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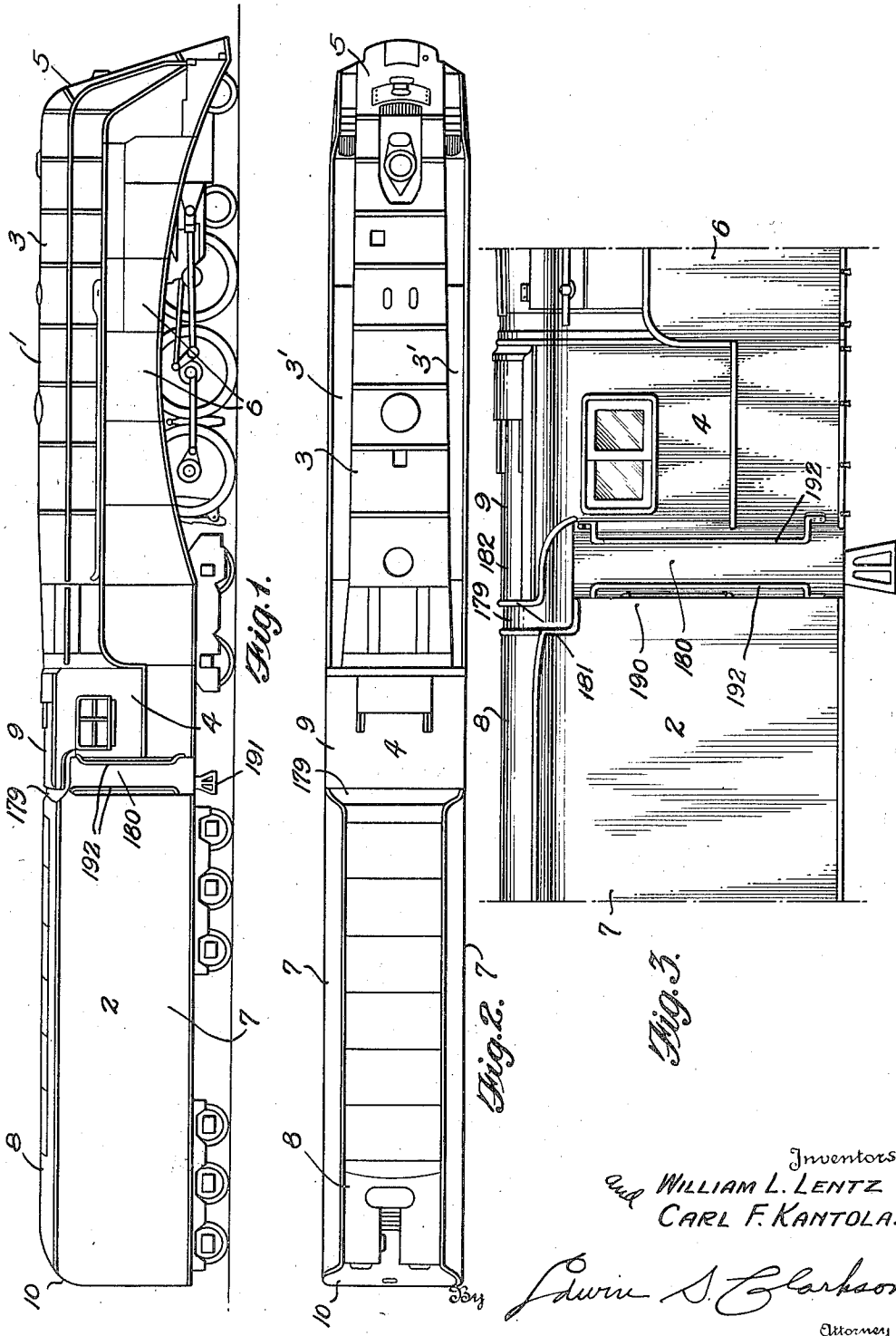
W. L. LENTZ ET AL

