

T. T. FAUNTLEROY.
ELECTROMAGNETIC SIFTER.
APPLICATION FILED APR. 1, 1911.

998,486.

Patented July 18, 1911.

Fig. 1.

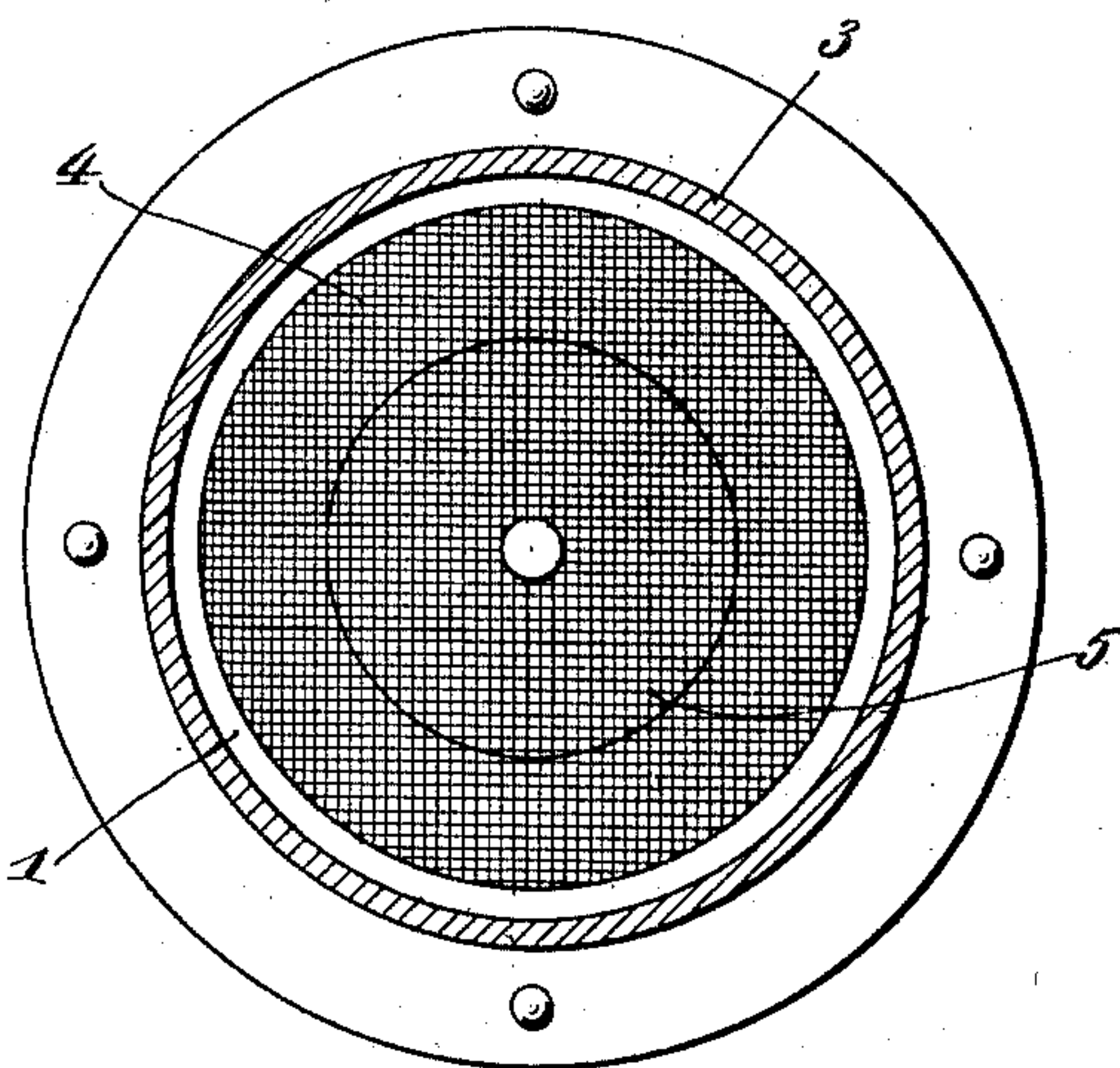
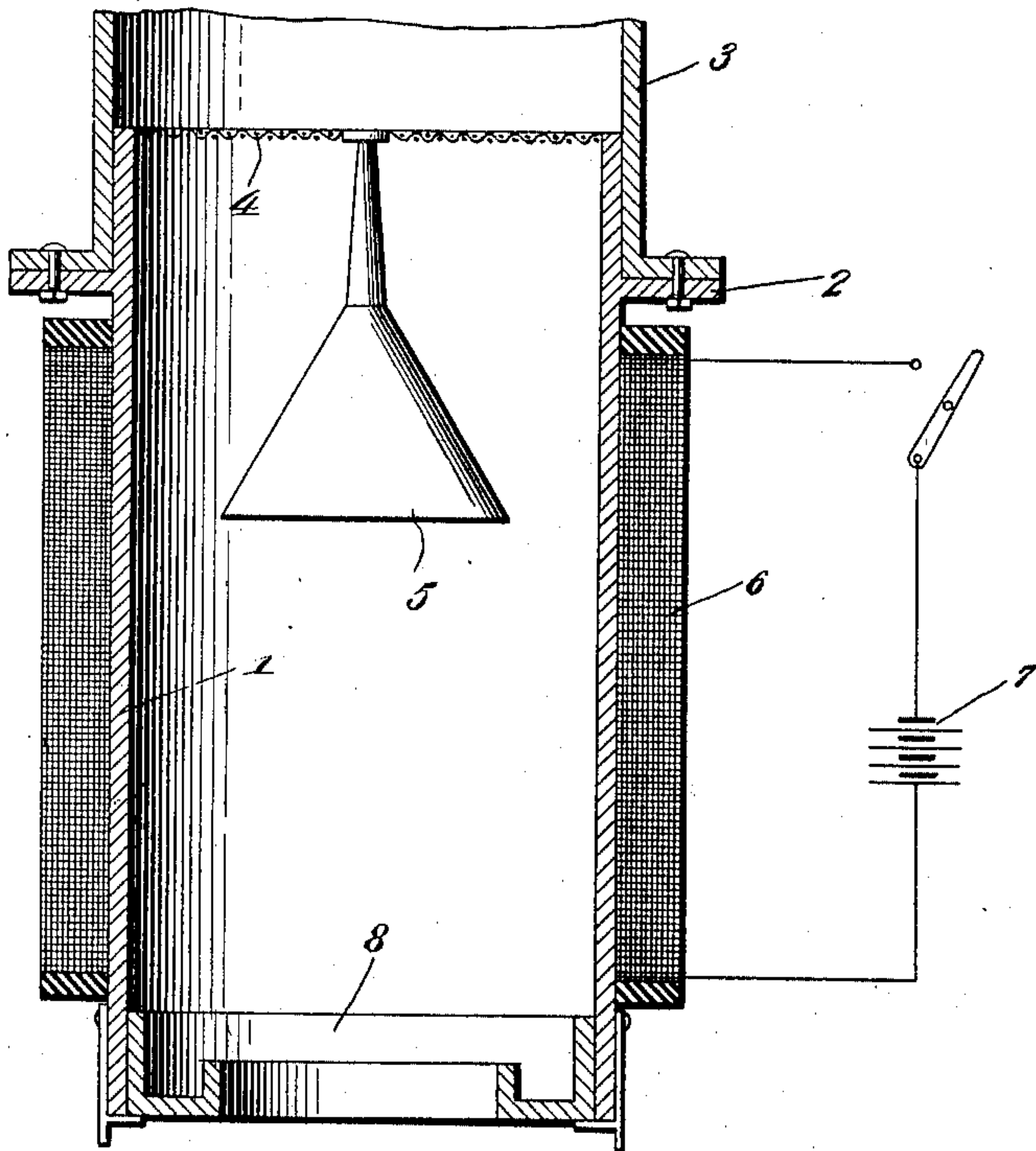
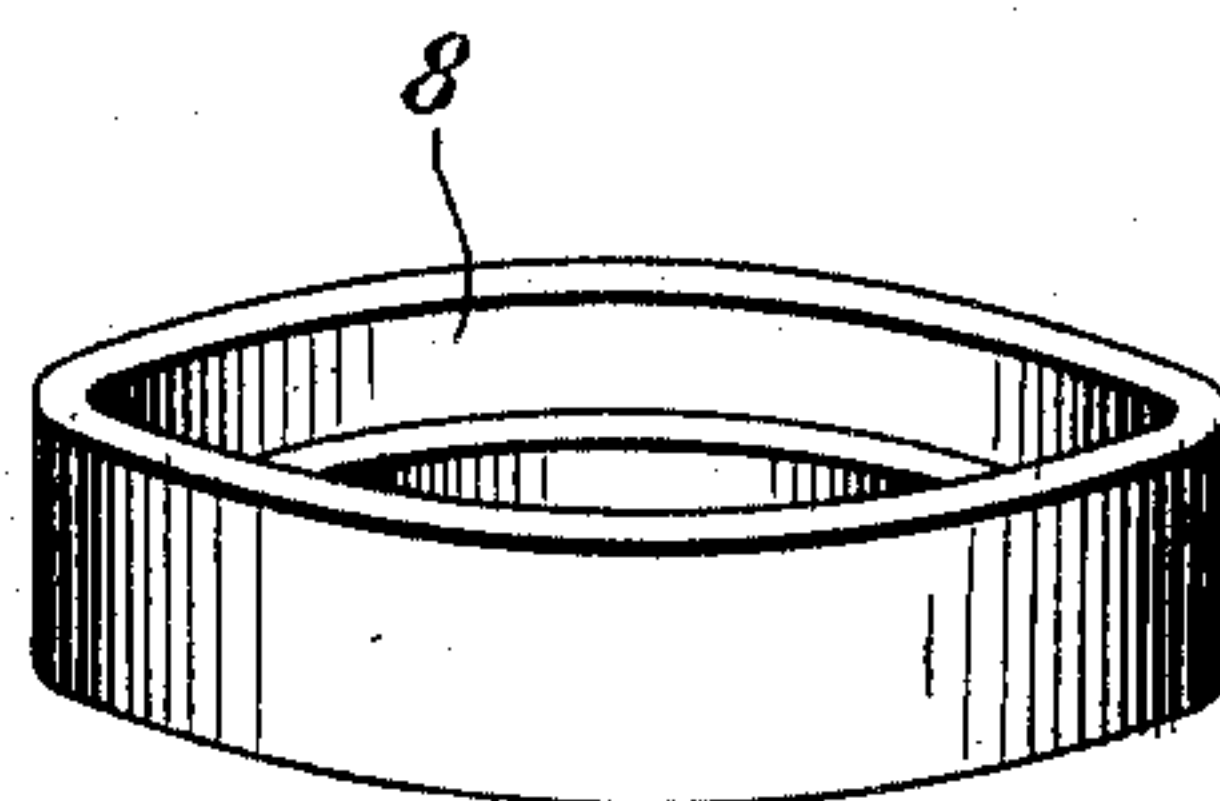


