

April 10, 1951

D. KAUFMAN

2,548,312

SHEET METAL FURNACE BAFFLE

Filed July 29, 1946

Fig. 1.

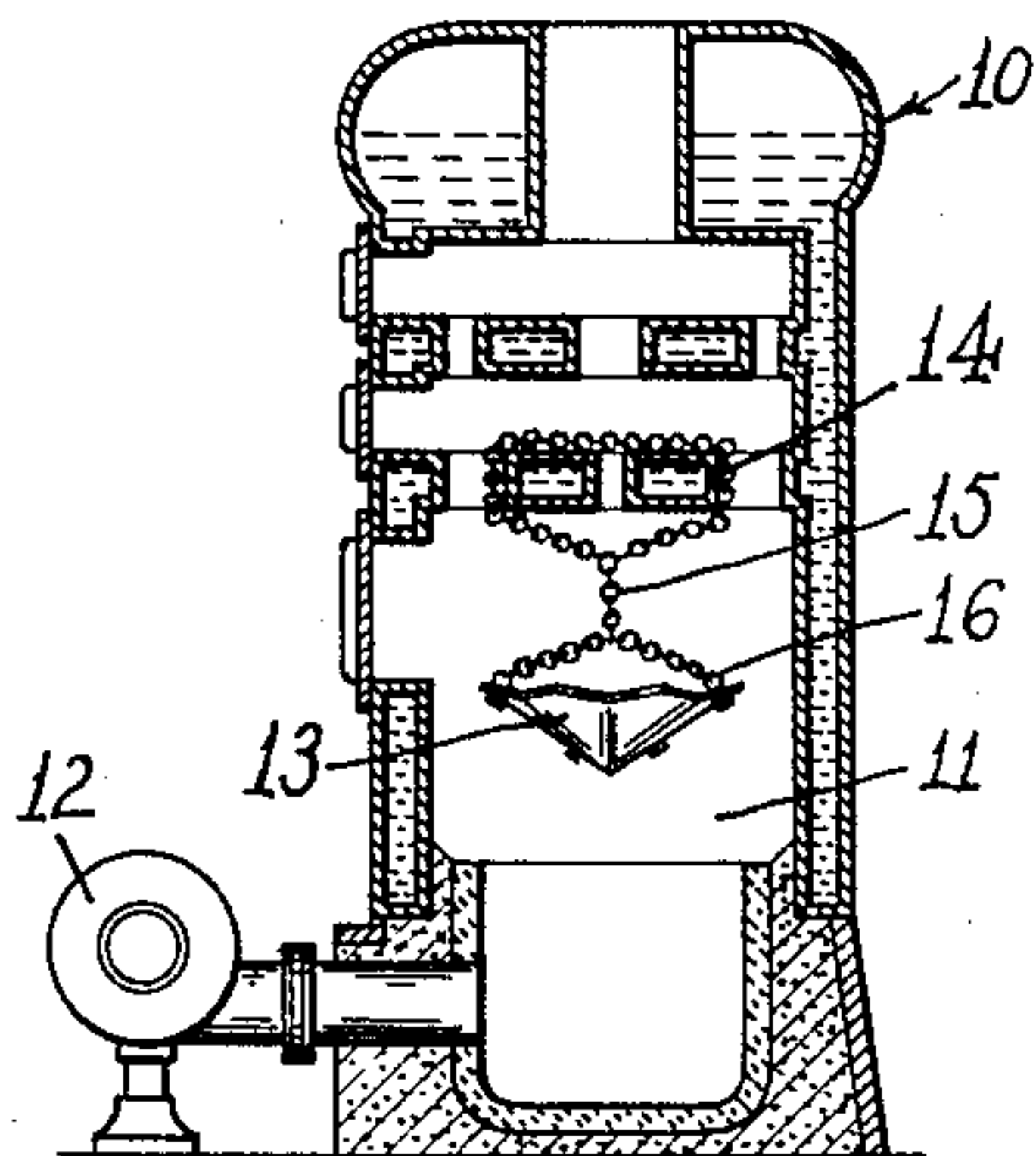


Fig. 2.

