(No Model.)

H. A. GOUGE.

STOCK CAR.

No. 261,920. Patented Aug. 1, 1882.

FIG. 1.

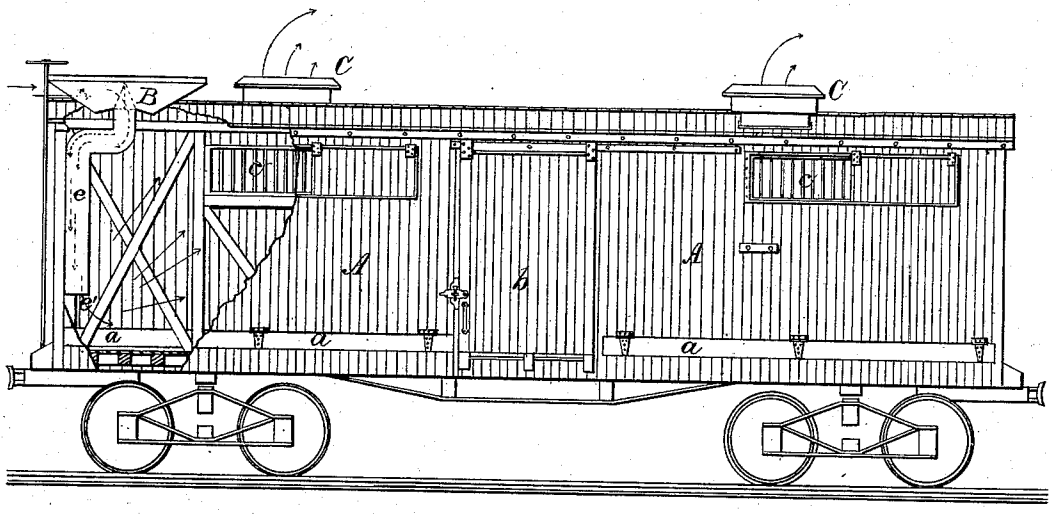
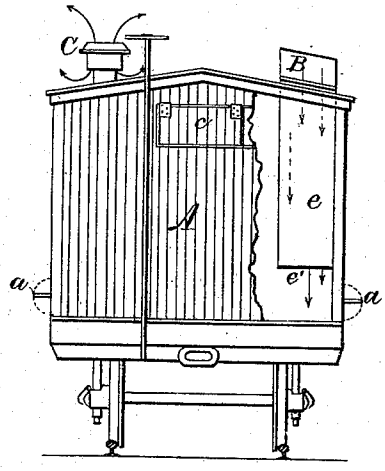


FIG. 2.



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UNITED STATES PATENT OFFICE.

HENRY A. GOUGE, OF NEW ROCHELLE, ASSIGNOR TO THE GOUGE HEATING AND VENTILATING COMPANY, OF NEW YORK, N. Y.

STOCK-CAR.

SPECIFICATION forming part of Letters Patent No. 261,920, dated August 1, 1882.

Application filed September 16, 1880. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. GOUGE, of New Rochelle, in the county of Westchester, in the State of New York, have invented certain new and useful Improvements in Stock-Cars; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of my invention.

The prime object of my invention is to reduce the loss by shrinkage incident to the transportation by rail to market of cattle, sheep, and hogs. That serious shrinkage is experienced is a fact well known, and the causes thereof are generally understood to consist in the irregularity of feeding and watering the stock, and therefore much attention has heretofore been given to devising stock-cars wherein the feeding and watering may be readily and properly attended to. From a long and careful investigation of the subject I have satisfied myself that the large shrinkage not guarded against through proper feeding and watering is due in cold weather to undue exposure to the weather through the open-side cars, or to bad air when said cars are so far closed as to seemingly afford proper protection from the elements, and in hot weather not only to bad air, but to the injudicious exposure to the sun and to indiscriminate blasts of air, first from one side of the car only, and then from the other, and then sweltering, with little or no draft of air, according as the direction of the line of track varies or corresponds with the direction and force of the wind from time to time. I have, moreover, carefully noted the effect upon cattle of nervous irritation incident to the passage of cattle-trains alongside of other moving or stationary trains, under bridges, through tunnels, &c., and am convinced that in most cases the stock is largely injured thereby. The open cars so commonly in use also unduly expose the cattle to the attack of flies, and it is a matter well known that at every stoppage of a cattle-train myriads of gorged flies sluggishly leave the cars, to be replaced by another hungry swarm.

With a stock-car constructed in accordance with my invention cattle can be transported with a minimum of that shrinkage which is independent of feeding and watering, which should, of course, be provided for by the adoption of some one of the several heretofore-devised arrangements for those purposes.

In my car the sides or walls are susceptible of being wholly closed, as in a box-car. Suitable longitudinal apertures at the floor on each side are provided with hinged doors to admit of frequent cleansing. Suitable windows in the sides and ends are also provided for admitting light, and these are provided with close shutters, so that either or all may be closed on proper occasion, as in fierce cold storms. On each car I employ as a novel feature in a stock-car one or more air-injecting hoods, which communicate with interior pipes, whereby when the car is in motion fresh air under pressure will be freely supplied to the car and delivered at proper points therein. I also employ on each car one or more suction-hoods or ventilators, which, when the car is in motion, so exhaust air from the car as to maintain therein the desired freshness and freedom from poisonous exhalations, and when the car is at rest said ventilators freely discharge the rising exhalations and induce an inward supply of air at the various apertures in the walls of the car.

