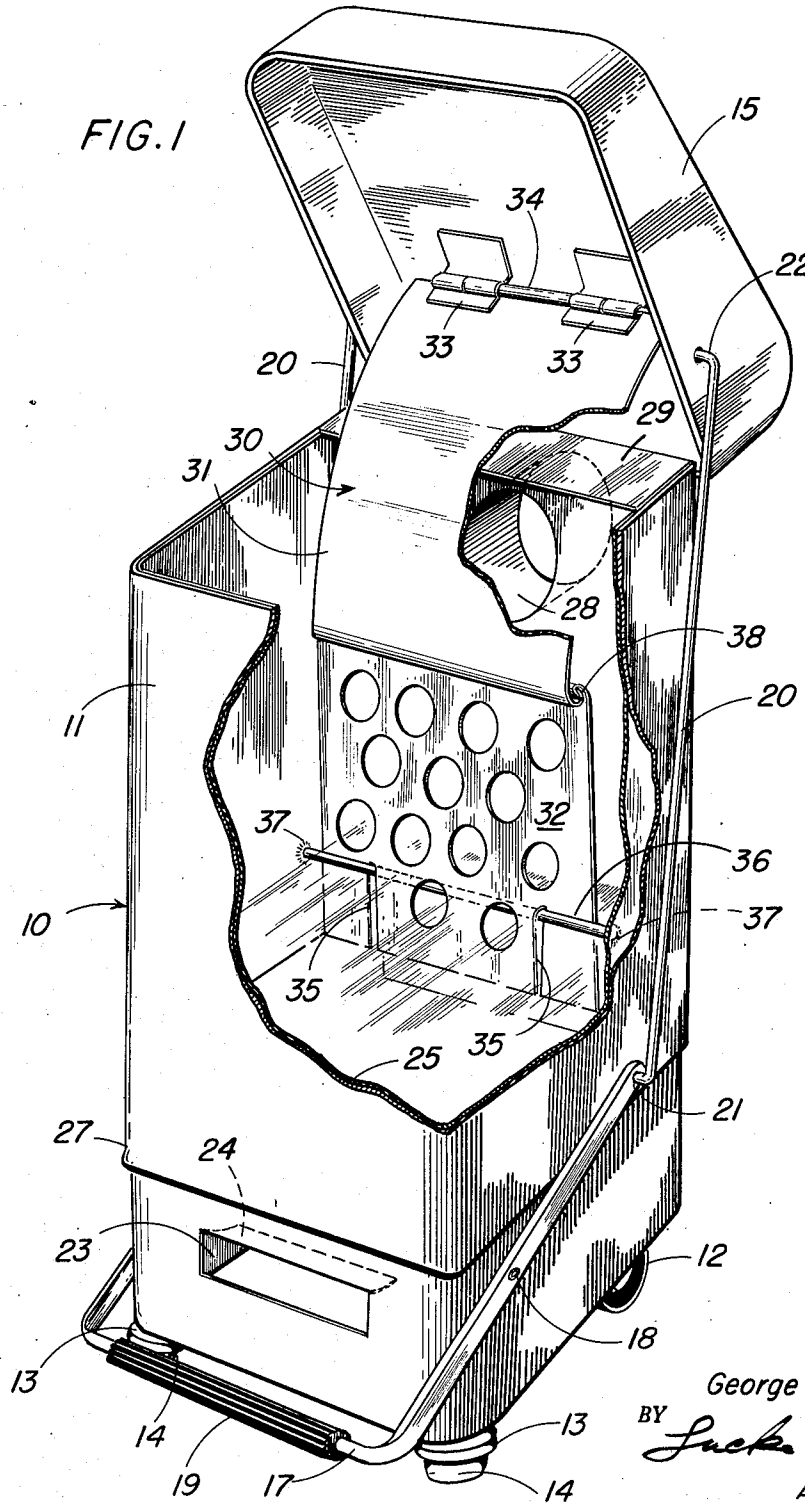
April 22, 1952 G. S. JAMES 2,593,455

SANITARY WASTE DISPOSAL BIN

Filed May 27, 1950 2 SHEETS—SHEET 1

FIG. 1



INVENTOR.
George S. James
BY Lucke & Lucke
Agents.

