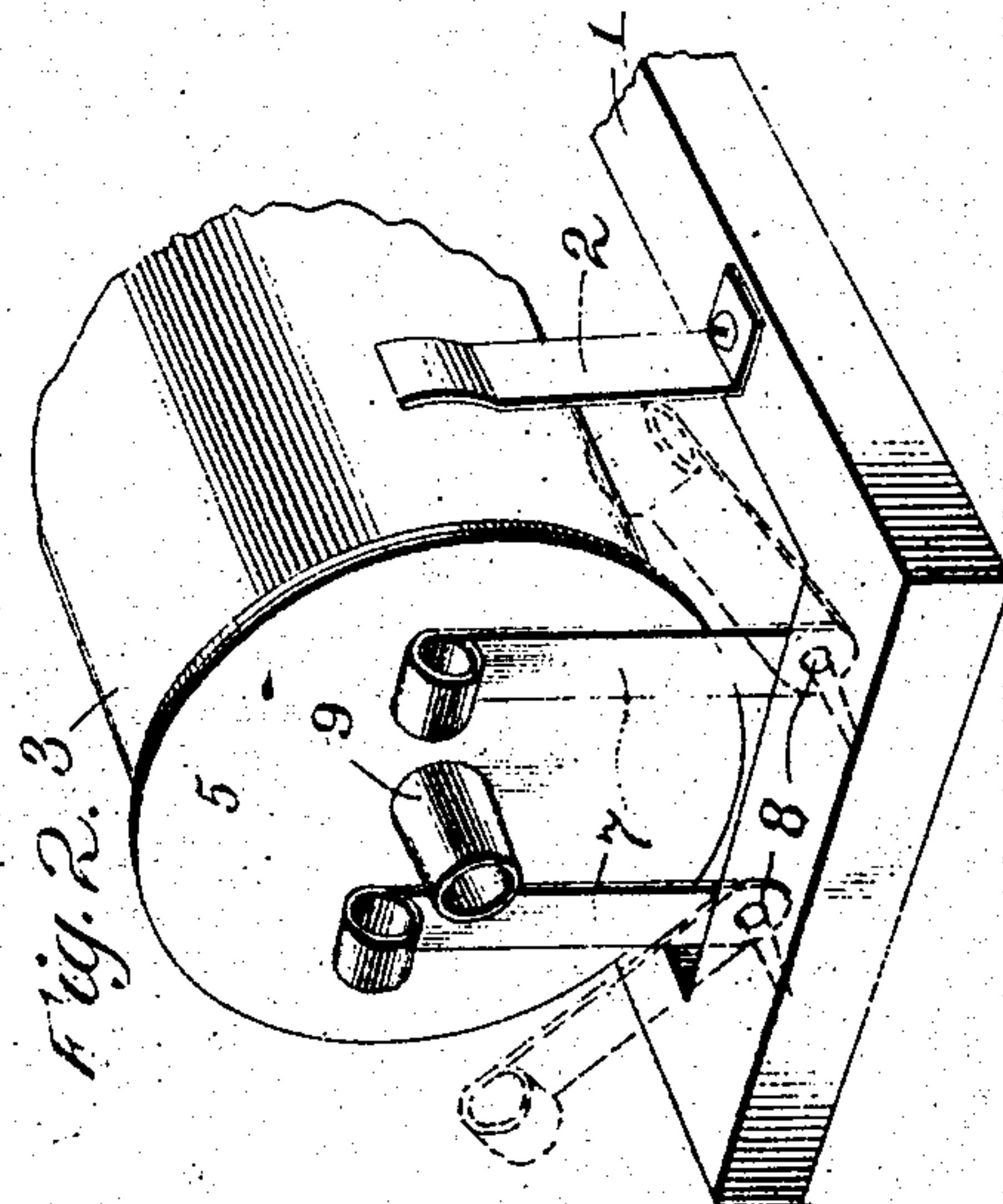
