Feb. 14, 1933. D. E. MACCABEE 1,897,205

REFRIGERATION APPARATUS

Filed Aug. 3, 1931

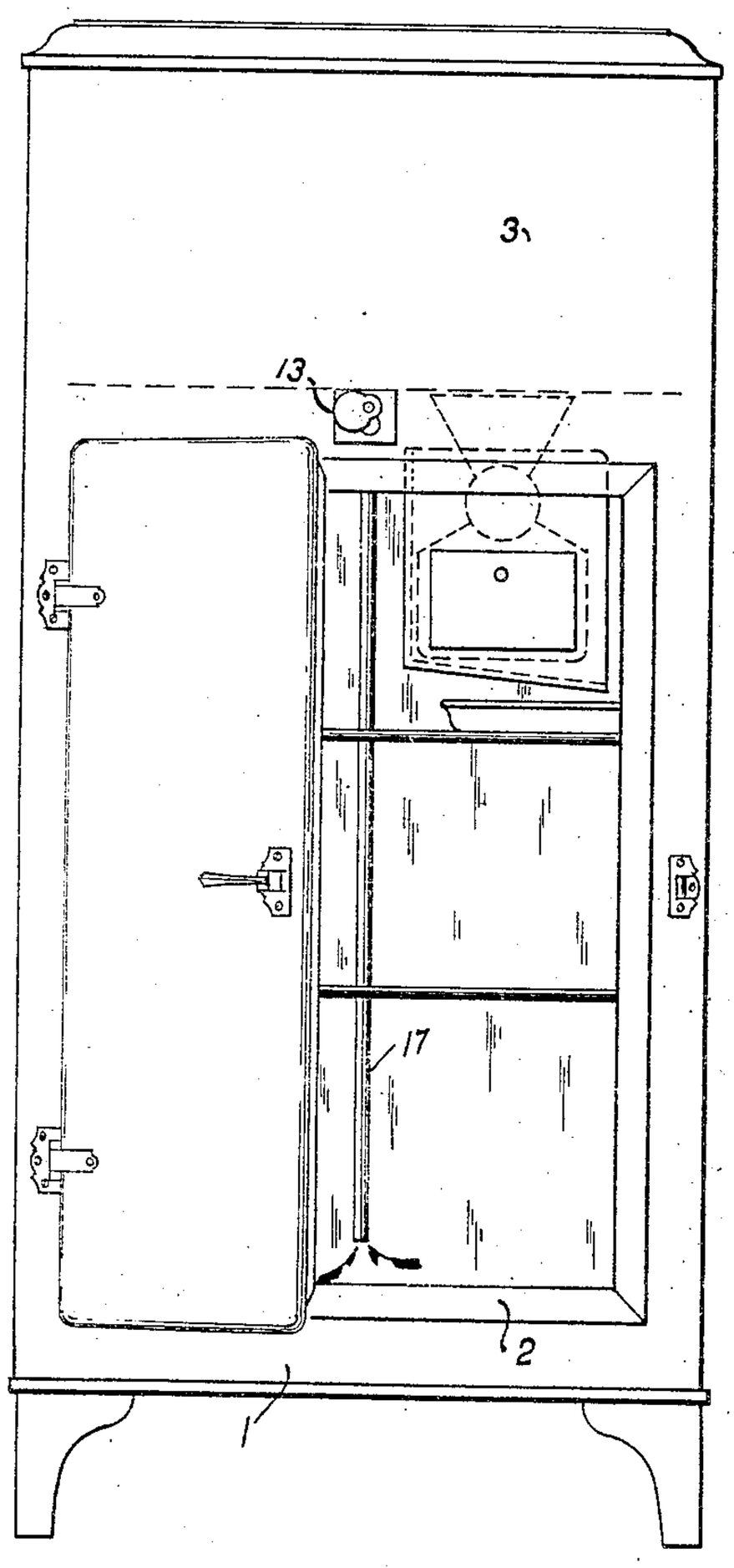

Fig. 1

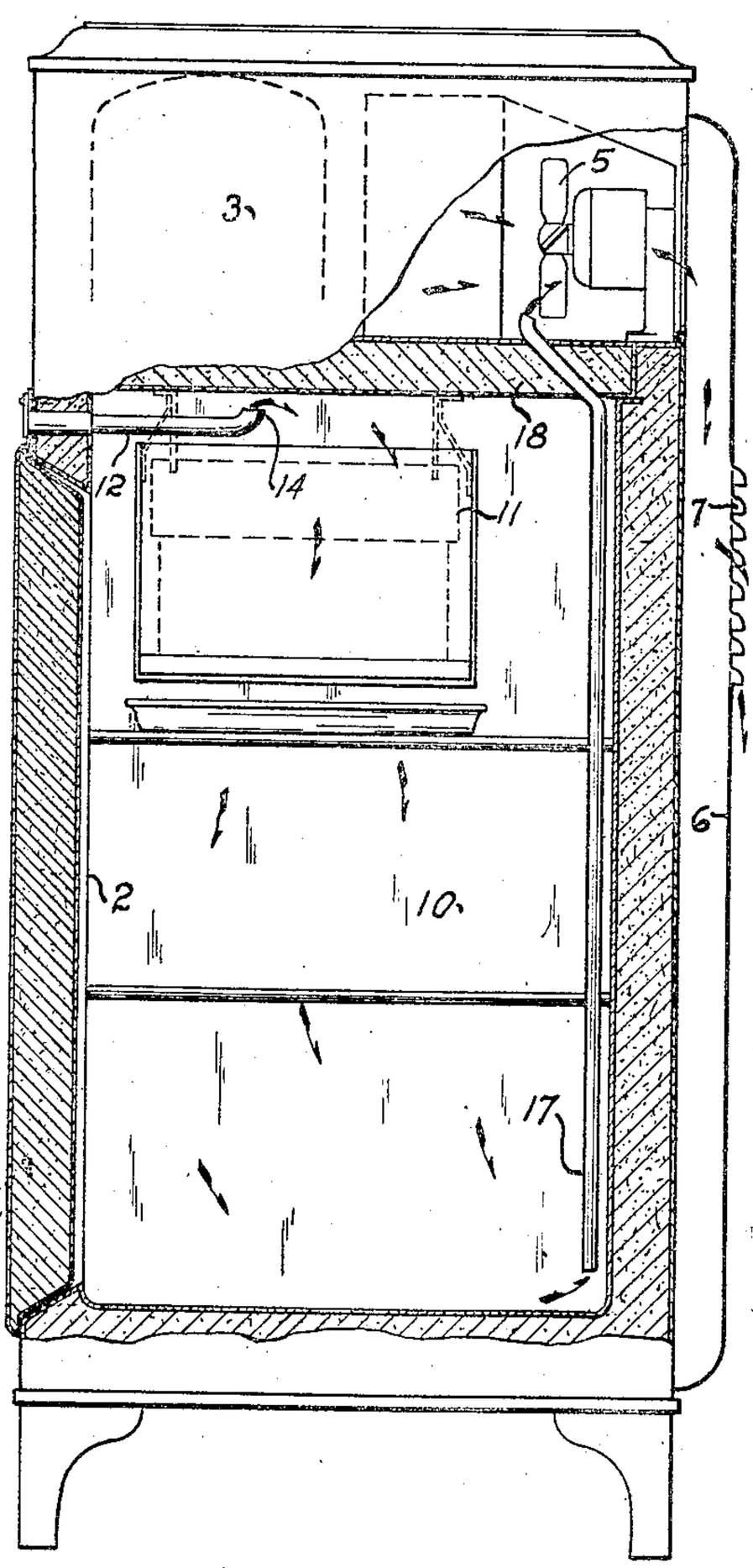

Fig. 2

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UNITED STATES PATENT OFFICE

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REFRIGERATION APPARATUS

Application filed August 3, 1931. Serial No. 554,728.