2,108,203

STREAMLINED LOCOMOTIVE AND TENDER AND VESTIBULE CURTAIN STRUCTURE THEREFOR

Original Filed Sept. 26, 1935

4 Sheets-Sheet 1



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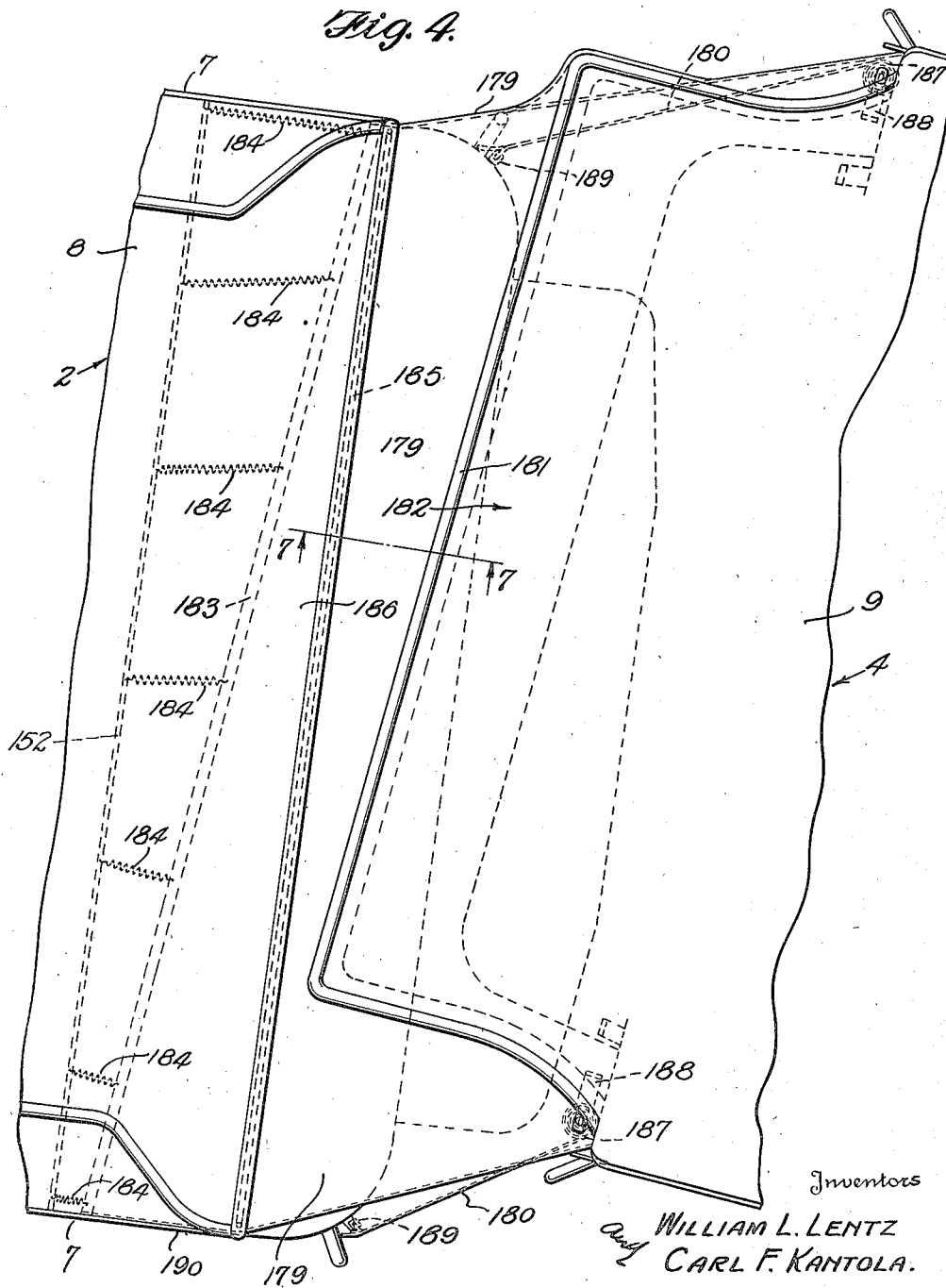
