

April 15, 1952

L. M. BARBERY

2,592,850

SIFTER

Filed April 20, 1951

4 Sheets-Sheet 1

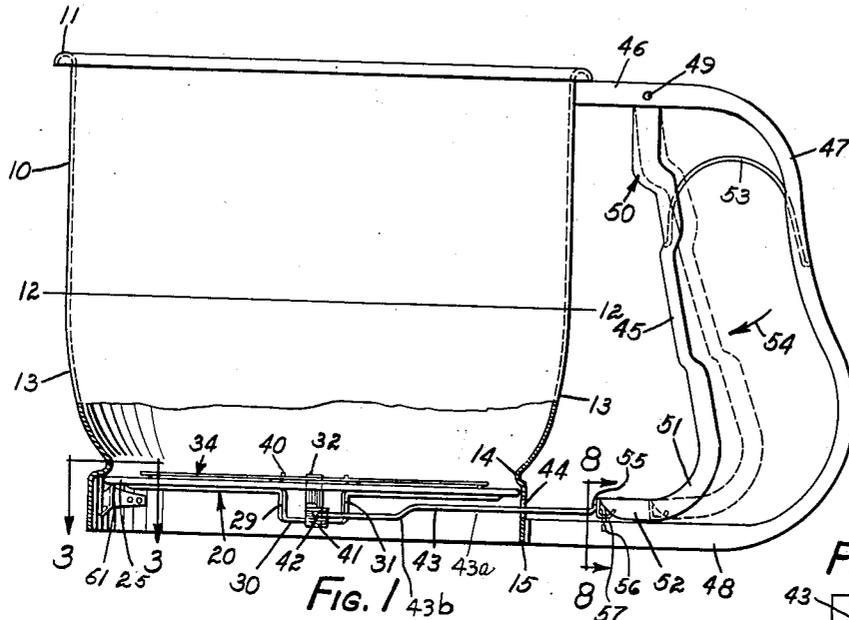


FIG. 1

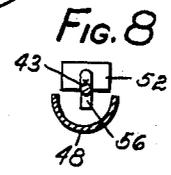


FIG. 8

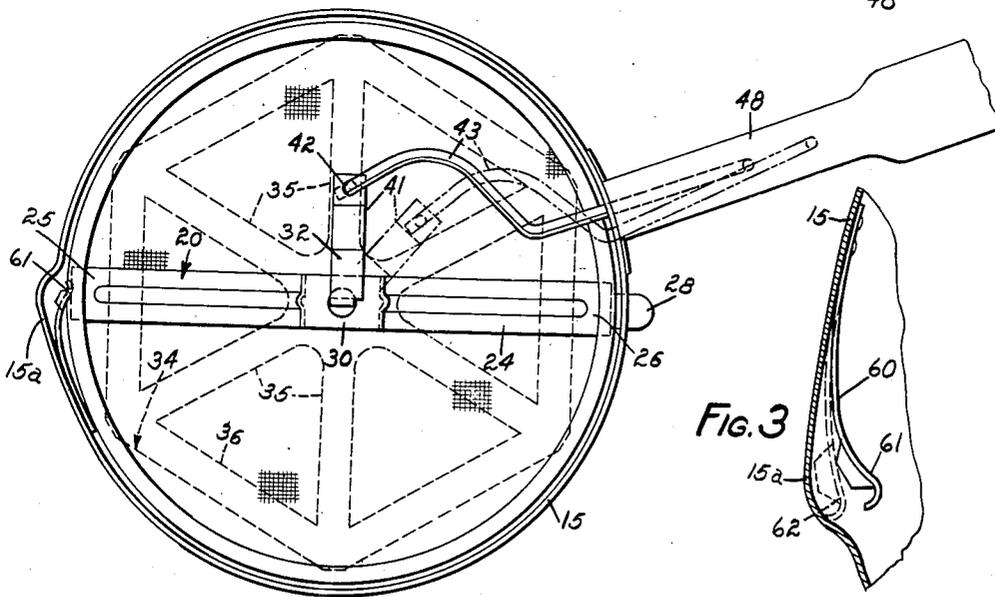


FIG. 2

FIG. 3

INVENTOR.
LUCILLE M. BARBERY
BY Paul, Paul & Moore

ATTORNEYS

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L. M. BARBERY

2,592,850

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4 Sheets-Sheet 2

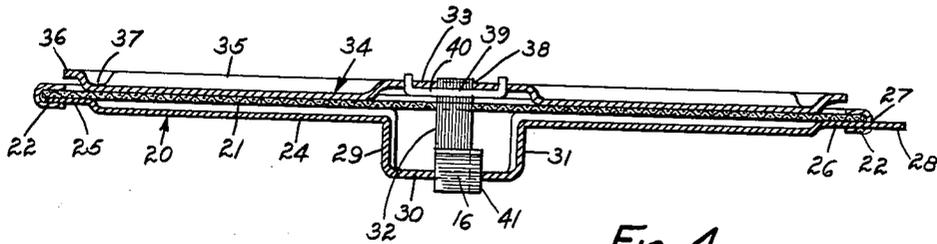


FIG. 4

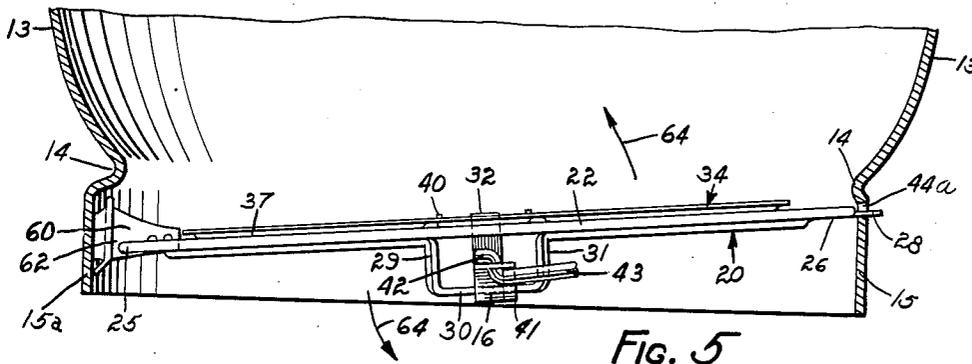


FIG. 5

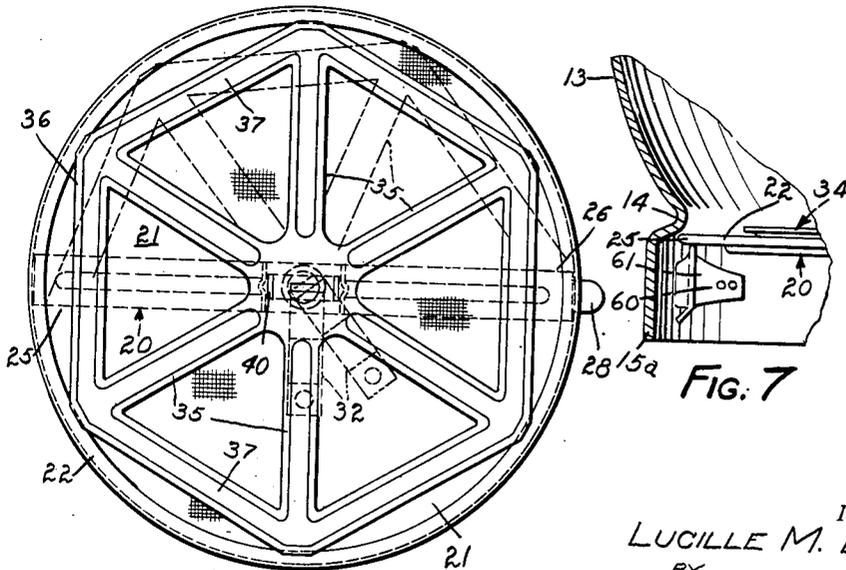


FIG. 6

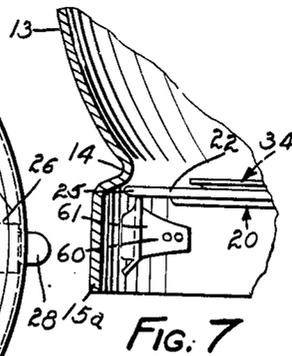


FIG. 7

INVENTOR.
LUCILLE M. BARBERY

BY *Paul, Paul & Moore*

ATTORNEYS

April 15, 1952

L. M. BARBERY

2,592,850

SIFTER

