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A. RÓNAY.

CHARGING DEVICE FOR FURNACES, GAS GENERATORS, &c.

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NO MODEL.

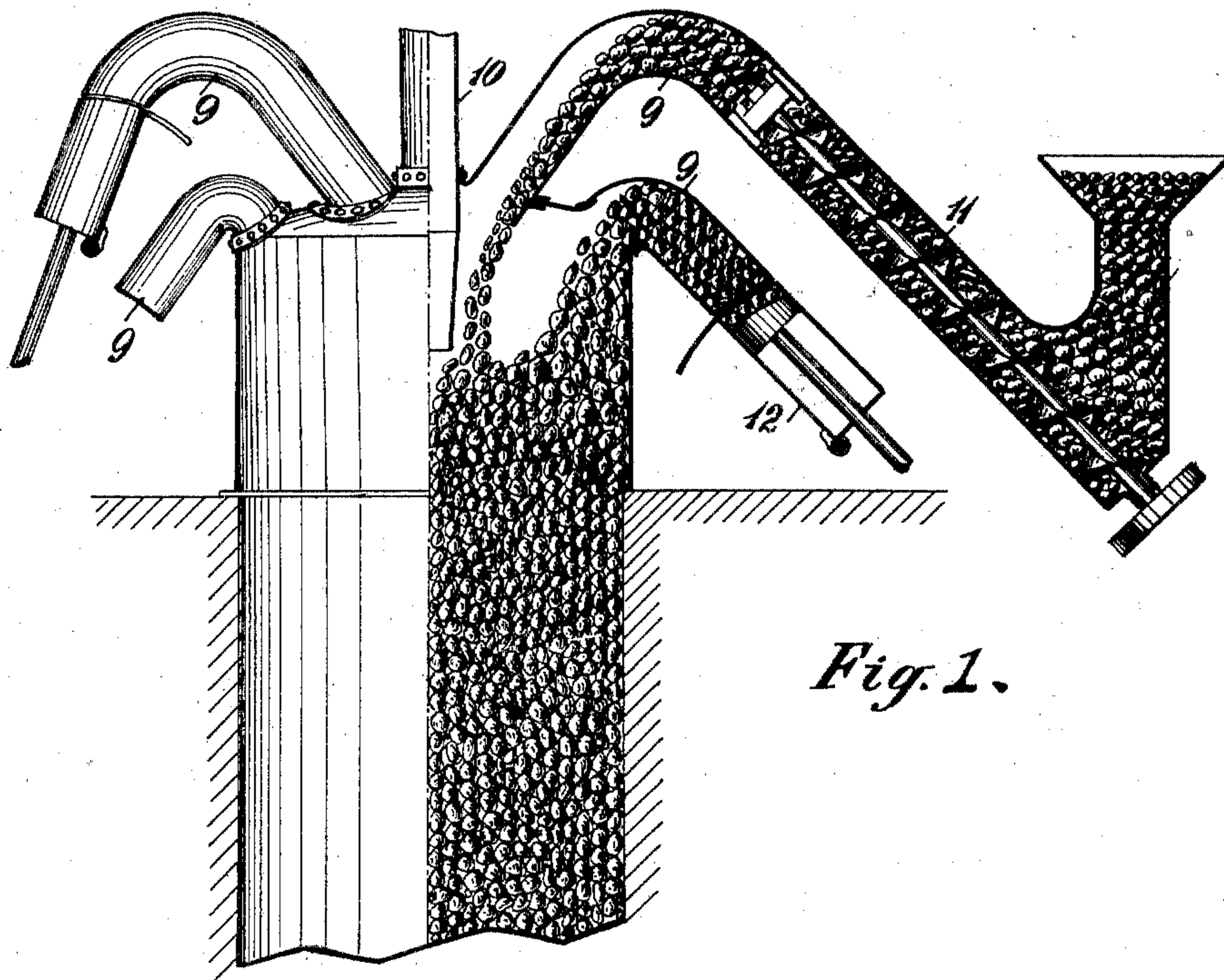


Fig. 1.

