

June 10, 1952

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2,599,641

LID FOR FLOUR SIFTERS

Filed Jan. 26, 1948

2 SHEETS—SHEET 1

Fig. 1.

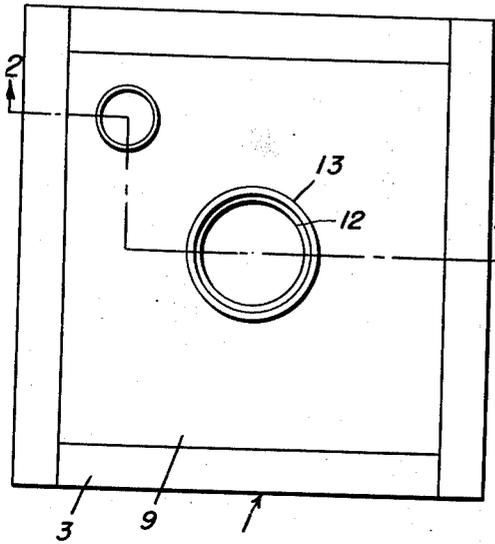


Fig. 3.

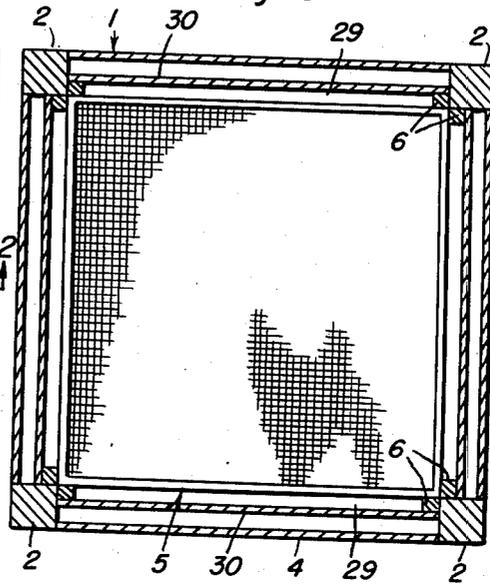


Fig. 2.

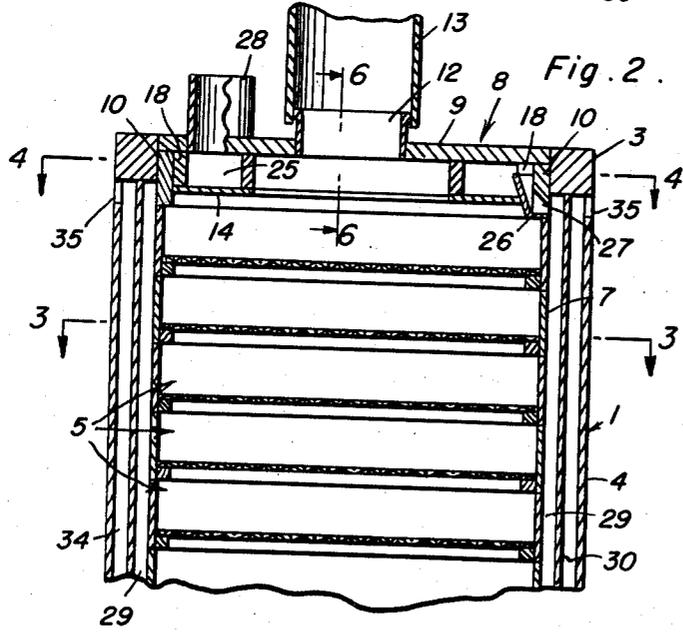
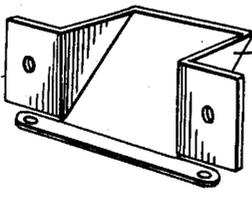


Fig. 7.



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2 SHEETS—SHEET 2

Fig. 4.

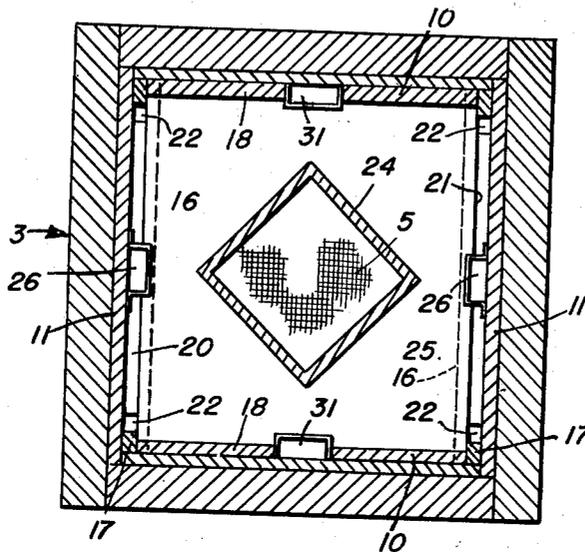


Fig. 5.

