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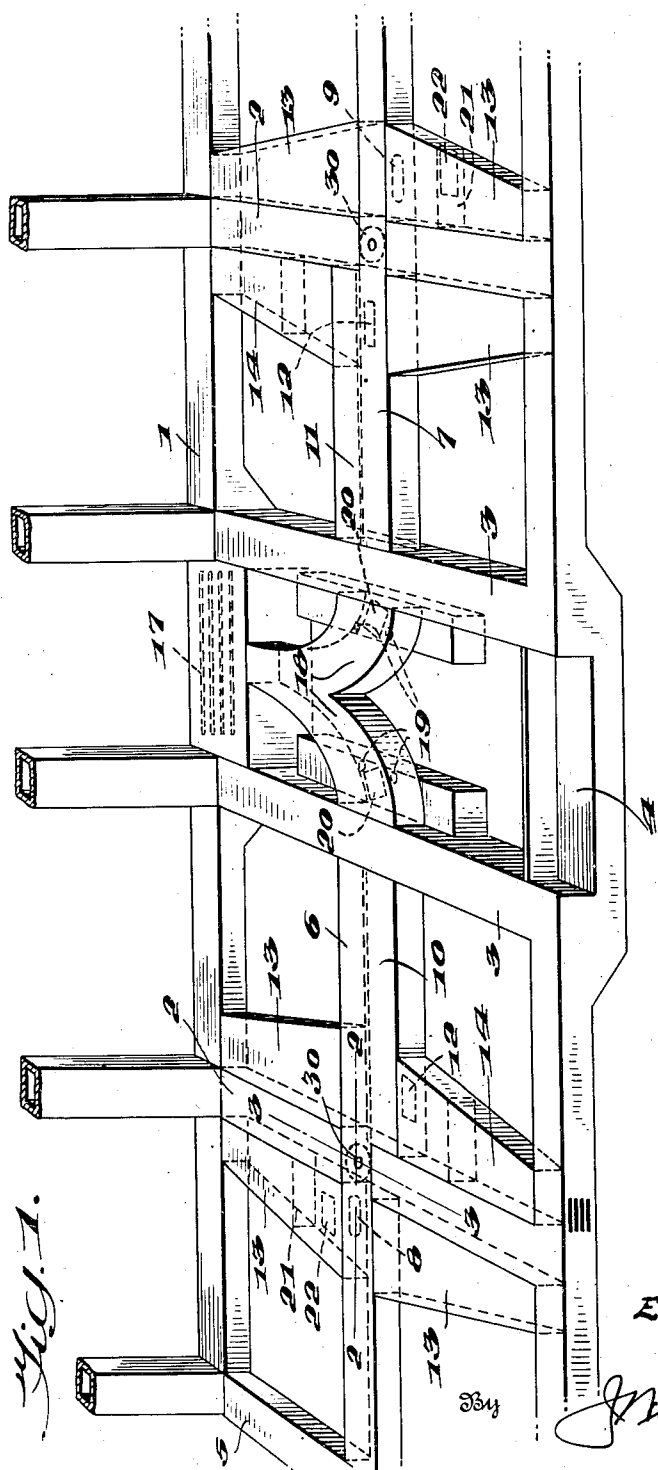
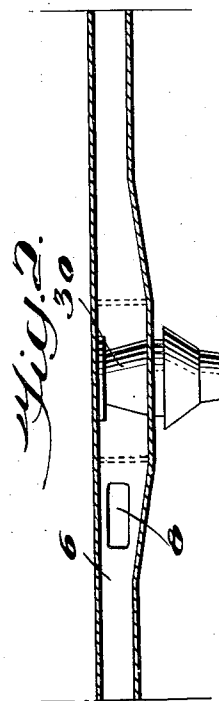
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2,463,255