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4 Sheets-Sheet 3

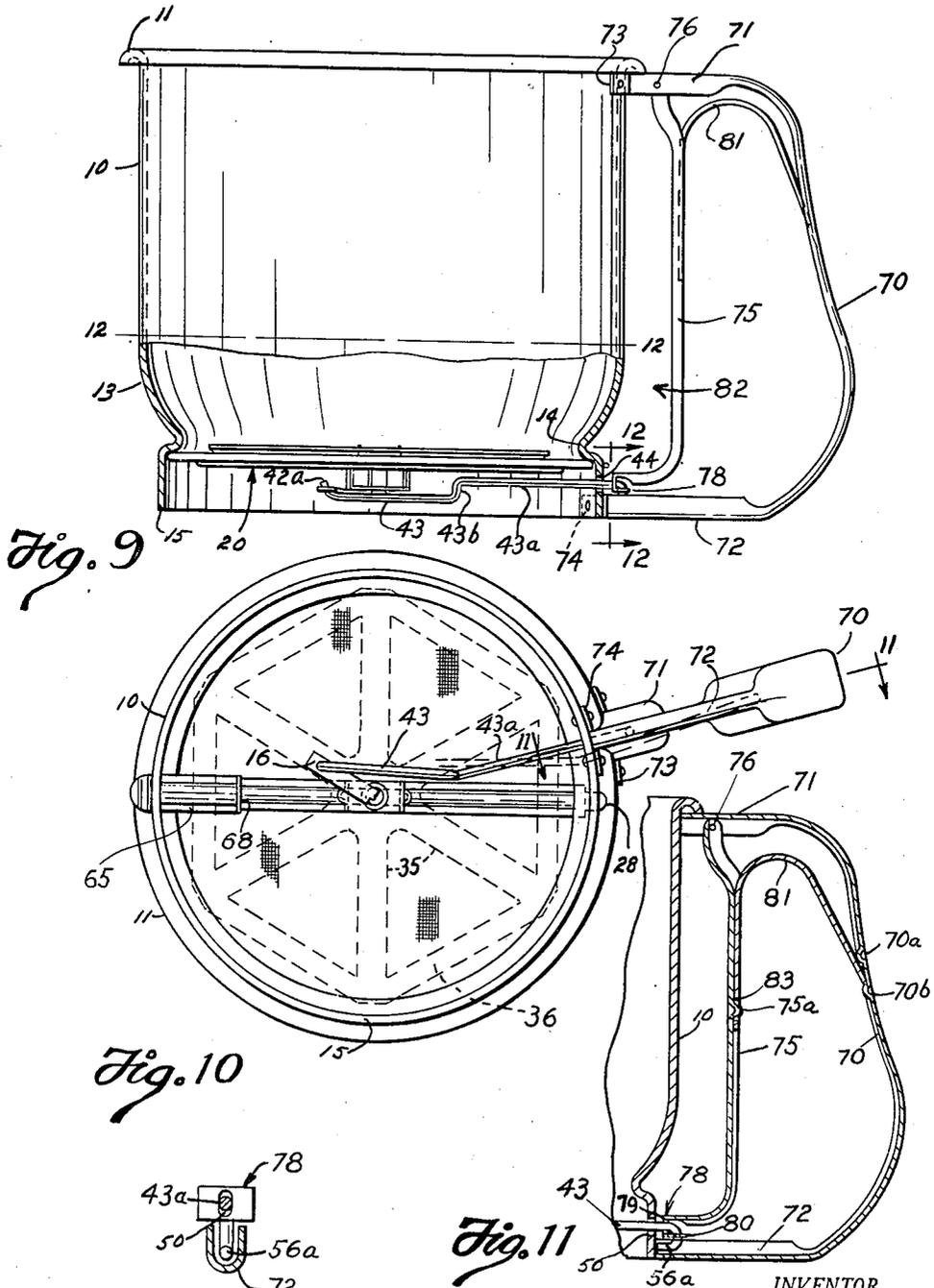


Fig. 9

Fig. 10

Fig. 12

Fig. 11

INVENTOR.
LUCILLE M. BARBERY
BY Paul, Paul & Moore

ATTORNEYS

April 15, 1952

L. M. BARBERY

2,592,850

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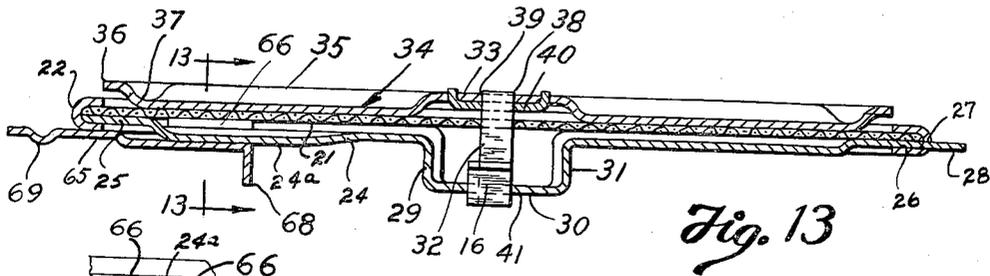


Fig. 13

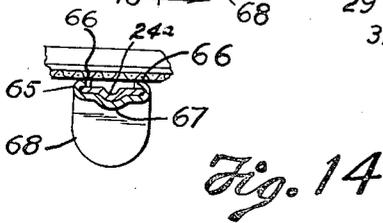


Fig. 14

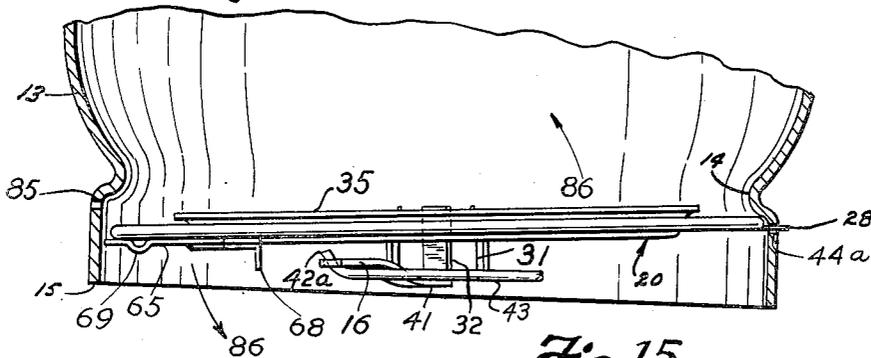


Fig. 15

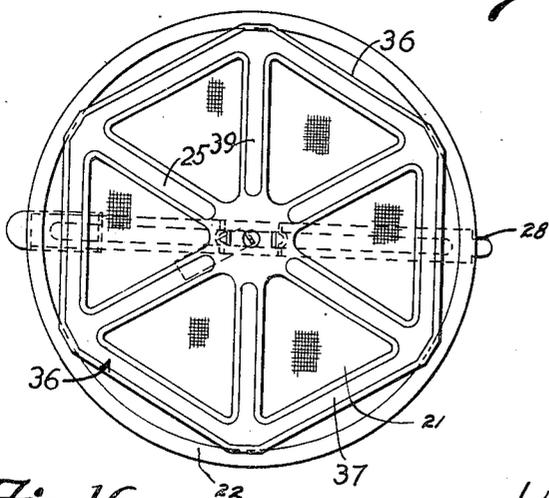


Fig. 16

INVENTOR.
LUCILLE M. BARBERY

BY Paul, Paul & Moore

ATTORNEYS

UNITED STATES PATENT OFFICE

2,592,850

SIFTER

Lucille M. Barbery, Minneapolis, Minn., assignor
to Foley Manufacturing Company, Minneap-
olis, Minn., a corporation of Minnesota

Application April 20, 1951, Serial No. 222,121

6 Claims. (Cl. 209—357)

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This invention relates to sifters and more particularly to flour sifters of large capacity suitable for home or industrial use. Heretofore, sifters of this character have customarily been made with firmly attached sifter elements, that is to say the screening element for the flour or other material being sifted has been connected solidly to the bottom of the container, thus precluding ready cleaning of the individual parts of the unit.

Moreover, in sifters of this type wherein horizontally disposed rotary agitator elements are employed, it is common for the point of connection between the agitator and agitator operating link to pass over dead center and thus prevent smooth and continuous operation of the sifter.

