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K. ROMAUS

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COOLING SYSTEMS FOR RAILWAY VEHICLES

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FIG. 2

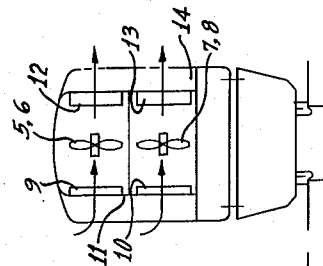
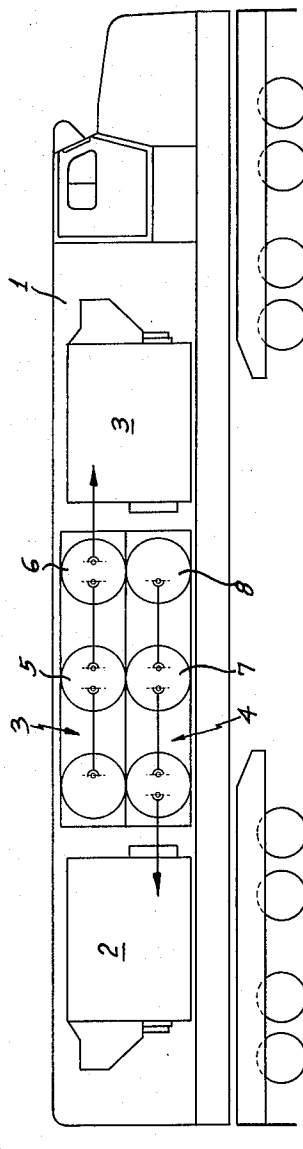


FIG. 1



INVENTOR.
Karl Romaus
BY
James E. Bryan
ATTORNEY

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Karl Romaus, Kassel, Germany, assignor to Henschel-
Werke A.G., Kassel, Germany, a corporation of
Germany

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4 Claims. (Cl. 105—62)

This invention relates to cooling systems for railway vehicles, more particularly diesel locomotives.

In large diesel locomotives, the cooling units or systems are normally mounted either in a vertical or slightly inclined position at the side walls of the box-type body or superstructure. A ventilator fan, which is part of the cooling system, is ordinarily horizontally mounted above the cooling elements or sections; a walkway is disposed between the latter. When a very large cooling capacity is required, and therefore a plurality of cooling elements, the space which is needed for a tandem mounting of the cooling units in the longitudinal direction of the locomotive can, in borderline cases, be obtained only by lengthening the entire vehicle. For this reason, the total length of railway prime movers or locomotives, particularly such locomotives having dual engines which require a high cooling capacity, was heretofore influenced by the necessary space occupied by the cooling system.

Since it is desired to make the length of a locomotive no longer than is necessary to accommodate the engine, or engines, and the power transmission, the present invention provides an arrangement of cooling units which does not necessitate lengthening the vehicle, even in borderline cases when high cooling capacity is required as noted above.

In accordance with the present invention, a locomotive cooling system, which is subdivided into two cooling groups in a conventional manner, is mounted in two separate superimposed planes rather than in a successive or tandem arrangement in the longitudinal direction of the locomotive, as has been the practice heretofore. Such a mounting of the cooling groups is fully effective when ventilator fans are mounted in a vertical position between the cooling groups. The length of the vehicle section which is required to accommodate the cooling system will, therefore, be reduced by half as compared to known arrangements.

The invention will be further illustrated by reference to the accompanying drawings in which

FIGURE 1 is a schematic view in elevation and longitudinal section through a locomotive having dual engines, and

FIGURE 2 is a schematic view in transverse section through the cooling system of the locomotive of FIGURE 1.

The locomotive shown in FIGURE 1 includes the dual engines 2 and 3 to each of which one of the cooling groups 3 and 4, respectively, is connected. These cooling groups may comprise conventional heat exchangers and are mounted at the side walls of the body or super-

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structure of the locomotive and are disposed in two planes which are superimposed with respect to each other. The ventilating fans 5 and 6 are arranged side by side and above the fans 7 and 8.

As shown by FIGURE 2, each cooling group may consist of cooling elements of different sizes. Thus, it has been found to be particularly advantageous when the cooling units or elements 9 and 10, which are positioned in the side wall 11 of the locomotive through which the cooling air is drawn in, are smaller and, therefore, have less capacity than the oppositely positioned cooling elements 12 and 13, through which latter elements the cooling air, which has been heated when passing through the cooling elements 9 and 10, is exhausted from the vehicle. In the construction shown in FIGURE 2, the ventilating fans, shown in a vertical position and in succession, draw in the cooling air and exhaust it from the vehicle. It is not necessary that the fans in the upper cooling section be positioned directly over the fans in the lower cooling section but they may be mounted in staggered rows if desired. Also, as shown in FIGURE 2, the width of the locomotive in the cooling section thereof can be reduced so that a walkway 14 is disposed at each side of the vehicle. Also, the cooling groups may be mounted in a laterally offset manner with respect to the central longitudinal axis of the locomotive so that a walkway is provided at only one side of the body or superstructure, which facilitates accessibility of the cooling elements and simplifies the maintenance thereof.

It will be obvious to those skilled in the art that many modifications may be made within the scope of the present invention without departing from the spirit thereof, and the invention includes all such modifications.

What is claimed is:

1. A cooling system for a locomotive having dual engines comprising a group of cooling elements connected to each engine, each group of elements being mounted at the sides of the locomotive in two separate planes and having ventilating fans vertically mounted between them.
2. A cooling system according to claim 1 in which the ventilating fans are mounted in two separate planes.
3. A cooling system according to claim 1 in which smaller cooling elements are mounted on one side of the locomotive, through which cooling air is drawn in, than on the opposite side through which cooling air is exhausted.
4. A cooling system according to claim 1 in which the width of the locomotive is reduced in the cooling section and a walkway is provided on at least one side thereof.

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ARTHUR L. LA POINT, *Primary Examiner*.