April 22, 1952 G. S. JAMES 2,593,455

SANITARY WASTE DISPOSAL BIN

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FIG. 2

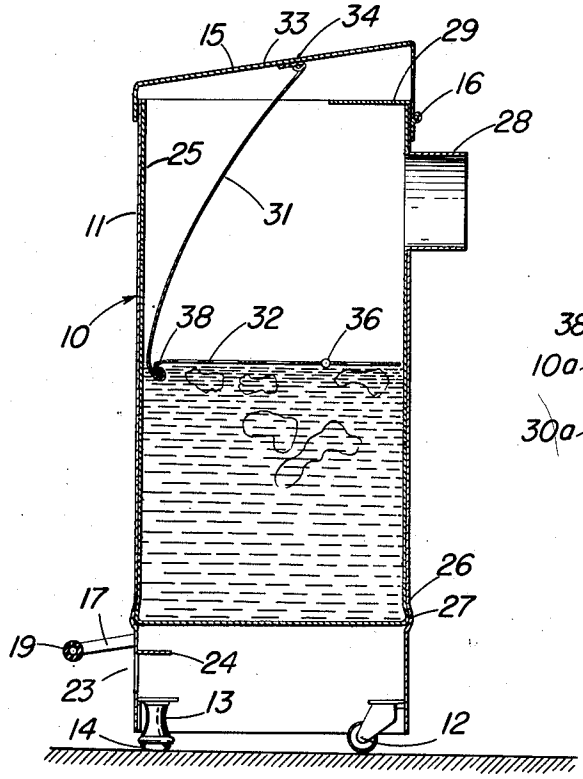


FIG. 3

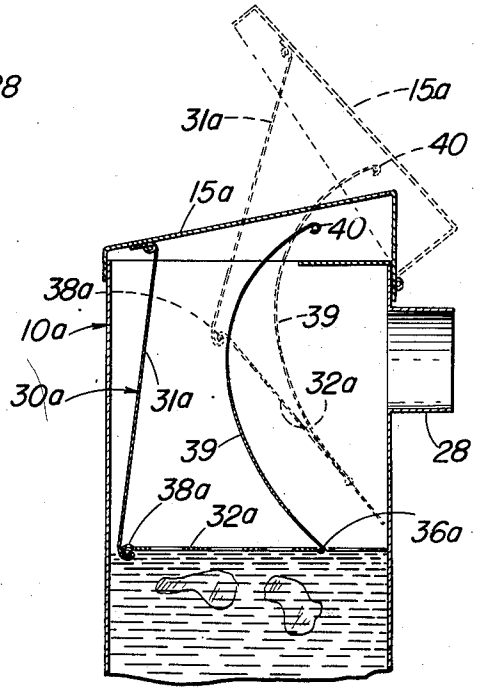


FIG. 4

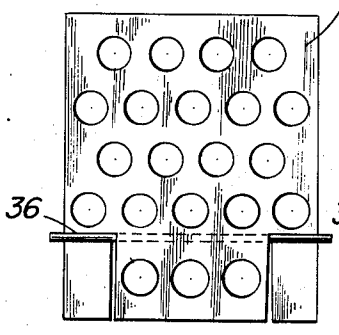


FIG. 5

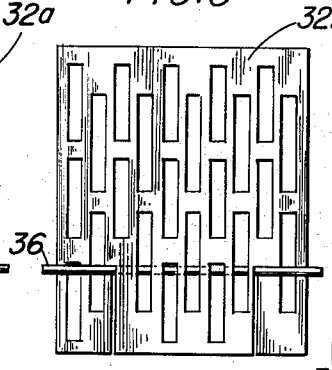
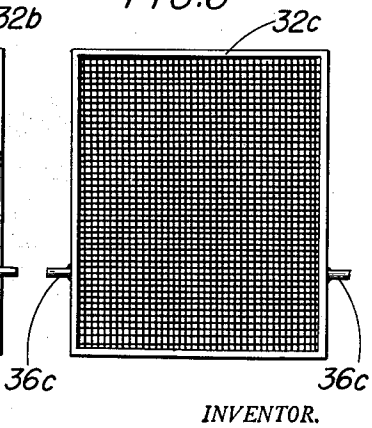


FIG. 6



INVENTOR.
George S. James
BY Lucke & Lucke
Agents

Patented Apr. 22, 1952 2,593,455

UNITED STATES PATENT OFFICE

2,593,455

SANITARY WASTE DISPOSAL BIN

George S. James, Woodside, N. Y., assignor, by mesne assignments, to Herbert Pensig and Nat Paterson, both of Brooklyn, N. Y., and George S. James, Woodside, N. Y.

