

IMPROVED FARM LOCOMOTIVES AND STEAM ROAD ROLLERS.

Messrs. Aveling & Porter's well known road and farm locomotives and their steam road rollers have had a new duty and are now adapted for use in connection with the Blake Crusher Company, of New Haven, to their stone and ore crusher. The crusher is mounted on strong wheels, as illustrated, and, by the aid of the Aveling locomotive or their steam roller, can easily be removed from quarry to quarry or to any place where it may be found more convenient or cheaper to take the crusher to the material than to move the material to the stationary crusher. As either of the engines can likewise be used for hauling or consolidating the broken stone, or driving the crusher, the convenience and economy of this arrangement will be manifest.

Messrs. Aveling & Porter, we are informed, have built upward of 1,300 road and farm locomotives; and their extensive manufactory at Rochester, England, has, during the last two years, been doubled in capacity. By reason of the varied duties to which the Aveling traction engine can be applied, including hauling, plowing up prairie land, thrashing, and general farm work, the demand has very greatly increased, and from six to eight engines leave Messrs. Aveling & Porter's works every week throughout the year.

The road locomotive is largely employed instead of the ordinary portable engine for farm and other work; it is extensively used in Great Britain for plowing and hauling farm produce, and heavy material on ordinary roads, and its reliability and great economy, when taking the place of animals for such work, have built up for the manufacturers a prosperous and growing business in England.

The engines are built of great strength and comparative lightness. Their ability to ascend steep grades with heavy loads, their handiness, security against damage when traveling even on rough roads, are leading results obtained.

As an illustration of the value of these locomotives for hauling purposes, the following estimate of the daily expense, we are informed, may be taken as approximately correct, altering cost of labor and fuel for different localities:

Size of engine, say, 16 horse power; journey 12 miles out, loaded, returning empty; grade of road varying, say, from 1 in 25 to 1 in 10; load (without wagons) 12 tons.

Wages, engineer, \$2.50; assistant, with wagons, \$1.75; coal, half a ton, \$2.50; oil and waste, \$0.50; interest and wear and tear, say 15 per cent, \$2; water, say, \$1.25. \$10.50, total cost of hauling 12 tons of material 12 miles, or about 7 cents per ton per mile.

One man only is required for the entire management of the engine, and the total cost of running one of these locomotives, of sufficient size to haul and drive the largest thrashers, does not exceed \$4.50 per day, including wages, fuel, and oil. Such an engine would easily convey loads of 10 tons of material on ordinary roads and ordinary grades.

The steam road roller of Messrs. Aveling & Porter costs about the same sum for running expenses, and the results of constructing and maintaining roadways, by the aid of this machine, are, it is claimed, that a saving of from 50 to 65 per cent in material and wear and tear is effected.

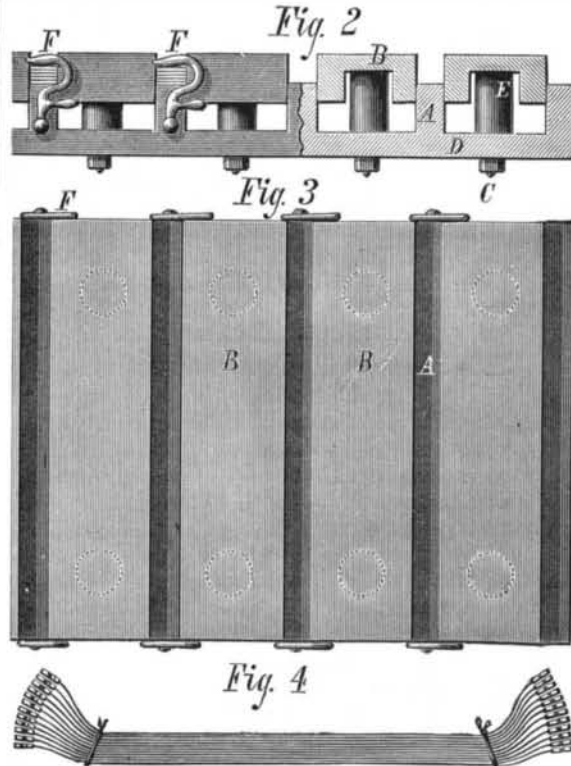
At the Philadelphia Exhibition, in 1876, the only prize awarded for steam road rollers was given to Messrs. Aveling & Porter. Both during and after the Exposition the locomotives were employed by the British and Canadian Commissioners in removing from place to place large quantities of heavy machinery and material.

