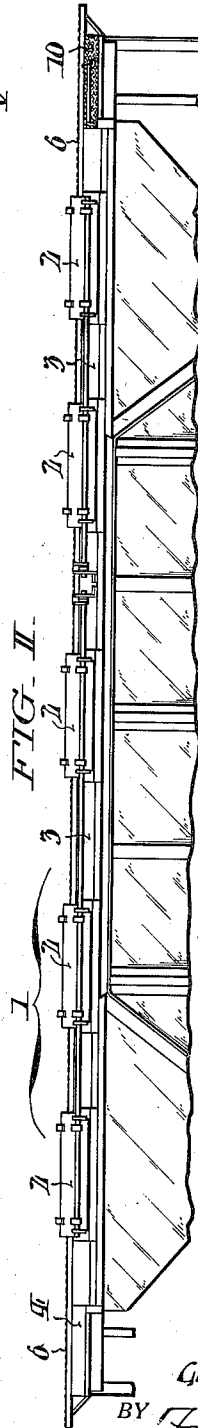
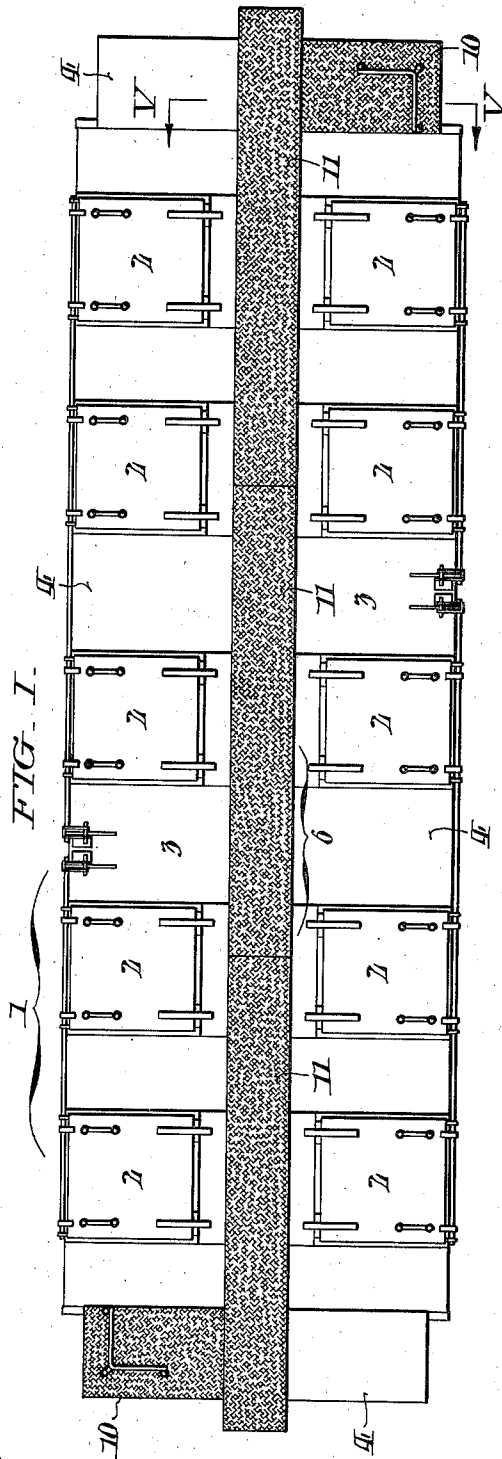
G. E. KNEPPER ET AL

2,072,171

CAR ROOF RUNNING BOARD

Filed Dec. 17, 1935

2 Sheets-Sheet 1



INVENTORS:
George E. Knepper &
William E. Frank,
BY Tracy Paul
ATTORNEYS.

March 2, 1937.

