METHOD FOR DISPOSING OF GARBAGE AND REFUSE

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Filed: Apr. 20, 1970

Appl. No.: 30,015

ABSTRACT

A system of disposing of garbage and refuse which comprises in any order or sequence the steps of: wetting the refuse (if it does not already contain significant moisture) with a freezeable liquid; compressing the moistened, compacted refuse into dense pellets of any size or shape; storing the pellets; removal and ultimate disposal of the pellets for landfill or otherwise through any systematic means.

15 Claims, 7 Drawing Figures
METHOD FOR DISPOSING OF GARBAGE AND REFUSE

REFERENCE TO RELATED APPLICATIONS:

The present application is a continuation-in-part of my pending application, Ser. No. 677,206, now U.S. Pat. No. 3,514,969, filed on Oct. 23, 1967, and entitled FREEZING APPARATUS FOR GARBAGE DISPOSAL; and is related to Ser. No. 12,416, filed Feb. 18, 1970, and entitled METHOD FOR GARBAGE DISPOSAL which is a continuation of Ser. No. 824,874, filed May 15, 1969, now abandoned. Said abandoned application is a division of U.S. Pat. No. 3,514,969.

BACKGROUND OF THE INVENTION

The present invention relates generally to the disposal of refuse or garbage, and more particularly to a system for processing, storing, picking up, and transferring household refuse to an ultimate destination.

Presently, when a housewife, etc., wants to dispose of refuse, she does so in a garbage can or container located on the premises. Because the garbage is exposed to the atmosphere, in not too long a period after being placed in the can it begins to decay and become rancid. As the garbage decays an offensive odor is given off thereby, and vermin tend to collect about the garbage accompanied by the breeding of bacteria and the possible spread of disease. Furthermore, the refuse or garbage gathered in these cans or containers is most commonly removed by trucks into which loose or partially wrapped garbage is placed. Usually these trucks have an offensive odor, and as they travel from pickup-to-pickup sometimes lose particles of garbage on the public thoroughfares.

If the housewife is more fortunate she may have a garbage disposer of the type which grinds the garbage into small finely cut pieces and which then flushes these pieces into the drain pipe. This type of garbage disposer also has its drawbacks, namely, the fact that the disposer will not accommodate bones, stringy meat particles, plastic, and the like, and it tends to be noisy in operation. It also tends to overwork sewage disposal or processing plants.

SUMMARY OF THE INVENTION

Accordingly, it is a general object of this invention to provide a method for disposing of garbage which avoids the disadvantages of the prior art garbage collection or disposing methods as mentioned above.

It is a more specific object of this invention to provide a method for processing, storing, picking up, and transferring garbage and refuse to an ultimate destination.

It is still another object of this invention to provide a method for processing and freezing refuse so as to form dense pellets and for thereafter automatically storing the pellets and finally removing an accumulation of these pellets from the premises.

It is yet another object of this invention to provide a method for disposing of refuse which is convenient, neat, sanitary, aesthetic, and economical.

Briefly, the method herein disclosed and claimed provides, generally, for the steps of: compressing and freezing significantly moist, nominally heterogeneous refuse so that the refuse forms frozen dense pellets; automatically transferring the pellets from a point where they were formed to a freezer storage area for storing the pellets for an indefinite period of time; and mechanically removing the pellets from the storage unit and transferring the pellets to an ultimate destination such as a refuse dump or the like.

DESCRIPTION OF THE DRAWINGS

A better understanding of the invention and its organization and construction may be had by referring to the description below in conjunction with the accompanying drawings, of which:

FIG. 1 is a sectional view of a garbage disposal system for disposing of garbage and refuse;

FIG. 2 is a fragmented sectional view taken along line 2—2 of FIG. 1;

FIG. 3 is a perspective view of a garbage truck in combination with a storage freezer unit for collection of the garbage and refuse;

FIG. 4 is a front sectional view of a modified storage freezer unit;

FIG. 5 is a modified version of the system of FIG. 1;

FIG. 6 is another modified version of the system of FIG. 1;

and

FIG. 7 is still another modified version of the system of FIG. 1.

DETAILED DESCRIPTION

Referring now to the drawings in more detail, FIG. 1 thereof shows a system 10 for collecting and storing garbage or refuse according to a first embodiment of the invention herein disclosed and claimed. The system 10 includes a compressor-freezer assembly 12 contained within a housing 14 for receiving refuse which is moistened, compressed and frozen into dense pellets 16. As indicated in FIG. 1, the housing 14 is positioned within a kitchen area of a house and adjacent to a wall separating the kitchen area and the outside of the house. This allows the housewife or other member of the family to dispose of the refuse without ever leaving the kitchen. It is to be understood, however, that the housing 14 may be placed in any convenient location. Also included within housing 14 and positioned below compressor-freezer assembly 12 is an automatic transfer assembly 18 which automatically transfers the dense pellets 16 to a transfer conveyance housing 20. The housing 20 is connected at one end to housing 14 and its other end extends outdoors to a storage freezer assembly 22 located outside adjacent the kitchen area, where the pellets 16 are stored for eventual pickup as described hereinafter.

