

F. Q. DUTTON.
SIFTER.

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1,057,129.

Patented Mar. 25, 1913.

Fig. 1.

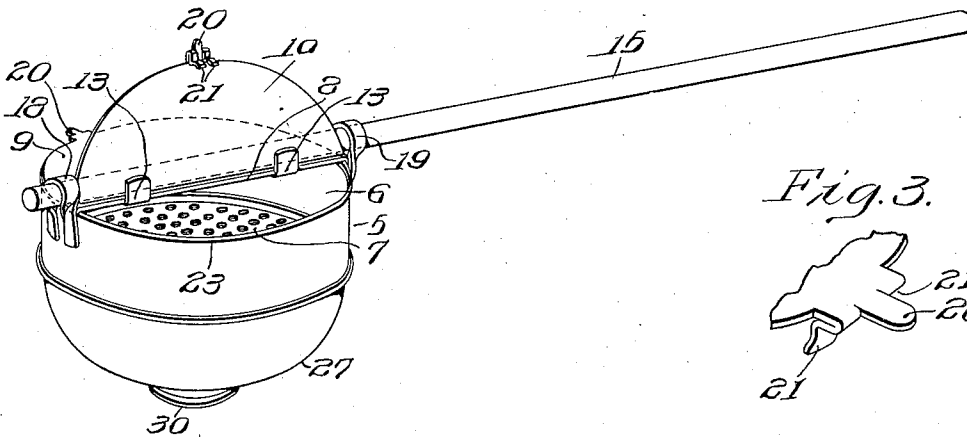
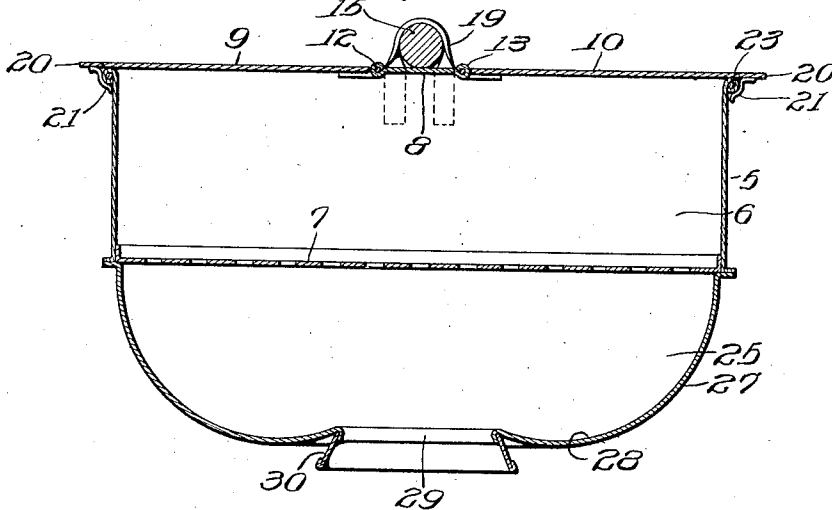


Fig. 3.



Fig. 2.



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SIFTER.

1,057,129.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK Q. DUTTON, a citizen of the United States, and a resident of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Sifters, of which the following is a specification, reference being had to the accompanying drawing.

This invention particularly relates to sifters which have an inclosed chamber above a foraminous diaphragm for the material to be sifted, and a chamber below said foraminous diaphragm having sloping walls for directing the sifted residue through a restricted outlet aperture.

The principal object of this invention is, to provide a simple and efficient sifter which is dustless in operation, and which collects the diffused air-suspended lighter particles of the sifted material, in a receptacle forming a part of said sifter, and discharges the agglomeration substantially in bulk through a restricted outlet.

Other objects of this invention are, to provide means surrounding the restricted outlet to agglomerate any segregated particles which may tend to scatter; and to provide closures for the sifter body having means to maintain them closed.

This invention comprehends the provision of a depending curvedly tapering receptacle forming a part of the sifter body below the foraminous diaphragm, and having a restricted outlet aperture surrounded by an annular recess within, and a flaring shield without, said receptacle.

This invention also includes all of the various novel features of construction and arrangement hereinafter more definitely specified.

In the accompanying drawing, Figure 1 is a perspective view of a sifter constructed in accordance with this invention, showing one of the closures in open position; Fig. 2 is a central transverse vertical sectional view of the sifter shown in Fig. 1; and Fig. 3 is a fragmentary perspective view showing the clasp for maintaining the closures in their closed position.

In said figures, the sifter body 5 forms the chamber 6 having the foraminous floor 7 and upper wall 8, comprising the closures 9

and 10 for the reception of the material to be sifted. The closures 9 and 10 are respectively hingedly connected with the upper wall 8 by the hinges 12 and 13 on parallel axes respectively disposed along the opposite sides of the handle 15, which is removably engaged with the sifter by the looped ears 18 and 19, respectively secured in any suitable manner to the opposite sides of the sifter body 5 adjacent to the upper peripheral edge, the loops of which project above said edge and conveniently permit the insertion and removal of said handle 15. The closures 9 and 10 are each provided with a thumb piece 20 projecting therefrom, and snap catches 21 disposed upon opposite sides thereof and having depending fingers arranged to engage beneath the turned over peripheral rim 23 of the sifter body 5.

It will be seen that the mere pressing down of either of the respective closures 9 and 10 will affect the fastening of its snap catches 21 beneath the rim 23, and that when it is desired to empty the residue in the chamber 6, the closures 9 or 10 may be readily opened by merely pressing upwardly on the thumb piece 20, the catches being of merely sufficient tensional resistance to prevent accidental displacement of said closures when the sifter is in operation.

