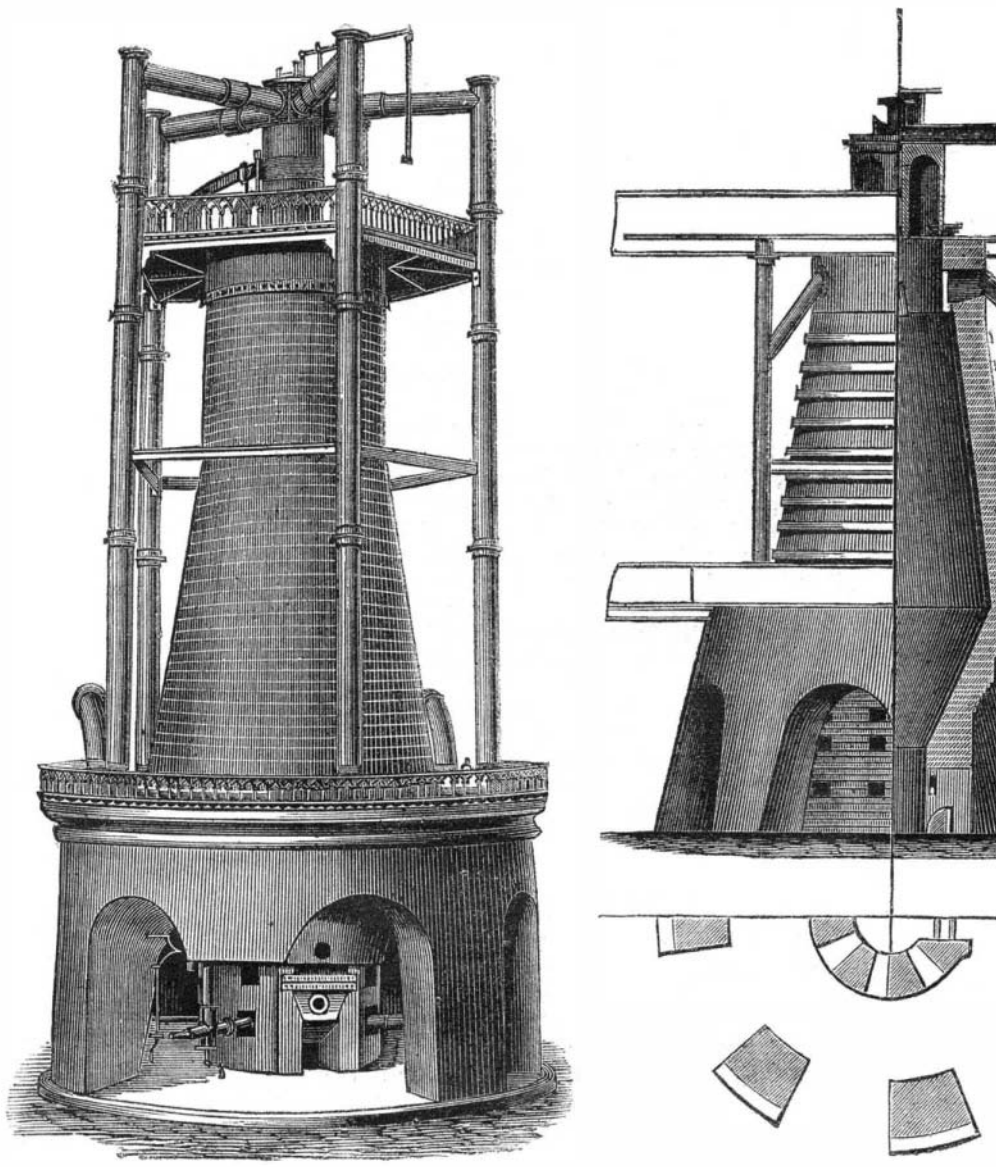
A NEW SYSTEM OF CONSTRUCTING BLAST FURNACES.

Mr. Franz Buttgenbach, manager of the Neuss Hutte iron smelting works on the Lower Rhine, has prepared a report on his system of smelting iron, to be read at the meeting of the Iron and Steel Institute, held at Liège last month. In organizing this arrangement, the inventor's object has been to obtain a blast furnace, the hearth of which should be readily accessible on all sides; and following up this idea he built up a blast furnace 50 feet high and 17 feet in diameter at the boshes. In 1867 a model of the above named blast furnace was exhibited in Paris, and was highly approved by a great number of engineers of every nationality.