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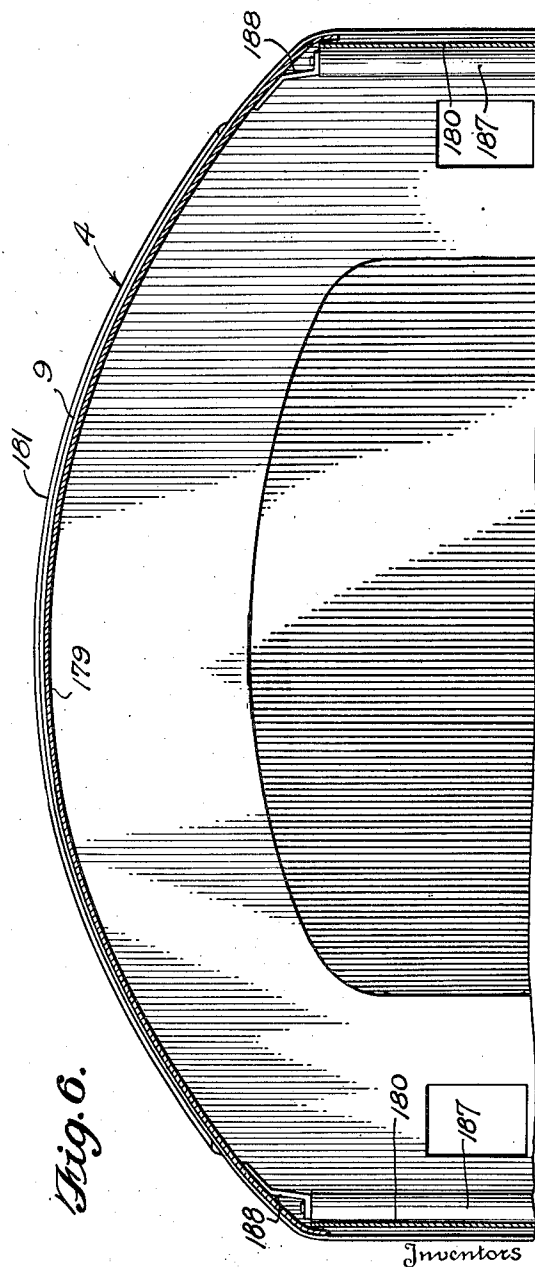
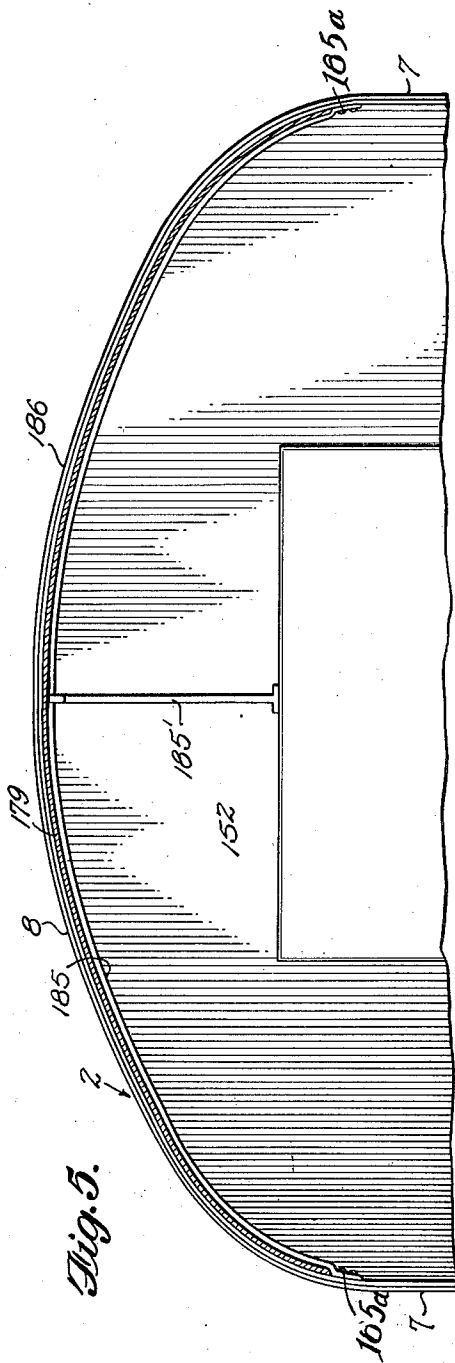
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4 Sheets-Sheet 3



