

No. 804,004.

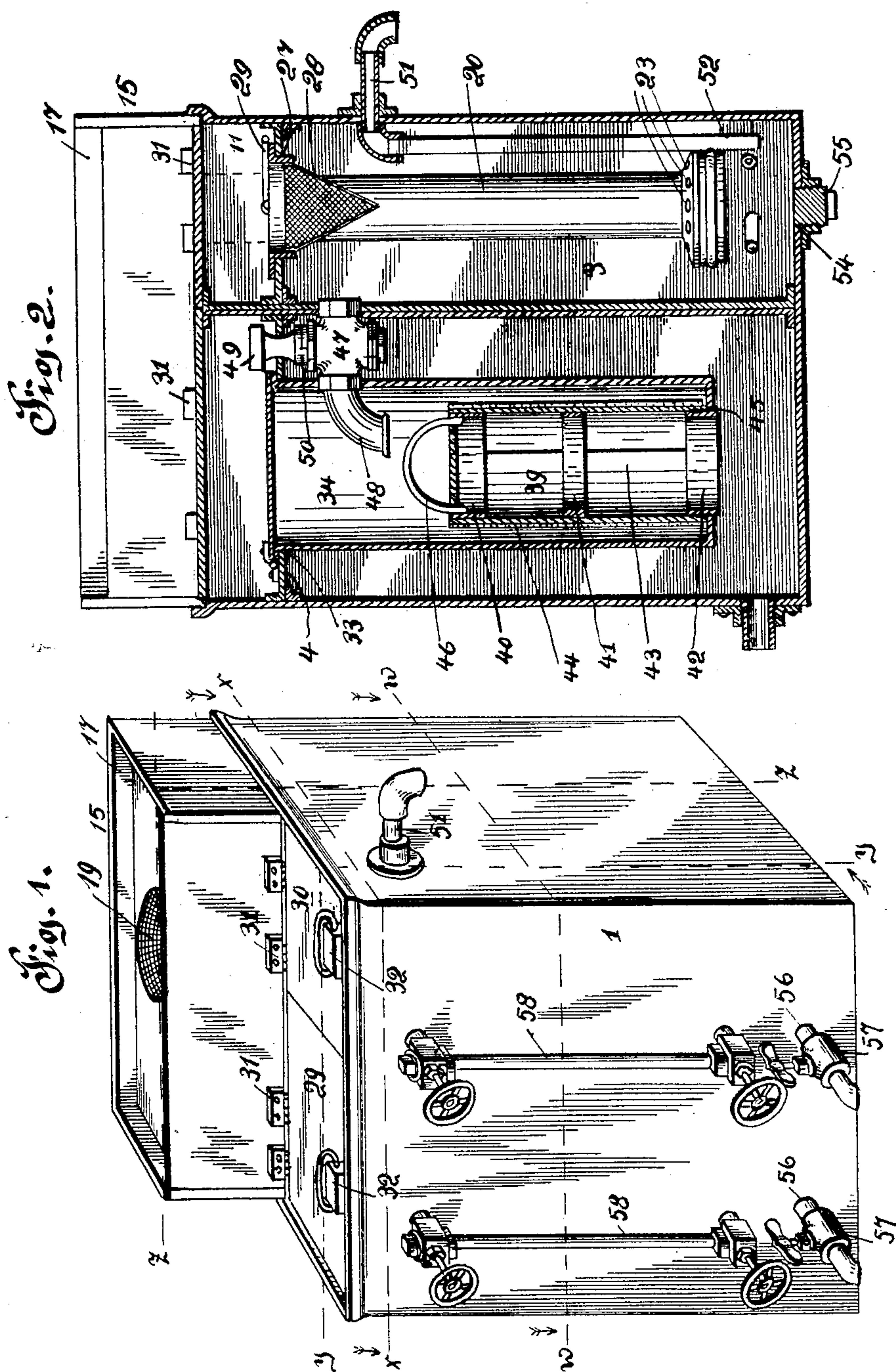
PATENTED NOV. 7, 1905.

J. G. GARLAND.

FILTER.

APPLICATION FILED JULY 20, 1905.