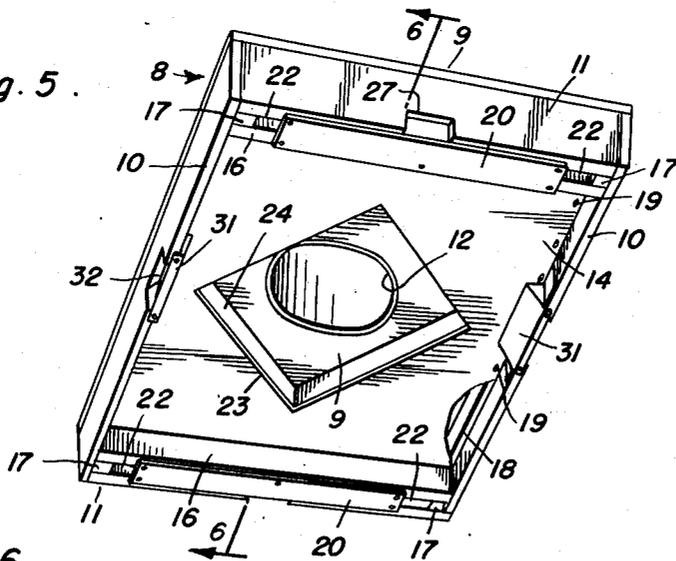
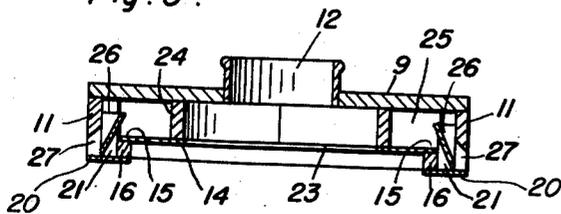


Fig. 6.



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UNITED STATES PATENT OFFICE

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LID FOR FLOUR SIFTERS

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3 Claims. (Cl. 209—372)

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My invention relates to improvements in lids for gyrating flour sifters of the type embodying stacked sieves.

The principal object of my invention is to equip such sifters with efficient means for preventing the accumulation therein of moisture settling thereon from the material being sifted and which impairs the efficiency of the sifter by causing the sifted material to cake and adhere to the sifter parts.

Another object is to accomplish the above through means of the usual suction system of flour mills in which such sifters are utilized.

Still another object is to provide such sifters with a sifter lid for attachment to such suction system and for accomplishing the above objectives, and which is of simple, inexpensive construction and adapted for use with conventional sifters of the type indicated without material alteration in the sifter structure.

Other and subordinate objects within the purview of my invention, together with the precise nature of my improvements, will be readily understood when the succeeding description and claims are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a view in plan of a flour sifter equipped according to my invention in a preferred embodiment thereof;

Figure 2 is a fragmentary view in vertical section taken on the irregular line 2—2 of Figure 1;

Figure 3 is a view in horizontal section taken on the line 3—3 of Figure 2;

Figure 4 is a view in horizontal section taken on the line 4—4 of Figure 2;

Figure 5 is a view in inverted perspective of the lid;

Figure 6 is a view in transverse section of the lid taken on the line 6—6 of Figure 5; and

Figure 7 is a view in perspective of one of the flues.

Referring now to the drawings by numerals, the type of sifter with which my invention is particularly concerned comprises a gyrating casing 1 of rectangular form with corner posts 2, a rectangular top frame 3, and an outer vertical wall structure 4. Rectangular, open top, sieves 5 are stacked in the casing 1 in superposed relation and which fit downwardly into said casing through the top frame 3 with the corners thereof slidably fitted between vertical guide bars 6 on the posts 2. The top sieve 5 is spaced slightly below the top frame 3 and the sides of said sieves form an

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inner vertical wall 7 in said casing 1, the top edges of which are spaced below said top frame 3 for a purpose presently clear.

The sieves 5 are of conventional construction and arrangement being stacked in superposed sets, three being shown in a set, in this instance, with vertical side channels *a* in two opposite sides of each set, the side channels *a* in the superposed set being in 90° angular relation to those in the subjacent set. Under gyrations of the sifter 1, the coarser material tails over through tail over openings *b* in the higher sieve 5 of each set into the next lower sieve of the set. The finer sifted material drops onto pans *c* in the sieves 5 and tails out of the pans into one or the other of the vertical side channels *a*. The composite throughs of each set of screens 5 drop onto the top sieve of the subjacent set to pass out of the sifter, in a manner which will be understood. The coarser material sifted out in each set of sieves passes out of a tail over opening *d* in the lower sieve 5 of the set and into one or another of vertical through, side spaces 29 formed in the casing 1 in a manner presently described. From the spaces 29 the coarser material passes out of the sifter.