It is an object of the present invention to provide a sifter of large capacity and handy shape, yet of light construction and made so that the sifting element, together with the agitator, may be removed as a unit from the sifter body for separate cleaning of the separated sifter-agitator unit and cleaning of the cup body of the sifter.

It is a further object of the invention to provide an improved, large-capacity, light-weight flour sifter of handy shape, capable of being held easily in the hand of the user and operated by the same hand by which it is held.

It is also an object of the invention to provide a sifter unit having a screen and agitator unit removable from the sifter body and disconnectable from the agitating mechanism.

It is another object of this invention to provide a sifter having a sifter and agitator unit wherein a rotary agitator is horizontally disposed over the sifter screen and is secured to an agitator operating link having a stop portion formed therein which prevents the point of connection between the agitator and link members from passing over dead center.

It is still another object of this invention to provide a sifter having a removable unitary screen-agitator assembly and an agitator operating link detachably connected at one end to the agitator and permanently secured at the other end, through a bend formed therein to a manually operated lever.

It is a still further object of this invention to provide a sifter having a rotary agitator and an agitator operating link detachably secured at one end to the agitator and permanently secured at the other end to an operating lever through a bend formed in the link wherein the

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bent portion of the link is adapted to rest in a slot formed in the sifter handle to provide an improved guide bearing for the link.

It is another object of this invention to provide a sifter having a handle, a manually operable lever pivotally mounted on the handle and a spring means for exerting pressure between the handle and lever, said spring means being self-adjusting to provide the desired pressure between the handle and the lever.

It is also another object of this invention to provide a sifter having a unitary handle formed of a single blank of sheet metal with upper and lower horizontal slots having perforated wing portions formed in the handle at the end of each slot, the wing portions being adapted to be secured to the sifter body, the uppermost horizontal slots serving as a support for the lever and the lowermost horizontal support having as a guide for an elongated portion of a bend formed in the agitator operating link.

It is also an object of this invention to provide a subcombination screen and agitator assembly complete and separable from a sifter body formed to be attached to a sifter body.

It is also an object of this invention to provide a subcombination screen-agitator unit having a detent in the form of a sliding bolt or protuberance whereby the unit may be secured to a body and retained therein.

Other and further objects of the invention are those inherent in the apparatus herein illustrated, described and claimed.

The invention is illustrated with reference to the drawings in which corresponding numerals refer to corresponding parts and in which:

Figure 1 is a side elevational view partly in section;

Figure 2 is a bottom view;

Figure 3 is a partial sectional view taken in the direction of arrows 3—3 of Figure 1;

Figure 4 is a transverse sectional view of the screen and agitator mechanism shown removed from the remainder of the sifter device;

Figure 5 is a partial transverse sectional view showing the screen and agitator unit in the process of being removed from the sifter mechanism;

Figure 6 is a top plan view of the screen and agitator mechanism;

Figure 7 is a fragmentary sectional view corresponding to a part of Figure 5 showing the screen locked in position in the shifter mechanism; and

Figure 8 is a fragmentary sectional view taken in the direction of arrows 8—8 of Figure 1;

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Figure 9 is a side elevational view partly in section of a modified form of this invention;

Figure 10 is a bottom plan view of the same modified form;

Figure 11 is a fragmentary sectional view of the sifter handle of the modified form shown in Figures 9-10 taken along the lines 11-11 of Figure 10;

Figure 12 is a fragmentary detail view taken along the line 12-12 of Figure 9;

Figure 13 is a transverse sectional view of the screen and agitator mechanism of the modified form shown removed from the remainder of the sifter device;

Figure 14 is a fragmentary detail view taken along the line 14-14 of Figure 13;

Figure 15 is a partial transverse sectional view of the modified form showing the screen and agitating unit in the process of being removed from the sifter mechanism; and

Figure 16 is a top plan view of the screen and agitator mechanism of the modified form.

Referring to the drawings, particularly 1-8, the sifter mechanism includes a cylindrical body 10 having an upper edge 11 which is beaded over so as to provide a smooth upper surface. The cylindrical body 10 is gradually reduced in diameter below the median plane 12-12 of the sifter mechanism so as to provide a cup-shaped curve at 13 which is of gradually decreasing cross-sectional area until it reaches the beading 14. Below the beading 14 the cup body is again made of larger diameter throughout the cylindrical portion 15. The lower surface of the bead 14 presents a ledge supporting area against which the screen and agitator unit mechanism generally designated 20 is supported.

Referring to Figures 4 and 6 particularly, the screen and agitator is a complete subcombination unit mechanism which may be separated from the sifter body and replaced at will. This subcombination unit includes a circular screen 21 of any suitable mesh. The circular screen 21 is provided with a crimped-on metal edging 22 throughout its periphery, the crimping also serving to support a brace 24 which extends diametrically across the screen and agitator element, being held at one end 25 by the crimped edging 22 and at the other end 26 by the opposite diametrical point on the crimped edging 22. At the point 26 the crimped edge 22 is apertured at 27 so as to allow the diametrical brace 24 to extend therethrough and form a tongue 28 which serves to support the screen and agitator element as hereinafter described.

The central portion of the diametrical brace 24 is bent downwardly as shown at 29, 30, 31 and is provided with a central aperture through which the pivot pin 32 extends. The pivot pin is of a length sufficient to extend through a suitable hole in screen 21 and support the central hub 33 of the agitator element generally designated 34. The agitator element is of stamped metal and includes the central hub portion 33, which is raised slightly above the screen 21, and a plurality of radial agitator legs 35 which terminate in a hexagonal terminal edge 36. The terminal edge 36 is preferably stamped so as to provide a downwardly extending drawn portion at 37 and the radial legs 35 are likewise so stamped as to provide a channel cross section for each leg and a channel cross section throughout the terminal hexagonal portion 36. This adds greatly to the stiffness of the agitator and also provides a smoothly curved rubbing surface for each

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of the legs 35 and for the terminal hexagonal edge 36 which is in contact with the screen element 21.