The inventor states that the fundamental idea of this mode of construction, and the advantages of the system, may be summed up as follows: (1 The mason work of the stack is quite independent of the blast furnace proper. Each ring or course of brick constituting the hearth, boshes, and inside wall is readily accessible and free from any casing, except as regards a small portion, measuring from 3 feet to 4 feet in hight at the widest section of the blast furnace. Consequently, the whole of the above several parts are completely bare and easily reached for any purpose required while the furnace is in active operation. This feature conduces to the duration of the furnace, for in case of need any injured part can be repaired even when the furnace is at work. (2) The inside wall and the upper part of the boshes being cooled by the atmosphere having access thereto, they remain in the normal condition without wear, and do not become unduly heated at any time, being therefore indefinitely kept in a state of preservation, since there never occurs a fusion of materials at this hight. (3) The hearth and the lower portions of the boshes may be replaced without any difficulty whatever while the work is going on, so that there is no occasion to apprehend any extinction of the fires so long as the in-wall is not destroyed. The hearth and boshes can be renewed without affecting the in-wall injuriously. (4) Each particular brick being accessible during the working of the furnace, corrosion can be obviated by cooling down with water thrown on the several parts, or by means of water vessels or tweers, whereby the wear and tear can be checked. (5) The utilization of the gas at the furnace mouth can be so managed as to make it yield the best results. The pillars supporting the platform of the furnace top are gas pipes, and drop into sheet iron vessels fixed to the summit of the base of the stack where it slopes away. These vessels are open on one side, so that, when filled with water up to a certain hight, they can be shut down by means of a valve measuring a few inches square. The gas issuing forth out of the furnace mouth finds its way into these receptacles, and in its passage through them travels over a large surface of water. Here it deposits the dust, while a great part of the water, suspended in the gas in a state of vapor, is condensed. Consequently the gas reaches its destination in a highly purified condition, and may yield the very best results in those parts where it is desired to make use of it. The arrangement of the said water receptacles allows of the withdrawal of the dust or grit deposited while in full working, and in the event of an explosion the area, of but a few square inches, of the water column paralyzes, as though it were a gigantic valve, any injurious effects Explosions from time to time serve the purpose of clearing off the dust and grit that may still be clinging to the inner walls of the pipes. Moreover, there is the advantage of confining these subsidiary appliances to a spot on the works, which does not in any way interfere with the general progress of the manufacture. (6) The gas pipes, being supporters also of the platform surrounding the furnace mouth or top, render the said platform independent of the blast furnace proper, and that without involving any special outlay.



BUTTGENBACH'S IMPROVED BLAST FURNACE. Fig. 1.

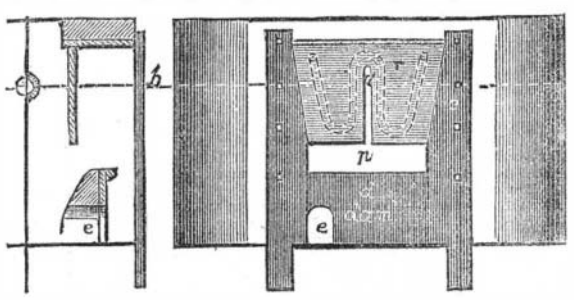


FIG. 2.

The inventor, whose extensive experience entitles him to speak with authority, states that he has been using this method for the last six years with the very best results. Its application is very simple indeed, and free from the objectionable features of other known methods, since the work of the bottom of the furnace can be performed in case of need without depending upon the mouth of a tweer for running off the slag.