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NOTE FROM THE EYE.—Take a horsehair and double it, leaving a loop. If the mote can be seen, lay the loop over it, close the eye, and the mote will come out as the hair is withdrawn. If it cannot be seen, raise the lid of the eye as far as possible, and place the loop in it as far as you can; close the eye and roll the ball a few times, then draw out the hair. The substance which caused so much pain will be sure to come with it.

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on the ribs, A, and held in place by the spring hooks, F, Fig. 2. It will be seen that, as the uncompressed bale lies upon the blocks, B, it may be moved about without



disturbing the band which lies between them. The operation of the machine is as follows: A bundle of the bands, as shown in Fig. 4, is placed on each of the ribs and between the movable blocks, which prevent them from moving laterally. They are held on to the face of the ribs by the hooks,

the press moves up until it is fully compressed. As soon as the pressure is applied the movable blocks yield until they rest on the plate, D, leaving the bands not only in contact with the bale, but, in the case of full bundles, forced into the cotton from an inch to an inch and a half.

The bands are now fastened, the press lowered, the bale removed, and the operation is repeated. The supply of bands is renewed from time to time as they become exhausted. We are informed that 30 bands have been found not to be too many to put in each bundle. Thus the time consumed in reefing or passing the single band through the press is saved. This results in a marked increase of the amount of work done by the press.

Again, the absolute contact obtained by this method renders impossible poor or shiftless work by a careless tier. These platens are in successful use on the presses of the Union Cotton Compress Association of Memphis. Patents were issued to John T. Burr, dated September 15, 1874, and January 23, 1877, through the Scientific American Patent Agency. Further information may be had by address A. E. & J. T. Burr, either Memphis or Nashville, Tenn.

The Coming Great Famine in Madras.

A calamity greater, says the *Saturday Review*, than any that has yet occurred in India during British rule, is now threatening the Presidency of Madras. The famine of this year, which the Government is at present fighting to the extent of its resources, is to be succeeded by another due to the failure of the rains of the Southwest Monsoon, which will continue over another year and which will inflict with double rigor a people already weakened by past suffering. It is reported that even during the present famine more people have been found dead in Madras in one morning than died during the whole of the Bengal famine, and it is asserted that more than half a million of inhabitants have already succumbed.

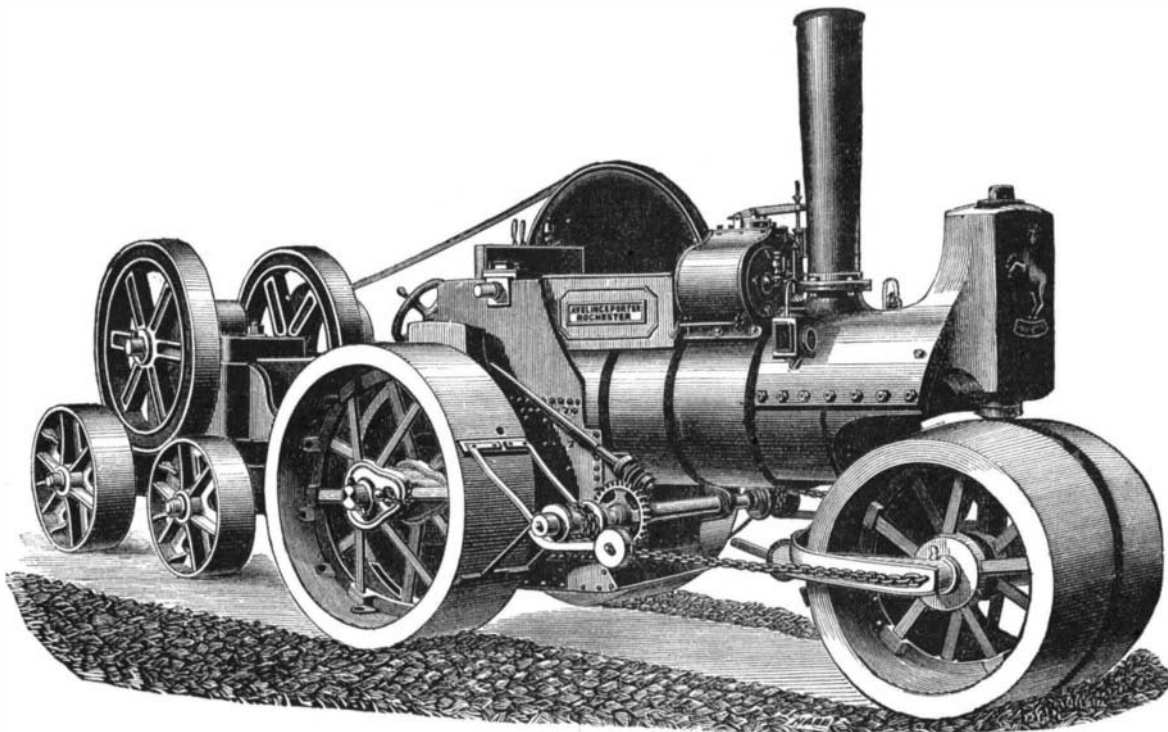
The difficulties of the situation are increased by the lack of means of inter-communication. There are very few railways, and most of the grain is taken into the interior by bullock carts. But there is no food for the animals any more than there is for man, so that practically there is no way of carrying relief into the distressed districts.

