

is withdrawn, the water rises through the powdered quartz, and fills the tube; and, by syphonic action, the water is drawn down by its superior gravity. The lower the tube the greater the pressure, for the weight of water flowing down operates on the filtering surface as directly as if the same column of fluid were placed above it. The amount of pressure is, however, limited to that of the pressure of the atmosphere; for were the tube lengthened beyond 30 feet, the column of water would separate and leave a vacuum. This filter renders the muddiest water beautifully clear when acting with the pressure of not more than two feet, at the rate of four gallons an hour.—*Report on the Great Exhibition.*

Rodd's Registered Filter-tap.

Fig. 1 is an outside view of Mr. Rodd's filter, and fig. 2 is a section, about quarter size. It is of brass, lined inside, to prevent the slightest contamination of the water; and is composed of three cylinders, the second one having a series of small holes, drilled laterally near the bottom, through which the water enters

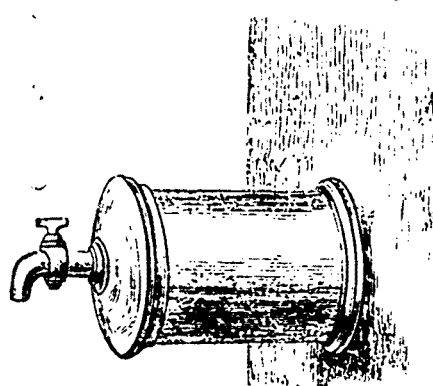


Fig. 1.

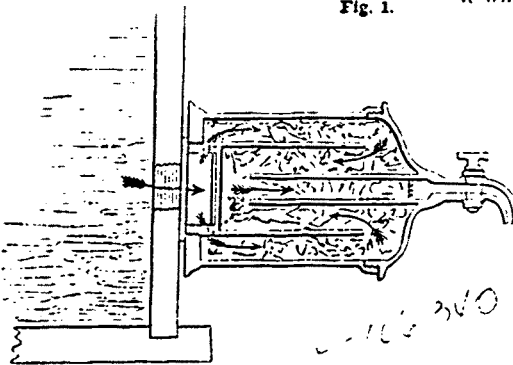


Fig. 2.

the filter, which may be attached directly to the cistern or butt. The course of the water is shown by the arrows. The filter is filled with peat charcoal, or other approved material. When the filthy stuff supplied by the water companies is passed thro' one of these filters, it will pass out not only mechanically, but chemically purified, from the deodorizing and purifying power of the peat charcoal, as we have on previous occasions amply shown.

St. Rollox Chemical Works.—The chimney of the St. Rollox Chemical Works is the highest building in the city, and the highest of its kind in the world. Its height is 455 feet from the foundation, 435 feet from the surface of the earth, and, from the position, it must be nearly 600 feet above the level of the sea. Its diameter at the surface of the earth is 40 feet; but it tapers upwards until, at the top, the breadth is reduced to 13½ feet. This is the measurement within the walls; but, for nearly 200 feet upwards, the building is double. One chimney is built round another until the fabric reaches nearly the height mentioned. The erection occupied the greater part of two summers, and was completed at a cost of £12,000. The St. Rollox works form a vast chemical laboratory, covering twenty acres of land.—*Athenæum.*

Agricultural Engineering.

The farm of Harold Littledale, Esq., of the County of Chester, England, furnishes an illustration of the very artificial practice now becoming by no means uncommon among the scientific Agriculturists of the day. The experiment so thoroughly and successfully carried out by Mr. Littledale, derives additional interest and importance when contemplated with regard to the proposed distribution of the sewage water of London and some of the large provincial towns, over the farms in the vicinity of those great centres of population. Canadian Farmers are not in a position to avail themselves of the expensive artifices described below. Such examples, however, serve well to encourage the enterprising in this country, to seize upon every rational means of raising the standard of Husbandry, and to arrive at that practice which secures the greatest amount of permanent remuneration with comparatively, the least expenditure of capital. The details subjoined we extracted from the report to the Board of Health on Liscard Farm near Birkenhead, by W. Lees Esq., Superintending Inspector.

Mr. Littledale has drained all the land on this farm capable of being drained. Both pipes and tiles have been used. Some of the drains are laid only 2½ feet deep, others 4 feet, and latterly, increased as the result of experience. The average width between the drains is about 21 feet. The cost was £4 to £5 sterling per acre.

Liquid manure is preserved for distribution in a tank capable of containing 58,300 gallons. It is forced by means of steam power through iron pipes through a distance of 2 miles, serving for 150 acres. There is a hydrant for every 300 yards of main. The hydrants are so fixed that with 150 yards of hose the distributor and boy can irrigate 10 acres per day. The quantity distributed to each acre being about 4,118 gallons.

The hose pipe is of gutta percha, and consists of 75 yards, 2 inches in diameter, costing 2s. 6d. per yard, and 75 yards 1½ inch.

Mr. Littledale's capital account for irrigation stand thus:—

Tank	-	-	-	£210	0	0
Steam Engine	-	-	-	60	0	0
Two Pumps	-	-	-	70	0	0
Iron Pipes	-	-	-	315	0	4
75 yards of 2-inch gutta percha hose	-	-	-	9	18	0
75 yards of 1½ do	-	-	-	7	10	6
Total	-	-	-	£672	1	10

From the data already ascertained the following will be the annual account for interest and working expenses.

Interest upon £672 and wear and tear	-	-	-	-	-	-
@ 7½ per cent.	-	-	-	£	50	8 0
Fuel due to irrigation	-	-	-	-	4	6 8
Wages	-	-	-	-	13	4 4
	-	-	-	£67	19	0

Divided by 150, the number of acres irrigated, the account is equal to an average of 9s. 0½d. per acre.

The present live stock yielding manure consists of 81 milk cows, 2 bulls, nearly 100 pigs, and 12 horses. All the liquid from the stables, cow-houses, piggeries, yards, cottages, and the bailiff's house, drains underground to the tank.

As the general result of draining, liquid manures, and other improvements effected by Mr. Littledale, I (Mr. Lee) was informed that the yield of the whole farm is double what it was 10 years ago.