2 SHEETS—SHEET 1.



Witnesses:
C. Klostermann,
J. H. Butler,

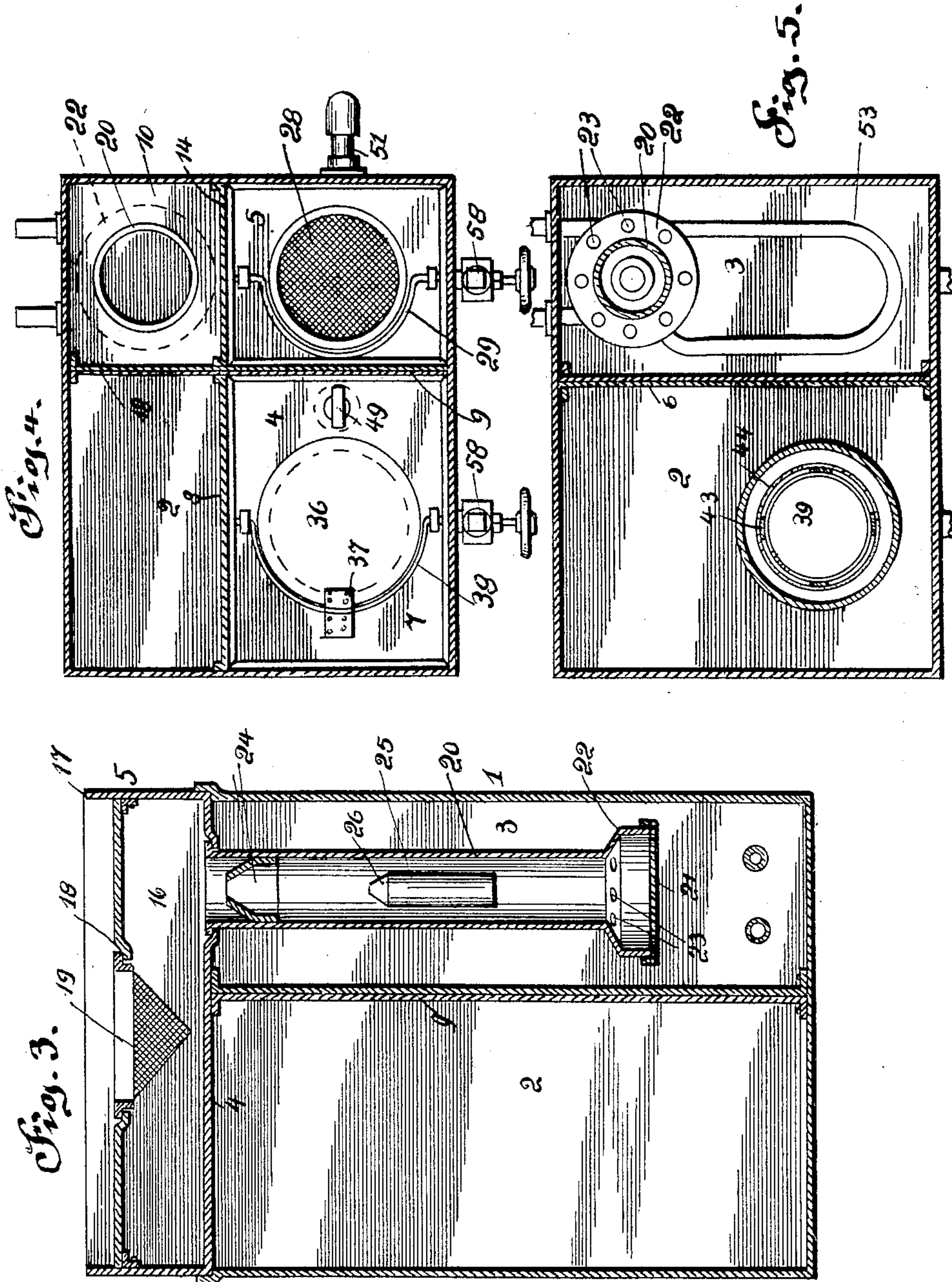
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JAMES G. GARLAND, OF PITTSBURG, PENNSYLVANIA.

FILTER.

No. 804,004.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed July 20, 1905. Serial No. 270,521.

To all whom it may concern:

Be it known that I, JAMES G. GARLAND, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Filters, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in oil-filters; and the invention has for its object to provide a simple and inexpensive filter which will cleanse oil of all foreign or detrimental ingredients, there-
15 by increasing the grade and efficiency of the oil.

Another object of this invention is to provide a novel form of filter capable of quickly cleansing the oil as it passes therethrough, and to this end I have devised novel means for automatically controlling the passage of oil through the filter.

