

July 16, 1968

C. W. VOGT

3,392,900

RECEPTACLE AND PACKAGE FORMED THEREWITH

Filed Jan. 3, 1966

3 Sheets-Sheet 1

FIG. 1

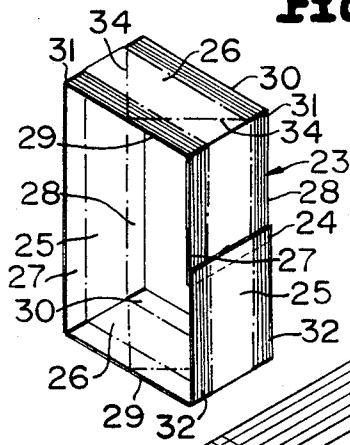


FIG. 3

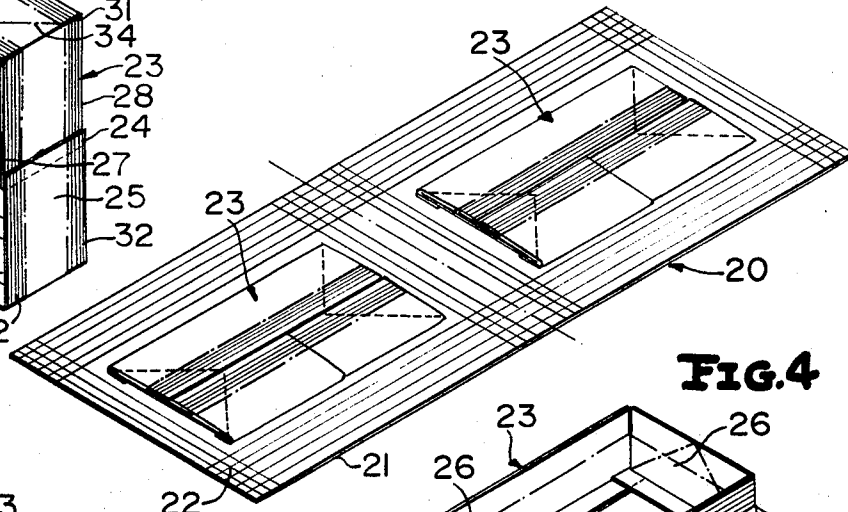


FIG. 2

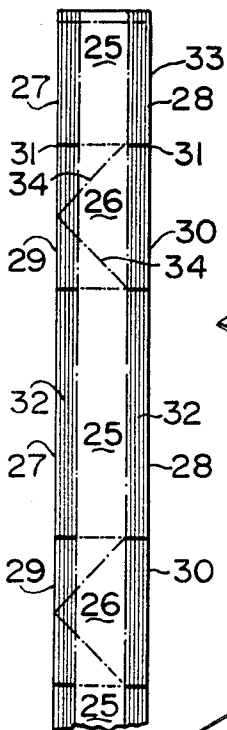


FIG. 4

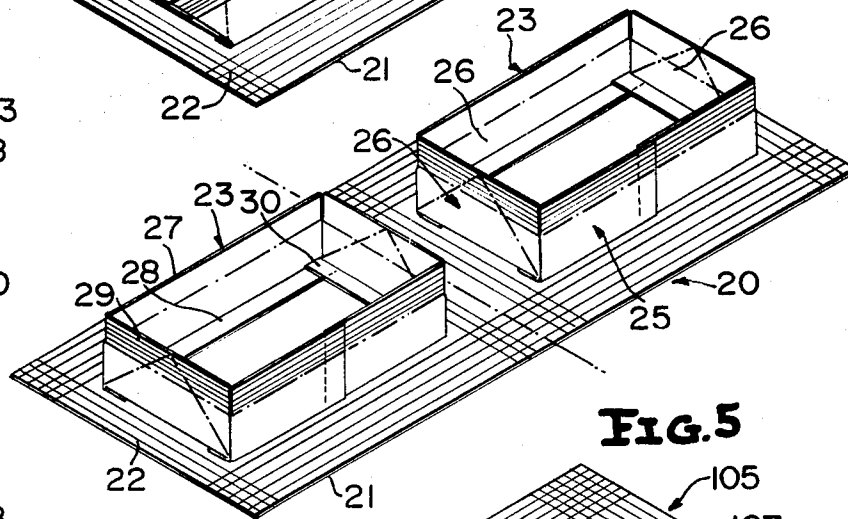


FIG. 5

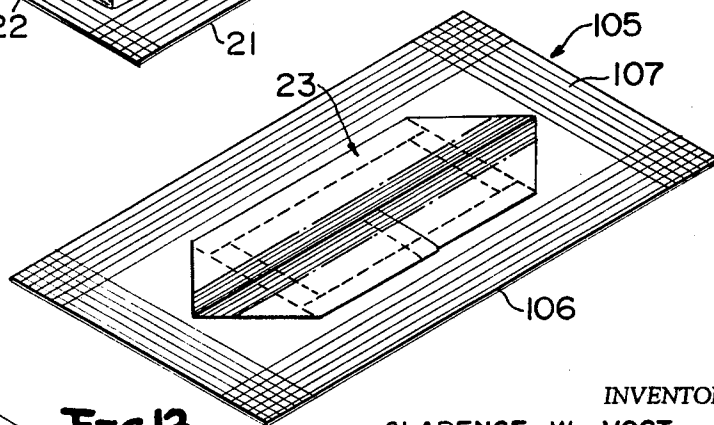
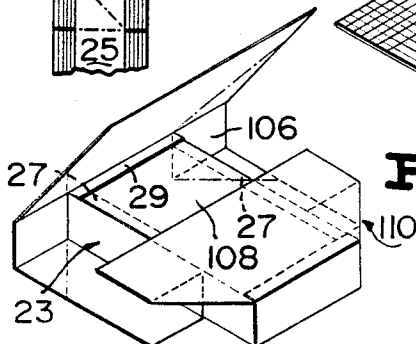


