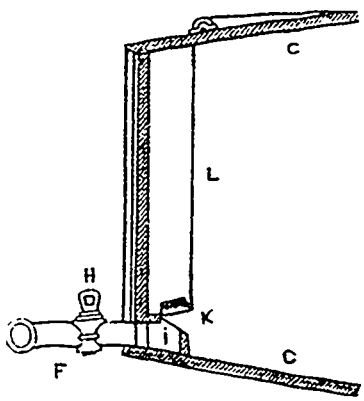
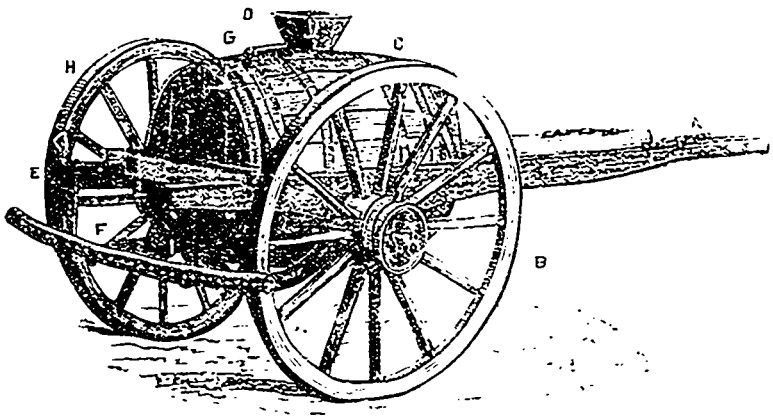
Where the liquid manure is used to moisten the covered dung-heap, the pump will, of course, be arranged to as to deliver the contents of the tank on to any part of the mixen at will. In this case, a drain should be laid, as I mentioned above, to carry back any superfluous liquid to the tank, and the entrance of this drain should be grated.

The liquid-manure cart.—I am at present building a cart to draw the ammoniacal liquor of the gas-works on to this farm. Now, this liquor is said, by the manager, to contain six ounces of ammonia per imperial gallon! Too good to be true, I fear; there must be some mistake in the calculation, or else a puncheon—120 gallons—would manure an acre of land: i. e., it would give 45 lbs. of ammonia, equal to 2 cwt. of sulphate of ammonia, or to 2¼ cwt. of nitrate of soda, or to 4½ cwt. of the best Peruvian guano! Still, even allowing two puncheons to be necessary to supply the above-named quantity of ammonia, it must be a cheap application, as the carriage—½ a mile—is the only cost! Pray do not suppose that ammonia alone can produce a full crop; by no manner of means, but if the roots have been well done, and there is a good sod (ley) to be turned under, a dressing of 45 lbs per acre of ammonia before ploughing will make you open your eyes in the following autumn.



The apparatus for regulating the discharge of liquid manure. Fig 1.



The liquid-manure cart Fig 2

The cart, then, is nothing more or less than an old whiskey puncheon, mounted on a pair of wheels, with a wooden trough, pierced with holes and swinging from a stud, for the more equal distribution of the contents. This arrangement I prefer very much to the tube as shown in the engraving, No. 2 and for this reason: the distributor always remains in a level position, whatever may be the inclination of the ground over which the cart has to pass, and, therefore, always distributes the liquid uniformly; whereas, in a fixed distributor, the liquid is discharged with the greater force, and therefore in greater quantity, on the lower side, for the time being, of the uneven ground.

The tap may be made of brass or of iron, but in all cases I recommend that a rim or flange be welded on to the mouth of the tap, to admit of a short hose being tied on to it, the end of which hose should reach to the distributor The hose should be made of very stiff canvass—unless the material be very stiff the latter part of the contents of the puncheon will not run as quickly as could be wished The engraving No. 2 shows the arrangement of the apparatus for regulating the discharge of the liquid. It is a simple flap-valve heavily loaded. This valve, when closed, stops the discharge, and when lifted, the liquid has a free passage to the distributor. The opening of the valve is effected by a small chain attached to the flap, rising to the top of the cask at *g*, where it passes over a small roller, and onward to the fore-part of the cart, where it hangs ready for the driver to set off or on at pleasure; *f*, is the stem of the tap, *h*, a stop-cock, *i*, the chamber, and *k*, the valve, which is the common leather-flap or clack-valve, well loaded with lead, *cc* is part of the cask, and *l* the chain attached to the valve, and passing over the small roller *m*.

If a tube, as in fig. 1, is used, it must have the ends removable at pleasure, for the purpose of cleaning out the thick stuff, which will be constantly stopping up the holes of the distributor. On this account alone, the open trough will be found infinitely preferable. The holes in the trough may be bored first, and the boring followed by a red-hot iron, otherwise they will close from the swelling of the wood after being moistened.

If I could afford it, I should build my liquid-manure cart with a cranked axle, to bring it nearer the ground, for the convenience of filling. Most of the carts I saw before leaving England were square in shape, but they were always leaking, and in this climate a cask is handier, as the hoops can be driven tighter with ease, and it is certainly cheaper, a whiskey puncheon in good order only costing about four dollars. As it takes about four days to accumulate a puncheon full at the gas-works, I am obliged to set apart a cask and wheels on purpose, or else the ordinary carriage of the dung cart might be used, the body being removed pro tempore. The mode of fastening the puncheon to the carriage is as follows: The cart fig. 1 is a mere skeleton, consisting of the shafts *aa*, 14 feet in length. They are connected by a fore and hind-bar, placed at such a distance as will just admit the length of the cask, while the width between the shafts is suited to its diameter. The axle is bent to nearly a semicircle, to receive the cask, and to the axle are fitted two common broadish cart-wheels, *bb*. The cask *c* is suspended on to straps of hoop iron, the ends of which are bolted to the shafts, and the same bolts pass also through the ends of two lighter straps, which pass *over* and secure the cask firmly in its place.

The holes in the trough should be about one-eighth of an inch in diameter, and about one inch apart. As the holes are always constant in size, any alteration in quantities to be discharged must be secured by accelerating or slackening the pace of the horse. ARTHUR R. JENNER FUST.

I want about a thousand pounds of brown sulphuric acid, delivered at Sorel by the end of April. Bones I have plenty