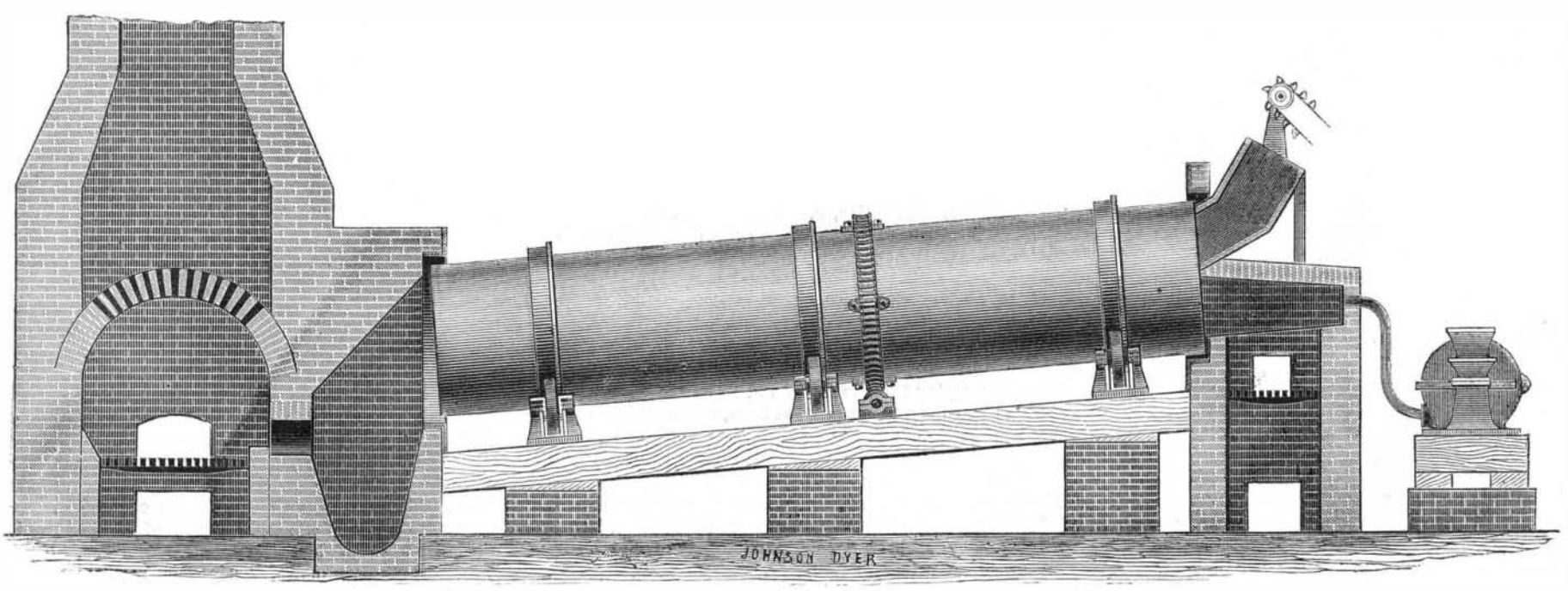
The hearth is closed in by a cast iron tymp placed in the usual position (see Fig. 2). This tymp arch is cooled by a current of water passing through a coiled iron pipe fixed in the cast iron. In the center of this plate, there is an aperture or orifice measuring 0·75 inch, running almost over the entire hight, and the cooling pipes are situated as near this kind of slit as may be. This slit is closed up by means of ordinary clay. A, the upper portion of the slit, is placed two or three inches higher than the center of the line of the tweers.

b is the level center of the tweers, *c* the columns of the breast, *d* the dam, *e* the tap hole, *p* the space between the dam stone (tymp closed in with clay), T, cast iron tymp. The slag of the blast furnace, ascending above the dam stone and reaching the level of the tweers, runs off easily through a hole driven by means of a light steel bar into the said slit; and since the level of this hole may be altered at will, a means is thus afforded for changing the level at which the slag is run off over a range of 24 inches, which is a very great advantage in itself; but, in addition to that, there is this further facility, namely, that nothing hinders one from tapping the melted ore at this same slit.

We are indebted to the *Engineer* for this illustration and for part of the explanation thereof.

HOW TO CONDUCT SLAUGHTERING, PACKING AND RENDERING WITHOUT OFFENSE.

The subject of the disposition of the offal from slaughtering and packing houses, at present agitated in all our great cities, has become a matter of national importance. These establishments are necessary to civilized life, and therefore have legitimate claims to existence; but the people who suffer from the offense caused by them have also a right to insist that they shall be carried on without injury to health or property. In many instances, otherwise most desirable and valuable suburbs have been monopolized by these establishments. The interests of a business so extensive and important should be made to harmonize with sanitary laws



STORER'S DEODORIZING CYLINDER AND PROCESS FOR CONVERTING OFFAL INTO FERTILIZERS.