

J. R. BLAIK.
SMOKE CONSUMER.
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975,391.

Patented Nov. 15, 1910.

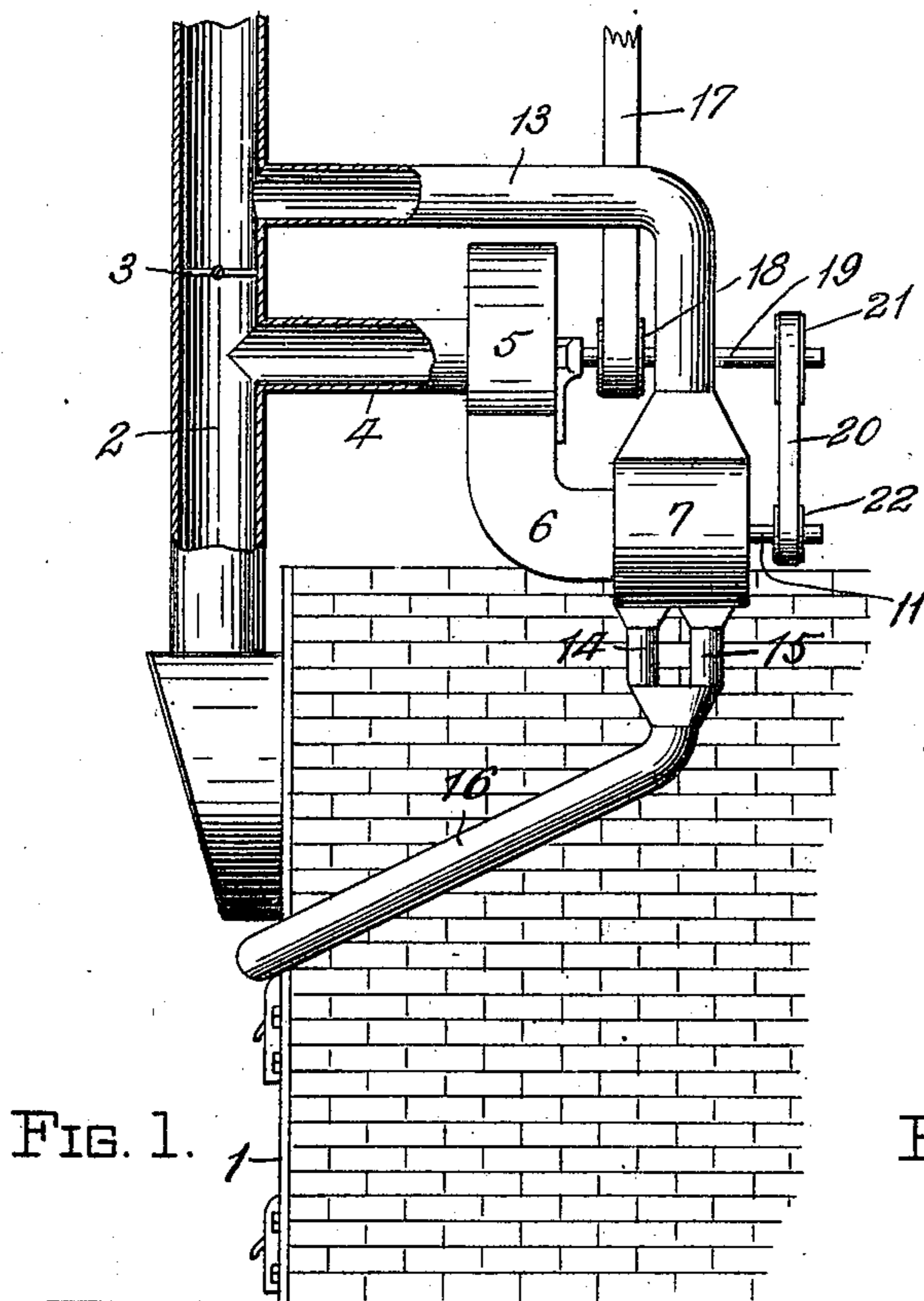


FIG. 1.