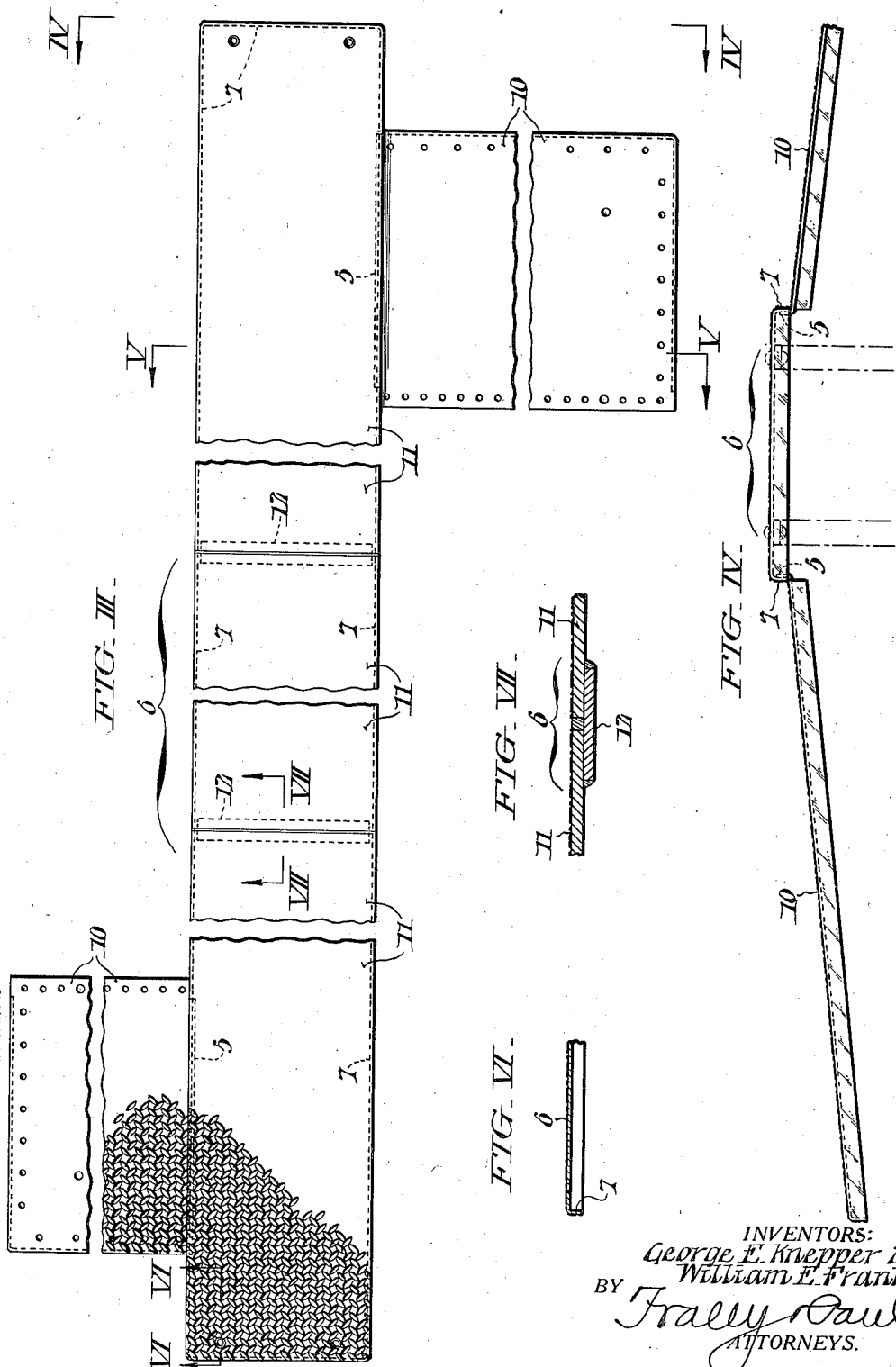
G. E. KNEPPER ET AL

2,072,171

CAR ROOF RUNNING BOARD

Filed Dec. 17, 1935

2 Sheets-Sheet 2



INVENTORS:
 George E. Knepper &
 William E. Frank,
 BY *Tracy Paul*
 ATTORNEYS.

UNITED STATES PATENT OFFICE

2,072,171

CAR ROOF RUNNING BOARD

George E. Knepper and William E. Frank,
Altoona, Pa.