To more particularly describe my invention, I will refer to the accompanying drawings, in which—

Figure 1 represents, partly in side view and partly in vertical longitudinal section, a stock-car embodying my invention. Fig. 2 represents the same partly in end view and partly in vertical cross-section.

The body A of the car may be variously constructed; but to be in accordance with my invention it should be susceptible of being so far closed as to be substantially a box-car. The longitudinal side apertures near the floor of the car, covered by the hinged lids *a*, are important, and they have heretofore been employed, not for ventilation, but as a means for readily cleaning the car-floor or putting water and food into troughs provided for that purpose. Under variable circumstances these apertures are kept open or closed. The doors *b* of the car are or may be as heretofore. The

windows *c* are also, as heretofore in some box-cars, preferably grated, and essentially provided with close-sliding shutters *d*, if they are not so small and so numerous as to not require their closure. I also prefer to have similar windows properly guarded by shutters at each end of the car. In such a car stock properly fed and watered will nevertheless shrink to a serious extent, notwithstanding their protection from inclement weather and such freedom from nervous shock and irritation as result from the use of the close-walled car in contradistinction to the open or slat car. I have therefore, in accordance with my invention, introduced well-known means for artificial ventilation, involving either the forcible induction of fresh air or special means for exhausting foul air, but preferably apparatus for performing both operations.

The air-forcing hood B shown in the drawings may be variously constructed; but I perfer one of simple form, possessing the drop-valve in its center, which provides for the proper forcible induction of air, regardless of the direction in which the car is moved. The pipe *e* within the car communicates with the hood, receives air therefrom, and delivers it within the car at one end, near the floor, at *e'*. More than one of these hoods may sometimes be profitably employed, and air-flues may be branched from said pipe *e* when desired—as, for instance, in such cars as have two or more floors, one above the other, for transporting calves, sheep, and hogs, in which case it is desirable that each floor or section should have its due proportion of fresh air direct from the hood and its pipes, instead of relying solely upon air rising through an upper floor from the main or lower section of the car. This feature of providing for a forced supply of fresh air to a stock-car I believe to be novel with me.

To provide for a positive removal of foul air, the ventilating apparatus C is relied upon, of which one or more may be employed. Various forms of ventilators are well suited for the purpose; but I deem it desirable that the most approved types thereof be used, and I prefer such as are shown and described in prior Letters Patent issued to me relating to the heating and ventilating of passenger-cars, and also in my Letters Patent for grain-cars, July 2, 1878, No. 205,634.

It will be seen that the side openings or windows, *c*, are near the top of the car, and that if each of these be more or less opened the ventilating apparatus may be dispensed with and desirable results nevertheless attained, because the air-forcing hood will deliver the cool fresh air beneath the cattle, and the heated air and exhalations from the cattle, on rising, will have free exit from one or more of the windows on one or both sides of the car, according to the force and direction of the wind. So, also, can desirable results be attained if the air-forcing apparatus be dispensed with, if the ventilating apparatus be used, because the lids *a* near the floor of the car, at the sides, on being partially raised, will admit fresh air beneath the cattle, to take the place of the foul air exhausted by the ventilating apparatus. I prefer, however, that the car as a whole be constructed in all respects substantially as shown and described, because it is then best adapted to properly operate under all the varied conditions incident to its use.

Without the use of the air induction and exhaust apparatus a well-filled cattle-car of the character described will ordinarily indicate a interior temperature of from 30° to 40° higher than that of the external atmosphere at, say, 70°, and the variation in colder weather would be nearly as great. In cold weather sufficient light is only required *via* the windows of the car, and therefore my air-supplying apparatus furnishes ample fresh air, and the ventilators promptly dispose of the foul air without reducing the temperature within the car below that of the ordinary stable. In hot weather the car may be so far darkened as to exclude the sun's rays and render the interior non-attractive to flies, and an ample supply of healthful fresh air is maintained within the car, and to such an extent is the fresh air supplied and foul air exhausted as to result in a temperature within the car but little, if any, above that of the external atmosphere, notwithstanding the appreciable internal radiation of heat from the walls and roof of the car, which in hot weather is well known to occur.

While I have mainly considered the transportation of stock from a practical or economic point of view, I am not unmindful of those finer considerations which are involved in the proper treatment of brutes with reference to their ease and comfort; but it will be seen that these latter results necessarily follow or accompany the economic results. Nor am I unmindful of the superior quality of human food afforded by stock carefully and tenderly transported to market as compared with stock which has been neglected and abused, for although that is a matter of great hygienic importance, it is almost universally neglected unless accompanied by results which are unfortunately recognized as of more importance, because pertaining to a matter of pecuniary profit and loss.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a close stock-car, of guarded openings near the floor of the car and a ventilating apparatus whereby the foul air is withdrawn through the top of the car and fresh air admitted through the guarded openings near the floor, substantially as described.

2. The combination, with a close stock-car, of an apparatus for forcibly injecting air and delivering it near the bottom of the car, of suitable guarded openings in the sides of the car, near the top thereof, whereby fresh air

may be forced into the car and foul air freely allowed to escape through the openings, substantially as described.

3. The close stock-car, substantially as hereinbefore described, provided with the guarded openings near the floor, the guarded openings or windows near the top, the air-induction apparatus, and the ventilating apparatus, as and for the purposes specified.

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Witnesses:
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