

M. R. CONLEY.
METHOD OF CHARGING MELTING FURNACES.
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975,751.

Patented Nov. 15, 1910.

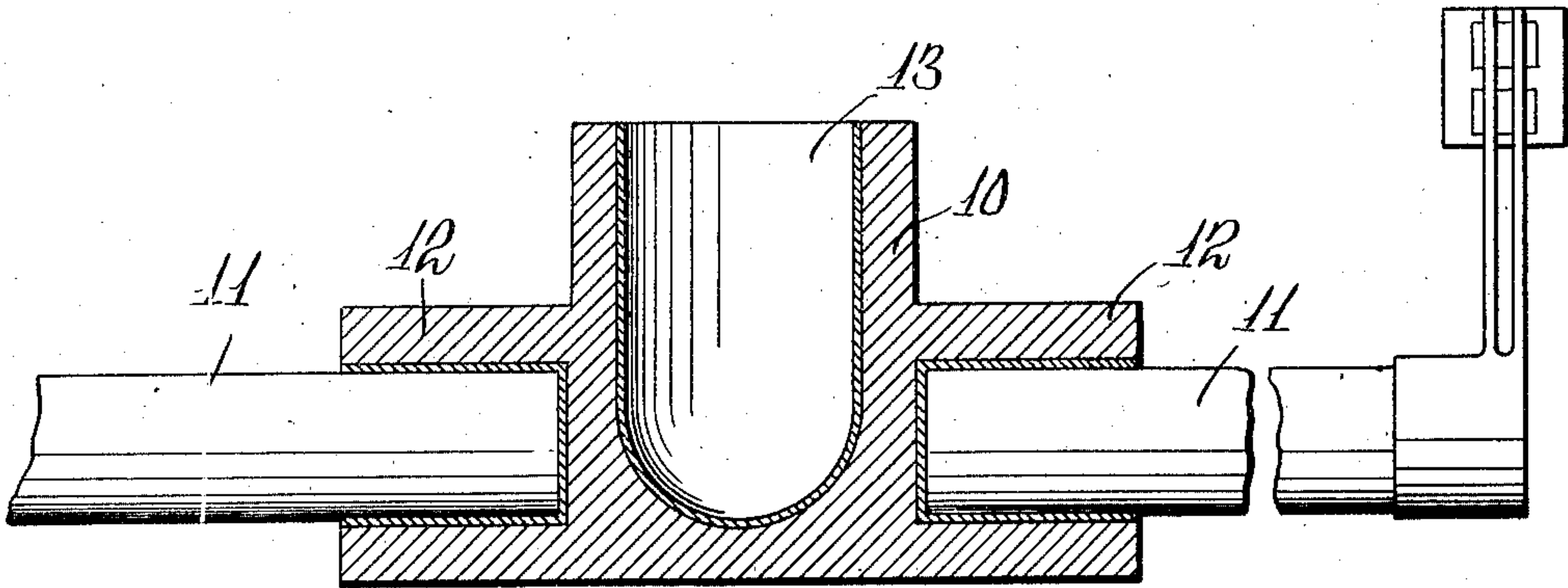


Fig. 1

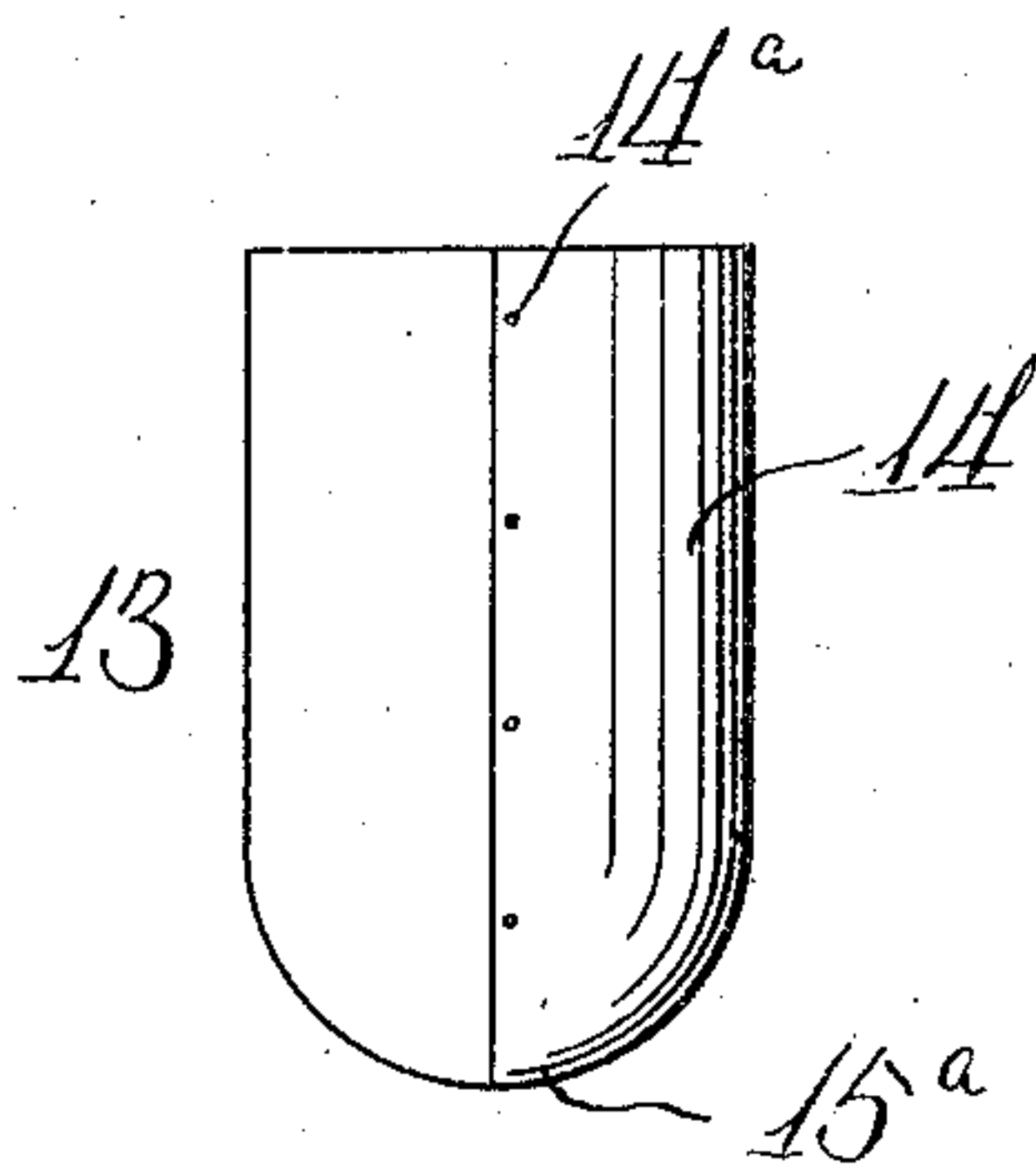


Fig. 2

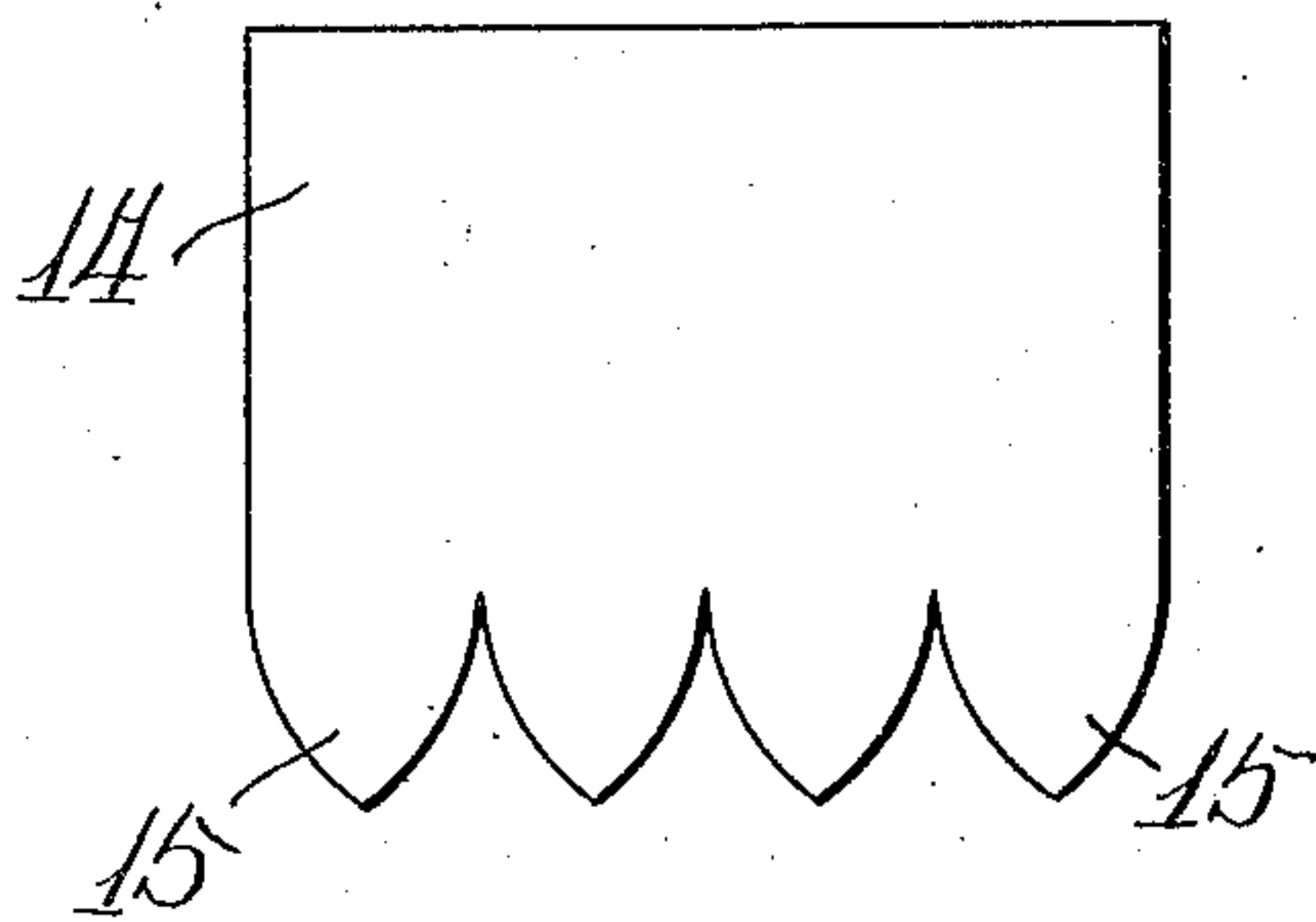


Fig. 3

Witnesses:
Frank L. Stubbs.
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UNITED STATES PATENT OFFICE.

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METHOD OF CHARGING MELTING-FURNACES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MICHAEL R. CONLEY, of the city of New York, county of Kings, and State of New York, have invented a new and useful Improvement in Methods of Charging Melting-Furnaces, of which the following is a full, clear, and exact description.

My invention relates to improvements in the means for charging melting furnaces, and the means is especially applicable to melting furnaces, though it can be applied to others, and more particularly crucibles.

The invention is adapted more especially also for relatively small furnaces, that is for melting furnaces as distinguished from blast furnaces and converters.

In practice there is a good deal of wear and tear on melting furnaces, and especially electric furnaces, by throwing in the rough scrap and metal, which digs into the sides of the furnace and so weakens the latter. This is especially true of electric furnaces because here the charge is generally inserted while the furnace is warm or hot and so the furnace wall is soft and the metal readily gouges out places in the wall which, as above stated, weakens the furnace, but in an electric furnace there is a worse action, because where the wall is gouged out it thins the furnace at this point, and therefore makes it more highly resistant at this point