FIG. 13



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3 Sheets-Sheet 2

FIG. 6

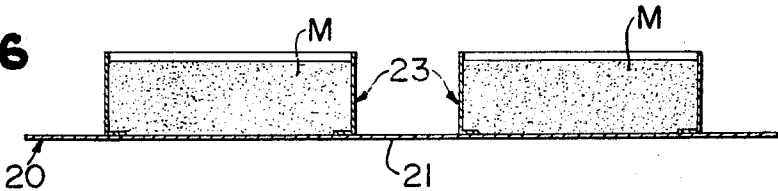


FIG. 7

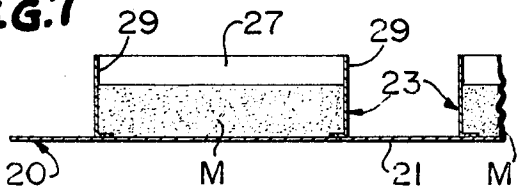


FIG. 8

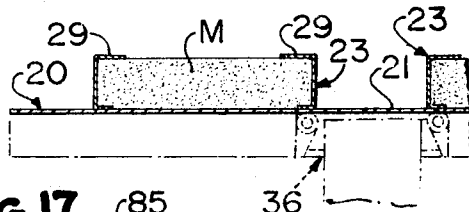


FIG. 9

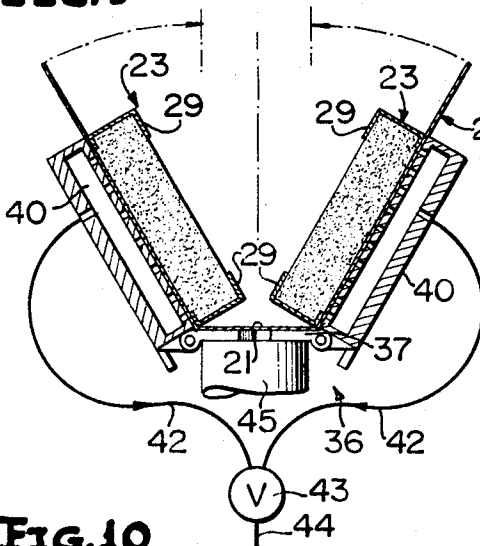


FIG. 10

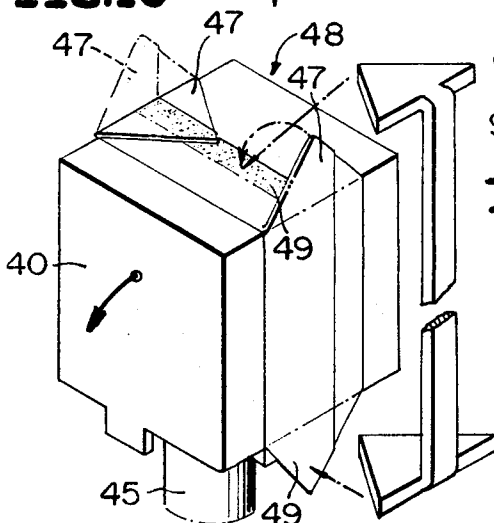


FIG. 17

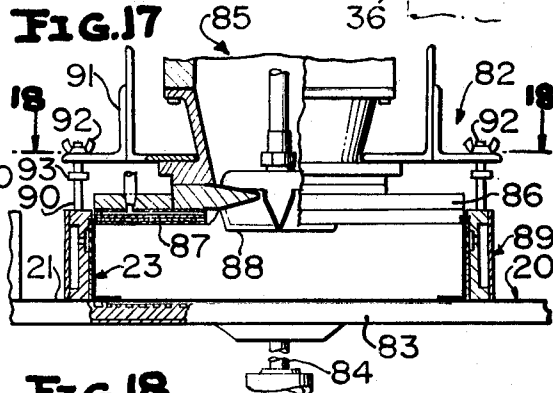


FIG. 18

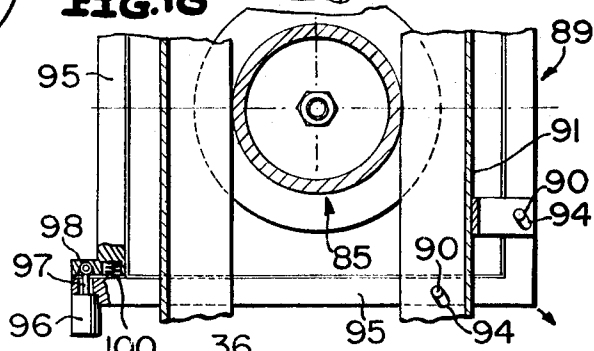
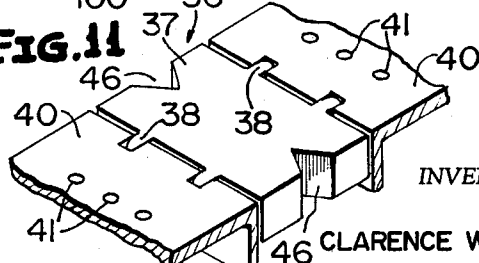