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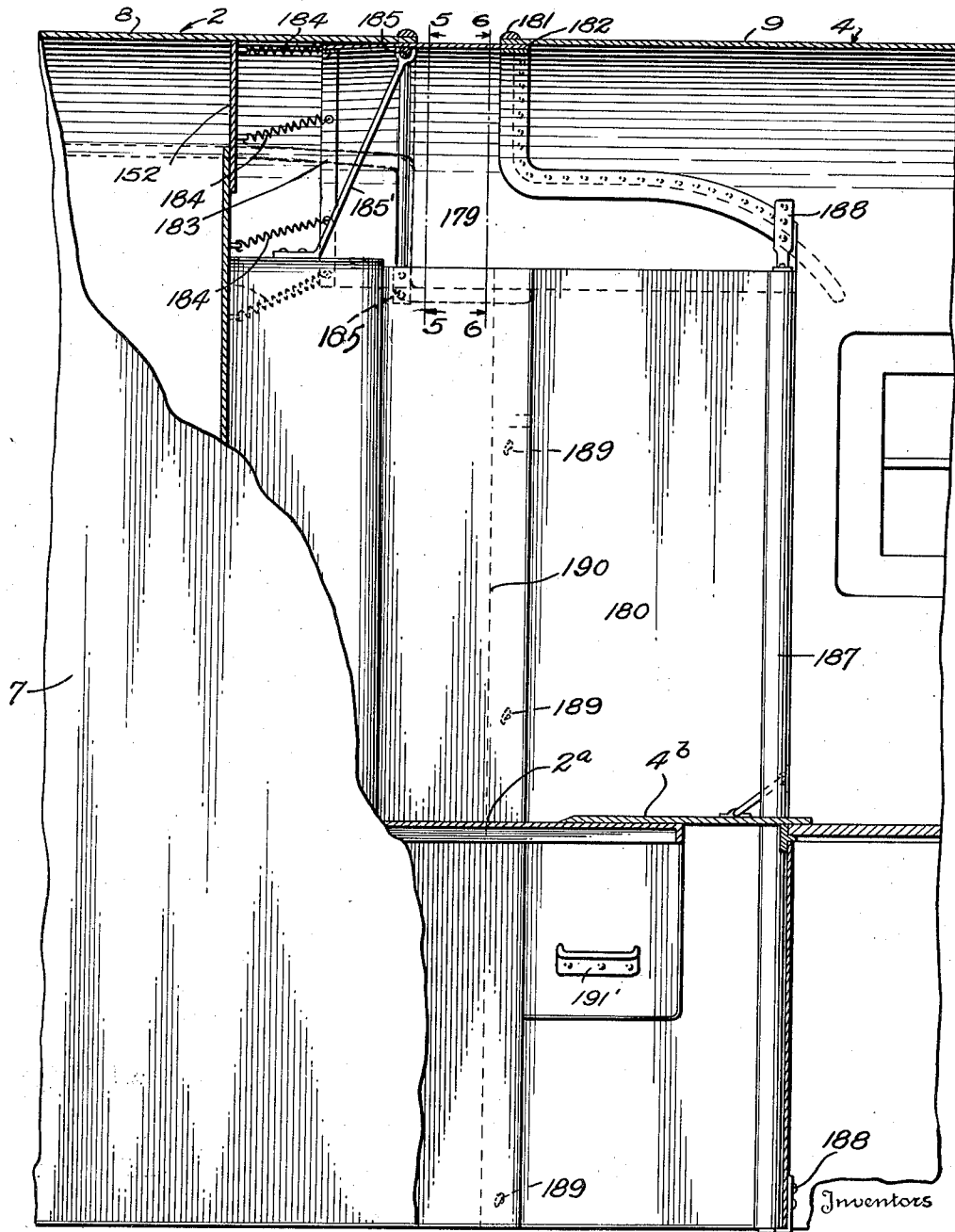
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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