The upward central hub portion 33 is apertured at 38 to receive the pivot pin 32. The key wire 40 is likewise apertured at 39 so as to receive the pivot pin 32. The key wire 40 is turned up at each end and extends through the hub portion 33, thus imparting a locking connection between the pin 32 and the hub.

At the lower end of the shaft 32 there is provided a radial actuating arm 41 which has an upwardly bent end 16 that is apertured to receive the bent end 42 of agitator link 43 which extends through a suitable aperture 44 in the cylindrical lower edge 15 of the cup body and thence extends outwardly of the cup and is attached to the actuating lever 50.

The agitator link 43 has two angular bends formed therein to provide an off-set portion 43a in the link and an abutment 43b. The abutment 43b functions as a stop against the cylindrical lower edge 15 of the cup 10 to prevent movement of the agitator actuating arm 41 to and beyond dead center and displacement of the link as will be hereinafter described.

The cup is provided with a handle having an outwardly extending upper part 46 that is attached to the uppermost part of the cup. The handle then extends downwardly through the grip section 47 which is conveniently shaped so as to fit the user's hand. The portion 47 and the portion 46 are of channel shape, the portion 47 being of lesser channel shape than at 46. The portion 47 blends into the lower supporting portion 48 which is also of channel section as shown in Figure 8. The portions 46 and 48 are attached by spot welding or riveting to the cup body 10, and thus form a firm handle by which the user may operate the sifter. The upwardly opening channel portion 48 offers a slot into which the bent end 56 of the actuating link 43 extends so as to stabilize from tipping. Since the link 43 extends through the lower end 52 of lever 50, which is pivoted to portion 46 by pin 49, the latter is also stabilized against sideways by the action of tip 56 in the slot formed by channel 48 of the handle. The lever 50 is pivoted at 49 and has a free-swinging lower end portion 51 which is curved so as to present a portion 52 which has a path of motion slightly above the upwardly opening channel portion 48 of the handle. A spring 53 which is connected to the handle portion 47 and to the lever 50 normally biases the lever 50 in the direction of arrow 54 of Figure 1. The lower end of the lever 50, as illustrated at 52, is provided with a bent up end apertured at 55 to receive the bent hook end 56 of the agitator link 43, the hook end 56 then extending downwardly through a further aperture at 57 in the lever 50 and thence extending downwardly into the upwardly opening channel 48 of the handle, as illustrated in Figures 1 and 8. The downwardly extending end 56 of the agitating link 43 thus moves back and forth in the slot or channel of handle portion 48 and is thus prevented from turning sideways and wobbling and is entirely stabilized by the upwardly opening channel or slot formed in the lower portion of the handle 48. This sliding connection also prevents sideways of lever 50.

Abutment 43b also provides a limit for the movement of link 43. This abutment 43b is situated in link 43 such that when it (abutment 43b) strikes the wall 15 of cup 10, the end 56 of the agitator link 43 which passes through the lower

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end 57 of actuating lever 50 is retained in the upper opening channel portion 48. This serves both to limit the rearward movement of link 43 and handle 45, and also prevents the disengagement of end 56 from the guide slot provided by channel portion 48.

The screen and agitator assembly is arranged to be held in the cup by means of the tongue 28 which extends through an aperture 44a in the downwardly extending wall portion 15 of the cup. The agitator and screen assembly is supported at its opposite diametrical portion by means of a spring detent 60 illustrated in detail in Figures 2 and 3. The spring detent is riveted or spot welded to the lower cylindrical wall 15 of the cup and has an end portion 61 which may be depressed to the dotted line position 62 of Figure 3 so as to allow the screen and agitator element to be raised into the position shown in Figure 1. Thereafter, the spring end 61 is released and it moves to the position shown in Figure 1 and locks the screen and agitator element in position.

In order to remove the screen and agitator element from the cup body, it is only necessary to push the spring 60—61 against the side wall 15 in the space 15a provided for such movement, and this releases the marginal edge of the screen and agitator element, whereupon it may be lowered to the position shown in Figure 5 and thence to a greater angular position sufficient to permit the tongue 28 to be withdrawn from the aperture 44a. When this occurs the entire screen and agitator element can be rotated in the direction of arrows 64 of Figure 5 and the actuating lever 41 released from the bent end 42 of the link 43. The aperture 44 in wall 15, Figure 1, is of sufficient dimension to permit the actuator link 43 to drop slightly and thus permit the above described action and the entire removal of the screen and actuator element 20 from the cup body, whereupon thus separated from the cup, the unit may be washed thoroughly. The cup and handle portion may likewise be thoroughly washed when the screen-agitator unit is removed, particularly around the beading 14 which is most subject to contamination during use.