FIG. 11



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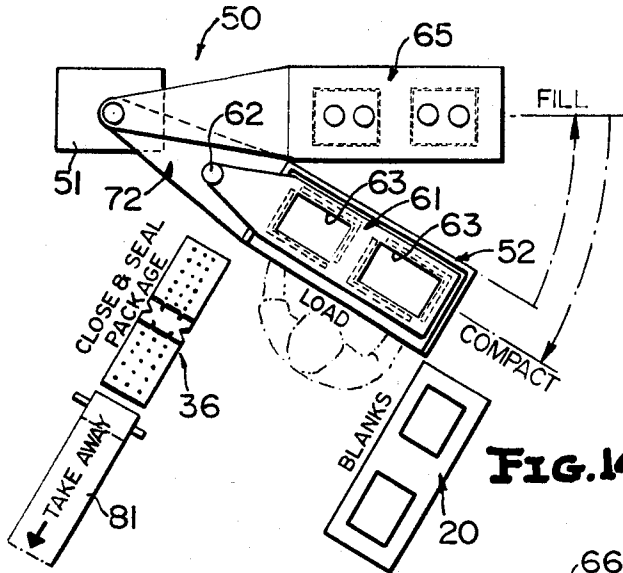
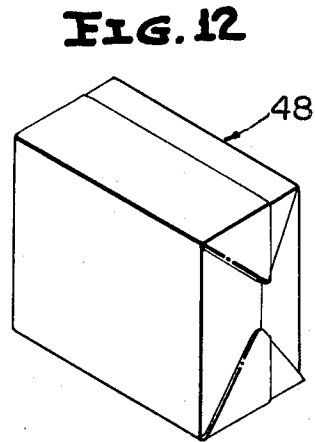
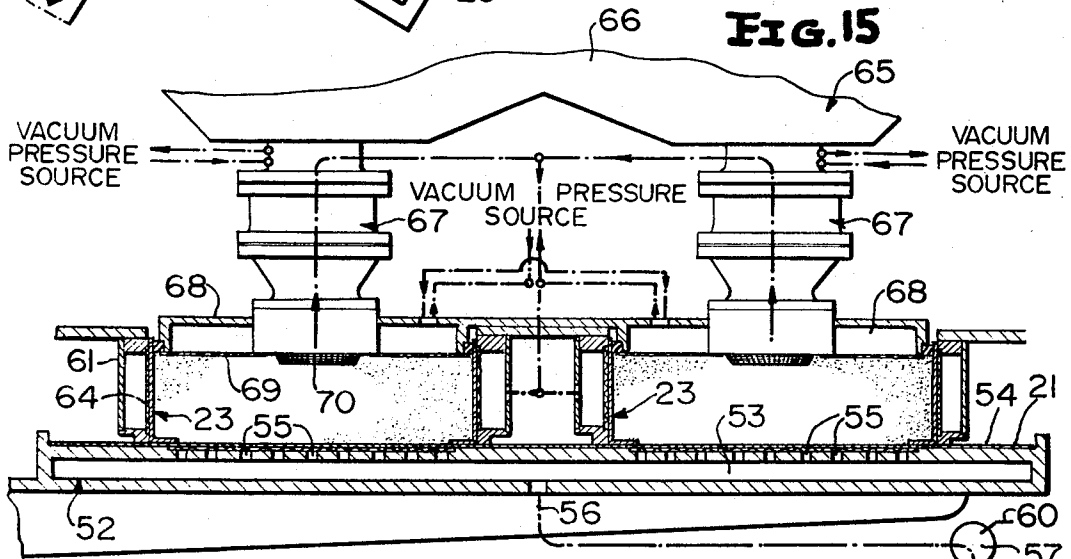
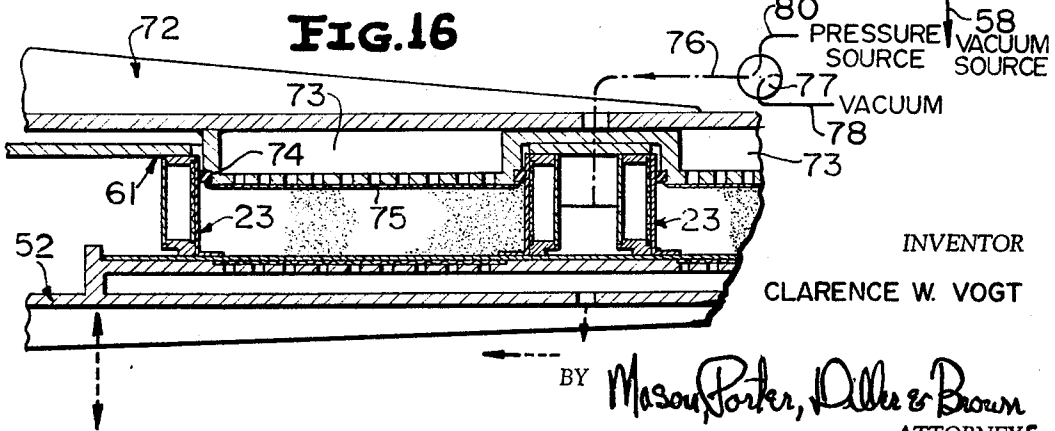
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RECEPTACLE AND PACKAGE FORMED THEREWITH

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3 Sheets-Sheet 3



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1

3,392,900 RECEPTACLE AND PACKAGE FORMED THEREWITH

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Filed Jan. 3, 1966, Ser. No. 518,269
15 Claims. (Cl. 229—14)

ABSTRACT OF THE DISCLOSURE

This subject has to do with a carton which is particularly adapted to be filled utilizing a differential gaseous pressure type filler and wherein the carton includes two receptacle portions carried by a single wrapper, which receptacle portions are simultaneously, but individually, filled, and thereafter brought into opposed face-to-face relation and wrapped together by the wrapper.

This invention relates to a new concept in packaging.

At the present time paperboard containers are of three general classes. The first and least expensive of the three are bags. The second are rigid cartons and the third are drums. For the packaging of most products, the cost of drums is prohibitive. On the other hand, while cartons, due to their rectangular configuration, are advantageous from a stacking and storage standpoint, are difficult to seal, and are not readily suitable for many products, particularly those of the finely divided type. In addition, the cost of cartons is much greater than that of bags.

