clusion, that the efforts put forth by this Institute as a public educator have proved it to be what its name implies—a people's Institute—and have given it a fresh hold on the public for support.

"This closed the programme, so far as referred to the classes; the remainder of the evening was very agreeably devoted to reading, recitations, and music, the whole closing with "God Save the Queen," by the Band,—and the delighted audience broke up, hoping that this may not be the last opportunity they will have of meeting the members and friends of the Toronto Mechanics' Institute.

FIG. 1.

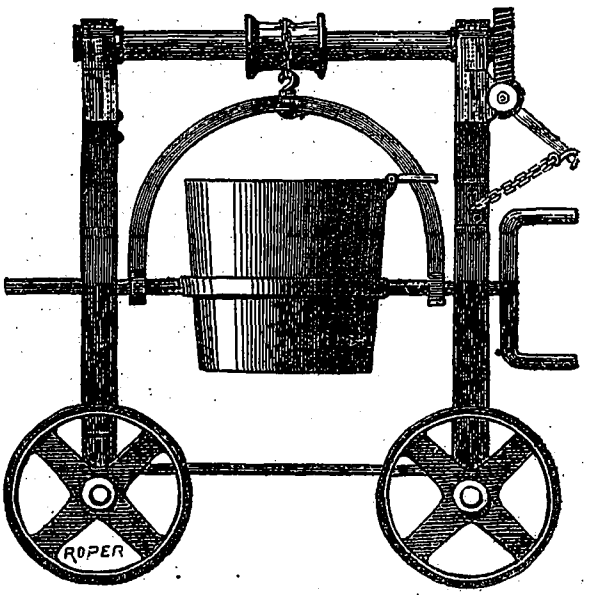
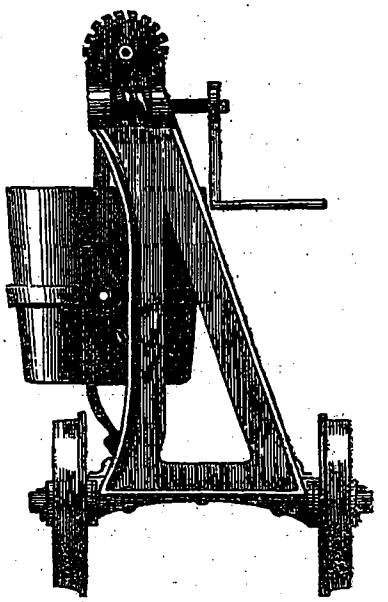


FIG. 2.



SMITH'S FOUNDRY LADLE APPARATUS.

This invention, patented by Mr. H. Smith, of the Teesdale Iron Works, Stockton-on-Tees, has for its object improvements in apparatus used when casting iron or other metal. For this purpose a carriage or truck is used with upright end frames suitable for receiving a ladle between them. At the upper part of these end frames there are bearings for an axis, on which axis there is fixed a barrel, on which is wound a chain to which the ladle is suspended, as illustrated in the above engravings. The axis is arranged nearer to one side of the carriage than the other by preference, but it can be placed in the centre if required, and the end framings are strongly braced or connected together. On the axis is fixed a screw or worm wheel, which receives motion from a screw or worm on a suitable axis, on which is fixed a handle or hand wheel, by which motion is given to the axis of the screw or worm, and consequently to the barrel, in order to raise or lower the ladle, or it may be raised or lowered by gearing or rachet wheel and lever. To facilitate the tilting of the ladle, the tilting bar is received into hooks or bearings at the two ends of the arched frame or bar which is suspended by the chain on the barrel. The four wheels of the truck, or carriage, are suitable for running on a rail or tramway laid down between the cupola or other melting furnace and the place where the moulds are situated.

Correspondence.

THE ECONOMY OF THE OPEN FIRE.

To the Editor of the Journal of the Board of Arts and Manufactures.

Sir,—I am convinced that much misunderstanding exists with regard to the economy of the open fire. It has been usual with writers upon the subject of heating to denounce the fire as wasteful of fuel; and to accuse the chimney of carrying up the main part of the heat that is generated. Some have estimated the loss as $\frac{7}{8}$ of the value of the fuel, others have made the amount greater. My attention is now called to the subject by an extracted paragraph in your April number, in which it is stated, as the result of some experiments in ventilation, made in Paris, that "It appears that nearly the whole of the warmth produced by combustibles in an apartment is carried off through the chimney, and the only useful part of it is obtained by radiation." I do not know what kind of a fire-place the experimenters used; but having facilities at hand, I resolved to satisfy myself, as nearly as possible, by actual weight and measure, of