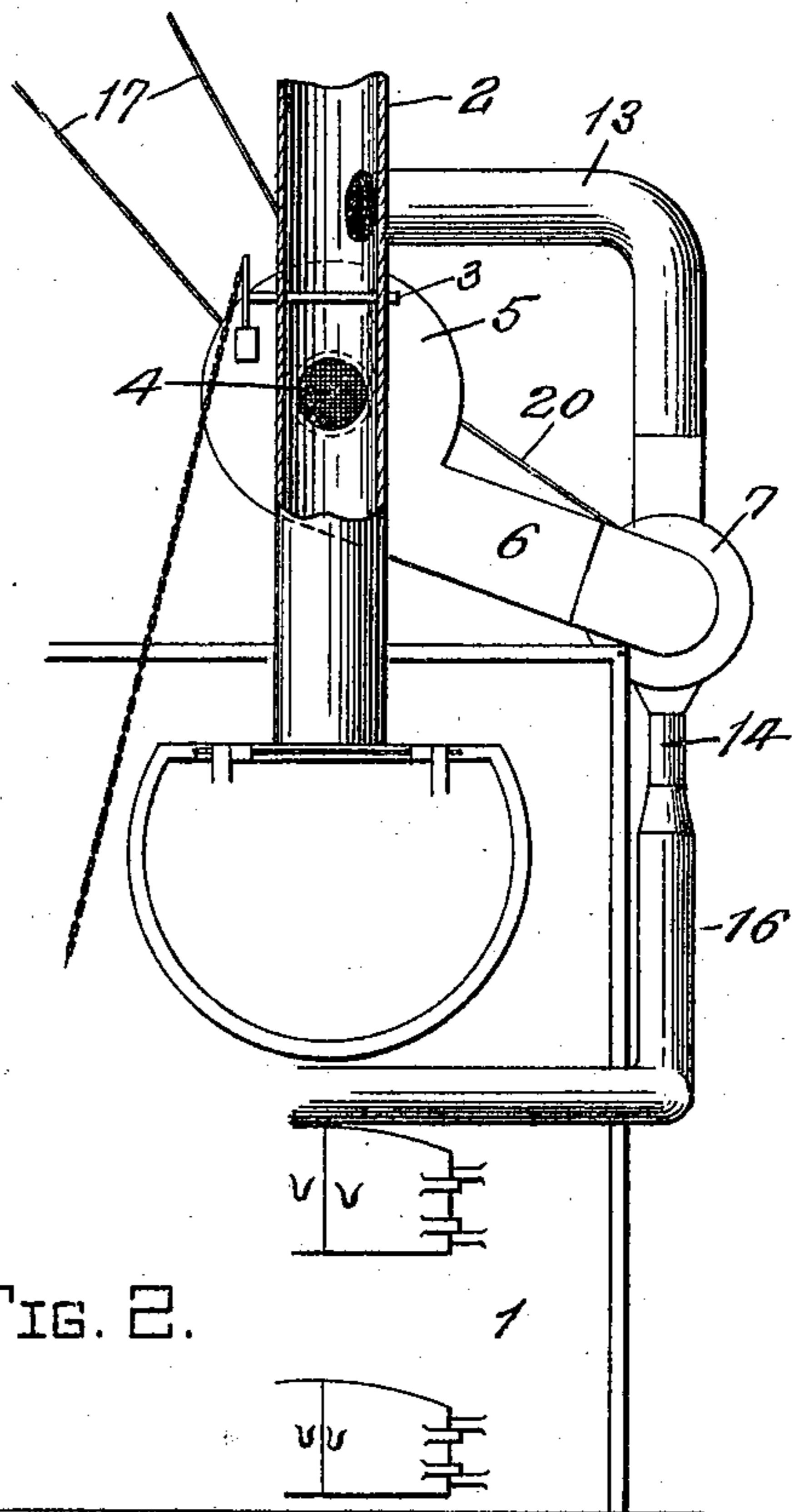


FIG. 2.