This invention has to do with a novel receptacle which has all of the advantages of cartons from the standpoint of handling and storage and at the same time all of the advantages of bags from a cost and sealing standpoint. The invention further has to do with a novel receptacle which is readily adaptable to the filling thereof utilizing differential gaseous pressure.

A primary object of this invention is to provide a novel receptacle which is formed of inexpensive paper products such as those presently utilized in bags, which receptacle may be shipped and stored in a flat state and then set up and filled in the same manner as a carton and when completed as a package having the same general rectangular outline as a carton thereby facilitating the handling and storage thereof.

Another object of this invention is to provide a novel method of forming a package utilizing the receptacle of this invention and filling the same utilizing a differential gaseous pressure filling mechanism.

A still further object of this invention is to provide a novel receptacle which is formable utilizing materials normally utilized in the construction of bags with the receptacle being of a construction which permits the filling thereof with finely divided granular materials, particularly those which have been hard to handle in the past, such as activated charcoal, and wherein the receptacle may be readily filled utilizing either conventional or differential gaseous filling equipment and once the receptacle is filled, it is readily closeable to form a readily handleable package.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawings:

In the drawings:

FIGURE 1 is a perspective view of a receptacle body.

FIGURE 2 is a plan view of an elongated web from which receptacle bodies are formed on a continuous basis.

FIGURE 3 is a perspective view of a receptacle formed in accordance with this invention shown in its flat or blank stage.

2

FIGURE 4 is a perspective view of the receptacle of FIGURE 1 in its erected or set up condition.

FIGURE 5 is a perspective view of a slightly modified form of a receptacle in its flat or blank condition.

FIGURE 6 is a schematic sectional view taken through the receptacle of FIGURE 4 and shows the same in an initial state of being filled.

FIGURE 7 is a fragmentary schematic sectional view of the receptacle of FIGURE 6 with the material being compacted within the bodies thereof.

FIGURE 8 is a fragmentary schematic sectional view of the receptacle in the initial stage of closing the same to form a package.

FIGURE 9 is a further schematic sectional view of the receptacle of FIGURE 8 showing the two bodies thereof being brought together.

FIGURE 10 is a schematic perspective view showing the filled receptacle of FIGURE 9 in its final stages of being closed in the forming of a package therewith.

FIGURE 11 is a fragmentary perspective view of a folding mechanism utilized in the folding of the receptacle into a package.

FIGURE 12 is a perspective view of the completed packaged formed with the receptacle of FIGURE 4.

FIGURE 13 is a perspective view of a partially closed package formed with the receptacle of FIGURE 5.

FIGURE 14 is a schematic plan view of a differential gaseous pressure filling mechanism suitable for the filling of the receptacles.

FIGURE 15 is a fragmentary vertical sectional view through the filling mechanism of FIGURE 14 during the filling cycle.

FIGURE 16 is a fragmentary vertical sectional view taken through the filling mechanism of FIGURE 14 during the material compacting cycle.

FIGURE 17 is a fragmentary vertical sectional view taken through a filling mechanism suitable for both filling and compacting operations.

FIGURE 18 is a fragmentary horizontal sectional view taken along the line 18—18 of FIGURE 17 and shows generally the details of a receptacle form retaining frame of the filling machine and the manner in which it is mounted.

Reference is now made to FIGURE 4 of the drawing wherein there is illustrated a receptacle formed in accordance with this invention, the receptacle being generally referred to by the numeral 20. The receptacle 20 includes a cover sheet 21 which may be formed of suitable paper bag stock. The cover sheet 21 may be of single or multiple ply and may either be formed entirely of paper or may have suitable facing coatings thereon formed of heat sealable materials, such as polyethylene, etc. When the cover sheet 21 is not provided with heat sealable facing coatings, the surface thereof illustrated in FIGURE 4 will be provided with lines of adhesive 22 which may be of any conventional thermosetting or pressure setting type including hot melt, etc.

The receptacle 20 includes a pair of generally rectangular receptacle bodies 23 which are formed of a relatively inexpensive paperboard material but preferably have more rigidity than the material of the cover sheet 21. Each of the receptacle bodies 23 is pivotally bonded to the cover sheet 21 in the positions shown in FIGURE 4 with the cover sheet 21 forming the bottom of each receptacle body 23.

Referring now to FIGURE 1, it will be seen that each receptacle body 23 is formed from an elongated strip of material which is folded at spaced intervals to define the corners of the receptacle body 23 and then the terminal ends of the strip are overlapped and bonded together at 24. Each receptacle body 23 is formed with two sides 25 and two ends 26. Each of the sides and ends of the re-

3

ceptacle body is provided with a pair of fold lines defining top and bottom flaps 27, 28 on the sides and top and bottom flaps 29, 30 on the ends. At the corners of the receptacle body 23, the various flaps are separated by means of slits 31. Each of the flaps of the receptacle body is provided on the outer surface thereof with lines of suitable adhesives 32 for a purpose to be described in detail hereinafter.

Referring now to FIGURE 2, it will be seen that there is illustrated an elongated strip or web 33 from which the receptacle bodies 23 may be formed. The strip or web 33 may be fed through a suitable scoring and ruling mechanism and the necessary slits and fold lines may automatically be formed in the strip or web 33. Also, while the strip or web 33 is being continuously fed, the lines of adhesive 32 may be applied thereto. The strip or web 33 is automatically cut at predetermined intervals to provide the strip blank for forming the receptacle body 23.

Each of the ends 26 of the receptacle body 23 is provided with a pair of diagonal fold lines 34 which are arranged in the manner best shown in FIGURES 1 and 2. The diagonal fold lines 34 facilitate the folding of the receptacle body 23 to a substantially flat condition.

