

D. J. T. OLDHAM.

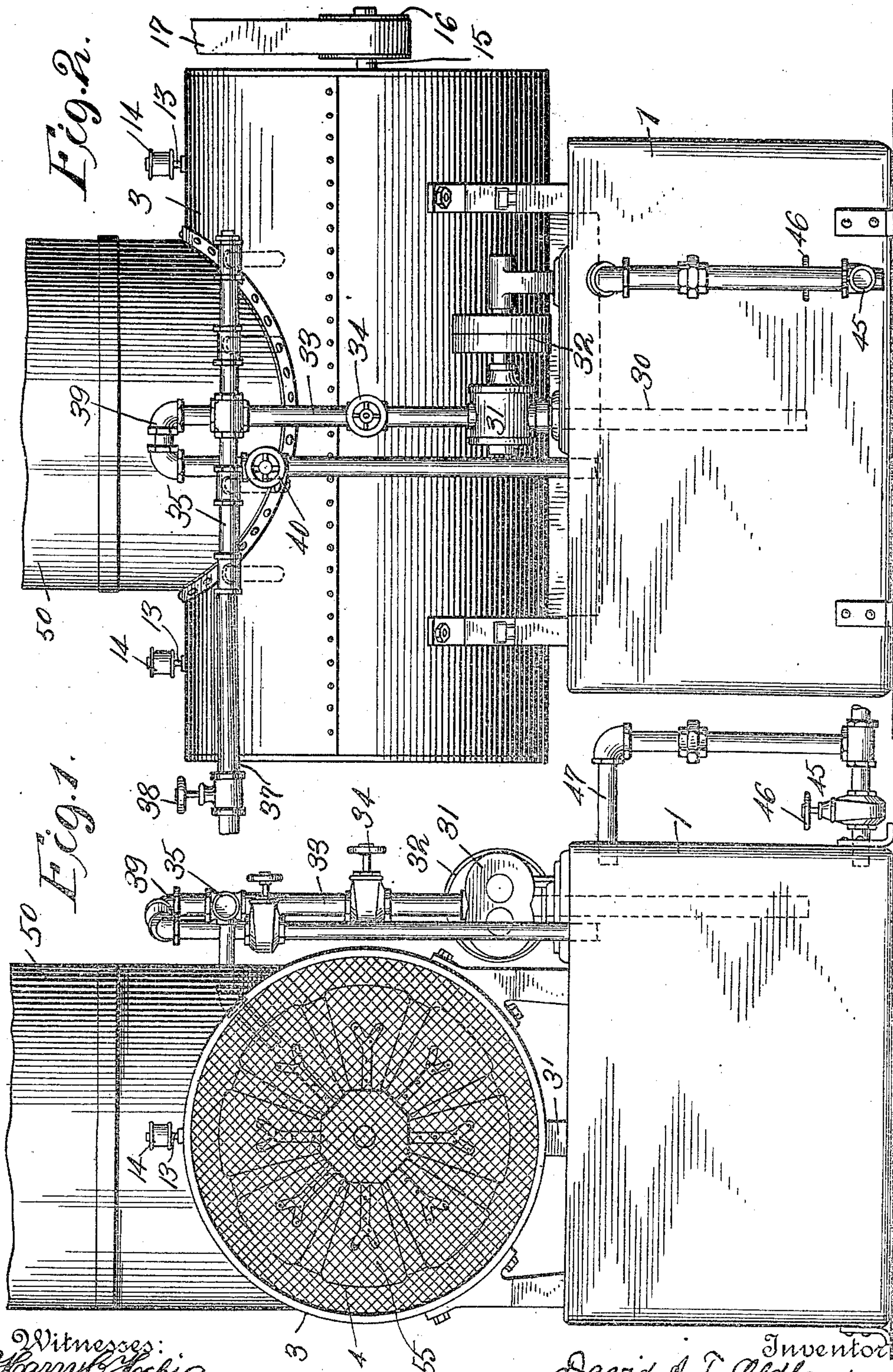
DUST COLLECTOR.

APPLICATION FILED SEPT. 12, 1908.

960,686.

Patented June 7, 1910.

