

The knives can be reversed so as to throw the snow to the other side of the track when necessary. This machine works steadily ahead, cutting out a clean furrow through the snow, through which a train may pass as through an ordinary cut. There is no "bucking" necessary, and one machine will do more than a dozen "buckers," and make a better job of it. With such machines as this snow sheds will fall into disuse.

There has been a machine invented known as the "Jull Centrifugal Snow Excavator," which much resembles a steamer's propeller. It works on the screw principle, boring its way into the snow, which is carried back by the thread to the rear and expelled through the chute in the same way as in the rotary machine. By this machine snow can be thrown to either or both sides of the track at will, the change being made without stopping. The experimental excavator was only completed late last winter, and it is having its practical tests made on a few eastern roads the present season as well as on the Union Pacific.

Another machine on the screw principle is the "Cyclone Steam Snow Plow." The point of contact in this machine is in the center of the screw. In other words the screw shaft points directly ahead. In the Jull machine the shaft is inclined downward, and the auger point is but a short distance above the track. The cyclone plow has not yet been brought west, but is receiving a thorough test on eastern roads this winter.

The present season has been unprecedented on the Pacific coast for the amount of snow that has fallen and the length of time the succession of storms has continued, in direct contrast with the Atlantic slope, where an ethereal mildness has prevailed that causes the natives of that Borean region to stand in awe of a weather clerk capable of such an eccentricity. Since the first day of January there has been one continuous battle with the snow on all lines, and for days at a time trains have been snowed in at some portion of the track. The Northern Pacific has been fortunate enough to keep its track open, and has had but few serious delays; but the lines of the Southern Pacific in Northern California, of the Central Pacific in the Sierra Nevada mountains, of the Union Pacific in Eastern Oregon, and the branch from Pendleton to Spokane Falls have been closed for days at a time. On the Southern Pacific, near Mount Shasta, the most strenuous efforts with the old-fashioned "snow buckers" failed to keep the track clear, and it was blockaded several times, at one time remaining closed for a week. The Siskiyou mountain section was also troublesome, but was always opened before the section farther south. The Southern Pacific has not yet received a giant rotary plow ordered last summer, and was at a disadvantage during the storm. The plow will soon ar-

rive, and no more such serious trouble may be expected. The Central Pacific, the pioneer in snow plowing, was the worst blockaded of all, the old style of plow being unable to do the work given it, though 1,100 men were employed as assistants.

The Union Pacific kept continuously employed two rotary plows, except for a few days during the worst part of the storm, when one of them was disabled. Notwithstanding these and the services of several "buckers" and about 500 men, the road in the Blue mountains was closed for ten days at one time, and at shorter intervals previously. Passengers accumulated by the hundreds on both sides of the mountains, in daily expectation of getting through, while trains were cut off in Grand Ronde valley from progress in either direction. The road was blockaded both along the main summit of the Blue mountains, between Pendleton and La Grande, and the Powder river spur, between Grande Ronde and Powder river valleys, the latter being the most serious. As fast as the plows made a passage storms drifted the snow again upon the track. Several times the road was almost open, only to be sealed again by the drifting snow. One of the Jull plows was brought out from the east to replace the rotary that had been disabled, and immediately upon its arrival made an attack upon the almost unconquerable drift in Pyle canyon and cleared a passage through it in sixteen hours. At the same time the rotary opened the line over the Blue mountains. Thus the blockade was raised and the delayed passengers were sent on their way rejoicing, while the tons of mail that had been accumulating completely swamped every postoffice in the country.

Notwithstanding the unusually severe weather and heavy snow fall of Central Washington very few cattle have perished from exposure on the range. Stock is not left to rustle for itself, however, except in a few instances. One firm in the Yakima valley is feeding 2,000 head of cattle and another 3,000. There is plenty of hay and stock is expected to winter in good condition. In Southeastern Oregon, Southern Idaho, Northern Nevada and Northeastern California, the situation is not so favorable. Last year the season was dry and less hay than usual was put up. But little is now on hand and many bands of cattle have been turned loose upon the range to fight with the snow drifts for a chance at the short grass beneath them. Thousands will probably perish before spring.

A special world's fair committee has been appointed by the house of representatives, and this committee will soon report a plan for determining the question of a site for the fair. When this is done the matter of date and means will be attended to.