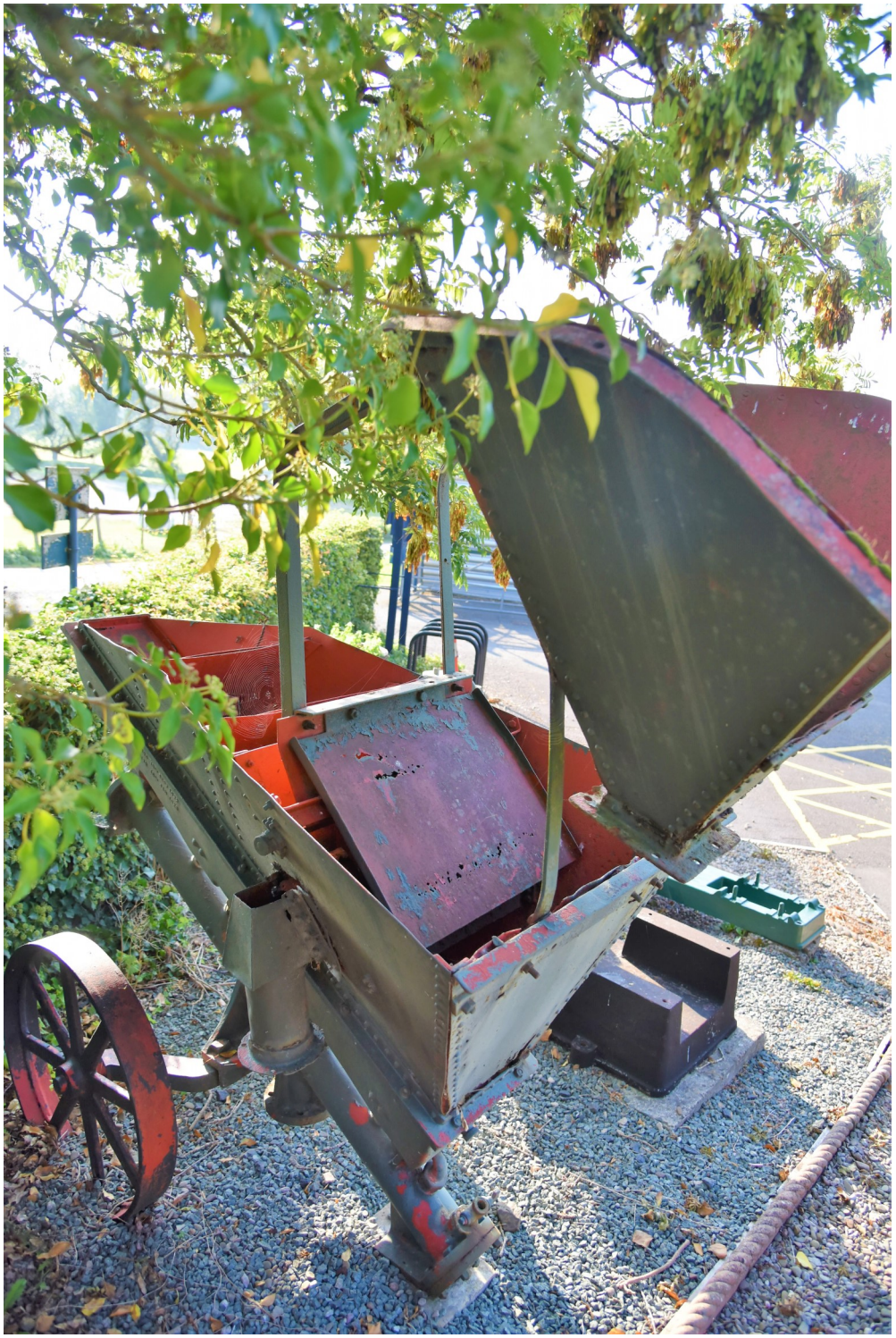
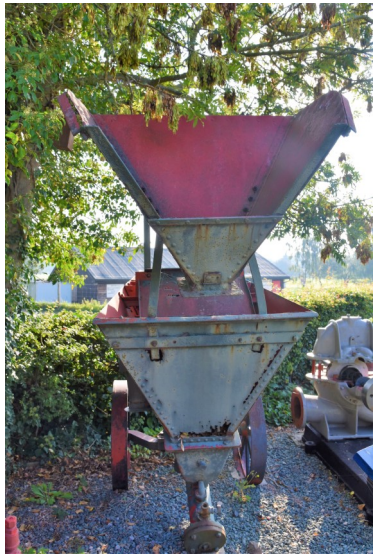


