2 Sheets--Sheet 1.

W. C. A. FRERICHS.

Snow-Rams for Railroads.

No. 134,595. Patented Jan. 7, 1873.

Fig. 1

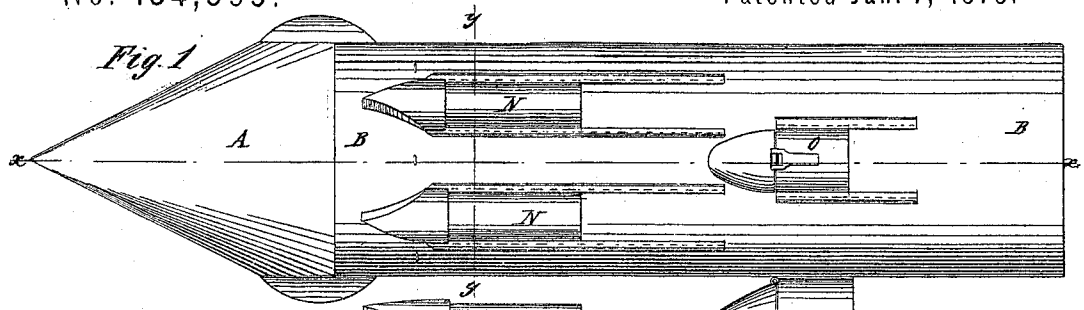


Fig. 2

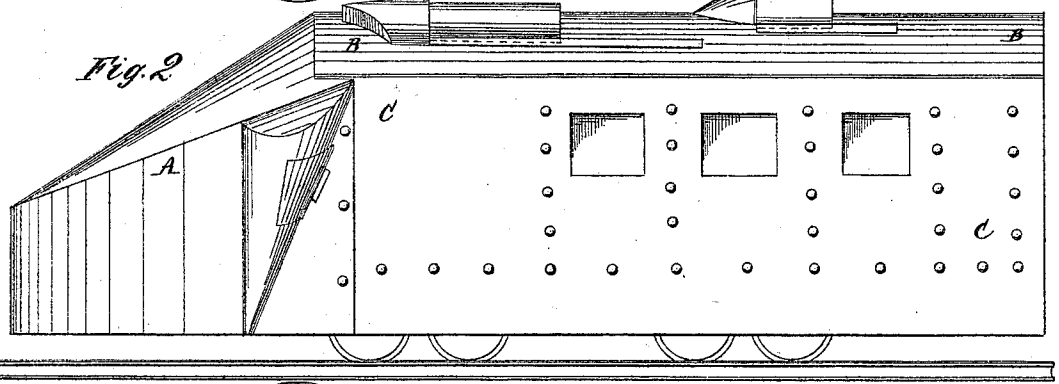


Fig. 3

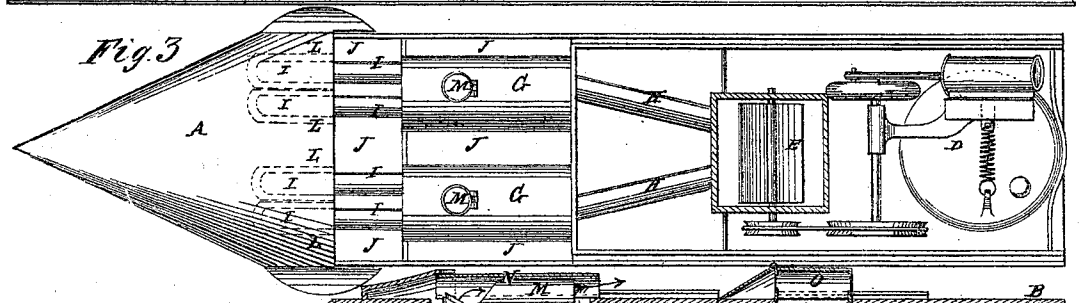
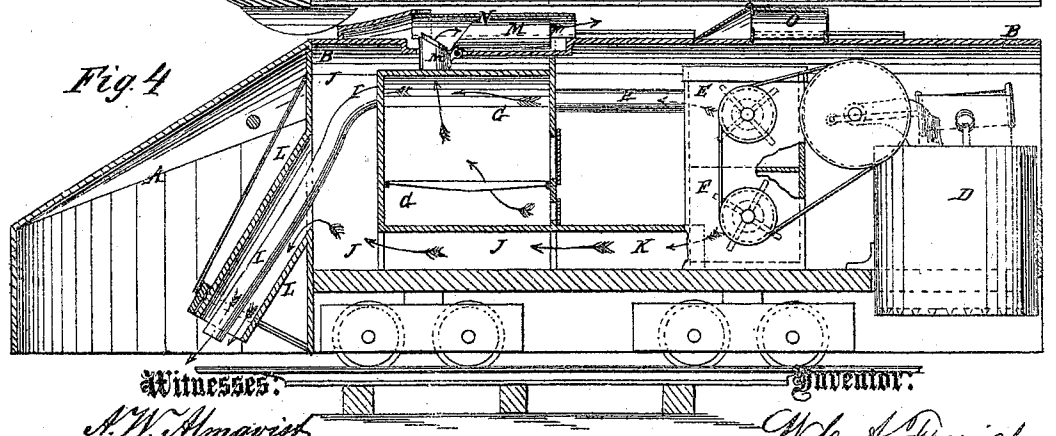