Referring to Figures 9-16, there is shown another form of the instant invention, embodying the same cylindrical body 10 having the upper edge 11 which is beaded over so as to provide a smooth upper surface. Body 10 as described before with reference to Figures 1-8 is gradually reduced in diameter below the median plane 12-12 the sifter mechanism so as to provide a cup-shaped curve at 13 which is of gradually decreasing cross-sectional area until it reaches the beading 14. Below the beading 14 the body is again made of larger diameter throughout the cylindrical portion 15. The lower surface of the head 14 presents a ledge supporting area against which the subcombination screen and agitator unit mechanism generally designated 20 is supported. Referring now to Figures 13 and 16 particularly, the subcombination screen and agitating unit mechanism 20 of this form of the invention is similar to the form shown in Figures 1-8. Thus, the subcombination screen and agitator unit mechanism includes a circular screen 21 of any suitable mesh as heretofore described. The circular screen is provided with a crimped-on metal edging 22 throughout its periphery, which not only reinforces and stiffens the edge of the wire but also serves to support

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the diametrical brace 24 which in this instance is provided with a stiffening ridge 24a stamped therein. The ends 25 and 26 of brace 24 are held at opposite diametrical points by the crimped edging 22 as previously described with reference to Figures 1-8, it being noted that end 26 has a tab 28 extending out through a slot 27 in the crimped edge 22, whereas end 25 is crimped in by edge 22. In this form of screen and agitator assembly, shown in Figures 9-16, adjacent the end 25 of brace 24, there is supplied a sliding bolt 65 which is slidably secured to the portion 24a of brace 24 by inturned edges 66-66 on the bolt 65. The stamped ridge 67 in the bolt 65 fits neatly over the portion 24a of the ridge 24 which is provided on brace 24 and serves to steady the sliding bolt 65 as it is moved back and forth on the brace 24.

A depending flange portion 68 formed on the interior end of bolt 65 serves as a fingerhold by means of which the bolt can be operated. The end of the bolt 65 adjacent the crimped edge 22 sticks out (diametrically) beyond the edge 22 and has a slight bend at 69 formed therein which serves as crimp-lock to prevent too-easy movement of the member 65. The tongue 28 at one end of the brace 24 extends through slot 44a in the wall 15 of the cup and supports the subcombination screen and agitator assembly 20 at that side as shown in Figure 15. The other side of the assembly 20 is held by the slide bolt 65. Thus when the screen and agitator sub-assembly is seated on the ridge 14 as shown in Figure 9, the outer end of bolt slide 65 will be aligned with slot 85 (Figures 10 and 15) and the slide 65 is pushed outwardly by pressure of a finger against part 68, until the bump 69 snaps over the bottom edge of slot 85, the slide bolt 65 being thereby held in place. Of course before putting the sub-assembly 20 in place, the end 42a of link 43 is first inserted through the hole in agitator crank 16.

In the form of invention shown in Figures 9-16, the central portion of the diametrical brace 24 is also bent downwardly as shown at 29, 30 and 31, as has been shown with reference to Figure 4 and is provided with a central aperture through which pivot pin 32 extends. Bends 29, 30 and 31 and pin 32 are similar to the elements shown in Figure 4, as is the central hub 33 of the agitator element 34, as previously described with reference to Figures 1-8.

The cup of the form of invention shown in Figures 9-16 is provided with a handle 70 which is similar to but not identical with the handle shown in Figures 1-8. This handle 70 is formed of a single sheet of metal by stamping or other suitable forming operation. The handle 70 comprises a generally vertical portion which is conveniently shaped so as to fit the user's hand and upper and lower horizontally extending portions 71 and 72 respectively. The edges of the portion 70a are bent or rounded for comfort and portions 71 and 72 are channel shape, each of these portions being blended into the rounded vertical portion 70. The free ends of the horizontal portions 71 and 72 terminate in arcuate wing portions 73 and 74 respectively which conform with the curvature of the corresponding portions of the outer walls of the cup 10 and are secured thereto by rivets, spot welds or other suitable fastenings. An actuating lever 75 is disposed within the channel shaped portion 71 and pivotally secured thereto by the pin 76.

The upwardly opening channel portion 72

provides a slot which is utilized in this form of the invention to steady the link 43. Thus, the elongated return portion 56a of the reverse bend formed in the end of the agitator link 43 extends down into the slot and is thereby prevented from tipping. Bend 56a is similar to bend 56 of Figure 1 but whereas bend 56 is substantially hook-shaped, bend 56a is an elongated return portion on a reverse bend as may be seen with reference to Figure 11. The link 43 thus extends outwardly from the cup through the aperture 44 and the reverse bend 56a in the end of the link extends through the lower portion 78 of the lever 75. The lower portion 78 of the cup handle includes a downwardly bent portion 79 which is apertured and a rearwardly bent portion 80 which is also apertured. The end of the agitator link 43 thus extends through the aperture in the portion 79, downwardly through the aperture in the portion 80 and thence toward the cylindrical wall 15 to provide the elongated return portion 56a. Since the lower portion 78 is above the upwardly opening channel member 72 and is free to swing thereabove the elongated return portion 56a serves as a guide bearing for the agitator link 43 and the actuating lever 75 to prevent sidewise or tilting movement of these elements. The actuating lever 75 and the agitator link 73 may be reciprocated; and, by virtue of the return portion 56a, the movement will be confined to a single vertical plane.

The bend 43b formed in the agitator link 43 limits the movement of the agitator link. The abutment 43b is formed in the link 43 at a point such that, when the abutment strikes the cylindrical wall 15 of the cup 10, the end of the agitator link 43 which passes through the lower end 78 of the actuating lever 75 is retained in the upper opening channel portion 72. The elongated return portion 56a which acts as a guide bearing cannot, therefore, be disengaged from the slot provided by the channel portion 72. This dual function of the stop abutment 43b is an important feature of this invention. It will also be apparent that the provision of the elongated return portion 56a precludes the agitator link 43 from being disengaged from the lower portion 78 of the actuating lever 75. Thus, when the screen-agitating unit is removed for cleaning, the cup 10 and the handle assembly secured thereto may be cleaned with assurance that the reciprocating element will not become disengaged. This is an added advantage of the construction disclosed.

