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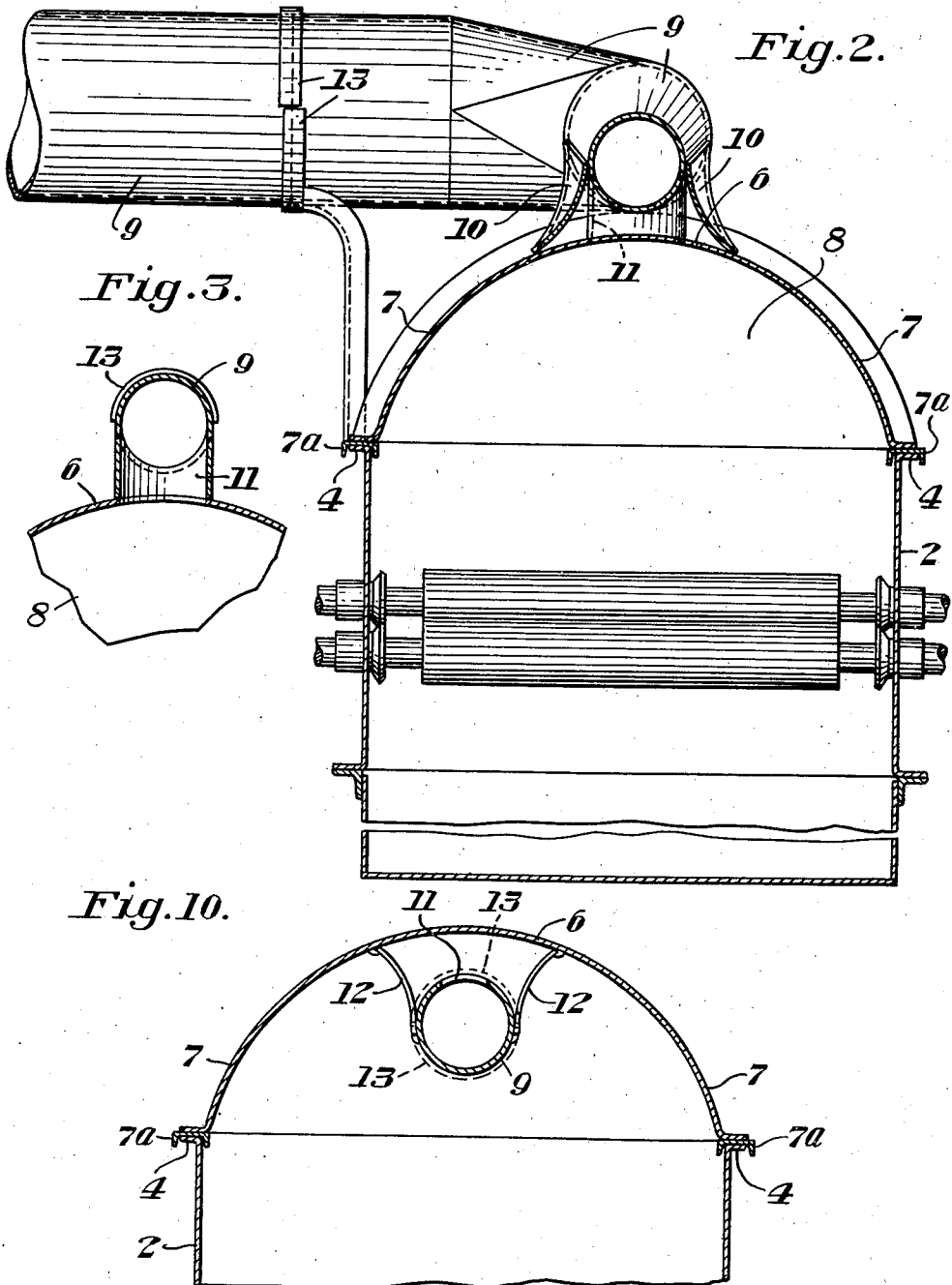
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EXHAUST APPARATUS

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2 Sheets-Sheet 2



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EXHAUST APPARATUS

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6 Claims. (Cl. 98—115)

This invention relates to apparatus for exhausting atmospheres, and particularly to the hoods and ducts which are employed to remove fumes, etc., from processing equipment such as electrolytic cleaning lines.

In electrolytic cleaning lines such as those employed in the manufacture of strip steel, the exhaust of the fumes has presented serious problems. These fumes, which are highly corrosive, are frequently heated to in excess of 300° F., and because of the finely suspended acids thereof are harsh and irritating to workmen employed in the vicinity. Due to these factors it has become the practice to install expensive fume duct systems which connect with exhaust hoods.

It is an object of the present invention to provide an improved and inexpensive apparatus for exhausting atmospheres.

Another object is the provision of the immediately foregoing in an apparatus which is especially adaptable to electrolytic cleaning lines, whereby the fumes, gases, and vapors arising from the electrolyte may be efficiently conducted away and prevented from escaping into the open air.

Another object is to provide an apparatus of the class described which is simple in construction and susceptible to quick and easy assembly and disassembly.

The invention, then, comprises the features hereinafter fully described and as particularly pointed out in the claims, the following description and the annexed drawings setting forth in detail certain illustrative embodiments of the invention, these being indicative of several of the number of ways in which the principles of the invention may be employed.