The housing 14 includes an upper section 24, a side wall 23 and 24, back wall 26, front wall (not shown), top wall 28 and base 30. The housing also includes a loading door 32 which is hinge mounted to the side wall 23 and may be opened as indicated in broken lines in FIG. 1 for inserting refuse into the compressor-freezer assembly 12. A passageway (not shown) also may be included for entrance into the housing 14 for maintenance or other reasons.

A control panel 36 is located within the housing 14, preferably being mounted on one of the side walls therein as indicated in FIG. 1. The control panel includes the required control devices which control the operation of the system as described hereinafter. Since the controls do not form a part of the invention herein claimed, a detailed description thereof will not be necessary so as to finish the description. It is sufficient to say that the controls, whether they be electrical, pneumatic or hydraulic, are of the conventional type which will automatically operate the system as described below and which are appropriately connected to the below described elements towards that end.

The compressor-freezer assembly 12 includes a housing 38 which is preferably partly common with the housing 14, comprising a side wall 40 which is parallel to and laterally spaced from side wall 23 of housing 14 and which extends from back wall 26 to the front wall of the housing 14. The remainder of the housing 38 consists of a portion of top wall 28 as seen in FIG. 1; the side wall 23 including loading door 32 of the housing 14; a portion of the back wall 26, intermediate side wall 23 and side wall 40; a portion of the front wall of housing 14; and a trap door 42. A compressing mechanism 44 including a compressor head 46 is mounted from the ceiling of the housing 38 and is shown in solid lines in a retracted position and in dotted lines in an extended position, i.e., in a position for compressing the refuse into a densely compact pellet which is subsequently frozen. The compressing mechanism is a telescoping cylinder unit preferably actuated by hydraulic means, but which may also be actuated by electric or pneumatic means. The compressing mechanism is energized to move compressor head 46 from its retracted position to its ex-
tended position when the loading door 32 is closed after previ-
ously being opened for insertion of refuse into the housing 38. This is accomplished by a switch (not shown) which is tripped when the door is closed and which energizes appropriate con-
trols within control panel 36. The compressor head is main-
tained in its retracted position for approximately 30 seconds by a timing mechanism in the control panel so that the refuse remains in its compressed state while being frozen into a dense pallet which is accomplished by freezer plates described below. If the refuse inserted into housing 38 does not already contain a sufficient moisture content to bind it together when frozen, a freezeable liquid such as water may also be added for achieving such a result.

Three freezer plates 48 are included in housing 38 and are mounted on back wall 26, side wall 40 and the front wall (not shown) respectively. The plates are continuously chilled by conventional freezing coils 49 mounted within the plates so as to continuously create an atmosphere within housing 38 which will induce solidification, or freezing, of the compressed garbage. It should be noted, however, that occasionally the com-
pressor-freezer assembly 12 requires defrosting and this may be accomplished by actuation of an appropriate switch located in control panel 36 which deenergizes the freezing coils and simultaneously therewith energizes adjacent heating coils 45 for warming of the freezer plates 48.

As stated above, when refuse is being through loading door 32 and thereafter closed, the compressor head 46 is moved to its extended position and is so maintained for approxi-
ately 30 seconds so that the compressed refuse may be properly solidified. Subsequent to this compressing period and just prior to the point when compressor head 46 is moved back to its retracted position the trap door 42 is slide-
ably moved from its closed position as shown in dotted lines to a retracted position as shown in dotted lines so as to open the bottom of housing 38. This is accomplished by a piston and cylinder assembly 50 which is connected to the trap door 42 and energized to move the trap door by appropriate control means in the control panel 36 as described above. When the trap door 42 is in its completely retracted position the com-
pressor head 46 of the compressor mechanism 44 is driven downward from its compressed position so as to force the frozen pellet 16, which is probably frozen to the freezer plates, through the opening created by retracted trap door 42 and thereafter onto transferring assembly 18 which will be described in more detail below. Operation of the compressor mechanism 44 is timed by means within control panel 36 to move the compressor head immediately back into its retracted position. Simultaneously therewith operation of the trap door 42 is timed so as to move back into its closed position.

It is to be understood that while the preceding description suggests that a complete pellet is made during each compac-
tion cycle and thereafter immediately transferred from hous-
ing 38, this is not an essential element of the invention. In some cases the quantity of refuse deposited within the housing at any one time may not be sufficient to produce a pellet. In such cases, the pellet may be formed by repeated operation of the compressor mechanism, with each operation building up an additional quantity until the mass of the pellet attains the desired size. In order to provide this modified operation, the control panel would include conventional devices including, for example, a manually actuated switch for operating the piston and cylinder assembly only upon creation of a pellet of desired size. A still further modification would incorporate the concept of storing refuse prior to compaction, which would reduce the number of compaction cycles that would be required for attaining a pellet of desired size. In this case, there would be control devices provided for energizing the compressor mechanism only after there has been a desired ac-
cumulation of refuse.