The receptacle body 23 may be folded to a flat condition either before or after securement to the cover sheet 21.

It will be apparent from FIGURE 4 that prior to the attachment of each receptacle body 23 to its associated cover sheet 21, the flaps 30 are first folded inwardly and then the flaps 28 are folded inwardly. The flaps 28 and 30 now form attaching flaps for the receptacle body 23 and are utilized to secure each receptacle body 23 to its associated cover sheet 21. It is to be noted that the adhesive 32 in the flaps 30 also bond the flaps 30 to the flaps 28.

The receptacles 20 are supplied in a flat or blank condition in the manner shown in FIGURE 3. It is to be noted that the receptacle bodies 23 are folded flat with the ends 26 reversely folded beneath the sides 25. The receptacles 20 may be automatically manufactured by a bag or carton manufacturer and then stacked in the flat state for shipment and storage. It will be readily apparent that the receptacle blank shown in FIGURE 3 is readily packaged in bundles of a predetermined quantity and may be easily handled and stored. On the other hand, when it is desired to fill the receptacle 20, the receptacle may be erected or set up from its flat condition by merely engaging the free edges of each of the sides 25 of each receptacle body 23 and pull the same apart with the result that the ends 26 are automatically pulled to their upstanding positions.

It is to be understood that the receptacle 20 is suitable for use in packaging many products. It is particularly adapted for the packaging of finely divided materials which normally have a large quantity of air entrapped therein. In FIGURES 6 through 10, the steps of filling the receptacle 20 with a finely divided material and forming a package therefrom are schematically illustrated. In FIGURE 6, the receptacle bodies 23 are illustrated as being filled with a suitable material M. Although it is preferred that the material M be placed within the receptacle bodies 23 by means of a differential gaseous pressure filler, it is to be understood that the material M may be placed therein by merely pouring or gravity flow. Then, either as a continuation of the filling operation or in a separate operation, the material M is mechanically compressed or compacted so that the top of the material M is now aligned with the fold lines connecting the flaps 27 and 29 to the remainder of the receptacle body.

After the material M has been compacted within the receptacle bodies 23, the flaps 27 and 29 are folded into overlying relation to the material M. The overlapped end portions of the flaps 27 and 29 are bonded together by means of the adhesive 32 applied thereto. The filled receptacle 23 is now ready for folding into a package and sealing. However, if desired, a suitable cover panel (not

4

shown) may be placed in overlying relation to each of the filled receptacle bodies 23 and bonded to the flaps 27 and 29.

Referring now to FIGURES 9 and 11 in particular, it will be seen that there is illustrated a folding mechanism which may be utilized for the initial folding of the filled receptacle 20. The folding mechanism is generally referred to by the numeral 36 and includes a center support 37 which has hingedly connected to the opposite sides thereof by means of hinges 38 outer supports 40. The outer supports 40 are preferably of a hollow construction and the receptacle engaging faces thereof are provided with perforations 41. The hollow bodies of the supports 40 have connected thereto lines 42 which are selectively communicated with a vacuum source by means of a valve 43, the valve 43 having a line 44 which is connected to a vacuum source. The central support 37 is suitably supported by means of any conventional type of mounting member 45.

At this time it is also pointed out that the opposite ends of the center support 37 are provided with notches 46. The notches 46 are clearance notches which are utilized in the final sealing of the receptacle in the formation of a package therefrom.

Referring once again to FIGURE 8 in particular, it will be seen that the filled receptacle 20 is centered on the folding mechanism 36 with that portion of the cover sheet 21 between the receptacle bodies 23 being aligned with the center support 37. When the filled receptacle is so positioned, the outer supports 40 are swung upwardly towards one another by an automatic mechanism (not shown) in the manner shown in FIGURE 9. Due to the fact that the portion of the cover sheet 21 which forms the bottom wall of each of the receptacle bodies 23 is tightly held against the fact of the associated outer support 40 by the vacuum drawn therein, it will be seen that the filled container bodies 23 will be retained in the manner shown in FIGURE 9 during the folding of the filled receptacle 20. The filled receptacle 20 is folded until the receptacle bodies are in mating contact with one another. When no cover panel is utilized, the flanges 27 and 29 of the two receptacle bodies 23 adhere to one another and the two receptacle bodies form a single rigid receptacle body. If cover panels are utilized, the flanges 29 may be folded first, the cover panels bonded to the flanges 29, and then the flanges 27 folded. The flanges 27 of the two receptacle bodies 23 may then adhere together independently of the cover panels.

After the filled receptacle bodies 23 are brought together, the peripheral portions of the cover sheet 21 are folded around the receptacle bodies 23 and into lapped sealed engagement. It is to be noted that the adhesive 22 will bond the cover sheet to both the walls of the receptacle bodies 23 and to the underlapped edge portions of the cover sheet 21. After the initial folding of the cover sheet 21, four triangular flaps 47 will remain. These flaps may be folded tightly against the outside of the resultant package, which is identified by the numeral 48 and sealed thereto by means of adhesive 49 which may have been previously applied or applied at this time. Incidentally, it is to be understood that when the cover sheet 21 has facing coats of thermoplastic heat sealable materials, the over-all surfaces of the cover sheet 21 will be sealable together and the adhesive 49 will not be necessary. The final package 48 is best shown in FIGURE 12. It will be apparent from FIGURE 12 that the package 48, although it is formed from paper products utilized in the bag making industry, has a rectangular configuration such as that shown in cartons and is readily handleable and may be readily stored requiring a minimum of space for storage and at the same time is completely sealed.