so that the damage grows rapidly worse and the efficiency of the furnace is impaired. To obviate this difficulty I produce a cartridge which is of sheet metal and is adapted to fit the melting pot of the furnace and to contain the charge to be melted. Thus it will be seen that the cartridge can be loaded and placed in the furnace so that there is no damage done to the furnace wall, and moreover as the whole surface of the cartridge comes in close contact with the hot furnace or crucible wall, it begins to melt quickly, thus starting the flow and causing a quicker melting than would take place in the ordinary way where the scrap or metal is thrown in loose. In practice the cartridge can be made of material of a known analysis, and so it can be used with any desired charge without disturbing the analysis of the melted product, when the melted cartridge mingles with the said melted product.

Reference is to be had to the accompany-

ing drawings forming a part of this specification, in which similar reference characters indicate corresponding parts in all the views.

Figure 1 is a sectional elevation of a furnace having a cartridge inserted therein, with the charge of the cartridge omitted for clearness. Fig. 2 is a side elevation of a form of cartridge, and Fig. 3 is a detail of a blank which can be conveniently formed into a cartridge.

The drawing shows an electric furnace having arms 12 with which the terminals 11 contact. The structure of the furnace has nothing to do with the invention, however, as the latter is applicable to crucibles and to furnaces of other types.