Application May 27, 1950, Serial No. 164,831

8 Claims. (Cl. 23—252)

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This invention relates to a bin, and more particularly, a sanitary bin wherein used bandages or the like are disintegrated by chemical action. The invention is especially useful in its application to the type of waste disposal bin which is employed in hospitals or rest rooms, to which use, however, it is not restricted.

A convenient method of disposing of sanitary napkins, used bandages and like appliances which have become contaminated with organic matter is to deposit them in a bin and there to disintegrate them and the organic matter absorbed thereby by means of a chemical. Ordinarily, a liquid chemical is placed in the bin, in which the articles are deposited. Certain disadvantages, however, are inherent in known forms of such apparatus. When such articles are flung into the bin, there is a likelihood that some of the liquid chemical will splash out of the bin through its discharge spout. Also, unless they are carefully disposed within the bin, such articles may lodge in the discharge spout or upon the baffle above the spout which prevents the contents of the bin from overflowing while being poured out of the spout. Furthermore, where the articles already in the bin are floating at or near the surface of the liquid chemical, there is a tendency for additional articles deposited in the bin to float above the surface of the chemical and for their disintegration to be retarded. The same effect results where the air is entrapped in the bandages or the like. Finally, when the contents of the bin is being poured out through the discharge spout, there is a tendency for material which has not been fully disintegrated to be poured out of the bin.

I have now found it possible to provide a sanitary bin with simple mechanism, whereby all of the named disadvantages may be overcome. The mechanism is inexpensive, effective and easily cleaned.

According to the invention, an articulated shield is suitably hinged within the bin and, when the bin cover is raised for depositing used bandages and the like in the bin, the shield is automatically positioned to prevent splashing of the chemical out of the discharge spout and also to prevent articles deposited therein from lodging in the discharge spout or upon the baffle above such spout. Lowering of the bin cover, on the other hand, moves the articulated shield so that it forces beneath the surface of the chemical any unsubmerged articles to hasten their disintegration. Furthermore, the construction and hinging of the articulated shield is such that, with the bin cover closed, only disintegrated material may be poured out of the bin through its discharge spout.

The invention is shown by way of illustration in the accompanying drawings, in which:

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Fig. 1 is a broken perspective view of a sanitary bin constructed and arranged according to the invention;

Fig. 2 is a fore-and-aft vertical mid-section through the bin illustrated in Fig. 1, shown on a reduced scale;

Fig. 3 is a broken mid-section similar to that shown in Fig. 2, illustrating an alternate method of hinging the articulated shield thereto; and

Figs. 4, 5 and 6 show variant forms of one element of the articulated shield.

In the embodiment of the invention illustrated in Figs. 1 and 2, there is shown a sanitary bin 10, which is generally of familiar construction. Thus an outer shell 11, of substantially rectangular cross section throughout is supported rearwardly by swivelled casters 12, 12 and forwardly by feet 13, 13 having rubber or other non-slip threads 14, 14 thereon, all of well-known construction.

A cover 15 is hinged along the upper rear edge of the outer shell 11, as at 16, and serves to close the top of the bin. A U-shaped lever 17 is hinged as at 18 on each side of the bin 10 and carries a foot treadle 19 which extends across the front of the bin. Rods 20, 20 are pivoted to the free ends of the U-shaped levers, as at 21, and extend upwardly on either side of the bin to the cover 15 where their upper ends are pivoted, as at 22. Thus, by stepping upon the foot treadle 19, the U-shaped lever 17 is turned to raise the cover 15, as illustrated in Fig. 1. Upon removal of the downward pressure upon the treadle, the weight of the cover will close it over the top of the bin. See Fig. 2.