3 SHEETS—SHEET 1.



Witnesses:
Harry K. Big
Charles Chamber

David J. T. Oldham
By his Attorneys
Dunn, Turk & Clarke

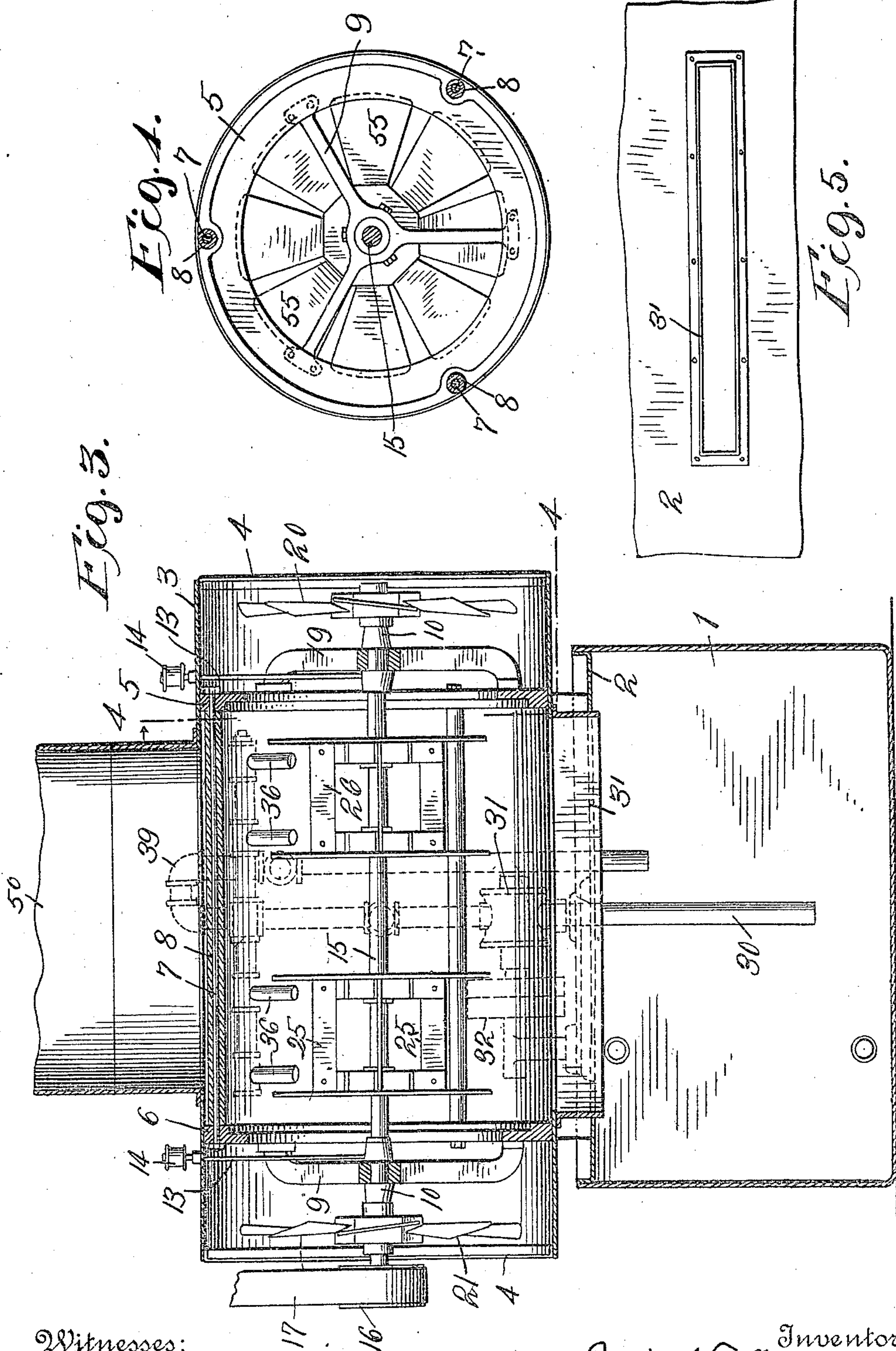