The preferred form of cartridge 13 is shown in Fig. 2 and is made to fit the furnace 10. Of course if a furnace were of a different shape the cartridge would likewise be of a different shape. The cartridge can be made up in various ways of sheet metal, but I have shown it formed of tapering flaps 15 at the bottom so that when the body of the cartridge is rolled into cylindrical form the flaps can be turned under as shown at 15^a, thus forming the bottom of the cartridge, and the sides can be riveted together as shown at 14^a. This makes a very convenient way of forming the cartridge, but as above stated, it is only a convenient way, as the cartridge can be made in other shapes and in other ways, if desired.

It will be seen that the formed cartridge 13 can be readily charged, and that the cartridge and charge can be conveniently placed in the furnace and readily melted, but of course the analysis of the cartridge should be known so that in cases where nicety of product is required, the cartridge may blend properly with the charge.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent:—

1. The improved method of melting metals, which consists in producing a metallic cartridge shaped to fit the wall of a melting furnace, loading the charge into the cartridge, and then depositing the cartridge in the furnace.

2. The improved method of charging melting furnaces which consists in loading the charge into a meltable cartridge of the same shape and size as the interior of the furnace,

and then depositing the cartridge and its charge in the furnace.

3. The improved method of melting metals which consists in inclosing the metal to be melted in a containing cartridge of a known analysis and of a shape to essentially fit the interior of the furnace in which it is

to be melted and adapted to contact with the inner walls thereof, and then melting the cartridge and its contents together.

MICHAEL R. CONLEY.

Witnesses:

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