With the above and other objects in view, which will more readily appear as the nature
25 of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described, illustrated, and then specifically pointed out in the claims.

30 Referring to the drawings accompanying this application, wherein like numerals of reference designate corresponding parts, Figure 1 is a perspective view of my improved filter. Fig. 2 is a vertical sectional view taken on the line *y y* of Fig. 1 looking in the direction
35 of the arrow of said figure. Fig. 3 is a similar view taken on the line *z z* of Fig. 1. Fig. 4 is a horizontal sectional view taken on the line *x x* of Fig. 1, and Fig. 5 is a similar view
40 taken on the line *w w* of Fig. 1.

To put my invention into practice, I construct my improved filter of a substantially rectangular casing 1, which is preferably made of strong and durable sheet metal. The
45 casing is divided off into a plurality of compartments, the lowermost compartments 2 and 3 being formed by horizontal partitions 4 and 5 and a vertically-disposed partition 6. Above one-half of the compartment 2 is formed a
50 compartment 7 by a transversely-disposed partition 8 and a continuation of the partition 6, as at 9. Above the compartment 3 I provide compartments 10 and 11, which are formed by a continuation of the partition 6,
55 as at 12, and by a transversely-disposed partition 14. This construction provides three

compartments above the compartments 2 and 3, these compartments being adjacent to the top of the casing 1. Upon the top of the casing, adjacent to the rear edge thereof, I provide an auxiliary casing 15, in which is formed a compartment 16. The top of the casing 15 has its edges surrounded by a flange 17, which is a continuation of the sides of the compartment. The top of the compartment is provided with a centrally-disposed opening 18, in which is mounted an inverted-cone-shaped screen or sieve 19.

Suspended from the top of the compartment 3 is a tube 20, the lower end of which is flared and closed, as at 21, the inclined side walls 22 of this end of the tube being provided with a plurality of circumferentially-arranged openings 23. In the tube 20, adjacent to the top end thereof, I arrange a cone-shaped hood 24, which in conjunction with a float 25 forms a closure for the upper end of the tube 20. The float 25 is provided with a cone-shaped head 26, which will effectually close the opening of the hood 24 when the float is elevated by the contents of the compartment 3. The tube 20 is preferably arranged at one side of the casing, whereby the contents of the compartment 16 will enter the tube and pass into the compartment 3.

85 In the bottom of the compartment 11, which is formed by the horizontally-disposed partition 5, I form an opening 27, in which is mounted a screen or sieve 28, this screen extending into the compartment 3. In order that this compartment at any desired time may be cleansed, I preferably construct the partition 5 above the compartment 3, whereby it can be removed, and with this end in view I have provided the top of the partition 5 above the compartment 3 with a bail or handle 29 to facilitate a person in removing the partition, together with the sieve or screen 28.

The top of the casing 1, which in this instance forms the top of the compartments 7 and 11, is formed by two doors 29 and 30, these doors being hinged, as at 31 31, to the front wall of the auxiliary casing 15, and each door is provided with a conventional form of handle 32 32. The bottom of the compartment 7, which corresponds to the horizontally-disposed partition 4, is provided with an opening 33, and suspended from the partition 4 is a cylinder 34, the lower end of which is partially closed. The upper end of the cylinder is closed by a lid 36, hinged, as at 37, to the

partition 4, and this partition is preferably constructed whereby it can be removed by gripping the bail or handle 38, carried by the partition. In the bottom of the cylinder 34 I mount a skeleton frame 39, consisting of three bands 40, 41, and 42, which are braced together by vertically-disposed bars 43. The periphery of the frame 39 is provided with a screen or sieve 44, and the bottom band 42 of the frame 39 is adapted to rest in an opening 45, formed in the bottom of the cylinder 34. The top band 40 of the frame is provided with a suitable handle 46, whereby it can be readily removed from the cylinder 34 at any desired time.

Between the cylinder 34 and the vertically-disposed partition 6 of the filter I mount a faucet or valve 47, the one end 48 of which protrudes into the cylinder 34, while the other end communicates with the compartment 3. The faucet or valve is preferably mounted near the top of the compartments 2 and 3 and is controlled by the handle or knob 49 of the valve-stem 50, which protrudes upwardly through an opening formed in the partition 4.