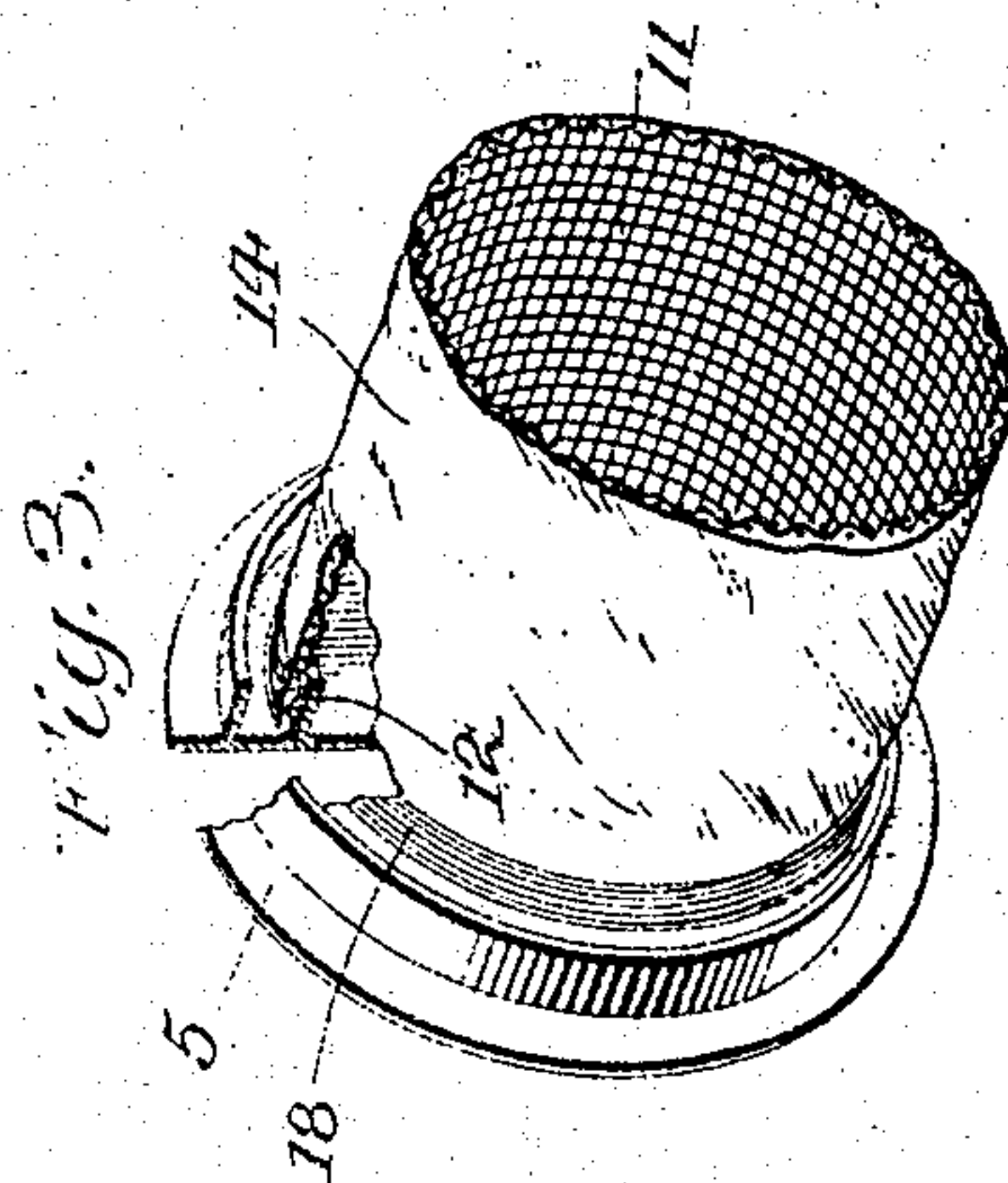
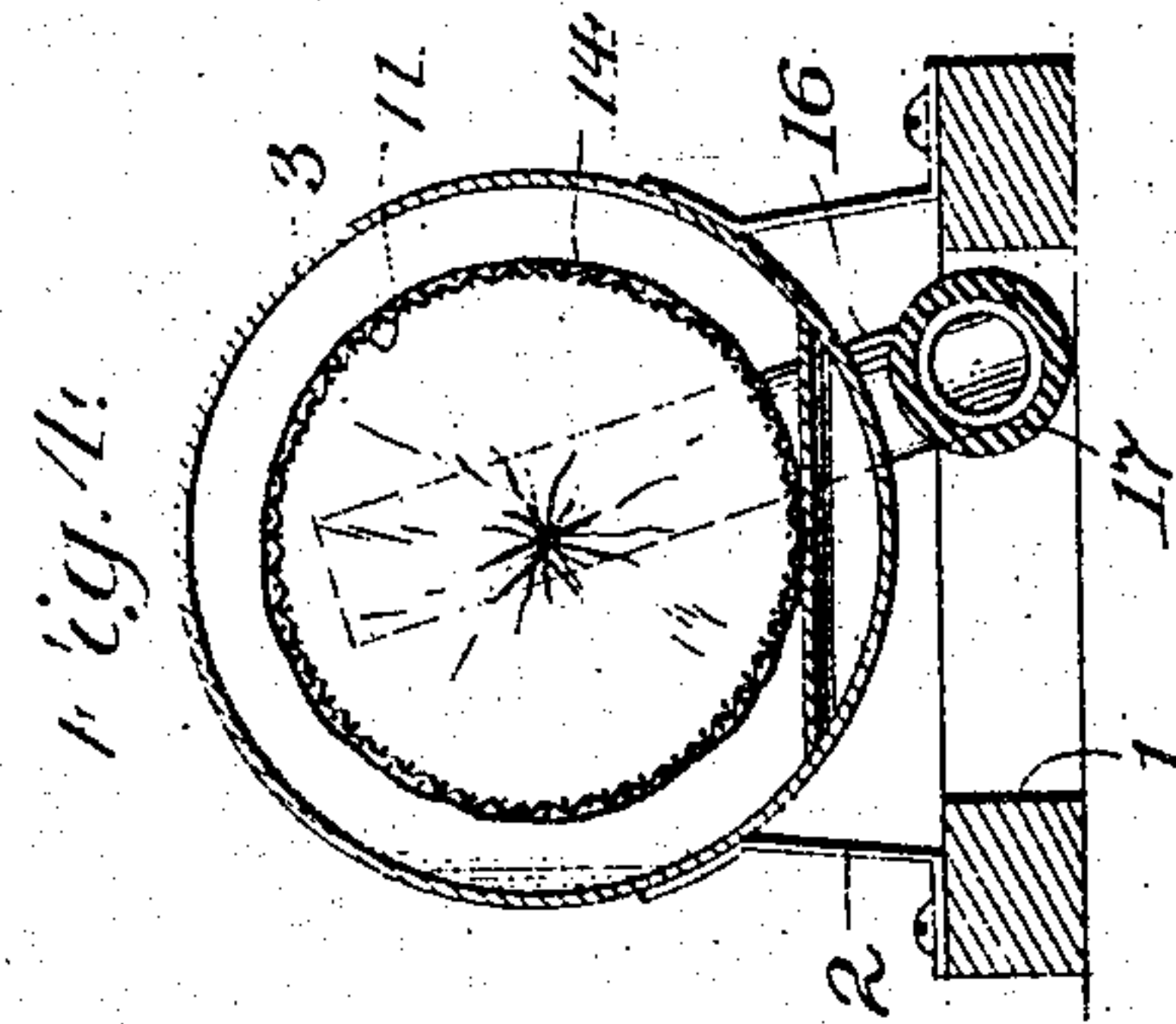