BOLSTER CONSTRUCTION AND VENTILATION SYSTEM

Filed June 16, 1945

2 Sheets-Sheet 1



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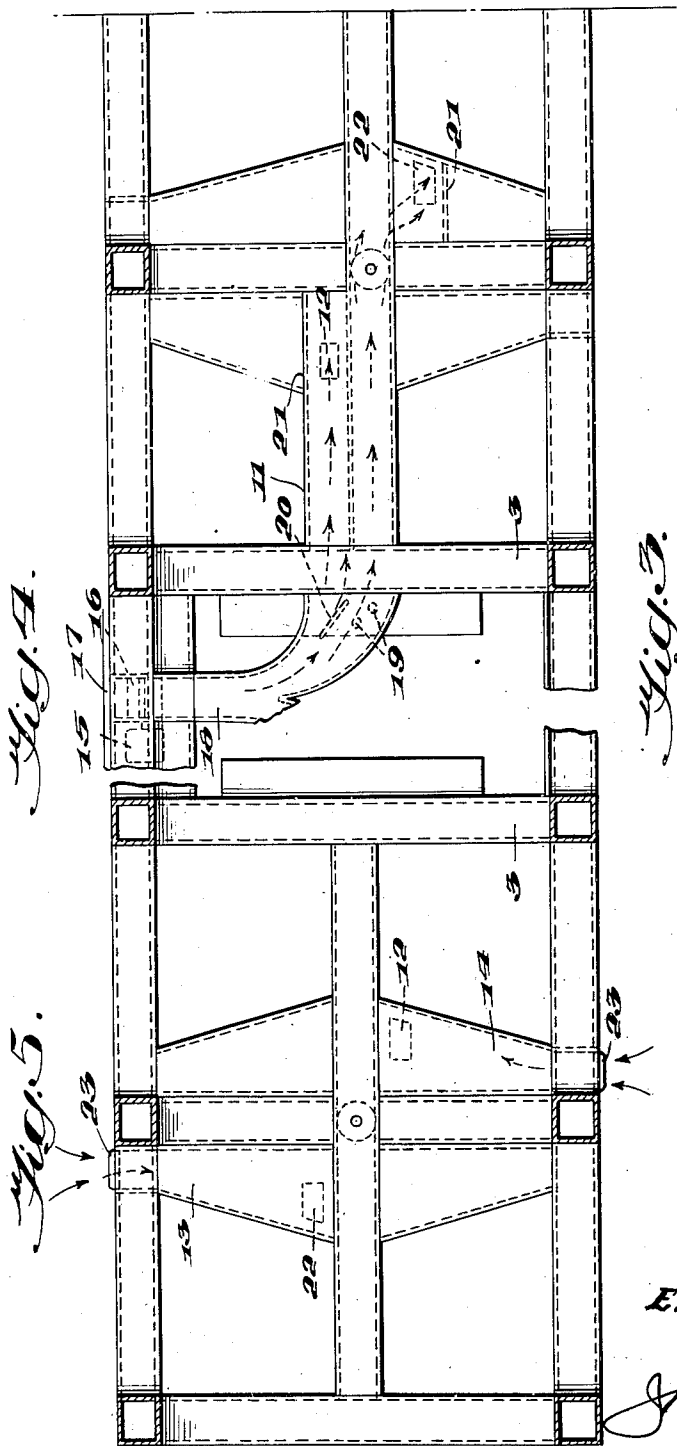
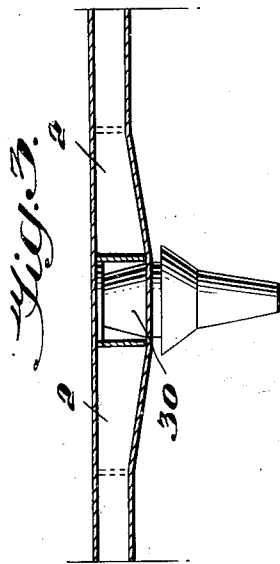
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BOLSTER CONSTRUCTION AND VENTILATION SYSTEM

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BOLSTER CONSTRUCTION AND
VENTILATION SYSTEM

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This invention relates to cars having a body and two trucks therebeneath and has for its object to provide an improved ventilation system for the motors carried by the trucks. The principal object is to provide a ventilation system including a series of ducts in the body which may be used, with slight alterations, either to feed a forced blast of clean air downwardly onto the motors or to inlet clean air from the side of the body to motors. Air may be merely inletted to the motors where the motors have a cooling fan incorporated within their casings.

Another object is to provide a longitudinal body bolster through which a center bearing member extends, the bolster being partitioned along its length to divide air from a blower, to direct the divided air from a blower, to direct the divided air through one compartment of each bolster directly to one motor of one truck, and to direct the remaining air through the other compartment, around said center bearing member and to the other motor of each truck.