This invention relates to refrigeration apparatus, and particularly to a refrigerator through which there may be maintained a steady flow of air. For certain purposes, it may be desirable to establish an air flow through the refrigerating chamber, and with this object in view I have devised a system whereby the usual means for cooling the refrigeration apparatus aids in establishing a flow of air through the refrigeration chamber itself.

In the drawing,

Figure 1 is a front view of a refrigerator embodying this invention; and

Figure 2 is a side view of the refrigerator with certain parts shown in section.

The refrigerator in general comprises a cabinet 1 having a door opening 2 and a compartment 3, in which there is disposed the refrigeration apparatus. While the apparatus is here shown as mounted above the refrigerating chamber, this is in no wise essential and the positions may be reversed or changed in any desirable manner. The refrigeration apparatus may take on any of the well-known forms and, as shown here, includes a power-driven fan 5. This fan may be driven in any suitable manner, and in use serves to establish a current of cooling air through the refrigeration apparatus. As here shown, the air currents are drawn into chamber 3 through any suitable opening and discharge through louvres 6 in a flue 7 mounted at the rear of the cabinet.

Suspended from the top of refrigerating chamber 10 is a cooling unit 11, of any type whatsoever. In order to establish a circulation of air through chamber 10, an air inlet pipe 12 passes through the cabinet wall above door opening 2. The free end of pipe 12 has a pivoted cover 13 disposed over it and adapted to function as an air inlet valve. As shown, pipe 12 extends inwardly into chamber 10 for a short distance and terminates in an upwardly disposed portion 14. Air flowing into pipe 12 will be cooled by cooling unit 11 and drop toward the bottom of chamber 10, cooling whatever articles may be disposed therein. Disposed within chamber 10 and toward the rear thereof, is a pipe 17, whose bottom open end is disposed well toward the bottom of chamber 10. Pipe 17 extends up chamber 10 and through upper wall 18 into the apparatus chamber 3. The upper end of pipe 17 terminates near fan 5.

When fan 5 is idle, there will be a small circulation of air through refrigerating chamber 10, because of the tendency of warmed air to go up pipe 17. When fan 5 is operated, usually during the operation of the refrigeration apparatus, it is clear that there will be an increased circulation of air through chamber 10 because of the suction action of the fan. In general, pipe 17 of the exhaust should be led to the fan and terminate in a low pressure region created during the operation of the fan. Obviously, the system may be reversed, if desired. The circulation of air through chamber 10 may be controlled or may be eliminated entirely by means of cover 13.

I claim:

1. In a refrigerator of the mechanical refrigeration type having a fan or similar means for establishing a flow of air in the neighborhood of said refrigerating apparatus, the combination of an air inlet giving access to said refrigerating chamber from the outside, and an air exhaust, one end of said exhaust being disposed within said refrigerating chamber and the other end of said exhaust being disposed in proximity to said fan, whereby when said fan is operated a forced circulation of air through the refrigerating chamber is established, the flow of air being so small in comparison to the volumetric capacity of the refrigerating chamber as to have a negligible effect on the refrigeration process.

2. In a refrigerator of the mechanical type having a fan or similar device for establishing forced circulation of air through said refrigeration apparatus, the combination of two pipes, each of which gives access from the outside to the inside of said refrigerating chamber, and means for disposing the outer end of one of said pipes in proximity to said fan, whereby a portion of the air currents set up by said fan are effective in es-

tablishing a flow of air through said refrigerating chamber, the flow of air being so small in comparison to the volumetric capacity of the refrigerating chamber as to have a negligible effect on the refrigeration process.

3. In a refrigerator of the mechanical refrigeration type, wherein means are provided for establishing a flow of air to dissipate the heat of refrigeration, the combination of two pipes, each of which has one end inside of said refrigerating chamber and the other end outside thereof, and means for disposing at least one of said outer ends adjacent said first means, whereby a forced circulation of air through said refrigerator cabinet is established, the flow of air being so small in comparison to the volumetric capacity of the refrigerating chamber as to have a negligible effect on the refrigeration process.

In testimony whereof he affixes his signature.

DAVID E. MACCABEE.