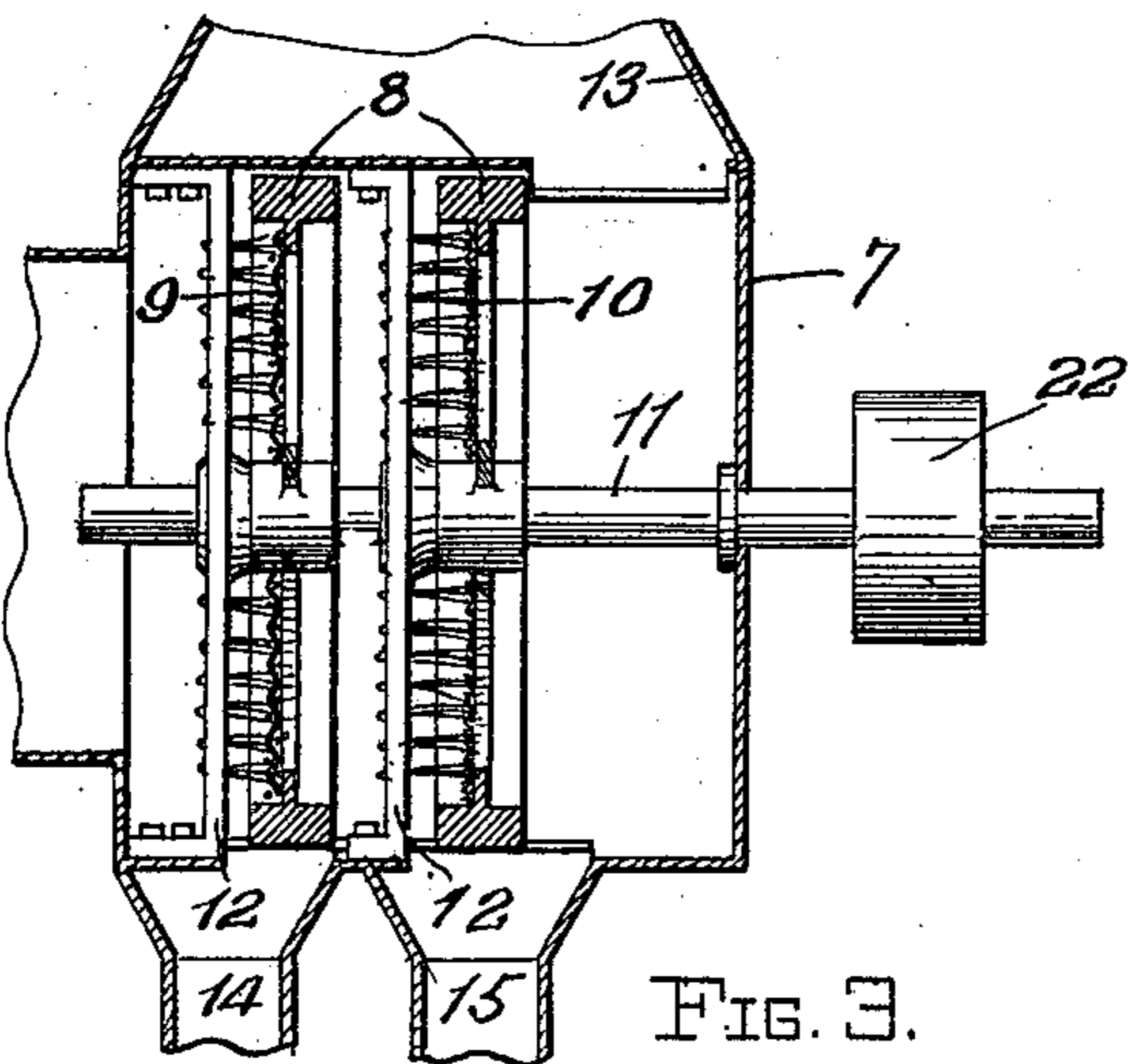


FIG. 3.