In order that the contents of the bin may be poured therefrom through a rearwardly disposed discharge spout (later to be described), a hand hole 23 is formed in the lower front face of the outer shell 11, through which the lower part of the bin may be grasped. An inwardly extending plate 24, preferably that section of the outer shell which is displaced to form the hand hole, may be provided to assure a more comfortable grip than would be afforded by the thin edge of the shell. By juxtaposing the hand hole and the position of the treadle 19 with the cover 15 closed, it is possible to grasp both the lower part of the bin (or the plate 24) and the treadle simultaneously, and thus to hold the cover in closed position while pouring its contents from the bin.

Closely fitted within the outer shell 11 is an inner shell 25, formed of a material which is not acted upon by the disintegrating chemical employed. As here illustrated, the inner shell 25 is held firmly within the outer shell 11, entirely above the hand hole 23, by an outward bulge 26 at its bottom expanded into a like bulge 27 in the outer shell. A discharge spout 28 is fixed, as by

welding, in the upper rear part of the inner shell 25, extending therefrom through a discharge opening in the rear wall of the outer shell 11 adjacent its top, and preferably being centered with respect to the cover hinge 16. A baffle 29 is fixed, as by welding to upper edges of the inner shell 25, extending from its rear edge above the discharge spout 28 and for a short distance along the adjacent upper edges of the inner shell. The baffle 29 prevents anything being poured out of the bin through the spout 28 from reaching the cover or from leaving the bin around the edges of the closed cover.

Means is provided for preventing the chemical in the bin from splashing out through its discharge spout, for preventing lodgment of articles flung into the bin in the discharge spout 28 or upon the baffle 29, for preventing articles deposited in the bin from floating above the surface of the chemical therein, and for preventing articles which have not been fully disintegrated from being poured out of the bin. Thus, an articulated shield 30 is suitably hinged within the bin. The articulated shield comprises an upper section 31 and a lower section 32, the two sections being suitably hinged together in a manner later to be described.

The upper section 31 of the articulated shield is hinged at its upper edge to the bin cover 15, as by hinges 33, 33 suitably fixed thereto and also fixed inside of the cover 15. A single hinge pin 34 is shown as extending through the respective hinges to complete attachment of the upper shield section to the cover in a manner which is easily understood. The upper section 31 of the articulated shield is preferably formed as a solid smooth plate, and with the bin cover 15 in open position extends over the baffle 29 and the discharge spout 28 to shield both elements for any matter deposited in the bin. The upper section is preferably bowed and smooth so that any material flung against it will slide therefrom into the bin.

The lower section 32 of the articulated shield is hinged within the bin at substantially the level of the liquid chemical therein. As here shown, the lower section comprises a plate having two slots 35, 35 extending inwardly from and at right angles to its lower edge. The lower section 32 is carried by a hinge rod 36 which extends transversely across the bin at about the level of the liquid chemical therein. The lower section 32 is fitted to the rod through positioning of the rod in its slot 35, 35, the material of the lower section being bowed around the rod, or the rod being given a crank formation to fit within the slots without bowing the material of the lower section. The hinge rod 36 preferably turns with the lower section 32, and it has been found convenient to accommodate the ends of the hinge rod in dimples 37, 37 suitably formed and positioned in the inner shell 25. The dimples 37, 37 here shown are formed as inwardly concave depressions in the inner shell 25 and are positioned on a line parallel to the hinge of the cover 15 substantially at the level of the disintegrating chemical therein. Thus, the lower section 32 may be turned about the hinge rod 36 to stand in the vertical position illustrated in Fig. 1, or it may be turned about the hinge rod to lie horizontally along the upper surface of the chemical within the sanitary bin, as shown in Fig. 2.

The upper section 31 and the lower section 32 are hinged together at their respective lower and upper edges in any known or convenient manner. It is preferred, however, to hinge the upper and lower sections of the articulated shield by bending their respective edges to engage one another in hinged relationship as at 38. See Fig. 1. Thus, with the cover 15 closed upon the bin 10, the upper section 31 assumes a generally vertical position, whereas the lower section 32 assumes a substantially horizontal position along the top of the chemical in the bin.