Reference is now made to FIGURES 14, 15 and 16 where there is schematically illustrated a suitable mechanism for forming packages in accordance with this inven-

tion, the mechanism being generally referred to by the numeral 50. The mechanism 50 includes a column like support structure 51 on which there is mounted for swinging movement a platen 52 which is also vertically adjustable. The platen 52 has a portion 53 disposed remote from the support 51 of a size and configuration to provide a suitable seat for the cover sheet 21 to position the cover sheet 21 in a predetermined position. The portion 53 of the plate 52 is hollow and includes a perforated top panel 54. It is to be noted that perforations 55 formed in the panel 54 generally aligned with the positions of the receptacle bodies 23. A line 56 extends from the portion 53 to a valve 57 which selectively communicates the line 56 with a vacuum source line 58 or to the atmosphere through a line 60. The purpose of drawing a vacuum beneath the panel 54 is to hold the receptacle 20 down during a filling operation wherein a vacuum is drawn within the receptacle bodies 23.

A frame 61 overlies the panel 54 and is connected to the platen 52 by means of a vertically adjustable connection 62. The frame 61 has a pair of pockets 63 formed therein of a size to snugly receive the receptacle bodies 23.

As is clearly shown in FIGURE 15, the frame 61 is of a hollow construction so that a vacuum may be drawn therein. The frame 61 is constructed with walls 64 defining the pockets or cavities 63 which are of a porous construction so that a vacuum may be drawn therethrough. The purpose of drawing a vacuum through the walls 64 is to assure the tight adherence of the walls of the receptacle bodies 23 against the walls of the frame 61.

The mechanism 50 has extending outwardly from the support 51 a filler which is generally referred to by the numeral 65. The filler 65 is fixedly supported in both the position shown in FIGURE 14 and in a vertical position. The filler 65 includes an uppermost hopper 66 for the material to be placed within the receptacle 20. Depending from the hopper 66 is a pair of differential gaseous pressure filling mechanisms which are generally referred to by the numeral 67. The filling mechanisms 67 are not in themselves a part of this invention and therefore, will not be described in detail. It is to be understood, however, that each of the filling mechanisms 67 may function to rapidly deliver finely divided material into the receptacle bodies 23 while removing entrained gases therefrom. The filling mechanisms may operate on several principles. First of all, they may be utilized to completely fill each receptacle body 23 by vacuum alone. Secondly, each receptacle body 23 may be filled by use of gaseous pressure alone. Thirdly, a combination of vacuum and pressure may be utilized in the filling operation. Fourthly, the material may be loosely flowed into the receptacle body 23 through the filling mechanisms 67 until the receptacle bodies are substantially filled, after which the filling mechanism 67 may be utilized to top off the material within the receptacle bodies by the addition of more material to the receptacle bodies by any of the three above-mentioned principles and while removing previously entrapped gases from the loosely filled material.

In order to facilitate the filling of the relatively large cross section receptacle bodies 23, each of the filling mechanisms 67 has associated therewith a housing 68 which is hollow and which has a porous lower panel 69. This panel 69 may be formed of a suitable screen material, such as the screen material of the filter screen 70 of the filling mechanism 67. Suitable means are provided for selectively drawing a vacuum within the housing 68 or applying pressure therein to clean off the screen 69. By providing the large combined areas of the screens 69 and 70, an efficient filling operation may be effected and finely divided granular material may be placed into the receptacle bodies 23 under compacted conditions. It is to be understood that the housings 68 will be sealed relative to the receptacle bodies 23 during the filling operation.

At this time it is pointed out that it has been found

that optimum results can be obtained if there is one square foot of screen area for each cubic foot within the receptacle body 23 beneath the screens 69 and 70. Of course, a greater screen area to volume ratio would produce the same or better results. On the other hand, a lesser screen area to volume would produce less desirable results although it has been found that a ratio of 0.75 square foot of screen area to one cubic foot of volume will produce satisfactory results and still permit the filling of the receptacle body 23 in what may be broadly considered a one-shot operation.

The mechanism 50 also includes a mechanical compactor which is generally referred to by the numeral 72. The mechanical compactor 72 is carried by the support 51 in a fixed position relative to the filler 65 both vertically and angularly. The compactor 72 includes a pair of hollow portions 73 of a size to snugly be received within the receptacle bodies. To this end, a lower portion of each of the housings 73 is provided with a seal 74. Each of the housings 74 also has a porous lower wall 75. The line 76 is in communication with the interiors of the housings 73 and is connected to a valve 77 which selectively connects the line 76 to a vacuum line 78 or a pressure line 80.

Operation

When utilizing the filler 65, an operator stands in the position shown in FIGURE 14 with a stack of the receptacle blanks 20 positioned at one side of him and the folding mechanism 36 disposed at the opposite side. The platen 52 is then lowered to its lowermost position with the frame 61 being spaced thereabove. The receptacle blank 20 is then slid into place on the platen, after which the frame 61 is lowered into overlying clamping relation with respect to the cover sheet 21. The receptacle bodies 23 are then opened while a vacuum is drawn within the frame 61 so as to tightly clamp the walls of each receptacle body 23 against the frame.

The platen 52 and the frame 61 are then swung to a position beneath the filler 65 and then moved upwardly so as to assume the position shown in FIGURE 15 relative to the filler. The filler 65 is then utilized to fill the receptacle bodies 23 with the material M. The filling operation is quickly accomplished, after which the platen 52 and the frame 61 are lowered and swung back to their original position beneath the mechanical compactor 72. The platen 52 and the frame 61 are then elevated with the housing portions 73 of the compactor 72 being aligned with the receptacle bodies 23 and moving therein as the platen 52 continues to move upwardly. As the housings 73 enter into the receptacle bodies 23, a vacuum is drawn therein so as to facilitate the removal of air entrapped within material within the receptacle bodies 23. The material is compacted until it is disposed beneath the level of the flaps 27 and 29 of the receptacle bodies 23, at which time the housing 61 contacts the compactor 72 and further movement is prevented.