2,108,203

STREAMLINED LOCOMOTIVE AND TENDER
AND VESTIBULE CURTAIN STRUCTURE
THEREFOR

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Original application September 26, 1935, Serial No. 42,342. Divided and this application July 21, 1936, Serial No. 91,780

8 Claims. (Cl. 105—2)

The present application is a division of our prior application Serial No. 42,342, filed September 26, 1935.

This invention relates generally to streamlined locomotives and tenders, and particularly to a streamlined structure of this character including a novel vestibule curtain construction for closing the gap between the coupled ends of the locomotive and tender to protect the engineer, fireman and enclosed parts from the elements and cooperating with features of the locomotive and tender constructions to give a streamline contour to the general structure.

One object of the invention is to provide a streamline structure of the character specified which enhances the appearance of the locomotive and tender, reduces wind resistance in travel and gives reliable and complete protection of the nature referred to.

Another object of the invention is to provide a vestibule curtain structure which is of durable type, which affords ready access to both locomotive and tender, and which will adjust itself automatically and without strain thereon to all relative movements between the locomotive and tender in their travel on all portions of a trackway.

With these and other objects in view, the invention consists of the features of construction, combination and arrangement of parts, herein-after fully described and claimed, reference being had to the accompanying drawings, in which:—

Fig. 1 is a side elevation of a streamlined locomotive and tender embodying the invention.

Fig. 2 is a top plan view of the locomotive and tender.

Fig. 3 is a view in side elevation of the coupled ends of the locomotive and tender.

Fig. 4 is a top plan view of the adjoining ends of the locomotive and tender on an enlarged scale, showing the curtain construction, and also showing the locomotive at an angle to the tender as it appears on a curve in the track.

Fig. 5 is a vertical transverse section on line 5—5 of Fig. 7.

Fig. 6 is an enlarged vertical transverse section taken substantially on line 6—6 of Fig. 7.

Fig. 7 is a detail section on the line 7—7 of Fig. 4.

Referring now more particularly to the drawings, 1 represents the locomotive and 2 the locomotive tender which, as herein shown, are of streamline form to enhance their appearance and reduce wind resistance. The locomotive is provided for this purpose with a streamline covering

comprising a cowl portion 3 covering the boiler above the running boards 3' from the cab 4 to the forward end of the smokebox, a hood portion 5 extending at the front of the locomotive from the forward end of the cowl to the tip of the locomotive pilot, and side panels or skirts 6 extending longitudinally from the rear end of the cab to the hood and vertically from points above the level of the running boards downwardly to a sufficient level to cover the ash pan, the major or a substantial portion of the running gear and other appurtenances ordinarily exposed to give an unattractive appearance to the locomotive and to cause wind resistance. The tender 2 is provided with sides 7 and roof 8 of streamline contour, said sides and roof being respectively flush or substantially so with the sides 6 of the locomotive and roof 9 of the cab thereof. The rear end 10 of the tender is also shaped to give a finished appearance and streamline effect at this end.