The lower section 32 of the articulated shield is perforated in order to permit passage therethrough of the liquid chemical and the disintegrated material when such chemical and material are poured from the bin through the discharge spout 28. The size of the perforations in the lower section and their formation may be varied, as desired. Thus, the lower section illustrated in Fig. 1 has therein a number of large perforations arranged in alternate rows of four and three perforations. The lower section 32*a*, illustrated in Fig. 4, is formed with a greater number of smaller perforations arranged in alternate rows of four and five perforations. Still another form of lower section 32*b* is illustrated in Fig. 5, wherein staggered rows of rectangular perforations are formed in the plate comprising the lower section. In Fig. 6 there is shown a lower plate comprising a framed screen 32*c*, the hinged rod 36 being replaced by trunnions 36*c*, 36*c* welded in suitable position on either side of the section.

From the foregoing it will be evident that, as the bin cover 15 is raised, the upper section 31 of the articulated shield 30 will be drawn upwardly into the position illustrated in Fig. 1 by means of its unique connection with the bin cover. In this position the upper section 31 protects the baffle 29 and the discharge spout 28 from bandages and the like which are flung into the bin. Furthermore, such articles which are flung against the upper section will slide down it and drop gently into the disintegrating chemical substantially without splash. Also, as the bin cover is raised, the hinged connection 38 between the upper section 31 and the lower section 32 will turn the lower section about the hinge rod 36 into the vertical position illustrated in Fig. 1. The two sections are thus spread apart. In its vertical position the lower section prevents any splashing of chemical which may occur from reaching the discharge spout.

Movement of the cover into closed position brings the upper section 31 into the position shown in Fig. 2; and, through the upper section, turns the lower section 32 to lie horizontally along the upper surface of the chemical in the bin. Such turning of the lower section forces beneath the surface of the chemical any used bandages or the like which may have been flung into the bin and which may not have been completely submerged. Furthermore, in its horizontal position just described, the lower section prevents undisintegrated matter from being poured out of the bin, since anything reaching the discharge spout 28 must pass through the perforations in the lower section 32.

The embodiment illustrated in Fig. 3 shows an articulated shield 39*a* which is carried entirely by the cover 15*a* of the bin 10*a*. In this embodiment a pair of supporting rods 39, 39 (only one of which is shown in Fig. 3) are hinged on either side within the cover 15*a*, as at 40, and carry the hinge rod 36*a* which supports the lower

section **32** of the articulated shield. In this embodiment it is preferred to form the upper section **31***a* of the articulated shield in substantially plain formation and to hinge it more closely to the forward flange of the cover **15***a*. The position of the articulated shield **30***a* and of the supporting rods **39**, **39** when the bin cover **15***a* is open, are illustrated in broken lines in Fig. 3. In this embodiment, the bin and the articulated shield function exactly as do their corresponding parts illustrated in Figs. 1 and 2, described above, except for the fact that the hinge rod **36***a* is suspended from the cover **15***a* and is displaced together with the lower section **32** of the articulated shield when the cover **15***a* is open.

The advantage offered by the modification illustrated in Fig. 3 is that no provision need be made for pivoting the hinge rod **36***a* with respect to the bin proper or with respect to an inner shell thereof, and the removal of such rod and the cleaning of dimples or the like within the bin is made unnecessary. No inner shell is illustrated in Fig. 3.

It is preferred to position the discharge spout **28** at an elevation of 16 inches above the lower horizontal tangent to the casters **12**, such distance representing the height of the top of a toilet bowl above the floor. By so positioning the discharge spout, it is possible to wheel the bin against a toilet bowl and to lift the former by grasping the outer shell or the plate **24** at the hand hold **23**, to pivot the entire bin against the upper rim of the toilet bowl and thus to pour the contents of the bin into the latter.

From the foregoing it will be clear that the present invention provides an exceedingly convenient and effective sanitary bin which may be easily used both for the disposal of waste matter and for discharging the disintegrated material therein conveniently and effectively. Splashing of the liquid chemical out of the discharge spout is prevented by the articulated shield which also prevents lodging of articles flung into the bin either upon the baffle **29** or in the discharge spout **28**. Furthermore, the articulated shield insures immediate submersion of all material thrown into the bin and prevents pouring therefrom of any material which has not been suitably disintegrated.