Application December 17, 1935, Serial No. 54,813

1 Claim. (Cl. 108—5)

Our invention relates generally to car roof structure, and particularly to car roof running boards. Running boards on the tops of railway cars have been in use for many years but they have usually been regarded as a separate attachment rather than a strength giving element of the car itself. The patent to Tatum, December 26, 1933, No. 1,940,776, for example, shows an effort to simplify the running board by employing a plate fastened to the roof top so that the running board is less of an independent attachment and more an element of the car structure. The patents to Price et al., December 21, 1926, No. 1,611,555; and Schrader, April 8, 1919, No. 1,300,199, illustrate the type of running board which plays no part in the car construction but is a separate attachment.

The object of our invention is to provide a running board for railway cars which will be woven into the car structure as a strength-giving element. Another object is the provision of combination running board and roof stringer strengthening the roof longitudinally. Another object is the provision of a combination running board roof stringer and top sheet which not only adds strength but adds to the water-tightness of the roof structure. Our invention has particular application to a car having a roof weakened by a number of openings therein as the hopper cement car shown in the preferred embodiment of our invention. Still other objects and advantages of our invention will appear from the following detailed description of a preferred embodiment thereof, and from the accompanying drawings referred to in the description.

Of the drawings:

Fig. I shows a plan view of the preferred embodiment of our invention applied to a hopper cement car.

Fig. II shows a partial side view of the same. Fig. III shows a partial plan view of the running board before attachment indicating structural details.

Fig. IV is an end view taken about the line IV—IV of Fig. III.

Fig. V is a partial section taken about the line V—V of Figs. I and III.

Fig. VI is a partial section taken about the line VI—VI of Fig. III.

Fig. VII is a partial section taken about the line VII—VII of Fig. III.

The railway car 1 having a roof 3 to which our invention has been applied in the preferred embodiment is of the general type known as the

hopper cement car. The roof 3 of this car is considerably weakened by numerous filling hatches 2. The car roof structure toward which our invention is directed includes generally side roof sheets 4 having flanges 5, and a running board 6 having flanges 7 and transverse extensions 10 at each end of the car 1. The running board 6 is formed with a tread surface as shown in the drawings to provide a firm foothold for the trainmen.

The side roof sheets 4 terminate short of the center line of the car 1 and the flanges 5 formed along their inner edges are designed to receive the superimposed running board 6. The running board flanges 7 fit closely outside of the roof sheet flanges 5 with surface contact. The running board 6, which is made up of three sections 11 is welded to the roof sheets 4 along the bottom edges of the flanges 7, making a secure joint with vertical surface contact between the pieces joined. The three sections 11 are also welded as shown in Fig. VII, a juncture plate 12 being welded to the underside of the joint. This juncture plate 12 is carefully designed to fit the underside of the running board 7 and abut against the roof sheet flanges 5, making a strongly braced joint. The transverse extensions 10 are extra heavy roof sheets formed with the tread surface shown in the drawings, and function both as roof sheets 4 and as running board extensions 10.

From the above description it is clear that our invention simplifies car roof structure and adds strength to it by incorporating the running board 6 into the structure as a structural element. The special form of the running board 6 provides a longitudinal stringer for the roof 3 which gives strength to a roof 3 weakened by filling hatches 2. There is no chance of rust between the car roof and the running board which is a drawback in the case of the separate and attached running board. The joint between the roof sheets 4 and the running board 6 contributes considerably to the water-tight integrity of the roof structure. This joint is characterized by a contact of vertical surfaces with welding at the bottom edge of the joint which reduces the chances of moisture and rust in the joint.

While our invention has been described in some detail with reference to a specific embodiment, various changes in the form of the structure used are within the contemplation of the invention, and such changes should not be deemed to constitute a departure from the spirit of the invention as hereinafter claimed.

Having thus described our invention, we claim:

A car roof structure comprising side roof sheets with upwardly turned inner edges, a heavy girder-like running board with downwardly turned edges fitting over and outside said roof sheet edges and intimately united to said roof sheets, said running board being composed of relatively long sections, and juncture plates in-

timately united to the underside of the running board at section joints, said juncture plates bracing the upwardly turned edges of said roof sheets against the downwardly turned edges of the running board.

GEORGE E. KNEPPER.
WILLIAM E. FRANK.