After the compaction of the material within the receptacle bodies 23 has been completed, the platen 52 and the frame 61 are lowered as a unit until the frame 61 clears the compactor 72, after which the plate 52 moves downwardly relative to the frame 61 until the receptacle bodies 23 clear the frame 61. The filled receptacle 20 is then transferred to the folding mechanism and the package completed in the manner previously described. The completed package may then be placed on a suitable take-away conveyor 81.

In FIGURE 17 and FIGURE 18, there is illustrated a filler wherein all of the filling and compacting operations take place in a single step. This filler is generally referred to by the numeral 82. The filler 82 includes a platen 83 which is of a hollow construction like the platen 52. The platen 83 is mounted for vertical movement by means of a suitable fluid cylinder 84.

A filling mechanism, which is like the filling mechanism 67 and which is generally referred to by the nu-

meral 85, is positioned above the platen 83 in alignment therewith. The lower part of the filling mechanism 85 has associated therewith a hollow housing 86 which corresponds generally to one of the housings 68. The housing 86 is distinguished from the housing 68 in that the bottom wall 87 thereof, while it is perforated and may be in the form of a screen, is capable of sustaining a relatively heavy load. The lower wall may be reinforced in any desired manner. At this time it is pointed out that the relationship of the free area of the pervious wall 87 and the screen 88 of the filling mechanism 85 with respect to the volume of the receptacle body 23 will be the same as that described with respect to the filling mechanism 67.

Each of the filling mechanisms 85 also has associated therewith a frame which is generally referred to by the numeral 89 and which is of a hollow construction. The inner walls of the frame 89 are pervious for the purpose of holding the receptacle body walls 23 in their upright positions.

The frame 89 is not supported relative to the platen 83, but is suspended by means of rods 90 from a supporting frame 91 for the filling mechanism 85. The rods 90 have upper stop members 92 for limiting the downward movement of the frame 89 and lower stop members 93, which may be adjustable, for limiting the upward movement of the frame.

Referring now to FIGURE 18 in particular, it will be seen that the rods 90 are disposed in sliding openings 94 through the frame elements 91. The slotted arrangement of the openings 94 permits the diagonal movement of halves of the frame 89 in the manner to be described in detail hereinafter.

The frame 89 is formed of two L-shaped halves 95. These L-shaped halves 95 are joined together by a quickly releaseable coupling at their junctures. In the illustrated form of the invention, the coupling is formed by a fluid cylinder 96 having a piston rod 97 thereof connected to a flange 98 of the next frame section 95. It will be readily apparent that when the piston rod 97 is drawn into the cylinder 96, the frame sections 95 will be tightly pulled together. In order to assure the automatic separation of the frame sections 95, there is mounted in the corner of each frame section 95 adjacent the flange 98 a spring element 100 which may be in the form of a resilient block of rubber. As soon as the flange 98 is released by the fluid cylinder 96, the spring element 100 will spring apart the frame sections 95.

At this time it is pointed out that the movement of the frame sections 95 need only be very slight so as to release the filled receptacle body 23. No difficulty will be involved in placing the receptacle body 23 within the frame 89 in that the receptacle body 23 may be set up within the frame 89.

Operation

In the operation of the mechanism 82, the platen 83 is positioned in spaced relation below the frame 89 even when the frame 89 is in its lowermost position. The receptacle 20, in its flat state, is then accurately positioned on the plate 83. The receptacle bodies are then partially opened so that they will freely enter within the frame 89. The platen 83 is then moved upwardly until the components of the mechanism 82 assumes that shown in FIGURE 17. Then a vacuum is drawn within the frame 89 and the walls of the receptacle bodies 23 are drawn tightly against the frame 89.

Each filling mechanism 83 is then utilized to fill the associated receptacle body 23 in the manner described above with respect to the filling mechanism 67. After the receptacle bodies 23 have been filled with the material M, the filling operation is discontinued. Then the platen 83 and the frame 89 are moved upwardly with the filling mechanism 85 remaining stationary with the result that the pervious wall 87 and the screen 88 function to mechanically compact the material placed within the recep-

tacle bodies 23. The extent of mechanical compaction is limited by the engagement of the stop members 93 with the frame members 91.

After the material within the receptacle 20 has been compacted, the platen 83 is moved downwardly until the receptacle bodies 23 clear the frames 89. Then the filled receptacle 20 may be folded into the package 48 in the manner previously described.

Referring now to FIGURE 5 in particular, it will be seen that there is illustrated a modified form of receptacle which is generally referred to by the numeral 105. The receptacle 105 includes a cover sheet 106 having secured thereto a single receptacle body 23. It is to be understood that the receptacle body 23 is identical with the receptacle bodies of the receptacle 20. While in the flat state the receptacle body 23 associated with the cover sheet 106 has a different appearance, this is merely because of the fact that the end walls 26 are folded outwardly instead of inwardly. The inward folding of the end walls is permissible in view of the fact that with a single cavity receptacle there is ample space. The outward folding of the end walls of the receptacle body 23 permits a flatter arrangement and it is for this reason only that the receptacle body 23 of the receptacle 105 is so folded. If so desired, the receptacle body 23 could be folded in the same manner as that shown in FIGURE 3.

In order to facilitate the final sealing of the package formed with the receptacle 105, if the cover sheet 106 is not provided with a heat sealable over-all coating, lines of adhesive 107 will be applied.