Still further, the articulated shield is easily removed from the bin and cleared. It is only necessary to displace the hinge pin **34** axially to remove the upper edge of the upper section from the bin cover; and the hinge rod **36** is easily sprung out of the dimples **37**, **37**. The upper and lower sections may then be separated by moving them oppositely along the line of their hinge connection **38**.

It is to be understood that the phraseology and terminology employed herein are used for the purpose of description and not of limitation.

The forms of the invention here disclosed and illustrated are presented merely as examples of how the invention may be applied. Other forms and embodiments and applications of the invention will readily suggest themselves to those skilled in the art. For example, an inner and outer shell need not be employed in the embodiment illustrated in Figs. 1 and 2. A single shell may be employed. Also the embodiment illustrated in Fig. 3 may be constructed with an inner and an outer shell. Furthermore, the discharge spout need not be confined to the rearward position illustrated.

I claim:

1. A waste disposal bin, a cover for said bin, and a hinge connecting said cover to said bin, said bin having a discharge opening in a wall thereof adjacent its top centered with respect to said cover hinge; in combination with an articulated shield disposed in said bin, said shield comprising: an upper section hinged at its upper edge to said cover parallel to said cover hinge; and a lower section substantially horizontally pivoted at its lower edge between opposite points in said bin and hinged at its upper edge to the lower edge of said upper section; whereby the sections of said articulated shield spread apart as said cover is lifted and said upper section prevents articles being deposited in said bin from entering the discharge opening of said bin, and the lower section of said shield prevents articles being deposited in said bin from splashing the liquid therein out of its discharge opening.

2. A waste disposal bin, a cover for said bin, and a hinge connecting said cover to said bin, said bin having a discharge opening in a wall thereof adjacent its top centered with respect to said cover hinge; in combination with an articulated shield disposed in said bin, said shield comprising: an upper section in the form of a solid plate hinged at its upper edge to said cover parallel to said cover hinge; a lower section in the form of a perforated plate substantially horizontally pivoted at its lower edge between opposite points in said bin and hinged at its upper edge to the lower edge of said upper section; the sizes of said sections and the distances between the hinges being such that said lower section is positioned horizontally when said cover is closed; whereby the sections of said articulated shield are spread apart as said cover is lifted and said upper section prevents articles being deposited in said bin from entering the discharge opening of said bin; whereby the lower section of said shield prevents articles being deposited in said bin from splashing the liquid therein out of its discharge opening; and whereby said perforated lower section prevents insufficiently disintegrated articles from being poured out of said bin through the discharge opening therein when said bin is suitably tilted with said cover closed.

3. In a waste disposal bin having a cover hinged to one upper edge thereof and a discharge spout positioned adjacent its upper edge to which its cover is hinged, an articulated shield comprising: an upper section hinged inside the bin cover along a line parallel to its hinge; and a lower section hinged to said upper section along a line parallel to the line at which said upper section is hinged to the bin cover and also hinged within the bin along a line parallel to the line of the hinge between said upper section and said lower section; whereby said articulated shield protects the discharge spout of the waste disposal bin from articles deposited therein when its cover is open.

4. In a disposal bin for disintegrating waste in a liquid chemical, and having a cover hinged to one upper edge thereof and a discharge spout positioned adjacent its upper edge to which its cover is hinged, an articulated shield comprising: an upper section hinged inside the bin cover along a line parallel to its hinge; and a perforated lower section hinged to said upper section along a line parallel to the line at which said upper section is hinged to the bin cover and also hinged within the bin substantially at the level

of the surface of the chemical therein along a line parallel to the line of the hinge between said upper section and said lower section; whereby said articulated shield protects the discharge spout of the waste disposal bin from articles deposited therein when its cover is lifted; and whereby said lower section holds material in the bin beneath the surface of the chemical therein when the cover is closed.

5. In a disposal bin for disintegrating waste in a liquid chemical, and having a discharge spout positioned adjacent an upper edge thereof, a cover hinged to the bin substantially at the edge thereof above its discharge spout; a pair of supporting rods oppositely hinged to said cover and extending downwardly therefrom into the bin substantially to the level of the chemical therein when said cover is closed; and an articulated shield comprising: an upper section hinged inside the bin cover along a line parallel to its hinge; a lower section hinged to said upper section along a line parallel to the line at which said upper secton is hinged to the bin cover; and a rod carried by the lower ends of said supporting rods parallel to the line at which said upper section is hinged to the bin cover to which rod said lower section is also hinged; whereby said upper section of said articulated shield protects the discharge spout of said bin from accumulation of material thrown into the bin when said cover is open, and whereby closing said cover upon the bin moves said lower section to a position substantially along the level of the chemical of the bin to submerge any material projecting above the chemical.

