

No. 763,199.

PATENTED JUNE 21, 1904.

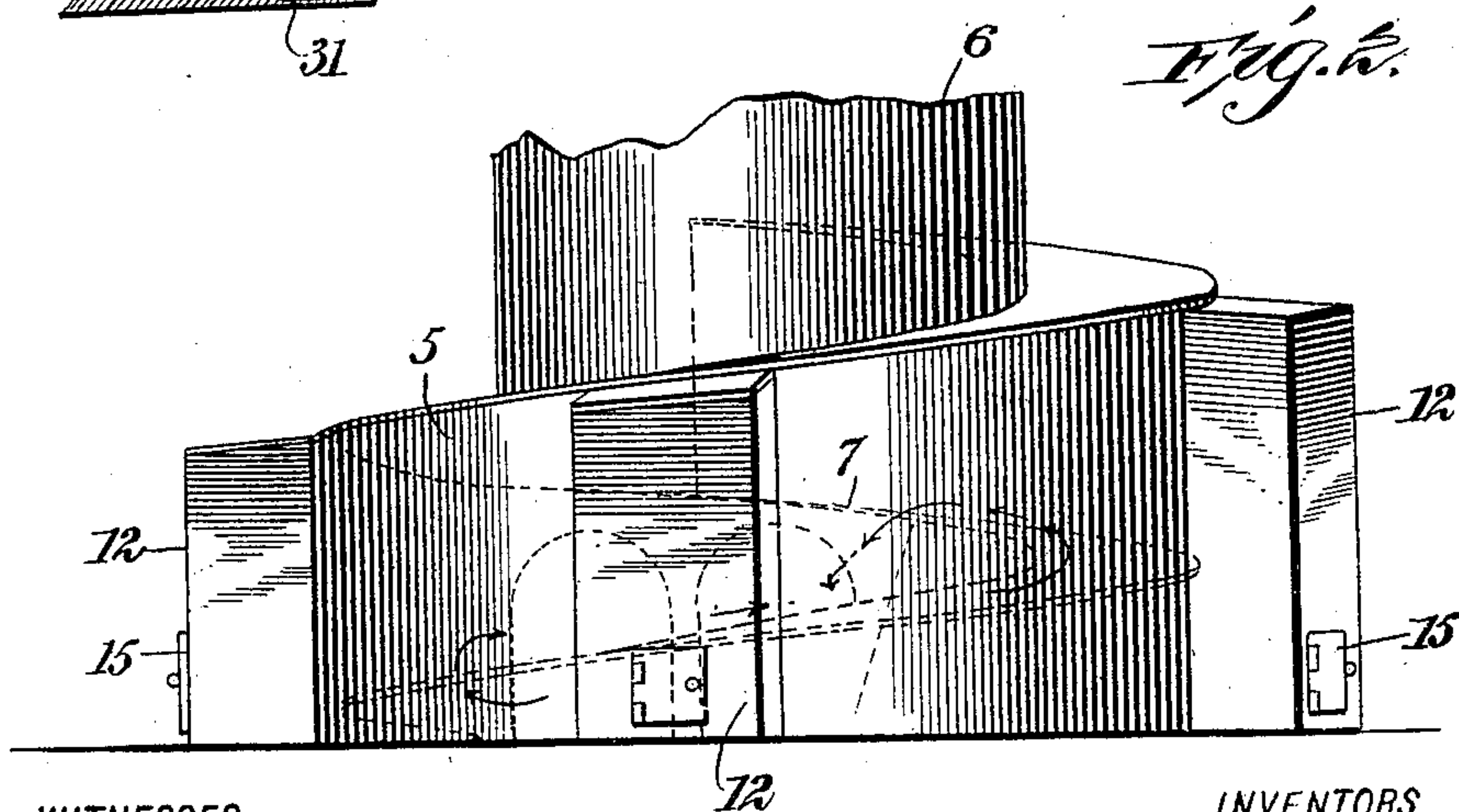