Such sifters are commonly provided with a lid 8 having a top panel 9 of rectangular form supported by a rectangular marginal frame of side bars arranged in opposed pairs designated 10, 11 in the different pairs, said lid fitting downwardly into top frame 3 with the top panel 9 flush with said frame and the bottom edges of the lid frame resting on the top edges of the top sieve 5 so that said bars 10, 11 bridge the space between the top of the inner vertical wall 7 and said top frame 3. A center, upstanding, feed thimble 12 on the top panel 9 provides for connection, by means of a flexible pipe 13, to the usual source of supply of material to be sifted which is fed by gravity into the sifter.

According to my invention, the lid 8 is provided with a raised, thin metal, rectangular, bottom plate 14 fitted between the pair of bars 10 and spaced at opposite side edges 15 thereof from the pair of bars 11. The spaced side edges 15 of said plate 14 rest upon and are suitably secured to subjacent bars 16 extending endwise between the pair of bars 10 parallel with and spaced laterally from the pair of bars 11 with ends suitably secured to corner posts 17 fixed in the angles formed by said bars 10, 11. Bars 18 extend along the inner sides of the bars 10, above said plate 14, and are suitably secured to said

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bars 10 with said plate 14 secured to the under sides of said bars 18, as represented at 19 in Figure 5.

Metal strips 20 are secured to the bottoms of the bars 11 and 16 with ends spaced from the posts 17. As best shown in Figures 5 and 6, the bars 11, 16, together with the strips 20, form troughs 21 at two opposite sides of the lid 8 with end bottom openings 22 adapted to communicate with the vertical side channels *a* in the top set of sieve 5. An opening 23 in the bottom plate 14, centered beneath the thimble 12, provides for the passage of material through said plate from said thimble. A vertical partition 24 extends between the bottom plate 14 and the top panel 9 around the edges of the opening 23 and of the thimble 12 and forms with the bars 11, 16 a suction chamber 25 in said lid.

A pair of upwardly flaring sheet metal suction flues 26 in the transverse centers of the troughs 21 extend upwardly from the bottoms of said troughs above the bottom plate 14 and are spaced from the top panel 9. The flues 26 open at the bottoms thereof into apertures 27 in the bars 11 communicating with the upper ends of vertical, through, side spaces 29 formed in the casing 1 by partitions 30 interposed between the sieves 5 and the outer wall structure 4 and extending between the posts 2. Another pair of suction flues 31 extend downwardly from the bottom plate 14 at the other sides of said plate in the transverse center of the plate and open into apertures, as at 32, in the bars 10, said apertures 32 communicating with the upper ends of other of the through, side spaces 29 similar to those with which the apertures 27 communicate.

A sheet metal suction thimble 28 extends upwardly from one corner of the top panel 9 in communication with the suction chamber 25 and which is adapted to be suitably connected with the suction system, not shown, of the mill in which the sifter is being used.

The partitions 30 form with the outer wall structure 4 air spaces 34 at the sides of the sifter through which air may pass and out of upper apertures 35 in the said wall structure to maintain the partitions 30 dry.

It has not been deemed necessary to illustrate the means for gyrating the sifter, such mechanism being well understood in the art and forming, per se, no part of my invention.

Referring now to the operation of the described invention, the material to be sifted is fed, under the influence of gravity, into the upper sieve 5 through the feed thimble 12 and the opening 23, to be sifted in the usual manner in the

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sieves 5. Under the suction created in the suction chamber 25, air is drawn upwardly through the air spaces 29 and flues 26, 31. This evaporates any condensation or moisture accumulating in the sifter on and around the sieves 5. Any material being lifted by the suction in the chamber 25 settles on the bottom plate 14 and is caused, by the gyrating motion of the sifter, to fall into the troughs 21 from which the same discharges out of the end bottom openings 22 back into the top sieve 5.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention, without further explanation.

Manifestly, the invention, as described, is susceptible of modification without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A lid for closing the top of a gyrating flour sifter, said lid having a central feed passageway therein adapted to pass flour therethrough into said sifter, a suction chamber in said lid surrounding said passageway adapted to draw air upwardly out of said sifter to dry the interior thereof, a suction nipple upstanding from said chamber adapted to be connected to a suction source for creating suction in said chamber, troughs in said lid at opposite sides of said chamber below the same into which flour drawn into the chamber with said air may settle under gyration of the lid with said sifter, said troughs being adapted to communicate with said sifter for feeding flour back into said sifter, and flues in said lid adapted to communicate said chamber with said sifter for drawing air out of the sifter.

2. A lid according to claim 1 wherein said troughs are provided with open ends adapted to communicate the same with said sifter.

3. A lid according to claim 1 wherein said flues extend upwardly through said troughs above the same into said chamber.

JULIUS JURKOW.

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