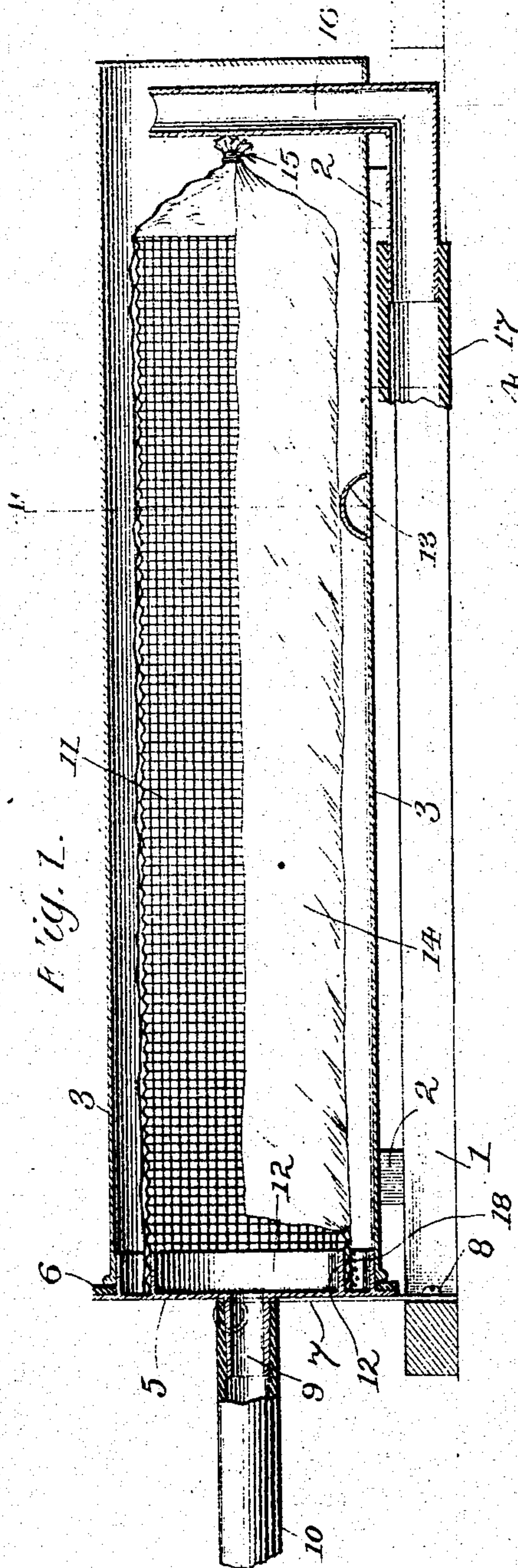