6. In a disposal bin for disintegrating waste in a liquid chemical, and having a discharge spout positioned adjacent an upper edge thereof and a baffle extending inwardly of said bin above said discharge spout, a cover hinged to the bin substantially at the upper edge thereof above the discharge spout; a pair of supporting rods oppositely hinged to said cover and extending downwardly therefrom into the bin substantially to the level of the chemical therein when said cover is closed; and an articulated shield comprising: an imperforate upper section hinged inside the bin cover along the line parallel to its hinge; a perforated lower section hinged along its upper edge to the lower edge of said upper section along a line parallel to the line at which said upper section is hinged to the bin cover; and a rod carried by the lower ends of said supporting rods parallel to the line at which said upper section is hinged to the bin cover to which rod said lower section is also hinged; whereby said upper section of said articulated shield protects the discharge spout of said bin from accumulation of material thrown into the bin when said cover is open and whereby closing said cover upon the bin moves said lower section to a position substantially along the level of the chemical of the bin to submerge any material projecting above the chemical; and whereby said perforated lower section prevents insufficiently disintegrated articles from being poured out of the bin through the discharge spout thereof when said bin is suitably tilted with said cover closed.

7. A waste disposal bin; a cover for said bin; and a hinge connecting said cover to said bin; said bin comprising an outer shell, an inner shell closely fitted within said outer shell and formed of a material which is not acted upon by a disintegrating chemical used in said bin; said inner shell having in opposite sides thereof on a line parallel to the hinge of said cover inwardly concave dimples substantially at the surface level of the distintegrating chemical used in said bin; said outer shell having a discharge opening in a wall thereof adjacent its top centered with respect to said cover hinge, and said inner shell having a discharge spout extending out of the discharge opening in said outer shell; in combination with an articulated shield disposed in said bin, said shield comprising: an upper section hinged at its upper edge to said cover on a line parallel to said cover hinge; a lower section hinged at its upper edge to the lower edge of said upper section; and a hinge rod to which said lower section is pivoted disposed in said inner shell with its ends in the dimples therein; whereby the sections of said articulated shield spread apart as said cover is lifted and said upper section prevents articles being deposited in said bin from entering the discharge spout of said inner shell, and the lower section of said shield prevents articles being deposited in said bin from splashing the disintegrated chemical therein out of said discharge spout.

8. A waste disposal bin; a cover for said bin; and a hinge connecting said cover to said bin; said bin comprising an outer shell, an inner shell closely fitted within said outer shell and formed of a material which is not acted upon by a disintegrating chemical used in said bin, said inner shell having in opposite sides thereof on a line parallel to the hinge of said cover inwardly concave dimples substantially at the surface level of the distintegrating chemical used in said bin; said outer shell having a discharge opening in a wall thereof adjacent its top centered with respect to said cover hinge and said inner shell having a discharge spout extending out of the discharge opening in said outer shell; in combination with an articulated shield disposed in said bin, said shield comprising: an upper section in the form of a solid plate; hinged at its upper edge to said cover parallel to said cover hinge; a lower section in the form of a perforated plate hinged at its upper edge to the lower edge of said upper section; and a hinge rod to which said lower section is pivoted disposed in said inner shell with its ends in the dimples therein; the sizes of said sections and the distances between the hinges being such that said lower section is positioned horizontally when said cover is closed; whereby the sections of said articulated shield are spread apart as said cover is lifted and said upper section prevents articles being deposited in said bin from entering the discharge spout of said inner shell; whereby the lower section of said shield prevents articles being deposited in said bin from splashing the liquid therein out of its discharge opening; and whereby said perforated lower section prevents insufficiently disintegrated articles from being poured out of said bin through the discharge opening therein when said bin is suitably tilted with said cover closed.

GEORGE S. JAMES.

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