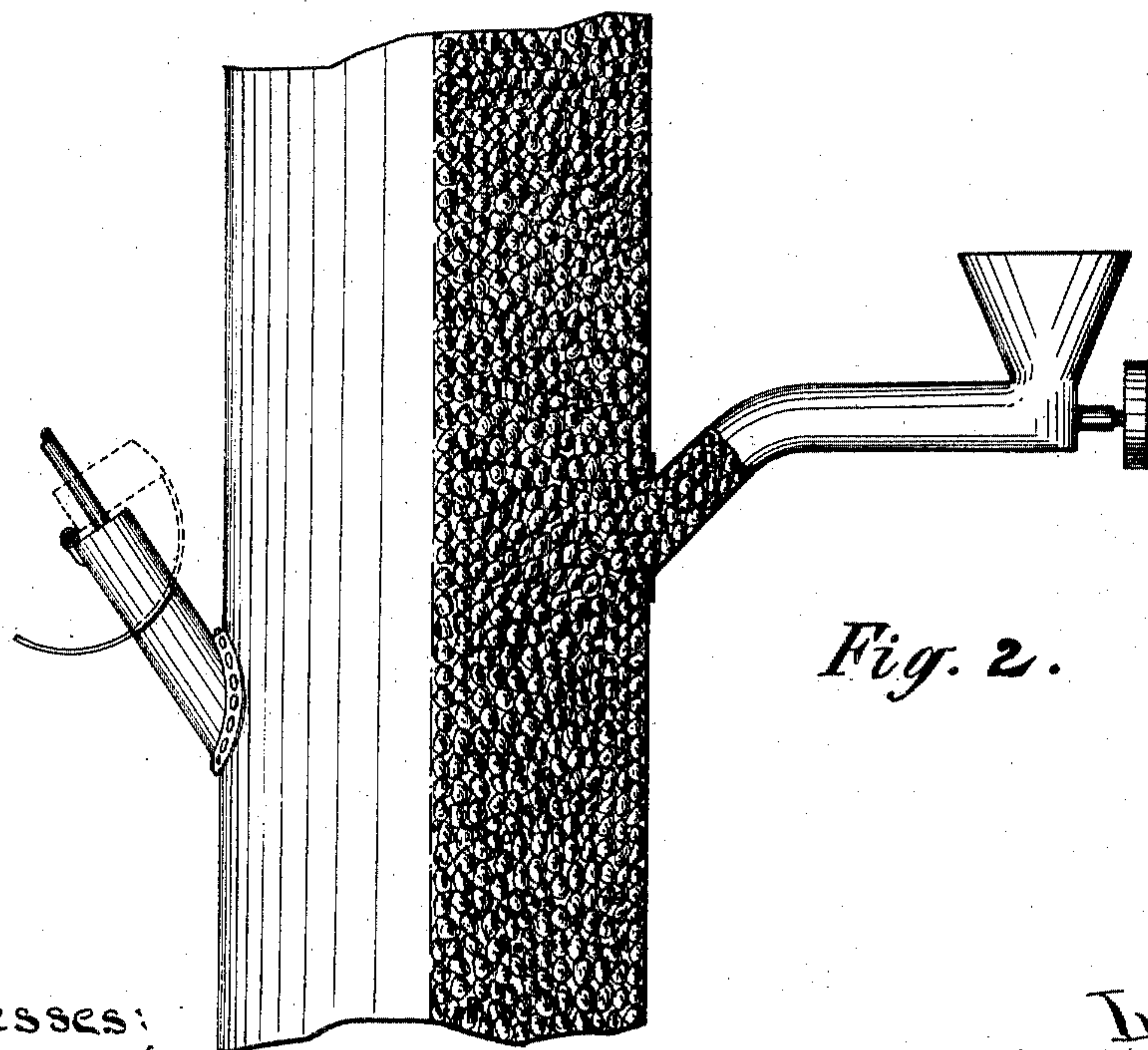


Fig. 2.

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CHARGING DEVICE FOR FURNACES, GAS-GENERATORS, &c.

SPECIFICATION forming part of Letters Patent No. 766,903, dated August 9, 1904.

Application filed February 9, 1903. Serial No. 142,506. (No model.)

To all whom it may concern:

Be it known that I, ÁRPÁD RÓNAY, director, of 95 Váciut, Budapest, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in or Relating to Furnaces, Gas-Generators, and other Apparatus, of which the following is a specification.