The compartment 3 adjacent to the screen or sieve 28 is provided with an overflow-pipe 51, the inner end of which extends within a short distance of the bottom of the casing 1, as at 52. Extending into the bottom of the compartment 3 is a coil of tubing 53, which is adapted to be connected to a supply-pipe of steam, whereby the contents of the compartment 3 can be heated. The bottom of this compartment is also provided with an outlet-port 54, which is provided with a screw-threaded plug 55, this port being employed to drain and cleanse the compartment 3 of its contents.

The front wall of the casing 1 is provided near its bottom with two openings 56 56, these openings communicating with the compartment 2. In the openings are mounted faucets 57 57 to control the outlet of the contents of the compartment 2. Directly above each faucet I mount upon the front wall of the casing 1 gage-glasses 58 58 of a conventional form, that are employed to ascertain the height of the contents of the compartment 2 without opening the doors 29 and 30 and the lid 36.

Operation: The oil or liquid to be filtered is poured into the compartment 16 through the sieve or screen 19, which first removes all coarse particles or foreign ingredients from the oil or liquid. The oil then passes into the compartment 10 and down into the tube 20 through the openings 23, formed near the bottom of the tube, and into the compartment 3. In this compartment oil is heated and is permitted to separate from any water that may be contained within the same. The oil in the compartment 3 when it reaches the height of the faucet or valve 47 passes there-through and is deposited in the cylinder 34 upon the outside of the sieve or screen 44. The

oil then oozes or percolates through this sieve and is deposited in the bottom of the compartment 2. The seepage of the oil through the sieve or screen 44 removes the remainder of the particles or foreign ingredients detrimental to the oil, and the filtered oil contained within the compartment 2 can be removed therefrom in any desired quantities consistent with the capacity of the compartment through the faucets 57. The passage of oil from the compartment 3 to the compartment 2 is controlled by the faucet or valve 47, which is manipulated from the compartment 7, formed directly above the compartment 2.

Should a considerable quantity of oil enter the compartment 3 with a tendency to overflow, the float 25, which is carried by the oil, will close the opening of the hood 29 and prevent further oil from entering the compartment until the oil contained therein has receded. As emergency in case the float should fail to work I have provided the overflow-pipe 51.

In case it should be desired to pour oil into the compartment 3 without passing it through the tube 20 it is only necessary to open the door 30 of the casing 1, at which time the oil can be poured through the screen or sieve 28 into the compartment 3.

By the arrangement of the various compartments of my improved filter, the construction of the same, and the easy access had to said compartments the efficiency of the filter will be readily apparent to those skilled in this art, and it is thought from the foregoing that the construction, operation, and advantages of the herein-described filter will be apparent without further description, and various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

What I claim, and desire to secure by Letters Patent, is—

1. In a filter, the combination of a casing having a plurality of compartments formed therein, an auxiliary casing mounted upon part of the top of said casing, a sieve arranged in the top of said auxiliary casing, a depending tube carried by the top of one of said compartments, a sieve mounted in the top of said compartment, a depending cylinder carried by the top of another compartment, a valve establishing communication in the first-named compartment and said cylinder, a frame mounted in said cylinder, a sieve carried by said frame, the last-named compartment having a plurality of openings formed therein, faucets mounted in said openings, means mounted in said tube and actuated by the contents of its respective compartment to close said tube, means to heat the contents of the first-named compartment, and means to determine the height of the con-

tents of the last-named compartment, substantially as described.

2. In a filter, the combination of a casing having a plurality of compartments formed therein, an auxiliary casing carried by said casing, a sieve mounted in said auxiliary casing, a sieve mounted in one of said compartments, the top of said compartment having an opening formed therein to receive said sieve, a depending cylinder mounted in another of said compartments, a sieve mounted in said cylinder, said compartments having openings formed therein, means to control the opening in the first-named compartment, means to heat said compartment, means to convey the contents of said compartment to said cylinder, means to control the passage of said contents, and means to determine the height of the contents of the last-named compartment, substantially as described.

3. In a filter, the combination of a casing, having a plurality of compartments formed therein, an auxiliary casing carried by said

casing, a screen mounted in said auxiliary casing, one of said compartments having an opening formed therein, a sieve carried by the top of said compartment, a sieve mounted in another of said compartments, means to convey the contents of the auxiliary casing to the bottom of the first-named compartment, means to control the opening formed in the top of said compartment, means to heat said compartment, means to convey the contents of said compartment above the sieve of the last-named compartment, means to withdraw the contents of said compartment, and means to determine the height of the contents within said compartment, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

JAMES G. GARLAND.

Witnesses:

K. H. BUTLER,
W. C. BROWN, Jr.