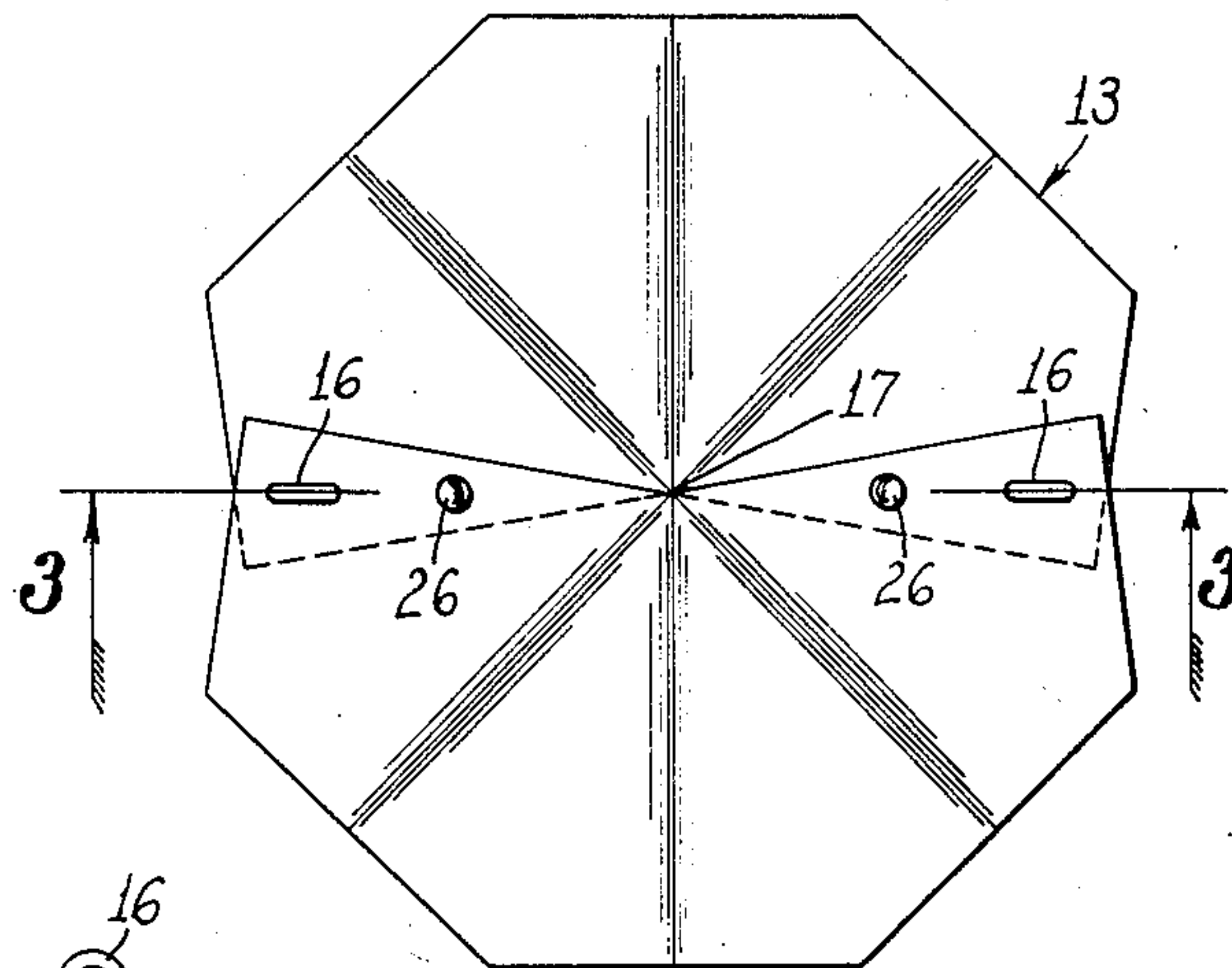


Fig. 3.