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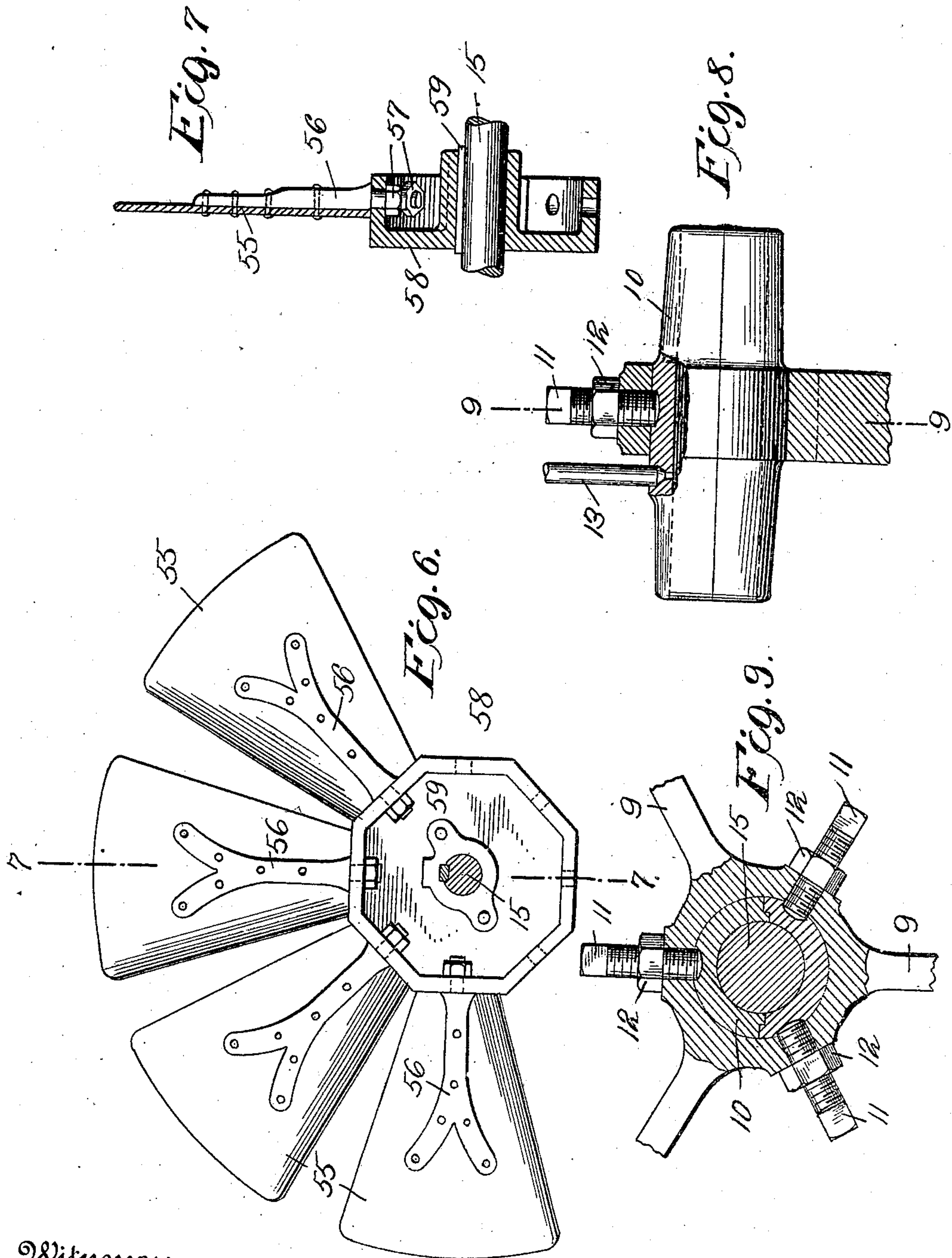
Witnesses:
Harry C. Hobbs
Charles A. Dechouler