Fig. 2.

Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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ELECTROMAGNETIC SIFTER.

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To all whom it may concern:

Be it known that I, THOMAS TURNER FAUNTLEROY, a citizen of the United States, residing at Staunton, in the county of Augusta and State of Virginia, have invented new and useful Improvements in Electromagnetic Sifters, of which the following is a specification.

This invention relates to a device especially adapted for separating the metal particles in flour, which particles result from the chipping of the steel crushing rolls, and by thus separating the particles, the wear of the bolting cloth, due to the metal particles striking the same, is prevented, and furthermore injurious effects to the human body by the presence of steel particles in flour foods are obviated, and although the invention is especially adapted for this use, it is to be understood that the separation of magnetic particles from materials other than flour can be accomplished through the use of the improved separator.

The invention has for one of its objects to improve and simplify the construction and operation of magnetic separators so as to be reliable and efficient in use, comparatively simple and inexpensive to manufacture, and capable of being easily managed.

Another object of the invention is the provision of an upright vessel or cylinder having a sieve at its upper end against which the material, such as flour from the break pipe drops and is distributed thereby so as to fall into the cylinder to be acted on by magnetic lines of force generated by a coil surrounding the cylinder and traversed by current, there being means within the cylinder for directing the flour or other material close to the walls of the cylinder, whereby the magnetic particles are separated from the flour and attracted to the walls of the cylinder where they adhere as long as the current is maintained through the energized coil, it being understood that when the current is cut off, the magnetic particles will drop to the bottom of the cylinder where a suitable receptacle is placed to catch them.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one embodiment of the invention, Figure 1 is a central vertical section of the magnetic separator. Fig. 2 is a plan view thereof. Fig. 3 is a perspective view of the receptacle for catching the magnetic particles separated by the device.

Similar reference characters are employed to designate corresponding parts throughout the views.

In the accompanying drawing, 1 designates an upright cylinder or equivalent device of non-magnetic material forming a chamber through which passes the material from which magnetic particles are to be separated. Surrounding the upper end of this cylinder is a flange 2 by which the cylinder can be attached to a break pipe 3 leading from the steel rolls of a flour mill. Extending across the top of the cylinder is a wire netting or equivalent device 4 on which the flour drops and through this netting, the flour sifts and falls vertically within the cylinder. Supported from this netting or in any other suitable manner, is an inverted funnel-shaped deflector 5 centrally located so that the flour dropping upon the same is deflected outwardly close to the walls of the cylinder. Surrounding the cylinder is an energizing coil 6 which is traversed by current from a suitable source, such as a battery 7, and this coil sets up a magnetic field, the lines of force of which serve to attract magnetic particles in the flour or other material passing through the cylinder and causes such particles to adhere to portions of the internal surface of the cylinder as long as current is maintained through the coil. Disposed in the bottom of the cylinder is a removable annular trough 8 in the form of a ring that serves to catch the magnetic particles which have been separated and which drop as soon as the magnetism, due to the energized coil, is interrupted by the opening of the circuit of which the coil is a part. This trough or catching device 8 may be removed from the cylinder as long as the separating operation continues and when the feed of flour is interrupted, the catching device 8 is inserted or applied to the lower end of the cylinder so that the magnetic particles will be caught when the electric circuit is opened. It will thus be seen that a device of this character is extremely effective in operation and easy to operate.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention, what I claim as new, is:—

1. In combination, a vertical cylindrical magnet, hollow throughout its length, a distributing screen over the top thereof, a conical deflector supported from the center of the screen, its base terminating in prox-

imity to the inner wall of the magnet and adapted to deflect the material into an annular free-falling vertical stream in close proximity to the inner wall of the magnet. 25

2. In combination, a vertical cylindrical magnet, hollow throughout its length, means for energizing and deenergizing said magnet, means for delivering material in a free-falling annular stream in proximity to the inner wall of the magnet, an annular trough of dimensions to closely fit the hollow portion of the magnet, and means for detachably retaining said trough within the magnet at the lower end thereof. 35

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

THOMAS TURNER FAUNTLEROY.

Witnesses:

JANE BROWN RANSON,
ADA H. BEARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."