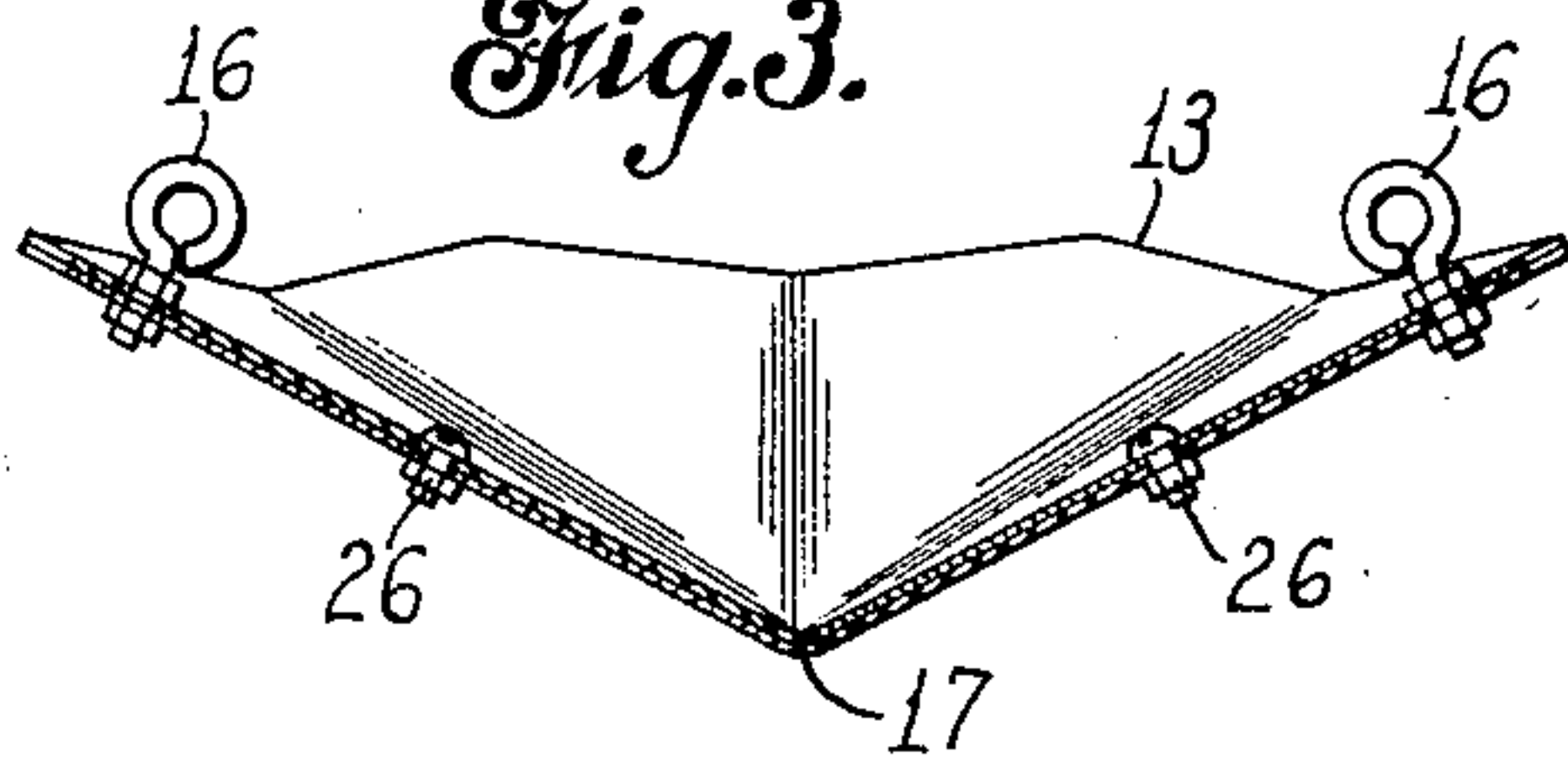


Fig. 4.

