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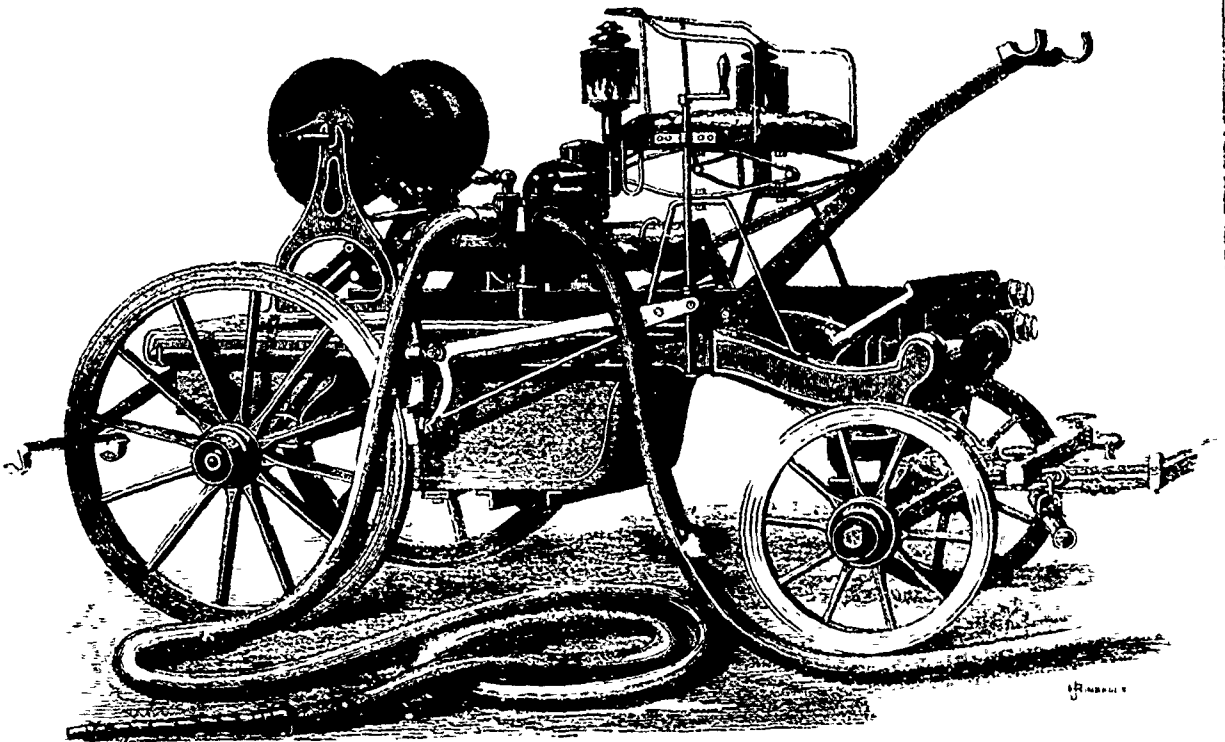
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FIRE ENGINE AT THE VIENNA EXHIBITION

Mr. J. H. REINHARDT, of Wurzburg, exhibits at Vienna two hand fire engines, one of which is fitted on a four-wheeled carriage, to be drawn by horses, whilst the other is fixed to a two-wheeled hand truck. The former of these fire engines we illustrate above, while on page 84 we give engravings of details. The other engine we shall illustrate on a future occasion. Both engines are double-acting, and the larger one has two plunger pumps with barrels $4\frac{1}{2}$ in diameter (112mm) with a stroke of $8\frac{1}{2}$ in. (215mm.) the corresponding dimensions of the smaller engine being $4\frac{1}{2}$ in. (92mm.) and $7\frac{1}{2}$ in. (200mm.) The chief peculiarity in the construction of these fire engines consists of the arrangement and handiness of the valves and

the inner spaces of the cylinders, the former can be taken out without the aid of any tool and without emptying the water tubes, and can be cleaned and put in again within but a very brief delay, a considerable advantage when any sandy or impure water has to be pumped.

The arrangement of the pumps and valves is shown in sections and plans in Figs. 1, 2, 3, 4, and 5 on page 84 and consists of the box, K, containing the barrel of the cock, g, and to which are fastened the two cylinders, C, C, the air vessel, W, and the admission and delivery pipes. The box, K, is connected with the iron frame - a by means of the four bolts, v. The plug of the cock, g, is hollow and contains the two admission valves, e,