Referring now to FIGURE 13 in particular, it will be seen that after the receptacle body 23 has been filled with the material, the flaps 27 are folded over into overlying relation with respect to the material within the receptacle body 23. Then a bottom forming panel 108 is placed in overlying relation to the receptacle body 23 and adhered to the flaps 27. Next, the flaps 29 are folded into overlying relation with respect to the panel 108. After this, the cover sheet 106 is folded around the receptacle body 23 in the manner generally shown in FIGURE 13 to complete the package, which package is generally referred to by the numeral 110. Thus, it will be apparent that the receptacle 105 is filled through the bottom with the bottom up and after the receptacle is filled and closed to form the package 110, the package is inverted.

It is pointed out at this time that in the customary filling of bags, the bags are disposed in upright positions with the longest dimension thereof being the vertical dimension and the filling of the bags is accomplished through the smallest cross sectional area thereof, that is through the upper end. This normal filling operation is undesirable for the following reasons: (1) the over-all height of the filling apparatus is unduly increased; (2) the filling operation is unduly slowed because of the height of the fill within the bag; (3) the available cross section through which the filling operation may be accomplished is very restrictive; and (4) the limited available cross section for filling purposes greatly restricts the out flow of air and other gases entrapped within the bag and the product being packaged during the filling operation with the result that a prohibitive amount of air and other gases are entrapped within the bag, and if provisions are made for the release of the gases after the closing of the bag, seepage loss of finely divided products will also result. In accordance with this invention, as is clearly set forth above, the bag or receptacle is filled while lying flat and with the wall having the greatest area open to simultaneously receive the product and permit the escape of the gases from the receptacle and product. Since the vertical dimension of the receptacle at the time of filling is the smallest dimension, the over-all height of this filling mechanism may be greatly reduced as compared to the filling mechanisms now in use. Further, by filling vertically with the smallest dimension of the receptacle being vertically disposed, the time required for placing the product in the receptacle is reduced

to a minimum and at the same time the problem of removing entrapped gases through only the open wall of the receptacle is greatly reduced both because of the minimum distance the gases must travel and the filter area available for the removal thereof. This latter condition makes possible the aforementioned high filter area to volume ratio.

Although only several preferred embodiments of the invention have been specifically illustrated and described herein, it is to be understood that minor variations may be made both in the receptacle construction and the method of filling the same without departing from the spirit and scope of the invention, as defined by the appended claims.

I claim:

1. A new article of commerce in the form of a receptacle particularly adapted for finely divided material, said receptacle comprising a cover sheet and at least one receptacle body permanently secured to said cover sheet in overlying relation thereto with said cover sheet forming a wall of said receptacle body in its initial state and having a finely divided material retaining seal therewith, and said cover sheet being of a size to form at least a portion of every surface of the receptacle.

2. The receptacle of claim 1 wherein said receptacle body is continuous and of a one-piece construction at corners thereof and is folded flat relative to said cover sheet to facilitate shipment and storage of said receptacle.

3. The receptacle of claim 2 wherein the securing of said receptacle body to said cover sheet is by means of intumed flaps on said receptacle body, and said flaps are hingedly connected to the remainder of said receptacle body whereby said receptacle body is folded flat relative to said cover sheet to facilitate shipment and storage of said receptacle.

4. The receptacle of claim 1 wherein said receptacle body has flaps remote from said cover sheet forming an extension of said receptacle body and being mounted for inwardly directed folding to hold a fill within said receptacle body prior to the closing of said receptacle body by said cover sheet.

5. The receptacle of claim 1 wherein said receptacle body is formed of a single elongated constant width strip of material joined at its ends.

6. The receptacle of claim 1 wherein there are two of said receptacle bodies with said receptacle bodies being centered on said cover sheet.

7. The receptacle of claim 1 wherein there are two of said receptacle bodies with said receptacle bodies being centered on said cover sheet, said receptacle being symmetrical about a transverse center line of said cover sheet and each receptacle body being spaced from said center line a distance equal to the effective height of said receptacle bodies.

8. A package comprising a cover sheet, a tubular receptacle body having opposite open ends, a compacted finely divided fill in said receptacle body, and said cover sheet completely passing around said receptacle body

and closing said open ends, said receptacle body having intumed flap means at the opposite ends thereof for supporting said fill and retaining said fill in its compacted state during the wrapping of said cover sheet around said receptacle body, and the flap means at one end of said receptacle body being permanently sealed to said cover sheet.

9. The package of claim 8 wherein said receptacle body is formed of two like parts each having a remote end permanently secured to said cover sheet.

10. The package of claim 8 wherein the intumed flap means at the other end of said receptacle body being foldable to positions forming a temporary extension of said receptacle body, and said granular fill in its loose state being of a volume to substantially fill said receptacle body and said temporary extension.

11. The package of claim 8 wherein said cover sheet is imperforate.

12. The receptacle of claim 2 wherein said receptacle body when folded flat lies entirely within the normal outline of said receptacle body.

13. A method of forming a package comprising the steps of providing a receptacle including a body having upstanding walls of which upper portions are in the form of flaps, filling the receptacle body substantially to the top thereof, compacting the fill to occupy an area within said receptacle body below said flaps, and then inwardly turning said flaps to overlie the compacted fill.

14. The method of claim 13 wherein said receptacle has two of said receptacle bodies connected by a cover sheet, and in the forming of the package both of said receptacle bodies are filled, the cover sheet folded and the ends of the receptacle bodies remote from the cover sheet are brought into opposed sealed relation, and thereafter the cover sheet is wrapped around the two receptacle bodies.

15. In the method of filling a receptacle utilizing a differential gaseous pressure filler wherein the filler seals an open end of the receptacle and the filler has a filter screen forming a part of a temporary receptacle closure; the improvement residing in the maintaining of the ratio of the square footage of the filter screen to the cubic footage of the receptacle at least as high as 0.75 to 1.

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