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Snow Fighting Equipment.

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Grand Trunk Pacific Rotary Ploughs. Fig. 32 shows a rotary plough built by the Bucyrus Co. for the Grand Trunk Pacific Ry. As far as the writer has been able to learn, only two of these ploughs were built. The wheel is of a modified scoop type, and has 10 radial scoops, the inner ends of which are fastened to a steel casting keyed to the main shaft. The general form of the scoop is the same as in the rotaries described previously, except that the adjoining edges of the scoops are brought straight out towards the face of the wheel. The flanges of a heavy hinge casting are placed over the double edges thus formed. This casting is fastened by rivets passing through both flanges and the adjoining edges of the scoop plates. Near the outer periphery of the wheel, heavy braces or spacer bars are applied between each hinge casting. The cutting blades are double edge and made of cast steel. Each blade adjusts itself automatically and independently and no connecting links are used. The inner ends of five of the knives are carried close to the center of the wheel; the other five knives are shortened so that they will not interfere with the longer ones.

Union Pacific Rotary. — Four rotary snow ploughs were built by the Union Pacific Rd. The cutting wheel is built up around a cast steel center secured in the usual manner to the front end of the

of the wheel. The outer ring is of mild steel 1 x 4 in. section. Between the inner and outer rings are riveted two types of cast steel arms. Each alternate arm is provided with bosses for hinging knives. The front edges of the ½ in.

operated by air and the cutting wings are heavily braced in working position. When not in use, the wings are drawn in by means of levers operated by a hand screw. The boilers on these ploughs are equipped with superheaters. The use

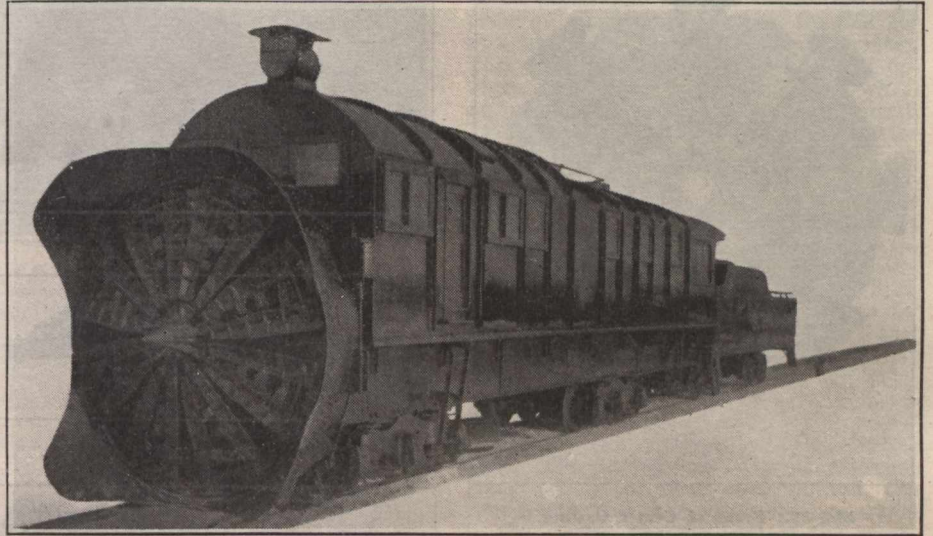


Fig. 33. Canadian Pacific Ry. Heavy Rotary Snow Plough.

plate partitions are riveted to the arms without bosses. The plain arms also serve as stops for the knives, which are double edged and of cast steel, and which

of highly superheated steam provides a substantial increase in power and reduces the consumption of fuel and water, enabling the plough to remain out longer without running for an additional supply.

Canadian Pacific Heavy Rotary.—The greatest test of a rotary snow plough is its ability to cut through snow slides. The plough can be subjected to no heavier service than one which is occasionally required on all roads crossing the Rocky, Cascade and Selkirk Mountains. The snow in these slides is not only packed exceedingly hard, but often contains trees and rocks. It is impossible for rotaries to overcome such obstacles. It is generally customary to probe the slide with sounding rods to locate them, and, if possible, they are removed by blasting, or by being pulled out. Sometimes, however, these obstacles are not discovered and when the plough encounters them the ordinary cutting knives are generally damaged and the plough often put out of commission. The repair of the knives is generally difficult and slow.

During the winter of 1908-09, Mr. George Bury, then General Manager, Western Lines, C.P.R., decided that a plough was needed which would not break down, and he stated that he wished a rotary plough with cutting knives of 2 in. armor plate, and the rest of the plough built in proportion. The following spring, authority was given for two such ploughs and arrangements were made with the Montreal Locomotive Works for their construction. H. H. Vaughan, then Assistant to the Vice President of the C.P.R., engaged John Play-er, Consulting Engineer of the American

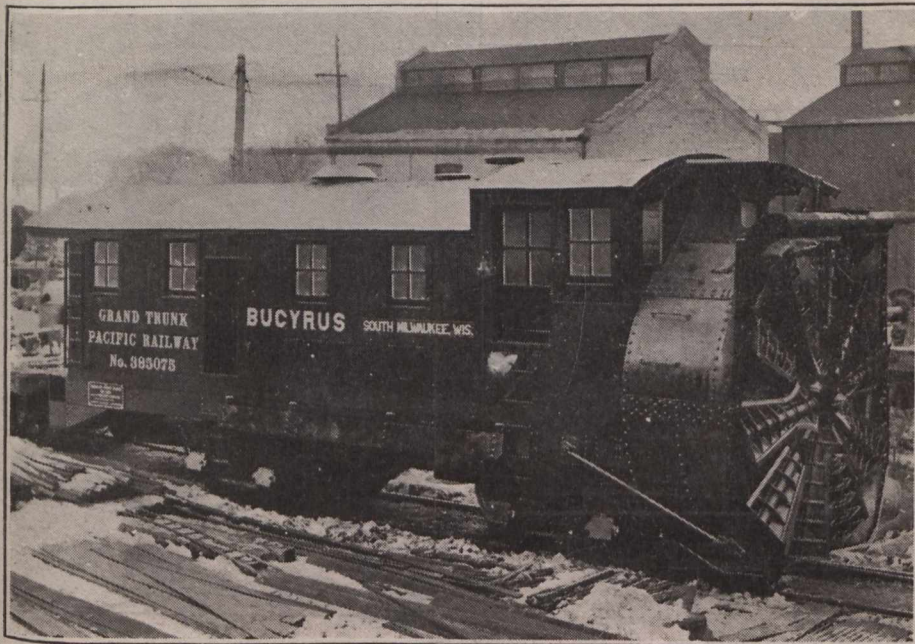


Fig. 32. Grand Trunk Pacific Ry. Rotary Snow Plough.

wheel shaft. This casting is spool shaped. The front is 50 in. in diameter and contains a number of spokes. On three of these spokes the small center cutting knives are hinged. The outer ring of this center casting forms the inner ring

adjust themselves independently without connecting links. These knives are hinged to the bossed steel arms by means of continuous pins. A drop nose and very substantial cutting wings are fastened to the front casing. The drop nose is