It will be seen that in this case eight portable and cheap field railways will be of great utility. There is no fear of scarcity of grain provided money be obtained to buy it and means of transportation suitable for the purpose be at hand. The funds are already being raised by appeals to the charitable in England, and to inventors and manufacturers the world looks for the necessary railways or other modes of carriage. It has been proposed that men be used for traction purposes on these roads instead of bullocks, six men being estimated equal to one brute. It is hardly necessary to add that the cheapness of the system proposed will be an important consideration, as the routes will probably be both long and numerous.

Dipping Acid for Brass.

A dipping acid for brass is made by mixing together nitric acid, sulphuric acid, and muriate of ammonia, or sal ammoniac. There is no certain rule by which to mix the acids. The bath is composed mostly of nitric acid, the sulphuric acid and the muriate of ammonia being present in inferior quantities. The mixture must be so strong that a momentary immersion will be sufficient to make the work bright and clear. To remove the acid, wash in hot water; and to dry the work, imbed it in fine hot sawdust. Heating the work before dipping will remove the oil or grease, which must be removed, or the acid will not act effectually or satisfactorily.

THE BEST OILSTONE FOR SMALL DRILLS, ETC.—An Arkansas or Wachita stone, which can be procured of almost any hardware dealer, is the best for sharpening small cutters and drills. Use plenty of sperm oil on the stone, and keep it enclosed in a tight box or case made to secure it. Clean the surface of the stone occasionally with kerosene.

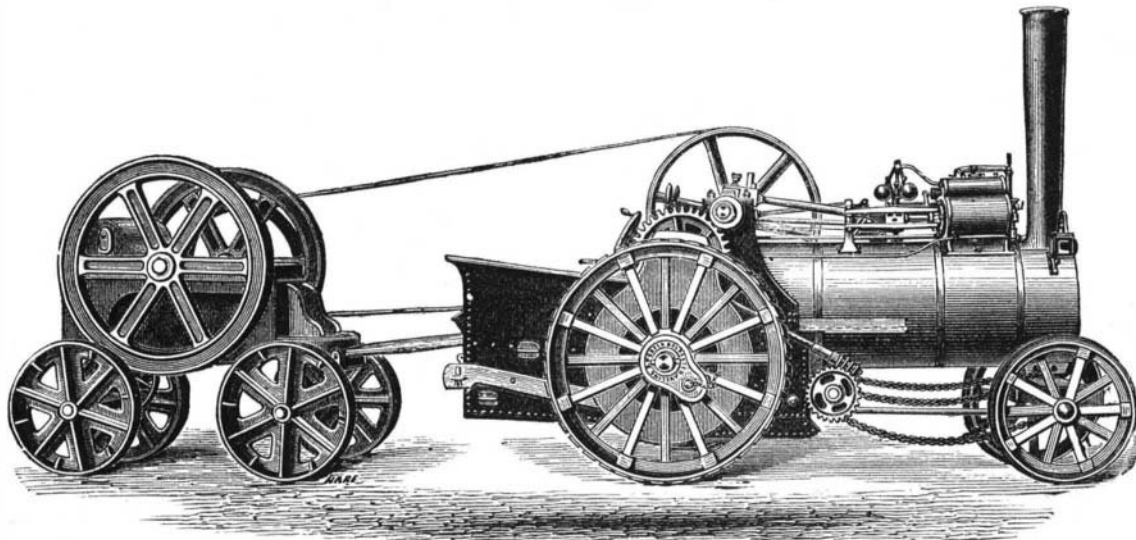


AVELING & PORTER'S STEAM ROAD ROLLER AND BLAKE'S CRUSHER.

F. A bale of cotton is now put into the press, where it is supported by the movable blocks.

After the bale is adjusted to the required position (the movable blocks holding it up and preventing any disturb-

ance of the bands), the press moves up until it is fully compressed. As soon as the pressure is applied the movable blocks yield until they rest on the plate, D, leaving the bands not only in contact with the bale, but, in the case of full bundles, forced into the cotton from an inch to an inch and a half.



AVELING & PORTER'S ROAD & FARM LOCOMOTIVE AND BLAKE'S CRUSHER.