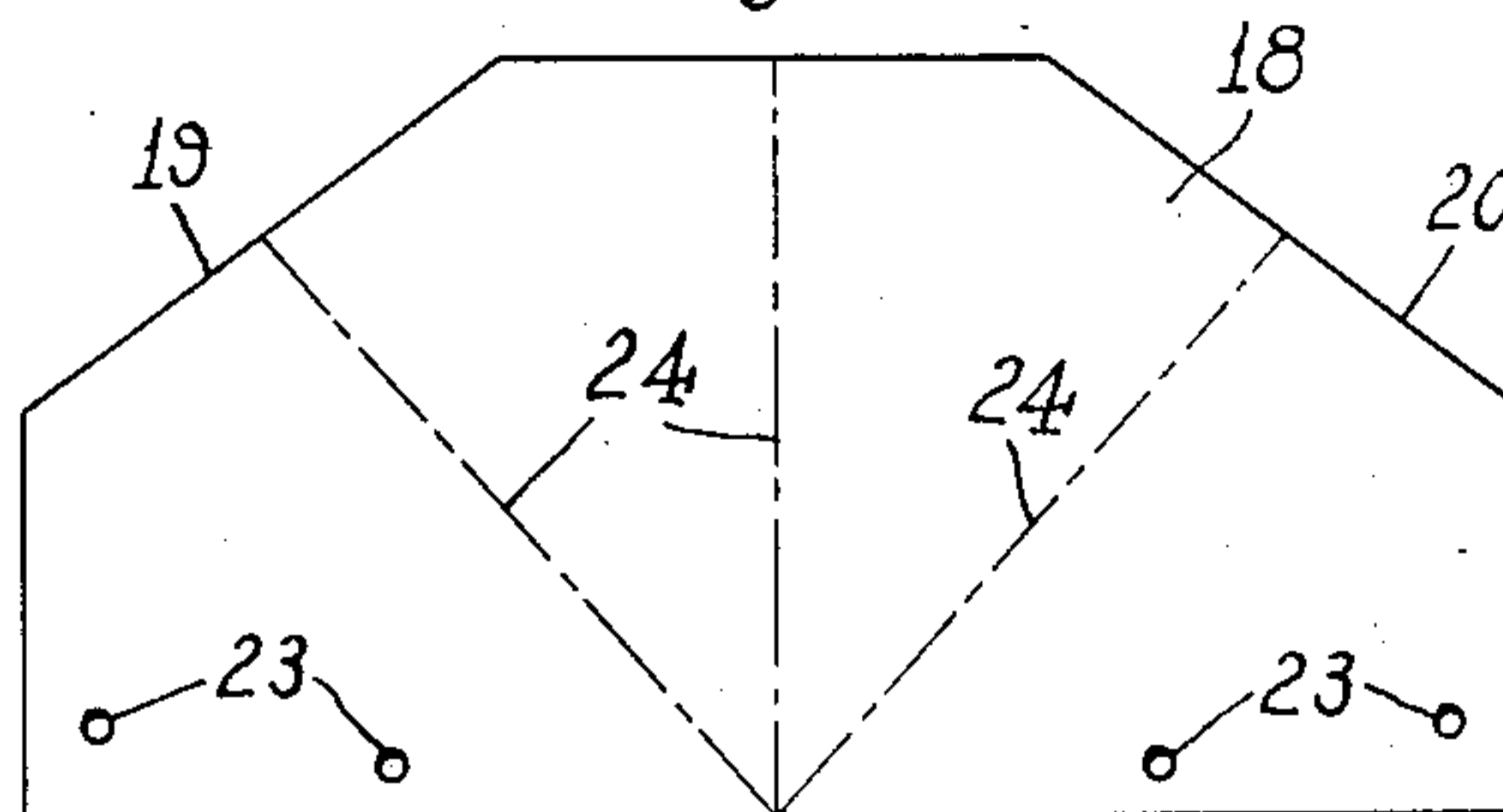


Fig. 6.