The side panels of the locomotive, sides of the cab and side walls of the tender are designed to be arranged in longitudinal alinement when the locomotive and tender are traveling on a straight track, so as to secure as far as possible a smooth flow of the air along the sides of the locomotive and tender from end to end thereof. In order to make this straight line arrangement substantially continuous across the gaps between the sides and roofs of the cab and tender, a novel construction of vestibule curtain or gap closing means is employed. This curtain structure or gap closing means comprises an arched hood curtain 179 and side curtains 180. The hood curtain 179, made of metallized belting canvas or any other suitable fabric, is cleated at its forward edge, as at 181, to the inner side of the top and sides of the cab hood or overhang 182 and is hemmed or otherwise reinforced at its rear edge 183, said rear edge 183 being suitably connected at intervals by coiled springs 184 to the front wall of the tender. At the tender coal space or bunker end the curtain is guided over an arched or arcuately curved round rod 185 having its end portions secured as at 185a to the inner side of the tender coping 186 and stayed from the front tender wall 152 by one or more braces 185'. This curtain maintains at the top and upper portions of the sides of the gangway over the cab apron 4b of the locomotive and deck 2a of the tender the exact contour of the cab walls and roof and tender coping. The springs 184 permit telescoping backward and forward movements of the curtain to compensate for such relative movements

and vertical movements between the locomotive and tender, as well as angular and all other movements as shown, for example, in Fig. 4, between locomotive and tender on curves, crossovers, etc.

5 The springs 184 are of sufficient tension to permit of these movements of the curtain while keeping the curtain properly taut. The side curtains 180 are secured at their forward edges to spring rollers 187 mounted in brackets 188 upon the inner
10 faces of the rear outside corners of the side walls of the cab so that they may be drawn outward rearwardly and secured at their free edges by fastenings 189, such as Hoke type fastenings, to the forward edges or extensions 190 from the side
15 walls of the tender, which extensions or side walls project forwardly beyond the front edge of the coping 186 so as to underlie the sides of the cab overhang 182 and form therewith and with the parts above-described a closed vestibule or gangway. When the curtains 179 and 180 are in operation this gangway between locomotive and tender is completely enclosed to maintain the streamline contour of the roof and sides of the tender at this point and to protect the locomotive, engine-
20 men and enclosed parts from the entrance of rain, snow, dust and dirt, as well as to prevent the entrance of disturbing gusts of air tending to blow coal dust into the locomotive cab. The curtain 180 at either side of the cab may be readily released for a roll up action to allow access to the gangways from either side and said curtains are adapted when in operating position to wind upon and unwind from their rolls to degrees to compensate for relative angular movements between the locomotive and tender, as will be readily understood. The usual locomotive cab and tender deck steps 191 and 191' and hand rails or grabs 192 are provided to facilitate entrance and exit of the members of the locomotive crew
30 to and from the locomotive and tender.

From the foregoing description, taken in connection with the drawings, it will be seen that our invention provides means for giving a streamline construction from end to end of the locomotive and tender, and also provides for the enclosure of the gangway portions of the locomotive and tender in such manner as to maintain the streamline contour therebetween and to prevent access of rain, snow and other foreign elements to the gangway. This curtain and enclosure, as previously stated, prevents gusts of air from entering the gangway so that the coal will be closely confined to the tender and coal dust and lumps prevented from falling or being blown from the tender onto the track and causing traffic difficulties, as well as preventing the coal dust from being blown or drawn into the cab or over the train and entering car vestibules and soiling the same or causing other difficulties. While the structure shown for the purposes described is preferred, it will, of course, be understood that changes in the form, construction and arrangement of the parts may be made, within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention. It will also be understood that while the locomotive and tender shown may be of standard types streamlined by the application of external surfaces to impart the streamline formation thereto, the invention is not limited in this respect, as the streamline shell structures may be formed in whole or in part by the body shells of the locomotive and tender and the principle of the invention is not limited to steam lo-

comotives and tenders, but may be applied to electric, Diesel and other types of locomotives.

What we claim is:—

1. The combination with a locomotive and tender, of a gap closure between the adjacent relatively movable ends of such structures comprising a top cover fixed at one edge to one of the structures, means on the other structure for slidably guiding said top and maintaining a streamline relation of the top cover with the roofs of the adjacent structures, means for yieldingly connecting it at its opposite edge to the second-named structure, and flexible side covers closing the sides of the gap between said structures.