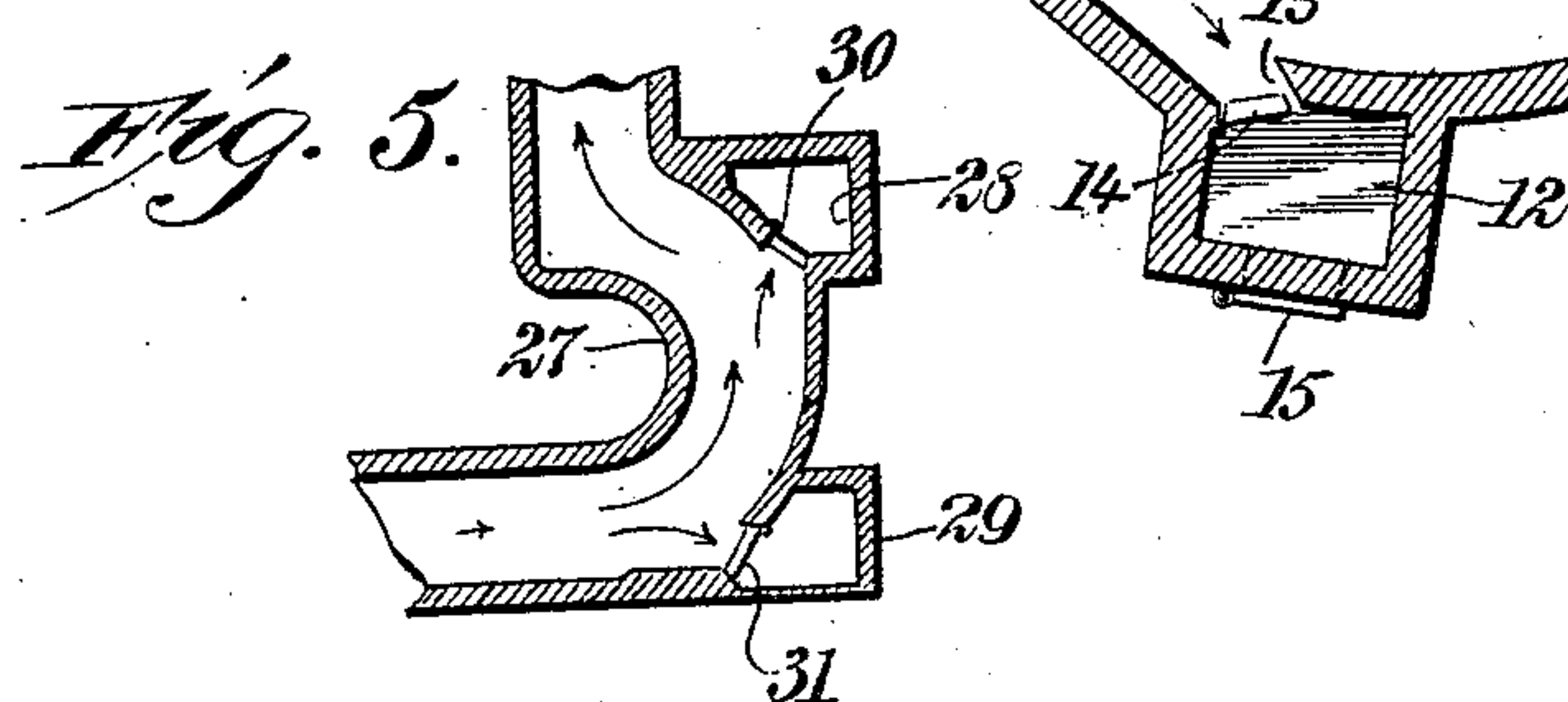
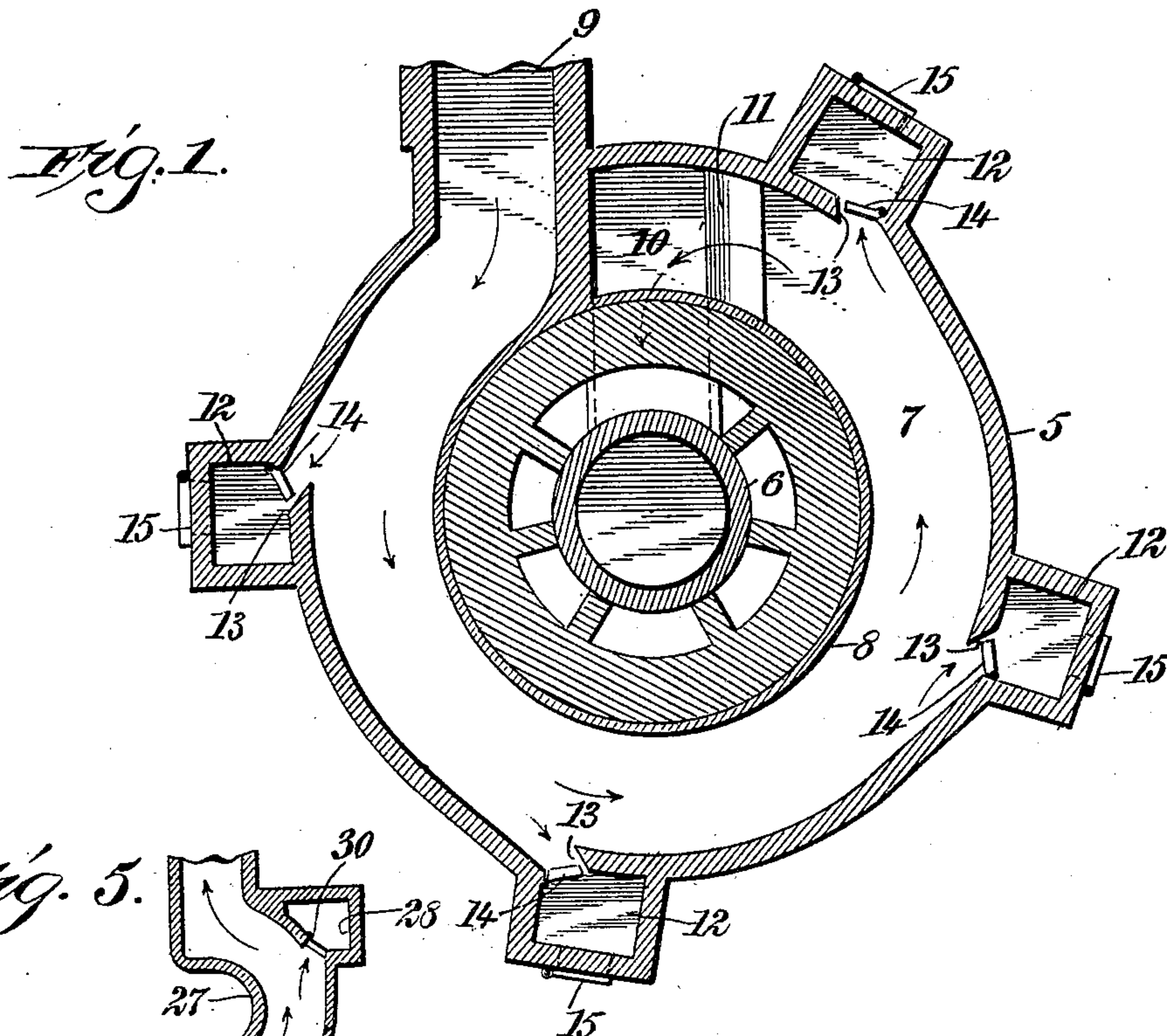
W. J. NEWTON, R. DIGGLE & G. WATSON.