The spring 81 which is interposed between the actuating lever 75 and the vertical portion 70 of the sifter handle normally biases the lever 75 in the direction of the arrow 82 as is shown in Figure 9. Spring 81 is similar in construction and function to spring 53 shown in Figure 1. The end of the spring 81 adjacent the lever 75 is apertured at 83 to receive a projection 75a formed in the lever 75 which thus connects the spring to the lever and prevents relative movement therebetween. The end of the spring 81 adjacent the vertical portion 70a of the sifter handle 70 rests against the inner face thereof between the rounded edges and between upper and lower stops 70a and 70b comprising elongated projections formed transversely to the portion 70 by a stamping operation. The free end of the spring 81 is, therefore, permitted to slide over the inner face of the vertical portion 70 between stop projections 70a and 70b. This relative movement provides for adjustment of the spring 81 to vary the amount of pull necessary to operate the lever

75 to suit different operators. This adjusting feature is easily obtained since the spring is not permanently secured either to the lever 75 or the portion 70 of the handle and the user can easily adjust the position. Furthermore, the manner of securing the spring between these elements insured against the spring 81 being disengaged during either cleaning operations or actual use of the sifter because a positive biasing spring pressure is afforded at all times.

The screen agitator sub-assembly is arranged to be held on the cup by means of the tongue 28 which extends through an aperture 44a in the downwardly extending cylindrical wall 15 of the cup 10. The screen and agitator assembly is supported at its opposite diametrical portion by means of a sliding bolt 65 which is illustrated in detail in Figures 10, 13 and 14. The bolt 65 is adapted to extend through an aperture in the downwardly extending wall portion 15 of the cup. The bolt 65 is retracted toward the center of the screen-agitator assembly to permit this assembly to be raised into the position shown in Figure 9. The bolt 65 is then moved radially outwardly on the brace 24 until it projects through the aperture 35 and the projection 69 is passed over the lowermost edge of the aperture to lock the bolt 65 in this position.

In order to remove the screen-agitator sub-assembly from the cup body, it is only necessary to push the finger hold 68 toward the center of the cup. This retracts the sliding bolt 65 over the guide ridge 24a and the brace 24 until the bolt is withdrawn from the aperture 35. The marginal edge of the screen-agitator sub-assembly thus being released, may be lowered to the position shown in Figure 15 and thence to a greater angular position sufficient to permit the tongue 28 to be withdrawn from the aperture 44a. When this occurs, the entire screen-agitator assembly or unit can be rotated in the direction of the arrows 86 of Figure 15 and the agitating link 43 release from the bent end 41 of the actuating arm 41. It may be noted at this time that whereas the actuating arm 41 as shown in Figures 1-8 extends at right angles to brace 24, the actuating arm 41 in the form shown in Figures 9-16 extends at approximately an angle of 45° thereto as is shown with reference to Figure 10.

The aperture 44 in the cylindrical wall 15 is of sufficient dimension to permit the agitating link 65 to drop slightly and thus permit the above described action and the entire removal and detaching of the screen-agitator assembly as a unit from the cup body. The screen-agitator assembly is easily removed from the bent up end 42a of the agitator link 43. End 42a is similar to end 42 as is shown in Figure 5 but does not have the S-shaped configuration thereof as may be shown with reference to Figures 5 and 15. After the screen-agitator assembly 20 and the cup body are separated each may be thoroughly washed and the latter particularly, around the beading 14 which is most subject to contamination and caking of the powdered materials passing through the device during use.

It will be readily apparent from the foregoing description that this invention provides an improved sifter of the type or a cup body contains a removable screen-agitator sub-assembly having a rotary agitator horizontally disposed above the screen that is operable by reciprocating an actuating lever and an agitator link permanently secured to the lever. The screen-agitator sub-assembly is retained in the cup body by a simple

and readily accessibly sliding bolt 65 in cooperation with a diametrically arranged tongue 28 both of which elements are received in separate apertures provided in the cup body, or is retained by means of a spring detent 61 in cooperation with a diametrically arranged tongue 28. The agitator is oscillated by a novel agitator link 43 provided with a stop 43b which not only prevents the actuating arm 41 from passing over dead center but also precludes the guide bearing 56 or 56a from moving out of and becoming disengaged from the slot provided by an upwardly opening channel portion, either 72 or 48. The guide bearing 56a in the modified form shown in Figures 9-16 and 56 in the form shown in Figures 1-8 which is an elongated return portion of the bend formed in the end of agitator link 43 provide an enlarged bearing surface that eliminates sidesway and wobbling of the link 43 and the actuating lever. Finally, there is provided a novel self-adjusting spring assembly which in cooperation with simple and inexpensive handle of one piece construction, affords adequate biasing of the actuating lever both during use and when the sifter is separated from the screen-agitator assembly.

Both forms of the invention shown in Figures 1-8 and Figures 9-16 thus include a screen-agitator sub-assembly which can be quickly removed for cleaning and again attached in exactly the correct position for efficient operation. Two forms of securing means for the screen-agitator assembly by means of which such ready removal and replacement is made possible, are herein illustrated. If desired several different screen-agitator assemblies of different materials or screen sizes, may be provided and any one of them readily inserted and used. The securing means not only holds the assembly in place but also orients (or "keys") it in proper position so as to be engaged and operated. The screen-agitator assembly and the sifter body are thus not only properly keyed to each other in proper orientation but also held together as one operative assembly. The actuator rod 43 and the crank 16 are in each form of the invention made as a separable crank connection, so shaped that they will hold together as a crank and connection rod when assembled and the screen-agitator is in place, and yet can be readily separated when the screen-agitator is swung down to a disconnecting position, thus entirely liberating the screen-agitator unit from the rod 43.

This application is a continuation in part of each of my applications Serial No. 40,710, filed July 26, 1948, and Serial No. 121,909, filed October 18, 1949.