This invention relates to various metallurgical apparatus or to the apparatus used for various technical chemical purposes—such as, for instance, blast-furnaces, roasting-furnaces, all kinds of melting-furnaces, coking-furnaces, and gas-generators—and generally to apparatus in which gases are generated or burned, and which must therefore be closed in a gas-tight manner.

The object of the invention is to effect the charging of fuel, ore, and the like into the furnace and other apparatus in such a manner as to prevent during the charging operation the outside air from entering or the gases from escaping from the closed chamber, so that the metallurgical or chemical processes taking place in the closed chamber may go on in a much more regular and economic manner compared with that of the furnaces hitherto known, and no danger is experienced by the attendant or others.

The object indicated cannot be attained in a perfect manner in any of the hitherto-known apparatus of this kind which cannot be closed in a gas-tight manner, as the gases generated or burned in them either continuously or in the most favorable case during the charging come for a shorter or longer period of time into contact with the atmosphere. It is true that there are in existence charging devices which reduce to a minimum the communication with the atmosphere during the charging period, so that there is practically no escape of gases nor infiltration of air; but these devices are very complicated and do not last long at the high temperature which generally occurs at the points of charging, so that they are not generally used.

The main feature of this invention lies in the use for charging of the well-known charging devices of the Schneider-Dertz smoke-consuming furnaces described in the United

States Patent No. 687,656, November 26, 1901, the devices in question being of such construction that the metallurgical or chemical processes take place in a continually and completely closed chamber. In this way all communication between the gas-chamber and the atmosphere during charging is avoided, as the charging, whether it be effected by hand or automatically, periodically or continuously, can always take place in such a manner that atmospheric air is completely excluded.

Several constructions of the apparatus according to this invention are illustrated, by way of example, in the accompanying drawings, in which—

Figure 1 shows the charging-opening of a blast-furnace in which the charging of fuel is effected near the central gas-pipe and the charging of ore at the periphery. Fig. 2 shows an apparatus by means of which a material that may be required can be introduced into a given zone of the furnace.

The charging device shown in Fig. 1 may be used for blast-furnaces, roasting-furnaces of all kinds, more particularly melting-furnaces with shafts, coking-furnaces, cupolas, gas-generators, lime-kilns, &c. In these cases the charging is effected by means of Schneider-Dertz charging devices or modifications or combinations thereof. To insure gas-tightness, the inlet-pipes are bent at 90°, so that there is always in the bends a sufficient quantity of material to make a tight joint even when the charging device becomes empty, said material at the same time protecting the charging device against the influence of the high temperature.

In the construction illustrated on the right-hand side of Fig. 1 the fuel is continuously or periodically fed into the furnace by means of a screw conveyer at a point near the central gas-pipe 10, while the ore is charged at the circumference of the furnace by means of a Schneider-Dertz apparatus with movable bottom or piston. It is well known that metallurgical experts always insist on the fuel being charged as near the center as possible and the ore as near the circumference as possible for the purpose of counteracting as far

as possible the tendency of the heavier ore to roll into the center of the furnace.

Fig. 2 shows a construction of the apparatus according to this invention in which a
5 desired material can be introduced directly into the column of material at a given zone of the furnace. This is very easily effected, as shown diagrammatically in the drawings. In
10 this case the column of material in the furnace as it gradually sinks down takes up the material which is mechanically forced in or falls merely by reason of its own gravity.

All explosions are of course quite impossible in this process, as atmospheric air never
15 penetrates into the gas-pipe and generation of gas does not stop during the process, although it may be less active when the blast is stopped. A further advantage of these gas-generators is therefore that they work well

with a sufficiently strong draft or even when quite open. 20

What I claim, and desire to secure by Letters Patent of the United States, is—

A charging device for a furnace, comprising a bent charging-tube having a branch connected with the furnace, and a mechanical
25 charging device in the other branch of the tube, the arrangement being such that the fuel in the bent elbow portion of the tube closes the same to prevent the escape of gas
30 and also protects the mechanical charging device against the heat of the furnace.

In testimony whereof I affix my signature in presence of two witnesses.

ÁRPÁD RÓNAY.

Witnesses:

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