Fig. 4



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2 Sheets--Sheet 2.

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Snow-Rams for Railroads.

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Fig. 5

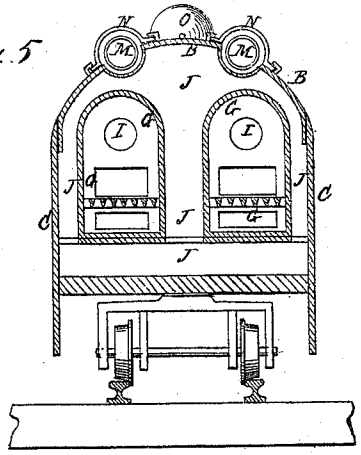


Fig. 6

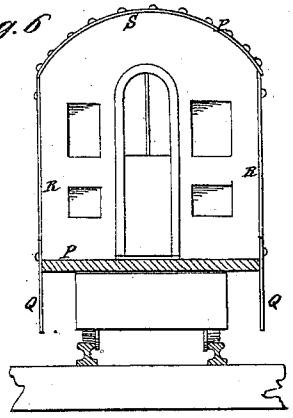


Fig. 7

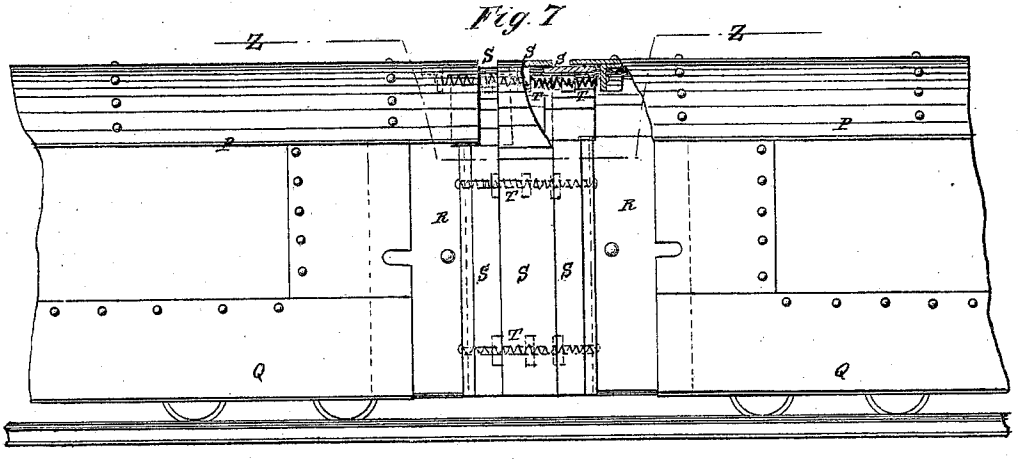
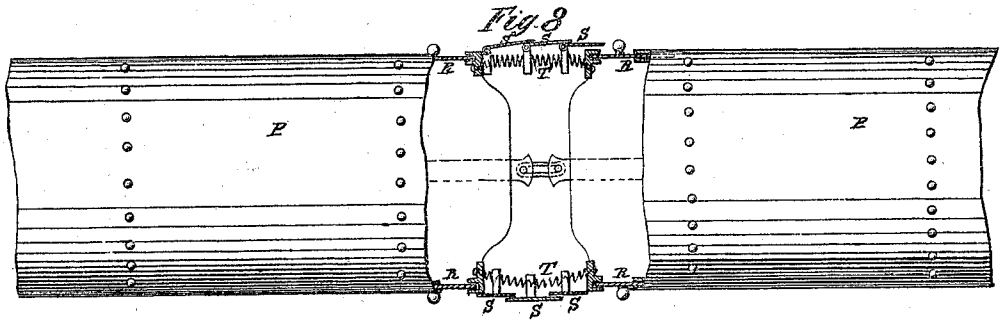


Fig. 8



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UNITED STATES PATENT OFFICE.

WILLIAM C. A. FRERICHS, OF TOTTENVILLE, NEW YORK.