DUST ARRESTER.

APPLICATION FILED DEC. 28, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

*G. P. Kingsbury*  
*C. R. Ferguson*

INVENTORS  
*William J. Newton*  
*Richard Diggle*  
*George Watson*  
BY *Wm. M. M.*  
ATTORNEYS

No. 763,199.

PATENTED JUNE 21, 1904.

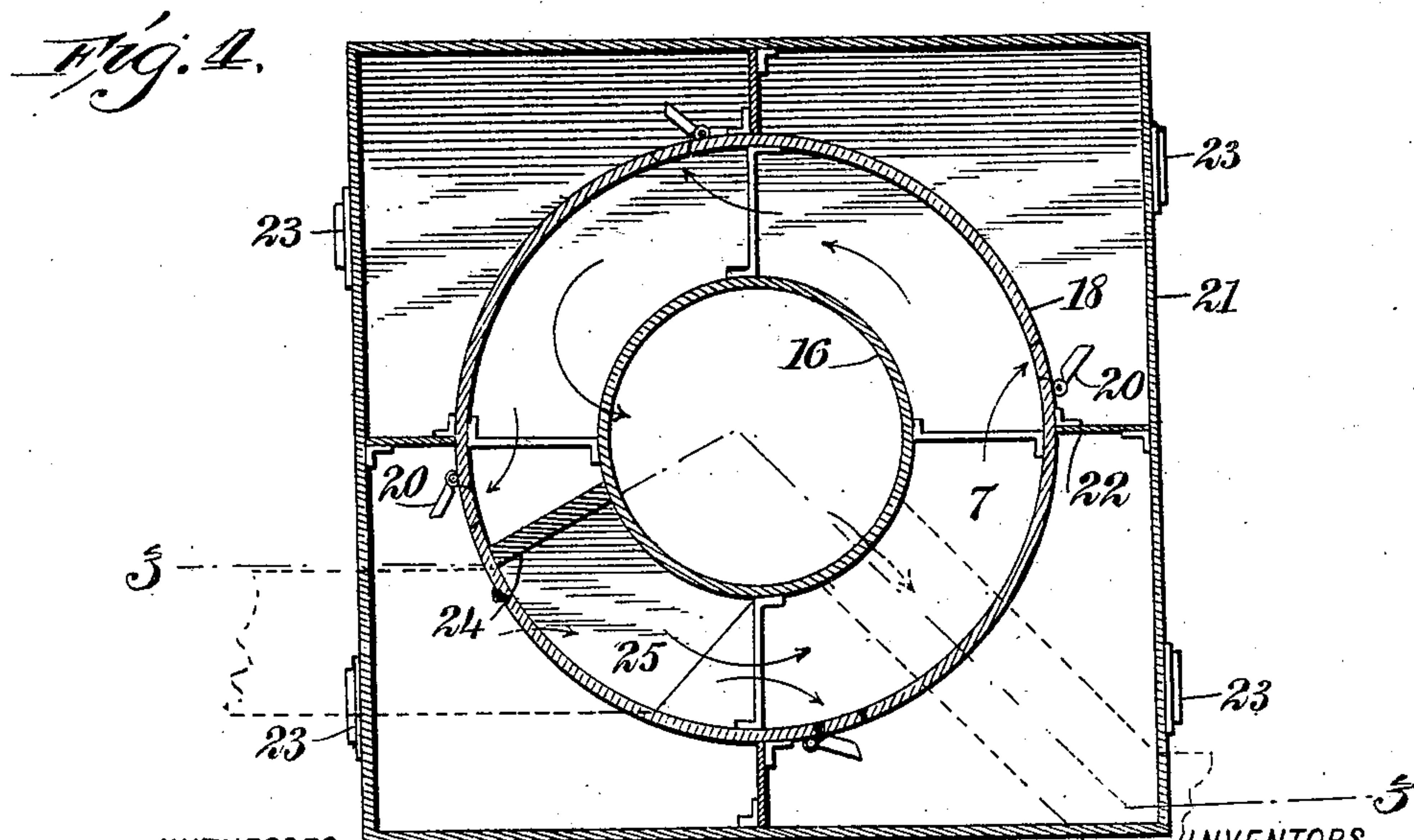
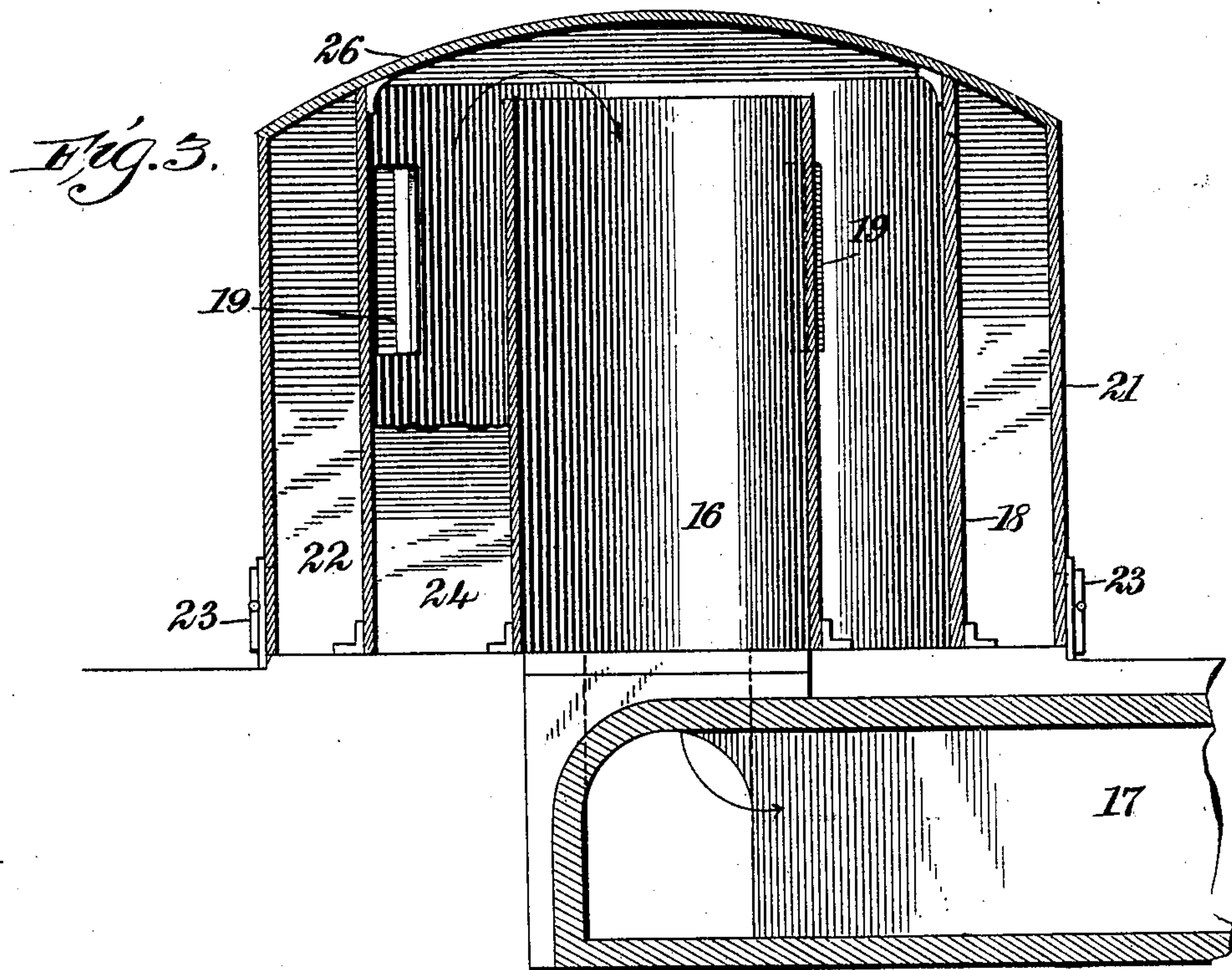
W. J. NEWTON, R. DIGGLE & G. WATSON.