Inventor
David J. T. Oldham
By his Attorneys
Dunn, Tuck & Clarke

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Charles A. Schenck

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Dunn, Turk & Clarke

UNITED STATES PATENT OFFICE.

DAVID J. T. OLDHAM, OF NEW YORK, N. Y.

DUST-COLLECTOR.

960,686.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed September 12, 1908. Serial No. 452,775.

To all whom it may concern:

Be it known that I, DAVID J. T. OLDHAM, a citizen of the United States, residing in the city of New York, borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Dust-Collectors, of which the following is a full, clear, and exact specification.

10 This invention relates to dust collectors.

The objects of the invention are to improve the construction and to increase the efficiency of such devices.

15 With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts, and in the details of construction hereinafter described and claimed, it being distinctly understood, however, that changes in the precise embodiment of invention illustrated and described can be made within the scope of the claims without departing from the spirit of the invention.

25 In the accompanying drawing forming part of this specification, Figure 1 is an end elevation of a dust collector constructed in accordance with the invention. Fig. 2 is a side elevation thereof. Fig. 3 is a vertical, longitudinal section through the dust collector. Fig. 4 is a section on the line 4—4 of Fig. 3. Fig. 5 is a view looking upward at the bottom of the spraying chamber, showing the narrow, elongated passage between the spraying chamber and the reservoir or tank. Fig. 6 is a detail view of part of one of the suction devices or fans. Fig. 7 is a sectional view on the line 7—7 of Fig. 6. Fig. 8 is a detail sectional view of the bearing for the fan shaft. Fig. 9 is a section on the line 9—9 of Fig. 8.

Like reference numerals indicate corresponding parts in the different figures of the drawing.

45 The reference numeral 1 indicates a tank or reservoir having a closed upper end 2. Extending through the upper end 2, as shown best in Fig. 5, is a narrow, elongated passage 3', which communicates with the lower portion of an approximately tubular spraying chamber 3. The opposite ends of the spraying chamber 3 are open to the atmosphere, and it is intended to suck the dust-laden air in through said ends. A screen 4 is provided at each end of the spraying chamber 3. Mounted inside the

spraying chamber 3, is a pair of circular members 5 and 6 (Figs. 3 and 4), which are held together by means of the bolts 7 and spacing members 8. Each of the circular members 5 and 6 is provided with a three-arm spider or support 9. Extending through each of the spiders 9, as shown in Figs. 8 and 9, is a sectional bushing 10, which is held in position by means of the bolts 11, provided with lock-nuts 12. Oil is supplied to the bushing 10 by means of an oil pipe 13, provided with an oil cup 14. Extending through the bushing 10 is a shaft 15, which is provided at one end with a belt wheel 16, adapted to be operated by means of a belt 17. Mounted rigidly on the shaft 15 is a pair of suction fans 20 and 21. The fans 20 and 21 are mounted at the ends of the spraying chamber 3, and act in opposite directions so as to draw air into the chamber 3 from both ends, the blasts of air meeting each other in the center of the spraying chamber 3 and breaking up. Fixed on the shaft 15 between the fans or suction devices 20 and 21, is a pair of spraying devices or paddles 25 and 26. Leading from the lower portion of the tank 1 is a suction pipe 30, which extends upward to a pump 31, operated by means of a belt wheel 32. The pump 31 forces water upward through a pipe 33, which is provided with a valve 34, into a pipe 35, having a plurality of nozzles 36, which project through the wall of the spraying chamber 3, and are adapted to discharge jets of water on to the spraying devices 25 and 26. The pipe 35 is connected with a feed water pipe 37, having a valve 38. Leading from the pipe 35 is a branch pipe 39, which extends downward into the upper portion of the tank 1, and is provided with a valve 40. When it is desired to feed the initial supply of water to the tank 1, the valve 34 is closed, and the valves 38 and 40 are opened, so that water is fed through the supply pipe 37, pipe 35 and pipe 39 to the tank 1. After a sufficient quantity of water has been fed to tank 1, valves 38 and 40 are closed, valve 34 is opened and pump 31 is operated to cause a circulation of water from the tank 1, up through pipes 30, 33, and 35 and nozzles 36, on to the rotary spraying devices 26, which throw the water in all directions in the spraying chamber 3, thus causing it to take up the dust in the dust-laden air. The water then flows downward through the pas-

sage-way 3', into the tank 1. The tank 1, as shown in Fig. 1, is provided with an exhaust pipe 45, having a valve 46, which is opened when it is desired to drain the water from the tank 1. An overflow pipe 47 connects with the upper portion of the tank 1, and leads into pipe 45, outside of the valve 46, so as to prevent overflowing of tank 1. Leading away from the upper portion of the spraying chamber 3, is an exhaust 50 for the air which has been freed from dust.

One convenient means of constructing the fans or suction devices 20 and 21 is illustrated in Figs. 6 and 7. Each of the blades 55 is provided with a metal reinforcement 56, which is bolted or otherwise secured at 57 to the hub 58, said hub being keyed at 59 to the shaft 15.

The operation of the device is believed to be apparent from the foregoing description. The dust-laden air is sucked in through the ends of the spraying chamber 3 in opposite directions, meets in the center, and is broken up and very effectively sprayed with water by the spraying devices or paddles 25 and 26. The dust is carried downward through the opening 3', into the tank 1, and the purified air passes upward through the exhaust 50, which may either discharge it into the atmosphere or subject it to further treatments if desired.