A further object is to provide a longitudinal body bolster, as described, together with a web bracing and boxing extending outwardly therefrom fore and aft of the center bearing member which extends through the bolster, the bracing serving as lateral air ducts to admit air from alongside the body to the motors, when the motors are equipped with fans. When this alternative form is used the inlets to the longitudinal bolster are blocked and when the bolster is used to conduct air the inlets of this form are blocked as will be described in detail hereinafter.

Other objects and advantages also will be seen as reference is had to the accompanying drawings in which my invention is illustrated and, in which

Figure 1 is a perspective view of the intermediate longitudinal and transverse foundation members of a street car body together with my improved motor ventilation system,

Figures 2 and 3 are vertical sections taken, respectively, along the lines 2—2 and 3—3 of Figure 1, and

Fig. 4 is a horizontal section through the base of the vertical posts of one end of the underneath structure of a car body further illustrating the system arranged for forced ventilation of the motors, and

Figure 5 is a view similar to Figure 4 but of the other end of the underneath structure of the body illustrating the system arranged for self-ventilation of the motors.

More particularly, 1 indicates the body side sills which are connected by transverse members 2 which are transverse body bolsters, by transverse members 3 on each side of a step well 4, and by end transverse members 5. Extending from the midsection of the members 3 to the midsection of

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the members 5 are two hollow longitudinal body bolsters 6 and 7. These bolsters 6 and 7 are continuous from the members 3 to the members 5 and the transverse bolsters 2 are in two parts, the two parts being welded to opposite sides of the longitudinal bolster. These bolsters 6 and 7 are air ducts for supplying air to the far motors of the trucks therebeneath (not illustrated). The bolster 6 has an opening 8 through a side wall thereof and the bolster 7 has a similar opening 9 through an opposite side wall thereof, both of these openings being on the side of a king pin member 30 remote from the members 3.

Between the members 2 and 3 the bolsters 6 and 7 have further air ducts 10 and 11 respectively parallel therewith, one wall of the bolsters 6 and 7 serving respectively as one wall of the further ducts. These ducts each have an opening 12 in the bottom thereof through which air flows to the motor therebeneath, these openings and also the ducts 10 and 11 being on opposite sides of the bolsters 6 and 7.

Between the bolsters 2 and 7 and the side rails 1 and also between the ducts 10, 11 and the bolsters 2 and the side rails 1, I provide box-like bracing 13 and 14 respectively which, as will be described, is suitable for use as lateral air ducts. The space between the cross-members 3 is a compartment for motor control and other equipment. Also between these members is a motor 15 which operates a blower 16 (see Figure 4). The supply of air for the blower is directly through a grill or louvre protected opening 17 in a side sill 1 and air is directed from this blower into the ducts 6, 7, 10 and 11 by the split ducts 18.

In order to ventilate the equipment compartment or a restricted portion thereof, if desired, the ducts 18 have openings 19 in the bottom thereof. Dampers 20 located in the ducts 18 apportion the air supply to the ducts 7, 11 and 6, 10.

It will be noted, particularly in Figures 2 and 3, that the bolster 6 has greater depth in the vicinity of the king pin member 30 and that the parts of the transverse bolster members 2 are correspondingly given greater depth as they approach the member 6. That part of the king pin member 30 which extends upwardly into the intersection of the bolsters is of frusto conical shape and air may pass it without undue interference.

Operation will first be described where the motors are supplied with air from the blower 16. In this case air for the blower is sucked through the opening 17 then directed into the two parts of the duct 18. The dampers 20 then divide the air at each side of the equipment compartment into one stream which flows through the duct 10 and through the opening 12 to one motor, and into a second stream which flows through the duct 11 and through the other opening 12 to a second motor. In the box-bracing 13 above the other two

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motors vertical partitions 21 are welded in place parallel to the bolsters 6 and 7, and between these partitions and the bolsters 6 and 7 I provide openings 22 in the box-bracings. The two openings 22 are directly above two motors. Thus, the air which enters the bolsters 6 is directed past the king pin members 30, through the openings 3 and 9 and then through the openings 22. This flow is illustrated in Figure 4.