The sifter is provided beneath the foraminous diaphragm with a chamber 25 formed by a curvedly tapering wall 27, which is shaped to provide an annular recess 28 surrounding the restricted outlet aperture 29 for the purpose of collecting the sifted agglomeration before being discharged through said outlet aperture 29. The outlet aperture 29 is surrounded by a depending outwardly flaring annular shield 30, which is connected with the wall 27 by bending the edge of the wall 27 outwardly to engage the inner surface of said shield.

The sifter herein shown and described is best adapted for sifting ashes or similar material, but it is to be understood that it is equally applicable when provided with foraminous diaphragms 7 having apertures forming different mesh; for instance, said sifter may be adapted for sifting grain, flour, or the like, or it may be equally applicable for use as a colander.

By the peculiar configuration of the wall

27 of the chamber 25, the lighter particles of the sifted material are collected with the agglomerated mass within said chamber 25, so that when discharged therefrom are held together in bulk and do not diffuse into the adjacent atmosphere. It has been found, however, that by forming the shield 30 flaring, as best shown in Fig. 2, a very small percentage of the lighter particles do separate from the bulk as it passes through the outlet aperture 29, and collect upon the inner surface of said shield 30, which is presumed to be due to the fact that certain eddy air currents are produced by the agglomerated mass of sifted material passing through said aperture.

It will be noted that an ash sifter formed in accordance with this invention may be provided with the chamber 25 without materially increasing the depth or weight of the sifter, and that by forming the closures as shown in the drawing, and providing hinges whose axes are parallel with the handle, the separated residue in the chamber 6 may be readily emptied therefrom through either of the openings covered by said closures. Furthermore, the clips 21 may be merely of such tension as to prevent the accidental displacement of the closures when in their closed position, and to permit the automatic opening of said closures by the material in the chamber 6 by the mere tilting of the sifter.

It is not desired to limit this invention to the precise details of construction and arrangement herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of the invention as defined in the appended claims.

Having thus described my invention, I claim:

1. A sifter comprising a receptacle for material to be sifted, having a perforated bottom and a receptacle for the sifted material, having a curvedly tapering wall surrounding a restricted outlet and providing an annular depressed recess adjacent said outlet.

2. A sifter comprising a receptacle having a perforated bottom for material to be sifted, and a receptacle for the sifted material, having a curvedly tapering wall surrounding a restricted outlet and providing a depressed region adjacent said outlet for agglomerating particles in said receptacle, and a rim surrounding said outlet.

3. A sifter comprising a receptacle for material to be sifted, having a perforated bottom and a receptacle for the sifted material, having a curvedly tapering wall surrounding a restricted outlet and providing an annular depressed recess adjacent said outlet for agglomerating particles in said receptacle, and an outwardly-flaring rim sur-

rounding said outlet exterior to said receptacle operative to collect particles of the sifted material upon its inner surface.

4. A sifter comprising a receptacle for material to be sifted, and a receptacle for the sifted material, having a restricted outlet and providing an annular depressed region adjacent to said outlet, and a foraminous diaphragm separating the chambers formed by said receptacles.

5. A sifter comprising a receptacle for material to be sifted, and a receptacle connected therewith for the sifted material, having a restricted outlet and providing a depressed region adjacent to said outlet, an outwardly flaring rim surrounding said outlet, exterior to said receptacle, and a foraminous diaphragm forming the bottom of said first mentioned receptacle.

6. A sifter comprising a receptacle for material to be sifted, and a receptacle attached thereto for the sifted material, having a curvedly tapering wall surrounding a restricted outlet and providing an annular depressed region surrounding said outlet, an annular outwardly flaring rim surrounding said outlet, and a foraminous diaphragm separating the chambers formed by said receptacle.

7. The combination in a sifter, or a receptacle for the material to be sifted normally closed in operation, a foraminous diaphragm forming a floor for said receptacle, movable closures for said receptacle, and a receptacle for collecting the sifted material having a curvedly tapering wall surrounding a restricted outlet and providing an annular depressed region adjacent said outlet, said last mentioned receptacle being in rigid relation with said first mentioned receptacle.

8. The combination in a sifter, of an upper receptacle for the material to be sifted having movable closures hingedly secured thereto, said closures being operative to prevent the egress of particles of said material during operation, a handle for said receptacle and secured thereto, a foraminous diaphragm forming a bottom for said upper receptacle, and a lower receptacle for the sifted material in rigid relation with said upper receptacle and having a restricted outlet, and providing a depressed annular region adjacent said outlet operative to prevent the egress of the particles of sifted material before agglomeration during the operation of the sifter.

9. The combination in a sifter, of an upper receptacle for the material to be sifted, provided with a foraminous floor, a handle extending over said receptacle, closures for the top of said receptacle to prevent the egress of particles of material to be sifted during the operation of the sifter, a lower receptacle having a curvedly tapering wall surrounding a restricted outlet and having

a depressed annular region adjacent said outlet operative to agglomerate the particles of sifted material during the operation of the sifter and before their egress therefrom, 5 and an outwardly flaring rim surrounding said outlet.

10 10. A sifter having a bowl-shaped collector depending beneath a foraminous diaphragm and having a restricted outlet aperture within an adjacent annular de-

pressed region, the edge of said aperture extending above the surrounding outwardly flaring wall.

In witness whereof, I have hereunto set my hand this 12th day of February, A. D. 15 1912.

FRANK Q. DUTTON.

Witnesses:

CLIFTON C. HALLOWELL,
ALEXANDER PARK.

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

It is hereby certified that in Letters Patent No. 1,057,129, granted March 25, 1913, upon the application of Frank Q. Dutton, of Philadelphia, Pennsylvania, for an improvement in "Sifters," an error appears in the printed specification requiring correction as follows: Page 2, line 95, for the word "or" read *of*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 15th day of April, A. D., 1913.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.