IMPROVEMENT IN SNOW-RAMS FOR RAILROADS.

Specification forming part of Letters Patent No. 134,595, dated January 7, 1873.

To all whom it may concern:

Be it known that I, WILLIAM C. A. FRERICHS, of Tottenville, in the county of Richmond and State of New York, have invented a new and useful Improvement in Snow-Ram for Railroads, of which the following is a specification:

Figure 1, Sheet I, is a top view of my improved snow-ram. Fig. 2, Sheet I, is a side view of the same. Fig. 3, Sheet I, is a top view of the same, the cover being removed. Fig. 4, Sheet I, is a detail vertical longitudinal section of the same taken through the line *x x*, Fig. 1. Fig. 5, Sheet II, is a detail vertical cross-section of the same taken through the line *y y*, Fig. 1. Fig. 6, Sheet II, is an end view of one of the passenger-cars. Fig. 7, Sheet II, is a side view of the adjacent ends of two passenger-cars, part being broken away to show the construction. Fig. 8, Sheet II, is a top view of the same, partly in section, through the line *z z*, Fig. 7.

Similar letters of reference indicate corresponding parts.

The invention consists of a tunneling snow-ram for railroads, and of certain special features of construction, hereinafter fully described and subsequently claimed.

A represents the forward end, head, or hood of the ram, which is made wedge-shaped, and the top of which is curved or arched, and extends up to or a little above the top B of the body C of the ram. The sides of the hood A, at or near the body C of the ram, project or have projections formed upon them, as shown in Figs. 1, 2, and 3, so that the said hood may form a tunnel as large or a little larger than the body of the ram. The hood A is formed of metal of sufficient strength to withstand the pressure of the snow. The sides of the body C are made of metal, are vertical, and the top B is rounded, as shown in Figs. 1, 2, and 5. In the rear part of the body C is placed a donkey or other suitable engine, D, to drive two or more fan-blowers, E F, about the construction of which there is nothing new, and which should be provided with the ordinary appliances to divide or regulate the blast. In the forward part of the body C are placed two (more or less) furnaces, G, into the upper parts of which the blast from the fan-blower E is introduced through the pipes H, to be heated and driven out through the pipes I, which pass through the forward end of the body C into the space beneath the hood A. The furnaces G are surrounded by an air-tight space or compartment, J, into which the blast from the other fan-blower, F, is introduced through the pipes or passages K. This air circulates around the furnaces G, becomes heated, and is driven out through the pipes L, as shown in Fig. 4. The pipes I L may be set at any desired angle; and the heated air driven out through them is designed to keep the outer surface of the hood A sufficiently heated to prevent the snow from sticking to it, and to cause the snow to pack. M are the smoke-stacks, through which the products of combustion may be allowed to pass when starting the fires, and which should be provided with dampers, to be closed when the blast is introduced. The smoke-stacks M are hinged, so that when the ram is at work they may be turned down out of the way into a recess formed to receive them in or below the top B, where they are covered and protected by caps N. The top B also has a look-out-hole formed in it to enable the engineer to look out when desired, which hole is covered with a cap, O. The cap O may project above the top B, in which case it may have a glass set in its rear part to enable the engineer to look back without removing the cap. P represents the bodies of the cars, which are made with rounded tops, and are similar in form to the body B C of the ram. The bodies P are made of the same size or smaller than the body of the ram so that they may readily pass through the tunnel formed by said ram. To the sides of the car-bodies P are attached plates Q, which project down nearly to the track to guard against any snow-slide passing in beneath the cars and clogging them. The platforms of the cars are shut in at the sides by sliding doors R, which, when opened, slide into recesses prepared for them in the sides of the car-bodies, as shown in Figs. 7 and 8. The spaces between the platforms of the adjacent cars, at the sides and top, are shut in by plates S overlapping each other, and connected with each other and with the cars by springs T to give them the necessary elasticity for passing around curves, &c. The drawing shows two ways of overlapping the plates S. The doors R and plates S are designed, in case of a slide

or falling in of the snow, to prevent the snow from passing in between the adjacent ends of the cars and thus clogging the train.

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

1. A ram for tunneling snow on railroads, consisting of the heated hollow tapering head A and vertical-sided and top-rounded body B C, provided with suitable heating apparatus, the former extending to the top of the latter, and laterally a little beyond the body, as and for the purpose described.

2. The furnaces G G and the surrounding chamber J with its air inlet and outlet pipes K L arranged in connection with the hollow head A, as and for the purpose described.

3. The smoke-stacks M, hinged and folding under cap N, as and for the purpose described.

4. The overlapping plates S and springs T arranged between the platforms of two adjacent cars, as and for the purpose described.

WILLIAM C. A. FRERICHS.

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