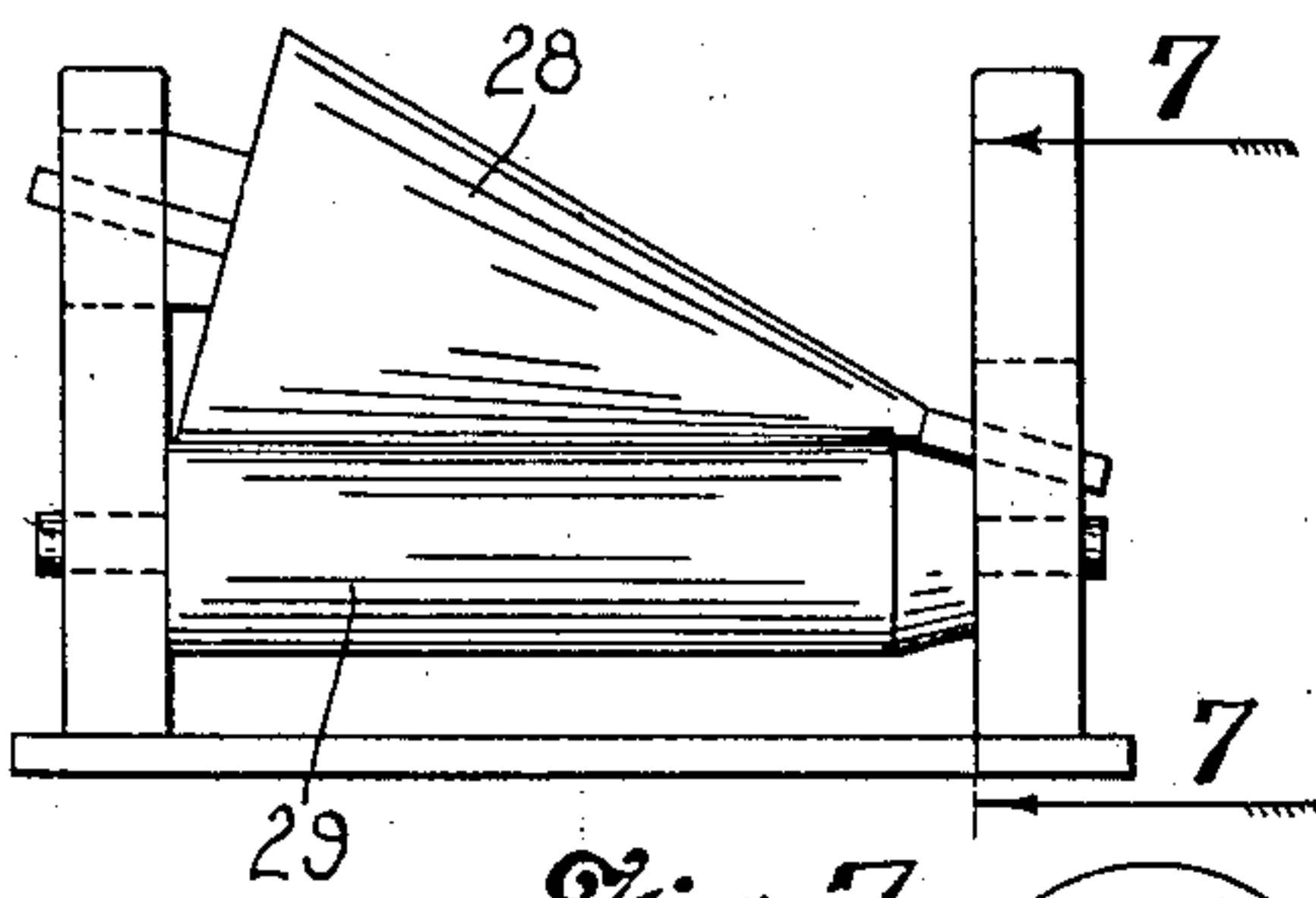


Fig. 5.