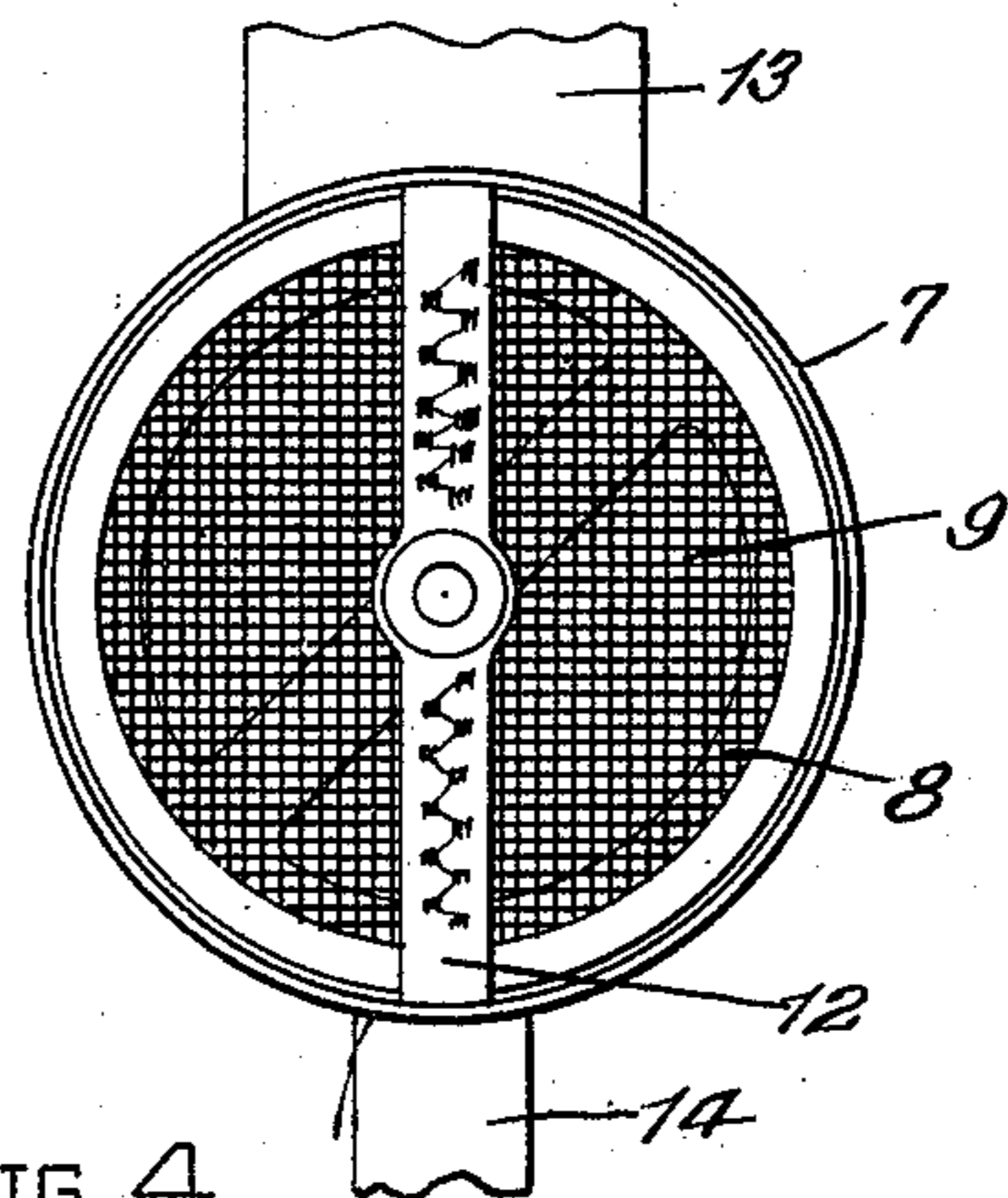


FIG. 4.

WITNESSES

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SMOKE-CONSUMER.

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To all whom it may concern:

Be it known that I, JOHN ROSE BLAIK, of the city of Montreal, in the Province of Quebec and Dominion of Canada, have invented certain new and useful Improvements in Smoke-Consumers, of which the following is a full, clear, and exact description.

My invention relates to smoke consumers and the object is to provide a device that will separate the cinders and particles of carbon from the stack gases and deposit same in a suitable receptacle allowing the purified gases to be returned to the stack.