DUST ARRESTER.

APPLICATION FILED DEC. 28, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



WITNESSES:

*G. P. Kingsbury*  
*C. R. Ingerson*

INVENTORS  
*William J. Newton*  
*Richard Diggle*  
*George Watson*  
BY *Mumford*  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

WILLIAM JOSEPH NEWTON AND RICHARD DIGGLE, OF ACCRINGTON,  
AND GEORGE WATSON, OF LEEDS, ENGLAND, ASSIGNORS TO THE  
HORSEFALL DESTROYER COMPANY, LIMITED, OF LEEDS, ENGLAND.

## DUST-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 763,199, dated June 21, 1904.

Application filed December 28, 1903. Serial No. 186,918. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM JOSEPH NEWTON and RICHARD DIGGLE, both residents of Accrington, Lancashire, and GEORGE WATSON, a resident of Leeds, York county, England, all subjects of the King of Great Britain, have invented a new and Improved Dust-Arrester, of which the following is a full, clear, and exact description.

10 This invention relates to improvements in dust-arresters, an object being to provide an automatic and effectual means for arresting or preventing the escape of dust or the like from refuse-burners or other furnaces and  
15 flues and so arranged that the accumulated matter may be removed without interfering with the furnace-draft.

We will describe a dust-arrester embodying our invention and then point out the novel  
20 features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

25 Figure 1 is a sectional plan view of a dust-arrester embodying our invention. Fig. 2 is a side elevation thereof. Fig. 3 is a section on the line 3 3 of Fig. 4, showing a modification. Fig. 4 is a sectional plan view thereof,  
30 and Fig. 5 is a sectional plan view showing another modification.