As many apparently widely different embodiments of this invention may be made without departing from the spirit and scope thereof, it is to be understood that I do not limit myself to the specific embodiments herein.

What I claim is:

1. A sifter composed of first and second sub-assemblies which are completely separable so as to facilitate washing, the first sub-assembly comprising a cylindrical open bottom container having a seating ledge around its interior, a handle for the container, a lever pivotally mounted on the handle in a position to be operated by the fingers of the operator when holding the handle, means for biasing the handle in one direction, and an operating link having one of its ends connected to the lever so as to be moved thereby and having its other end provided with pivot

means, said link being positioned so as to extend into and terminate with said pivot means in said container; the second sub-assembly comprising a screen reinforced at the edge and shaped so as to fit into and rest against the seating ledge of the first sub-assembly, said screen being provided with a journal extending there-thru, an agitator shaft mounted for rotation in the journal, an agitator and an operating crank mounted on the shaft so as to rotate therewith, said operating crank being formed for releasable connection to and disconnection from the pivot means of said link, and means permanently secured to one of said sub-assemblies and manually movable to release and secure said sub-assemblies together.

2. The sifter described in claim 1 further characterized in that the screen is formed of wire-cloth and is reinforced by means of circumscribing sheet metal edge which is crimped onto the edge of the screen.

3. The sifter described in claim 2 further characterized in that the screen is reinforced by a sheet metal strip extending across it and fastened to the reinforcing edging, said reinforcing strip being provided with a journal aperture aligned with the journal aperture of the screen for aiding in rotatively supporting the agitator shaft.

4. A sifter composed of first and second sub-assemblies which are completely separable so as to facilitate washing, the first sub-assembly comprising a cylindrical open bottom container having a seating ledge around its interior, said container being apertured adjacent said ledge, a handle for the container, a lever pivotally mounted on the handle in a position to be operated by the fingers of the operator when holding the handle, means for biasing the handle in one direction, and an operating link having one of its ends connected to the lever so as to be moved thereby and having its other end provided with pivot means, said link being positioned so as to extend into and terminate with said pivot means in said container; the second sub-assembly comprising a screen shaped to fit the cross-sectional area of the container of the first sub-assembly at said seating ledge, a crimped-on sheet metal reinforcing edge around the screen, a brace extending across the screen and fastened to said reinforcing edge, said brace being terminated as a tongue which is shaped to extend thru and be supported by the aperture adjacent the ledge of the first sub-assembly, said screen and brace being apertured to form a journal, an agitator shaft mounted for oscillatory rotation in said journal, an agitator and crank fixed to said shaft for rotation therewith, said crank being formed for releasable connection to and disconnection from the pivot means of said link, and a spring detent mounted on the wall of the first sub-assembly in a position normally to engage the second sub-assembly for securing it to the first sub-assembly with the reinforcing edge against the ledge, said spring being manually movable for releasing the two sub-assemblies.

5. A sifter composed of first and second sub-assemblies which are completely separable so as to facilitate washing, the first sub-assembly comprising a cylindrical open bottom container having a seating ledge around its interior, said container being apertured at two separated places adjacent said ledge, a handle for the container, a lever pivotally mounted on the handle in a position to be operated by the fingers of the op-

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erator when holding the handle, means for biasing the handle in one direction, and an operating link having one of its ends connected to the lever so as to be moved thereby and having its other end provided with pivot means, said link being positioned so as to extend into and terminate with said pivot means in said container; the second sub-assembly comprising a screen shaped to fit the cross-sectional area of the container of the first sub-assembly at said seating ledge, a crimped-on sheet metal reinforcing edge around said screen, a brace extending across the screen and fastened to said reinforcing edge, said brace being terminated as a tongue which is shaped to extend thru and be supported by one of said apertures adjacent the ledge of the first sub-assembly, said screen and brace being apertured to form a journal, an agitator shaft mounted for oscillatory rotation in said journal, an agitator and crank fixed to said shaft for rotation therewith, said crank being formed for releasable connection to and disconnection from the pivot means of said link, and a retractable detent mounted permanently on said second sub-assembly for sliding movement, said detent being provided with a part which enters into and is supported by the other of said apertures adjacent the ledge of the first sub-assembly when the detent is manually moved in one direction, for supporting the second sub-assembly in assembled condition on the first sub-assembly, said detent being manually movable to a retracted position to permit the two sub-assemblies to be separated.

6. A sifter comprising a cylindrical open bottom container, said container having a portion of reduced cross section near the bottom thereof forming a ledge around its interior thereof, a handle for the container, a lever pivoted on the handle in a position to be operated by the finger of an operator when holding the handle, said lever being biased in one direction, a removable screen and agitator assembly resting in the con-

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tainer against the lowermost face of said ledge, spring means for holding said assembly and said lever, said assembly comprising a screen, a supporting brace disposed beneath said screen, means for securing said brace to said screen, an agitator disposed above said screen, a pivot pin secured to said agitator and extending downwardly through aligned openings formed in said screen and supporting brace, said pivot pin having a horizontally extending actuating arm connected to the lowermost end thereof whereby the screen, the brace and the agitator are assembled as a unit, said supporting brace having a portion at one end thereof extending beyond the edge of said screen, said extending portion of the brace being formed as a tongue adapted to pass through and rest in an opening formed in the wall of said container beneath said ledge and wherein a portion of the wall of said container beneath said ledge opposite said tongue receiving opening is recessed, a horizontally disposed spring secured to the interior of said container adjacent said recess and adapted to provide a lateral support for said screen and agitator assembly, said spring being retractable into said recess to permit removal of said assembly.

LUCILLE M. BARBERY.

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