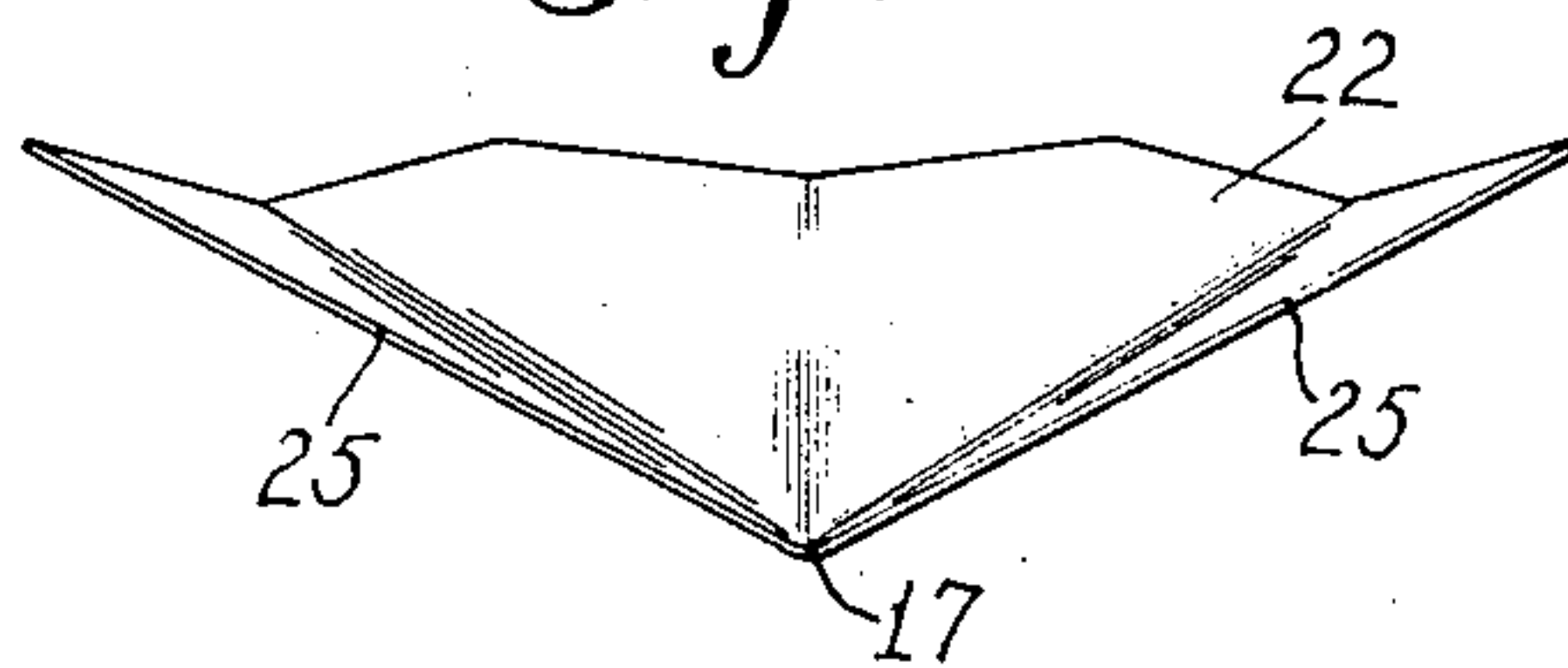


Fig. 7.