Where the motors carry their own fans the problem is, essentially, to supply these motors with a source of clean air from the side of the car. In this case I omit the blower 16, the ducts 18, the ducts 10 and 11 and the partitions 21, as illustrated in Figure 5. I also seal the openings through the cross-members 3, and I provide grill or louvre protected openings 23 through or at the ends of diagonally opposite box-bracings 13 and 14. Thus, air may enter the openings 23 and pass through the openings 12 and 22 to the motors, all as illustrated in the left side of Figure 4.

It will be obvious that where one operator may use some forced draft ventilation and some self-ventilation he may desire readily interchangeable equipment, in which case the ducts 10 and 11 may be supplied as original equipment for self-ventilation. In this case he will only have to add a blower 16 and the pipe sections 18 and shift partitions as described in order to convert to forced ventilation. In either case the ducts 10 and 11 may be considered as a part of the longitudinal bolsters and are so treated in the claims.

Various changes may be made without departing from the spirit of my invention and I therefore desire to be extended protection as defined by the scope of the appended claims.

What I claim is:

1. A rail car body having an equipment compartment located centrally therebeneath, transverse floor-supporting members serving as the longitudinal boundaries of said compartment, centrally located, longitudinal bolsters extending forwardly of said body from one of said members and rearwardly thereof from the other of said members, and a blower in said compartment supplying air into said bolsters, said blower having an inlet through the side of said body at the height of said transverse members whereby it receives clean, fresh air, said bolsters having outlets along the length thereof for supplying air to motors located therebeneath for the ventilation thereof.

2. A rail car body having an equipment compartment located centrally therebeneath, transverse structural members serving as the longitudinal boundaries of said compartment, longitudinal bolsters extending forwardly of said body from one of said members and rearwardly thereof from the other of said members, a blower in said compartment having an inlet exposed to the atmosphere at the side of said body, and a split air duct having one branch leading from said blower into one of said bolsters and its other branch leading into the other thereof, said bolsters each having outlets along their length for supplying air to motors located therebeneath.

3. A rail car body having an equipment compartment located centrally therebeneath, transverse structural members serving as the longitudinal boundaries of said compartment, longitudinal bolsters extending forwardly of said body

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from one of said members and rearwardly thereof from the other of said members, a blower in said compartment having an inlet exposed to the atmosphere at the side of said body, and a split air duct having one branch leading from said blower into one of said bolsters and its other branch leading into the other thereof, said bolsters each having outlets along their length for supplying air to motors located therebeneath, said split duct also having small outlets through the walls thereof for ventilation of at least a portion of said equipment compartment.

4. A rail car body having an equipment compartment located centrally therebeneath, transverse structural members serving as the longitudinal boundaries of said equipment compartment, longitudinal bolsters one of which extends forwardly from one of said members, the other of which extends rearwardly from the other of said members, transverse body bolsters intersecting said longitudinal bolsters at spaced distances from said transverse members, king pin members extending into said bolster members at the intersection of said transverse and longitudinal bolsters, said longitudinal bolsters constituting air ducts, said transverse bolsters being sealed against communication with the interior of said longitudinal bolsters, said longitudinal bolsters having outlets located at diagonally opposite sides of said intersection for supplying air to motors located beneath said body, and a blower located in said equipment compartment supplying air to said longitudinal bolsters.

5. A rail car body having an equipment compartment located centrally therebeneath, transverse structural members serving as the longitudinal boundaries of said equipment compartment, longitudinal bolsters one of which extends forwardly from one of said members, the other of which extends rearwardly from the other of said members, transverse body bolsters intersecting said longitudinal bolsters at spaced distances from said transverse members, king pin members extending into said bolster members at the intersection of said transverse and longitudinal bolsters, said longitudinal bolsters constituting air ducts, said transverse bolsters being sealed against communication with the interior of said longitudinal bolsters, said longitudinal bolsters having outlets located at diagonally opposite sides of said intersection for supplying air to motors located beneath said body, and a blower having an inlet continuously open to the atmosphere alongside said body, said blower being located in said equipment compartment and having ducts associated therewith leading into each of said longitudinal bolsters, said longitudinal bolster passing a portion of the air past said king pin members.

EDWARD ELLIOTT.

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