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DUST SEPARATOR.  
APPLICATION FILED JUNE 28, 1909.

948,082.

Patented Feb. 1, 1910.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

CHARLES C. WICKWIRE, OF CORTLAND, NEW YORK.

## DUST-SEPARATOR.

948,082.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed June 28, 1909. Serial No. 504,816.

*To all whom it may concern:*

Be it known that I, CHARLES C. WICKWIRE, a citizen of the United States, residing at Cortland, in the county of Cortland and State of New York, have invented certain new and useful Improvements in Dust-Separators, of which the following is a specification.

My present invention relates to an improved dust separator particularly adapted for use in suction cleaning machines. In such cleaning machines a pumping mechanism is used to draw air from a dust separating device, and the withdrawal of this air from the separator causes other air to rush into the separator through a suitable cleaning nozzle and tubular connections, bringing with it dust picked up at the cleaning nozzle, and depositing the same in the separator. The best results are secured by causing a large volume of air to pass, and it is therefore desirable to secure a large straining surface in the dust separator, so as to obstruct as little as possible the passage of the air.

To the attainment of this desirable characteristic and many other advantages which will hereinafter become apparent, my invention consists of certain constructions and combinations of parts which will now be described in connection with the accompanying drawings, wherein—

Figure 1 is a transverse sectional view of a dust separator embodying my invention; Fig. 2, is a perspective view of a fragment of the same, showing certain details of the structure; Fig. 3, is a fragment of the internal frame for supporting the straining bag intended to show the mode of attachment of the bag, parts of the structure being broken away for clearness; and Fig. 4, is a transverse sectional view on the line 4—4 of Fig. 1, looking to the right.

Referring to the drawings, 1 is the frame or baseboard of the apparatus, upon which the dust separator is mounted. This may be of the form illustrated in my co-pending application, Serial No. 480,498, but the form of base is not material.

Mounted on the base by means of legs or brackets 2, is a drum or shell 3 preferably cylindrical in form and closed at one end. The opposite end of the drum is closed by a flanged head 5 bearing on a sealing ring 6

held between flanges on the drum 3 and head 5, thus securing a hermetic closure between the head and the drum. The head is pressed against the gasket 6 by means of the springs 7, which are pivoted at 8 to the baseboard 1, or other suitable support. These springs 7 may be swung to the side as illustrated in dotted lines in Fig. 2, and the head 5 may then be withdrawn from the drum. Formed on the head 5 is a nipple 9 adapted to attachment of a rubber hose 10. This hose is attached to the cleaning nozzle and brings air with its suspended dust to the separator. This nipple 9 is so placed that it conducts the air to the interior of a drum or frame 11, formed of woven wire cloth or other foraminous material, and of somewhat less diameter than the drum 3. This frame 11 is attached to the head 5 by means of a flange ring 12, this ring projecting a short distance from the head 5 for a purpose which will be later described. The frame 11 is supported in the horizontal position by means of a bracket or support 13, carried in the drum 3. This bracket 13 is desirable to properly position the frame and to remove any tendency toward leakage at the gasket 6, but is not essential to a successful operation of the device. Closely enveloping the frame 11 is a straining bag 14 of any cloth suitable to strain fine dust out of the air, for instance unbleached cotton or the like. This bag is of tubular form, open at both ends, and of slightly greater length than the frame 11. It is attached to this frame by binding it tightly around the flange ring 12 with cord or elastic 18 or the equivalent. The purpose of the ring is to insure a tight joint between the bag and the head 5 so that there shall be no leakage of air past the end of the bag adjacent to the head, as would be the case were the ring 12 not used. The opposite end of the bag, when the device is in operation is closed by means of a draw string or better, by a cord 15 tied about it. In this manner access may be had to the interior of the bag by opening its end without removing it from the supporting frame.