Referring to the example of our invention shown in Figs. 1 and 2, 5 designates the casing which surrounds the smoke-stack or uptake 6. This casing, as here shown, is circular, but it may be otherwise shaped, and it may be made of any suitable material, such as metal or brick work. Extended spirally  
35 around the casing and around the uptake 6 is a plate 7, which entirely fills the space between the interior of the casing 5 and the inner shell 8. The spiral chamber thus formed in the casing communicates with a furnace or the like through a flue 9, and at one end the  
40 spiral chamber communicates with the interior of the smoke-stack or uptake 6 through a port 10, one wall of which is formed by a wall of the flue 9, and the opposite wall is

formed by the downwardly-turned portion 11 of the plate 7. Arranged around the casing 50 at intervals are dust-receiving chambers 12. These dust-receiving chambers communicate with the interior of the casing through openings 13, controlled by valves 14, which are arranged at a tangent to the axis of the casing, and these dust-receiving chambers are  
55 provided with openings normally closed by doors 15. In the operation of this example of our invention the draft through the smoke-stack or uptake 6 will draw the gases, dust, 60 &c., through the flue 9 into the spiral chamber, and it may be here stated that by means of the plate 7 the gases are held from spreading or expanding. Owing to the rapid motion of the gases and material around the  
65 chamber, the heavy matter will be thrown outward by centrifugal action and passed through the openings 13 into the receptacle 12, and the gases will pass through the port 10 and out through the uptake. When it is  
70 desired to clean the dirt and other material from the receptacles 12, the doors 15 may be opened and then the intruding air which is drawn inward by the suction of the flowing gases will close the valves 14, so that the dust  
75 may be readily removed, and as the valves 14 of the other receptacles are opened the dust carried around will pass therein. Therefore it will be seen that the receptacles may be  
80 closed one at a time without interfering with the draft.

With the example of our invention shown in Figs. 3 and 4 a downtake 16 is open at its top and communicates at its lower end with a flue 17, leading to a chimney or smoke-stack. 85 Surrounding the downtake 16 is a casing 18, provided at intervals with openings 19, in which valves 20 are arranged in a similar manner to the valves 14. Surrounding the casing 18 is a square casing 21, and arranged  
90 at intervals between the casings 18 and 21 are vertical partitions 22. The two casings and the partitions form the walls of dust-receptacles, which are provided with doors 23. Arranged between the downtake 16 and the inner surface of the casing 18 is a vertical par- 95



tition or baffle-plate 24, at one side of which is an inlet-port 25, connecting with a suitable flue, such as first described. The operation of this device is as follows: The gases, dust, &c., will pass into the casing 18 through the port 25 and then pass around the same and into the downtake 16 and thence to the flue 17. The heavy matter, such as dust, &c., will pass through the openings of the casing 18 into the dust-receptacles. The two casings, it will be noted, are closed at the top by a dome-shaped cover 26.

In the example of our invention shown in Fig. 5 a circulating-chamber 27 forms a part only of a flue-circulator, and communicating with this circulating-chamber are dust-receptacles 28 29, the openings providing such communication having valves 30 31, similar to those first described.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a device for the purpose described, the combination with an outlet for gases, of a casing surrounding the same, the said casing having an inlet for gases, dust and the like and also having communication with the outlet, the said casing being formed with a spirally-disposed chamber, dust-receptacles arranged around the casing and communicating with the interior thereof, the said receptacles having door-controlled outlets, and valves for the openings providing such communication, the said valves being arranged to be closed by inflowing air when the doors are opened.

2. In a device for the purpose specified, the combination with an outlet or uptake, of a casing surrounding a portion thereof, a spi-

ally-disposed partition in the casing, a port providing communication between one end of the chamber formed by said partition, a flue leading into the other end of said chamber, dust-receptacles arranged at intervals around the casing and communicating with the interior thereof, the openings providing such communication being arranged in positions at a tangent to the axis of the casing, valves for said openings, and door-controlled outlets for said receptacles.

3. The combination with an uptake or smoke-stack, of a dust-arrester comprising a casing surrounding a portion of the uptake or smoke-stack, dust-receptacles arranged around the outer portion of the dust-receiver and communicating with the interior thereof, outwardly-opening doors for the receptacles, and valves for said communications adapted to be opened by the centrifugal action of dust carried around by the draft in the uptake, and to move to closed position upon opening the outer door.

In testimony whereof we have signed our names to this specification in the presence of subscribing witnesses.

WILLIAM JOSEPH NEWTON.  
RICHARD DIGGLE.  
GEORGE WATSON.

Witnesses to the signatures of William Joseph Newton and Richard Diggle:

EWALD SIMPSON MOSELEY,  
MALCOLM SMETHURST.

Witnesses to the signature of George Watson:

CHAS. GILLIARD,  
CHARLES FRANKLAND DENT.