In said drawings:

Figure 1 is a side elevation of an exhaust apparatus comprising the teachings of the present invention.

Figure 2 is an enlarged sectional view on the line II—II of Figure 1.

Figure 3 is a fragmentary sectional view on the line III—III of Figure 1.

Figure 4 is a fragmentary side elevation illustrating the manner in which several hoods and exhaust ducts are assembled with the ducts in communication.

Figures 5 through 9 are various views illustrating details of construction.

Figure 10 is a fragmentary view similar in certain respects to the showing of Figure 2, but illustrating a modification.

Referring more particularly to the drawings, 55

the numeral 2 designates a single elongate tank or a series of tanks containing the electrolyte and within which the electrocleaning operation is performed. This tank (or tanks) 2 is provided at its upper edges with externally-extending right-angular flanges 4.

Upon the tank (or tanks) 2 is supported a series of spaced hoods 6, each of which is formed of sheet metal to provide side walls 7 which are arched or curved upwardly and toward each other with their concave sides downwardly, as shown in Figure 2, so that the hood is dome-shaped and hollow or open on its under side. The end walls 8 of the hoods 6 are preferably flat.

The lower edges of the side walls 7 of the hoods 6 are provided with inverted channel members 7^a which contact and embrace the externally extending right-angular flanges 4 on the upper edges of the tank (or tanks) 2. In this manner the hoods 6 and tank (or tanks) 2 are substantially sealed, but if desired, gaskets and/or packing may be employed. Moreover, clamping devices or fasteners may be used, but such form no part of the present invention and accordingly are neither shown nor more fully described.

Formed integral with and extending along the top of each of the hoods 6 is a cylindrical duct 9 which is adapted to communicate with the atmosphere lying within the tank. According to one form, the cylindrical duct 9 comprises a sheet metal pipe or conduit which is connected to the top of the hood 6 by means of concave metal sheets 10 which extend longitudinally of the hood. Whether or not the duct 9 is in direct contact with the top of the hood 6 is unimportant, but it is essential that they communicate with each other as by means of one or more openings 11.

Referring more particularly to Figure 10, the ducts 9 may be disposed entirely within the hoods 6, being suspended in any suitable manner, as by means of the concave metal sheets 12 which extend longitudinally of the hood.

At each of its ends, each of the cylindrical ducts 9 carries in projecting relationship a concentric semi-cylindrical sleeve 13 which is divided substantially on the horizontal. The adjacent ends of adjacent ducts 9 carry their respective concentric semi-cylindrical sleeves 13 in opposed relationship to thereby obtain a split-ring type of alignment and joint which enhances proper air flow. If desired, gaskets and/or packing may be employed.

Besides serving the interests of efficiency and economy, the joints formed by the opposed con-

centric semi-cylindrical sleeves, 13 enable rapid assembly and disassembly by vertically moving a desired duct into or out of position.

According to a preferred embodiment, the electrocleaning tank 2 may contain a first scrubber, a spray cleaner, a second scrubber, a dry box, a rinse tank, and a drier (none of which is specifically illustrated), whereby strip steel may be continuously passed through the said tank and electrocleaned in a manner well known in the art.

It will be understood that the apparatus of the invention need be used only on those portions of the tank (or tanks) 2 from which it is desired to exhaust the atmosphere (viz., in the present instance, fumes evolved by the electrolyte).

While I have shown and described several specific embodiments of the present invention, it will be seen that I do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of the invention as defined in the appended claims.

I claim:

1. Exhaust apparatus for a processing line having a tank or the like comprising a plurality of hoods resting on said tank, a duct disposed within and extending through the ends of one of said hoods, and means at the ends of said duct for connecting it to the adjacent end of the duct of an adjacently disposed hood.

2. Exhaust apparatus for a processing line having a tank or the like comprising a plurality of hoods resting on said tank, a duct disposed within and extending through the ends of said hoods, and a split ring detachably connecting adjacent ducts, part of said ring being mounted on the end of each duct.

3. Exhaust apparatus for a processing line hav-

ing a tank or the like comprising a plurality of abutting hoods resting on said tank, a duct carried by each of said hoods, and a split ring detachably connecting adjacent ducts, part of each of said rings being mounted on the end of each duct, and the parts of said rings on each duct occupying the same relative position with respect to the axis of the duct.

4. Exhaust apparatus for a processing line having a tank or the like comprising a plurality of abutting hoods resting on said tank, a duct disposed within and extending through the ends of said hoods, and a split ring detachably connecting adjacent ducts, part of each of said rings being mounted on the end of each duct, and the parts of said rings on each duct occupying the same relative position with respect to the axis of the duct.

5. Exhaust apparatus for a processing line having a tank or the like comprising a plurality of hoods resting on said tank, a duct carried by each of said hoods, and a split ring detachably connecting adjacent ducts, each of said rings being split on the horizontal with part of each ring being mounted on the end of each duct and the top parts of said rings being mounted on alternate ducts.

6. Exhaust apparatus for a processing line having a tank or the like comprising a plurality of hoods resting on said tank, a duct disposed within and extending through the ends of said hoods, and a split ring detachably connecting adjacent ducts, each of said rings being split on the horizontal with part of each ring being mounted on the end of each duct and the top parts of said rings being mounted on alternate ducts.

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