16 is a pipe or tube entering the interior of the drum 3 and so formed at its outer end that a hose or flexible tube 17 may be attached thereto. This tube is the discharge tube and carries the cleansed air from the separator. The tube projects into the sepa-



rator drum 3 from the bottom and rises to a point near the top of the drum. The purpose of this is to insure the retention in the bottom of the drum of any dust which might pass through the straining bag.

I have described this separator as interposed between the cleaning nozzle and the pumping mechanism, and this is for the purpose of removing the dust from the air before it enters the pumping device, but in cases where the passage of dust through the pumping device would not be objectionable, the dust separator would operate in the same manner were it attached to the exhaust of the pumping device and used merely to remove the dust from the air before releasing the latter in the room. It is also obvious that different means for attaching the head 5 to the drum 3 might be used, but I prefer the construction illustrated and described.

The operation of the device is as follows: Air entering the drum through the pipe 10 and nipple 9 is discharged within the frame 11 and straining bag 14. It then passes through this frame and bag, the dust being retained by meshes of the latter and enters the annular space within the drum 3, surrounding the bag. Any dust which may have passed through the bag will be precipitated in the drum and the air then completely relieved of its dust will pass out by the pipe 16. To clean the device, the pipe 10 is disconnected and the springs 7 are swung to the sides. The head with its attached frame and bag are then withdrawn. This may be taken to any convenient place and the dust contained be emptied out by untying the cord 15 and opening the end of the bag. Whatever dust has passed through the straining cloth and been deposited in the bottom of the drum 3 may be removed through the end of the drum, but it has been found that practically no dust passes through the cloth and such cleaning is rarely necessary.

I am aware that the idea of depositing inside a straining bag dirt carried there by air is old, and do not broadly claim that idea, but the idea of distending said bag by a frame to secure full use of the surface of the bag and of providing an opening in the end of said bag to facilitate the removal of the collected dirt without removing the bag from the frame, forms a radical improvement over the older methods and greatly increases the efficiency and ease of operation. It will be noted that the straining bag is removed from the drum without untying any strings or even touching the bag and without danger of spilling any dirt during the operation. After the end has been opened the collected dust may be taken out without beating the bag and without unnecessary handling of the same. It is thus a relatively simple and clean operation to remove dust

from the machine, a highly desirable characteristic in the type of machine in which I purpose to use it.

The shape of the drum and the position of the inlet and outlet pipes may be considerably varied to adapt the structure to the space available without departing from the general spirit of the invention.

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

1. A dust separating device for suction cleaning machines, comprising in combination a shell or drum having a port or opening adapted to be connected to a suction device, and open at one end; a closure for said open end; a frame of foraminous material carried by said closure and projecting into said drum; a straining tube carried on said frame covering the exterior thereof and making a close joint with said closure; means for temporarily closing the other end of said tube; and a pipe entering said frame and designed to convey air thereto.

2. A dust separating device for suction cleaning machines comprising in combination a shell or drum, open at one end; a removable cover adapted to close said open end; a gasket interposed between said drum and said cover; pivoted springs adapted to hold the cover against the drum; a frame of foraminous material attached to said cover and projecting into said drum; a straining bag carried on said frame and covering the exterior thereof; a pipe entering said frame, conducting air thereto; and a passage by which air may be removed from the drum.

3. In combination with a supporting frame, a drum mounted on said frame and open at one end; a cover adapted to close the open end of said drum; means for sealing the joint between said cover and said drum; springs pivoted to said base and adapted to bear against said cover; a frame of foraminous material carried by said head and projecting into said drum; means for conducting air to the interior of said frame; a straining bag carried on said frame and covering the exterior thereof; and means for conducting air from said drum.

4. A dust separating device for suction cleaning machines comprising in combination a shell or drum, open at one end; a removable cover adapted to close said open end; a gasket interposed between said drum and said cover; pivoted springs adapted to hold the cover against the drum; a frame of foraminous material attached to said cover and projecting into said drum; a straining tube carried on said frame and covering the exterior thereof; means for temporarily closing the end of said tube; a pipe entering said frame conducting air thereto; and a passage by which air may be removed from the drum.



5. In combination with a supporting frame, a drum mounted on said frame and open at one end; a cover adapted to close the open end of said drum; means for sealing the joint between said cover and said drum; springs pivoted to said base and adapted to bear against said cover; a frame of foraminous material carried by said cover and projecting into said drum; means for conducting air to the interior of said frame; a straining tube carried on said frame and

covering the exterior thereof; means for temporarily closing the end of said tube; and means for conducting air from said drum.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES C. WICKWIRE.

Witnesses:

HERBERT B. DARLING,  
EDWARD C. BOYNTON.