What is claimed as new is:

1. A dust collector having a tank, a tubular open-ended spraying chamber above said tank, an elongated narrow passage connecting the lower end of said spraying chamber with the upper end of said tank, a shaft extending longitudinally through the spraying chamber, oppositely-acting suction devices mounted on said shaft at the ends of said spraying chamber, spraying paddles mounted on said shaft between said suction devices, means for drawing liquid from said tank and discharging it on to said spraying paddles, and an exhaust pipe leading from the upper portion of said spraying chamber.

2. A dust collector comprising a tank having an overflow pipe and an exhaust pipe, an open-ended spraying chamber located above said tank, a passage connecting the upper portion of said tank with the lower portion of said spraying chamber, a shaft extending longitudinally of the spraying chamber, oppositely-acting suction fans on the ends of said shaft, spraying paddles mounted on said shaft between said suction fans, means for drawing water from said tank and discharging it on to said paddles, means for supplying water to said tank, and an exhaust pipe communicating with the upper portion of said spraying chamber.

3. A dust collector comprising a spraying chamber, rotary suction devices at the ends of said chamber, rotary spraying devices within said chamber and intermediate said

suction devices, operating means for said spraying and suction devices, and a water inlet above said spraying devices, whereby the water is sprayed in the spraying chamber in the presence of the dust-laden air.

4. A dust collector comprising a spraying chamber, rotary suction devices at the ends of said chamber, rotary spraying devices within said chamber and intermediate said suction devices, a driving shaft carrying said spraying and suction devices, and a water inlet above said spraying devices, whereby the water is sprayed in the spraying chamber in the presence of the dust-laden air.

5. A dust collector comprising an elongated spraying chamber, a driving shaft extending through said spraying chamber, oppositely-acting suction devices mounted on said shaft, a spraying device mounted on the same shaft intermediate said suction devices, a water inlet to said spraying chamber located above said spraying device, whereby the water is sprayed in said spraying chamber in the presence of the dust-laden air.

6. A dust collector having a spraying chamber, a suction device for supplying dust-laden air thereto, moving spraying devices in said chamber, a water inlet to said chamber located above said spraying devices, whereby the water is sprayed in said chamber in the presence of the dust-laden air, a tank, a conduit between said spraying chamber and tank, circulating pipes connecting said tank and inlet, and means for maintaining a circulation in said pipes.

7. A dust collector comprising a spraying chamber, a tank beneath same, an opening between said chamber and tank, pipes connecting said tank with the upper part of said chamber, a pump operatively connected with said pipes, suction devices at the ends of said spraying chamber, spraying devices located intermediate said suction devices and beneath the water inlet pipes.

8. A dust collector having a tank, a spraying chamber located above said tank, means for supplying dust-laden air to said spraying chamber, a rotary spraying device in said chamber, means for continuously drawing liquid from said tank and delivering it to said spraying devices in position to be sprayed in said spraying chamber in the presence of the dust-laden air, and a passage-way for returning it to the tank.

9. In a dust collector, a spraying chamber, a driving shaft extending through same, oppositely-acting suction fans disposed at the ends of said chamber upon said shaft, screens guarding the inlet to said fans, a plurality of revolving paddles upon said shaft intermediate said fans, water inlet pipes above said paddles, and a frame for supporting said shaft secured within said chamber.

10. A dust collector having a spraying chamber, a suction device for supplying

dust-laden air thereto, moving spraying devices in said chamber, a water inlet to said chamber located above said spraying devices, whereby the water is sprayed in said chamber in the presence of the dust-laden air, a tank, a conduit between said spraying chamber and tank, circulating pipes connecting said tank and inlet, means for maintaining a circulation in said pipes, a feed pipe connected to said circulating pipes, and also to said spraying devices, and regulating valves in said feed pipes and circulating pipes.

11. A dust collector comprising a spraying chamber, a tank beneath same, an opening between said receptacles, pipes connecting said tank with the upper part of said

chamber, a pump operatively connected with said pipes, suction devices at the ends of said spraying chamber, spraying devices located intermediate said suction devices and beneath the water inlet pipes, a feed water supply connected with said pipes, regulating valves in said pipes and feed water supply, and overflow and exhaust pipes connected to said tank.

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

DAVID J. T. OLDHAM.

Witnesses:

HENRIETTA E. WORKMAN,
CLAUDE C. NEVILLE.