Glenfield & Kennedy Ltd 'Peebles' Portable Sand Washer

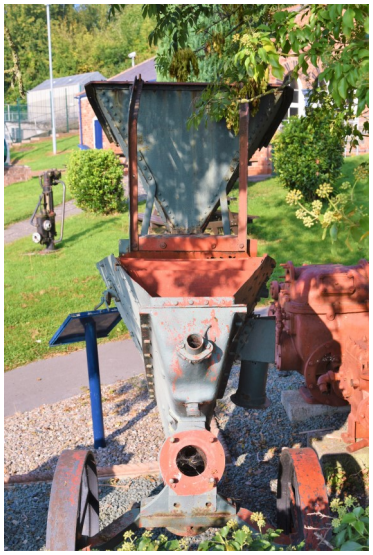
This is an important artefact with strong local provenance. It was used to clean the sand filters at the Broomy Hill Waterworks from the mid 1920's until the works was modernised in 1977, when it was gifted to the Waterworks Museum.

It was designed and patented by James Peebles in 1921, with later improvements registered in 1922, 1923, 1927 and 1933. This particular sand washer dates at the earliest from 1924 as details of patents 1-3 are stamped on the washer.

The 'Peebles' washer was exhibited at a national show at Wembley in 1924 from which we have a wonderful 'engineers' description of its operation. With a typical 5lb of water pressure it could wash a ton of sand in under 15 minutes. We know that a washer of this design was installed in 1924 at a reservoir near Cheltenham at a cost of £160 (or about £7,200 at 2020 Prices).



This washer will shortly be moved to another part of the Museum site to create space for a new display.



Glenfield & Kennedy Ltd 'Peebles' Portable Sand Washer

ENGINEERING NOTES - THE 'PEEBLES' PORTABLE SAND WASHER

One of the troubles in connection with the use of sand filter beds is the washing and cleaning of the dirty sand, an objectionable and laborious operation when carried out by the usual hand methods using tanks and high-pressure water jets (60-80lb pressure). In fact, the working efficiency of the average sand filter is much lower than it ought to be because of the natural reluctance to undertake the job of cleaning by hand.

Some two years ago (in 1922), Messrs. Glenfield & Kennedy Ltd introduced a very ingenious machine, the Peebles Sand Washer, which carried out this operation automatically. It is merely necessary to couple it to a low -pressure water supply. A considerable number of these machines have already been installed and there has now been placed on the market a portable type of the machine, on the same general lines as the original design.

Essentially it consists of a series of small washing chambers, one behind the other on an inclined plane connected at the bottom by a cast iron feeder pipe. The whole rests on a steel axle between two cast steel wheels. The sand falls from the hopper through an oscillating screen, operated by a small water motor, so as to separate all the (waste) materials with the screened sand falling into a chamber at the bottom where a jet of water forces the sand upwards and mixes it thoroughly in the water.

The general principle is that the dirt and impurities are lighter than the sand and are easily washed out to a discharge, whilst the heavier sand only is retained by gravity and blown by water jet into the next chamber higher up. In this way the sand is propelled continuously through the apparatus, four chambers in succession, by water jets thus repeatedly mixing and washing the sand with clean water and removing the impurities by gravity. The cleaning action is also assisted very effectively by the repeating change in direction of the sand in the machine and the consequent scrubbing action of each grain on its neighbour, while being washed at the same time.

The machine is wheeled about by hand from one filter bed to another, so that the sand can be washed on the spot. The total weight of the machine in 13cwt, the overall length being 9ft 0in, the width 5ft 4in and the height 3ft 0in, all resting on two cast steel wheels. The output depends to some extent on the water pressure but at 5lb, with a consumption of 8,000 gallons per hour, the figure is 98 cubic ft (5.15 tons) of sand per hour, the time required to wash one ton being 14½ minutes.

The machine is claimed to be extremely strong, there is practically nothing to get out of order, the wear and tear is negligible, and finally unskilled labour can be used as the only work consists of shovelling the dirty sand into the hopper.

[Source: The Yorkshire Post, Friday February 29, 1924]