The invention consists essentially of a fan or blower adapted to withdraw the smoke and gases from the stack through a suitable pipe and to force said gases against one or more screens provided with cleaning means therefor. The cinders and particles of carbon are caught by the screens and either returned to the furnace for further combustion, or are deposited in a suitable receptacle, while the gases which pass through the screen are returned to the stack.

In the drawings which illustrate my invention:—Figure 1 is a side elevation of the apparatus ready for operation. Fig. 2 is a front view of same. Fig. 3 is a sectional view of the cleaning chamber. Fig. 4 is an end view of the device shown in Fig. 3.

Referring to the drawings, 1 designates a boiler furnace provided with a suitable stack 2 having a damper 3 therein. A suction pipe 4, having its mouth located below the damper 3, is led from the stack through a suitable fan or blower 5 which may be operated by any source of motive power. From the fan or blower 5, a discharge pipe 6 leads into a separating chamber 7, provided with one or more screen frames 8 adapted to revolve within said chamber. In Fig. 3 there are two screens shown, one coarse designated 9, and a fine screen designated 10. The screens are mounted upon a shaft or spindle 11, and are each provided with metallic brushes located in contact with the mesh of said screens and adapted to prevent the mesh from clogging. The cinders and particles of carbon which are caught by the screens are led away through suitable outlets 14 and 15 and conveyed through a pipe 16 back to the combustion chamber. The cinders may, however, be deposited in any receptacle to be disposed of in any desired manner. The gases which pass through the screens are preferably led through the out-

let pipe 13 back into the stack above the damper. These gases, however, if sufficiently purified may also be disposed of in any suitable manner.

In the form of my invention shown in the drawings, the fan is operated from a power belt 17 which revolves the pulley 18 secured to the shaft 19. The screens are rotated by means of the transmission belt 20 attached to the pulley 21 and transmitting rotation through the pulley 22 to the shaft 11. It will be obvious that the brushes may be either stationary or caused to revolve by any suitable gearing in a direction opposite to the direction of rotation of the screens.

In the operation of the device, the damper 3 will be turned to prevent the smoke from escaping through the stack, while the rapid rotation of the fan or blower 5 will draw said smoke through the pipes 4 and 6, forcing it against the revolving screens. The cinders and coarser material will be caught by the coarse screen, while the finer particles of carbon will be caught by the fine screen and may be carried through the pipe 16 to any desired receptacle. The mesh of the screens will be kept open by means of the brushes rubbing against same, while the gases will be returned to the stack. By this means the smoke nuisance can be absolutely prevented at a very inconsiderable expense. Furthermore the fans or blowers may be used to great advantage in the position shown as a means for creating a draft for the furnace.

It will be obvious that several changes in the construction and arrangement of parts may be made without departing from the spirit of my invention.

Having thus described my invention, what I claim is:—

1. In a device of the character described, the combination with a furnace and its smoke stack of a damper located in said stack, a suction pipe leading from the stack, a blower adapted to withdraw the gases from the stack through said pipe, a separating chamber having therein a plurality of revolving screens adapted to separate the particles of carbon from the gases, and a second pipe leading from said chamber into the stack.

2. A smoke consumer comprising a pipe leading from the stack and having a suction fan therein, a separating chamber connected

with said pipe having a plurality of revolving screens therein, brushes located in contact with said screens, and means for returning the particles of carbon to the furnace and the waste gases to the stack.

3. A smoke consumer comprising a suction pipe leading from the stack and having a blower adapted to force the stack gases into a separating chamber, a plurality of revolving screens in said separating chamber, brushes located in contact with said screens, and means for returning the particles of carbon to the furnace and the waste gases to the stack.

4. A device of the character described comprising a furnace, a smoke stack, a damper located therein, a pipe, connected with

said stack below the damper, a blower in said pipe, a separating chamber connected with said pipe, a plurality of revolving screens in said separating chamber, means for preventing said screens from clogging, means for carrying the particles of carbon from said separating chamber, and a pipe connecting said separating chamber with the smoke stack, the entrance to said stack being located above the damper.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOHN ROSE BLAIK.

Witnesses:

C. W. TAYLOR,

STUART R. W. ALLEN.