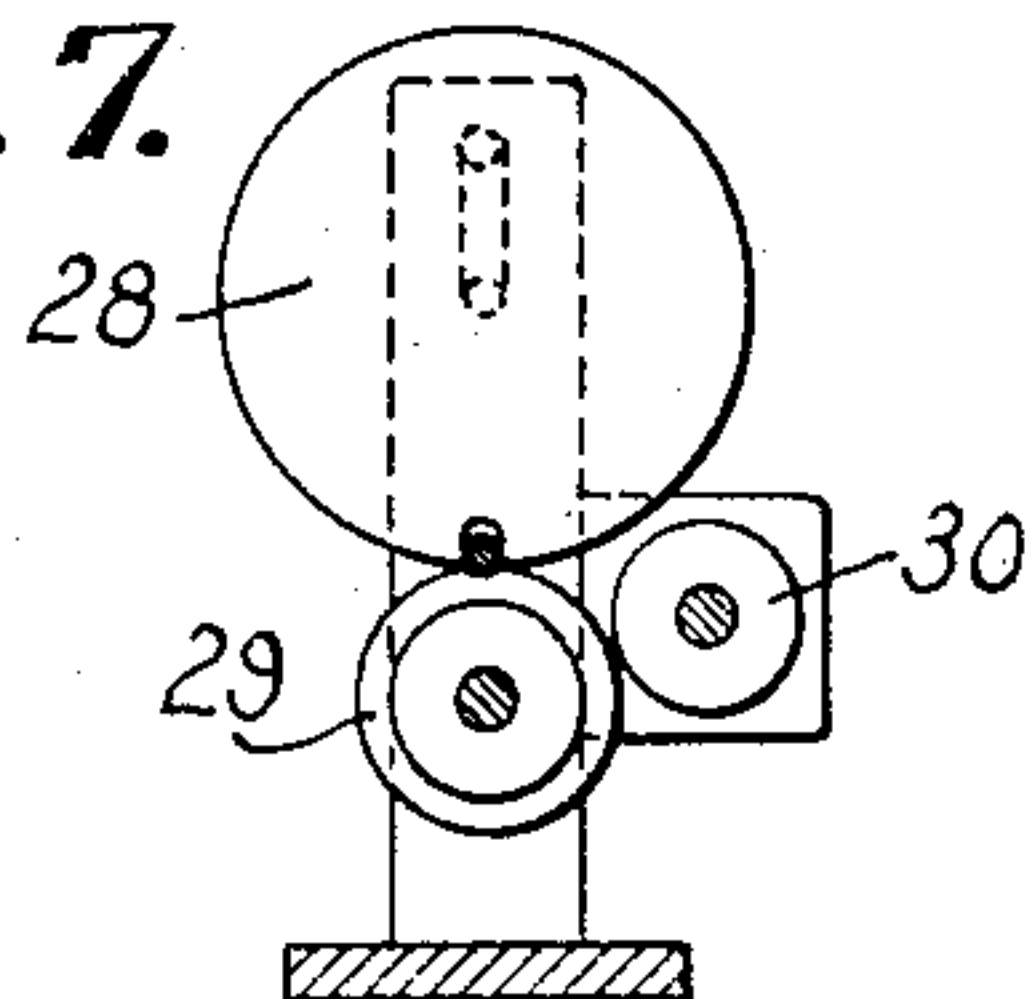


Fig. 8.



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UNITED STATES PATENT OFFICE

2,548,312

SHEET METAL FURNACE BAFFLE

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a corporation of Connecticut

Application July 29, 1946, Serial No. 686,837

1 Claim. (Cl. 110—97)

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This invention relates to a baffle or the like for furnaces, or to a method of making the same.

It particularly relates to a device to be supported in a combustion chamber above the flame or fuel therein to deflect the ascending products of combustion against the walls of the boiler or furnace to increase the efficiency of the furnace and prevent heat losses from the furnace.

It is desirable in a device of this kind to be able to install it in the furnace after the latter is in place, or, in other words, to be able to insert it through the furnace door. However, as the firebox or combustion chamber is usually considerably larger than the furnace door, this cannot be done unless the device is made in parts or sections. One feature of the present invention is to provide a baffle member made of sheet material, such as sheet metal, and so constructed that it comprises substantially identical parts or sections which may be inserted through a furnace door and thereafter connected together to form the completed baffle.

One object of the invention is to provide a new and improved baffle for combustion chambers of furnaces or boilers.

A still further object of the invention is to provide a furnace baffle of sheet metal, such as stainless steel, constructed in such a manner that it may be comprised of similar sections, which sections may be readily assembled and secured together within the chamber of the furnace.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a sectional view of a furnace showing the use of my improved baffle;

Fig. 2 is a top plan view of the baffle;

Fig. 3 is a sectional view on line 3—3 of Fig. 2;

Fig. 4 is a top plan view of one of the sections or parts of the baffle in flat form before it has been formed or bent into a substantially semi-conical shape;

Fig. 5 is a view of one of the sections of the baffle after it has been formed into its final shape;

Fig. 6 is a view of a roll assembly for forming the baffle sections from flat blanks;

Fig. 7 is a sectional view on line 7—7 of Fig. 6; and

Fig. 8 is a view of a baffle section of modified form which may be formed by the roll shown in Figs. 6 and 7.