2. The combination with a locomotive and tender, of a gap closure between the adjacent relatively movable ends of such structures comprising a top cover fixed at one edge to one of the structures, springs for holding the top cover taut and yieldingly connecting it at its opposite edge to the other structure, means on the latter-named structure for sustaining and slidably guiding the top cover in its movements and maintaining said top cover in streamline relation to the roofs of the adjacent structures, and flexible side covers closing the sides of the gap between said structures.

3. The combination with a locomotive and tender, of a gap closure between the adjacent relatively movable ends of such structures comprising a top cover fixed at one edge to one of the structures, means on the other structure for slidably guiding said top and maintaining a streamline relation of the top cover with the roofs of the adjacent structures, means for yieldingly connecting it at its opposite edge to the second-named structure, and side curtains each mounted for extension and contraction on one structure and adapted for detachable connection with the other structure.

4. The combination with a locomotive and tender, of a gap closure between the adjacent relatively movable ends of such structures comprising a top cover fixed at one edge to one of the structures, means on the other structure for slidably guiding said top and maintaining said top cover in streamline formation to the roofs of the adjacent structures, means for yieldingly connecting it at its opposite edge to the second-named structure, and side curtains each mounted for winding and unwinding movements on one structure and adapted for detachable connection with the other structure.

5. The combination with a locomotive and tender, of a gap closure between the adjacent relatively movable ends of such structures comprising a top cover fixed at one edge to one of the structures, springs for holding the top cover taut and yieldingly connecting it at its opposite edge to the other structure, means on the latter-named structure for sustaining and slidably guiding the top cover in its movements and maintaining said top cover in streamline relation to the roofs of the adjacent structures, and side curtains each mounted for extension and contraction on one structure and adapted for detachable connection with the other structure.

6. The combination with a locomotive tender, of a gap closure between the adjacent relatively movable ends of such structures comprising a top cover fixed at one edge to one of the structures, springs for holding the top cover taut and yieldingly connecting it at its opposite edge to the other structure, means on the latter-named structure for sustaining and slidably guiding the

top cover in its movements and maintaining said top cover in streamline relation to the roofs of the adjacent structures, and side curtains each mounted for winding and unwinding movements on one structure and adapted for detachable connection with the other structure.

5 7. A locomotive having a cab with a roof having a hood extension, a tender having a front wall, side walls provided with extensions projecting beyond the front wall and a roof having an extension disposed above said side wall extensions, and a gap closure between the locomotive cab and front of the tender comprising a top curtain structure secured at its front edge to the hood extension of the locomotive cab, springs yieldingly connecting the top curtain at its rear edge to the front wall of the tender, guiding means on the underside of the roof extension of the tender for maintaining a streamline formation of the top curtain with the roofs of the locomotive cab and tender and slidably guiding said curtain in its movements in the relative movements of the locomotive and tender, and side curtains closing the spaces beneath the hood extension of the locomotive and between the locomotive cab and side wall extensions of the tender, said side curtains being mounted for winding and unwinding movements upon the locomotive and being adapted for detachable connection at their free edges with the side wall extensions of the tender.

8. A locomotive having a cab with a roof having a hood extension, a tender having a front wall, side walls provided with extensions projecting beyond the front wall and a roof having a hood extension disposed above said side wall extensions, and a gap closure between the locomotive cab and front of the tender comprising a top curtain structure secured at its front edge to the hood extension of the locomotive cab, springs yieldingly connecting the top curtain at its rear edge to the front wall of the tender, and guiding means on the underside of the roof extension of the tender for maintaining a streamline formation of the top curtain with the roofs of the locomotive cab and tender and slidably guiding said curtain in its movements in the relative movements of the locomotive and tender, said top curtain being arcuately curved transversely and providing a top portion and depending side portions, and side curtains closing the spaces beneath the hood extension of the locomotive and depending side portions of the top curtain and between the locomotive cab and side wall extensions of the tender, said side curtains being mounted for extension and contraction on the locomotive and having detachable connection with the side wall extensions of the tender.

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