To illustrate a preferred embodiment of my invention, I have shown in Fig. 1 of the drawings a furnace 10 having a firebox or combustion

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chamber 11. An oil burner 12 is shown as being connected to the furnace, although it will be understood that my improved baffle may be employed with a furnace using other types of fuel.

The baffle 13 is shown within the combustion chamber and may be supported from the cross tubes 14 by chains or cables 15 secured to eyes 16 connected to the baffle sections, as will be hereinafter described.

The completed baffle 13 is shown particularly in Figs. 2 and 3, and, as shown in the latter figure, is of substantially conical form, the sides extending upwardly from the apex 17 and having the eyes 16 connected thereto adjacent the outer edges of the walls.

As illustrated, the baffle member 13 is constructed of two substantially identical parts, one of which is designated at 18 in Fig. 4. This blank 18 is of initially flat form and may be composed of sheet metal, such as stainless steel, for example, of the proper gauge.

This flat sheet 18 is formed, as shown, into substantially semi-octagonal shape by cutting off the corners along the lines 19 and 20. It will be noted that the edge 21 extends continuously from one side to the other of the blank. Openings 23 may be formed in this flat blank along the edge 21. The two outer openings are spaced a slightly greater distance from the edge than the inner openings.

This blank is formed into substantially semi-conical form, shown in Fig. 5 and designated by the reference numeral 22. This may be effected by bending the blank along the dotted lines 24, so that each of the sections will extend upwardly from the apex 17, which is at the center of the edge 21. The blank is now in the form shown in Fig. 5.

Two of such parts or sections 22, as shown in Fig. 5, are then brought together with their apices 17 in juxtaposition, as shown in Fig. 2. It will be apparent that the edges 25 of the formed semi-conical section 22 will overlap the adjacent edges of the complementary section, as shown in Fig. 2. That is, while the apices 17 will merely be in juxtaposition, the sections of the edge 21 extending from these apices outwardly will overlap, so that the openings 23 of one section will register with those of the other section. The two sections may then be secured together by bolts 26 and the eyes 16 previously described.

It will be understood that the sections or parts 22 will usually be placed separately within the furnace chamber as they can be inserted singly

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through the door, and that they will be assembled and secured together within the furnace chamber as shown.

In Fig. 8 of the drawings, I have shown a slightly modified form of baffle in which the two half sections are formed in more truly conical shape than the section 22. In this form of my invention a flat blank is employed similar to that shown in Fig. 4 and of sheet metal, such as stainless steel, as before. Instead, however, of the blank being bent along certain straight lines, it is rolled into semi-conical form by a set of rollers, shown generally in Figs. 6 and 7.

This roll stand comprises cooperating upper and lower rollers 28 and 29 and a third roller 30 positioned opposite the bite between the rollers 28 and 29. The roller 28 is of conical or tapered form, as shown, so that, when the flat sheet of material 18 is passed between the rollers 28 and 29, it will, by engagement with the cooperating roll 30, be formed into semi-conical shape, as shown at 31 in Fig. 8.

This, as will be understood, will form one-half of the completed baffle, the two sections of which will be secured together as explained in connection with Figs. 2 to 5.

While I have shown and described some preferred embodiments of my invention and described some preferred methods of carrying out my improved process, it will be understood that the invention is not to be limited to the particular device shown or to the particular steps

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recited, but is capable of modification and variation within the spirit of the invention and within the scope of the claim.

What I claim is:

5 A baffle or the like for use in a combustion chamber, said baffle comprising two substantially identical sheet metal, substantially semi-octagonal members, each member being bent upwardly along lines extending from the substantially octagonal center to the center of the edges into semi-pyramidal form, and means 10 operatively associated with said members for securing said members together with their apices abutting, and their adjacent edges overlapping in increasing amounts from the apices outwardly.

DANIEL KAUFMAN.

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