It is preferable that, prior to the compaction operation, in the event that uncompressed refuse is being stored and between operations of the compressor mechanism, the refuse be kept at a reduced temperature which pre-chills the refuse prior to compaction and prevents or at least greatly reduces decomposition activity between compaction cycles. Pre-
chilling the refuse not only eliminates odor during storage, but also allows for a faster compaction cycle. This is, of course, generally recognized by those skilled in the art. It is to be understood, however, that the invention is not limited to such operations. Specifically, controls may be pro-
vided for operating the freezer coils only during the compres-
sion cycle for substantially simultaneously compressing and freezing the refuse, or immediately after the compaction cy-
cle, so that the refuse is frozen substantially immediately after compression thereof.

The automatic transfer assembly 18 includes an endless conveyor belt 52 positioned within housing 14 below trap door 42 so as to receive a frozen pellet 16 when it is ejected from the housing 38. The conveyor belt 52 is mounted around an assembly of shafts and rollers 54, which are driven by a motor 56 also located within housing 14. The motor drives the conveyor belt in a forward direction as indicated by arrow 58 when the motor is in its energized state. The motor is ener-
gized through an appropriate timing mechanism within con-
trol panel 36 when the trap door 42 is moved to its retracted position and remains energized a sufficient time so as to allow a pellet 16 to be transferred from its initial point on conveyor belt 52 directly below the trap door, to an entering point within transfer conveyor housing 20 at which time the motor 56 is de-energized stopping movement of the conveyor belt.

The transfer conveyance housing 20 is basically an open ended tubular structure having a top wall 60, a bottom wall 62 and two side walls 64 (only one of the side walls being shown). One open end of the transfer conveyance housing 20 is con-
nect ed through an opening 66 in house wall 34 and mounted to wall 24 of housing 14 so as to co-operate with automatic transfer assembly 18 which is partially positioned through an opening in wall 24 adjacent opening 66. The otherwise free end of transfer conveyance housing 20 is disengageably mounted to the storage freezer assembly 22 on an outwardly extending abutment 67 so as to encompass a trap door 68 of the storage freezer assembly as described below. The abut-
ment is hinged mounted to the storage freezer assembly so that it can be moved to a retracted position during disengagement of the assembly and conveyance housing and thereby not inter-
tere therewith. The transfer conveyance housing is posi-
tioned on an inclined conveyor belt situated at left end to its right end as viewed in FIG. 1, so that pellets 16 which are conveyed to opening 66 fall into the housing 20 and thereafter, due to their own gravitational force, slide down along bottom wall 62 and through trap door 68 into the storage freezer assembly 22.

The storage freezer assembly 22 with exceptions described below is preferably a conventional type freezer assembly hav-
ing appropriate freezing coils so as to maintain the tempera-
ture therein at between 0° and 10° Fahrenheit and includes a disconnectable electrical cord 70. The storage freezer as-
sembly is located outside the home and within ten to twenty feet of the road or driveway 72 as shown in FIG. 1. It is capa-
bile of holding approximately 1 cubic yards storage volume and the cord 70 is connectable to an outside convenience electric outlet 74. The storage freezer assembly may be located as shown at ground level or in a shallow well outside the house, either position being suitable for the purposes herein. The storage freezer assembly has a fitting or handle 76 at its top thereof so as to receive a crane hook, as described hereinafter, and is so designed that the fully loaded storage chamber can be lifted from this point. The fully loaded storage chamber would weigh 1 to 2,000 pounds and would hold from 3 to 6 months accumulation of garbage in the form of solid pellets generated by an average five member family.

As stated above, the storage freezer assembly includes a trap door 68 which is positioned adjacent the transfer con-
veyance housing 20 so as to receive frozen pellets 16 therefrom. The trap door comprises two pivotably mounted sections 79 and 80 to pivot to a position shown in dotted lines so as to allow the pellet to enter the storage freezer assembly. A second trap door 78 is located on the base of the storage freezer assembly 22 and may be manually opened as described with respect to FIG. 2 so as to allow removal of accumulated pellets 16 therefrom for transfer to a pickup truck as described hereinafter.

The storage freezer assembly 22 is preferably a conventional type freezer assembly. However, it should be understood that the chamber itself can take several forms. For example, the storage chamber could be essentially like that described above, however, also including a huge bucket unit so that the refrigeration equipment and the installation would remain unchanged during pickup operation. This will be discussed in more detail with respect to FIG. 4. There could also be several different ways of providing the refrigeration in the storage chamber. As stated above the conventional way is to use freezing media as found in a conventional type unit. However, a modified type freezer unit could be provided which includes no independent refrigeration means but rather is chilled and kept chilled by a circulation of cold air originating in the compressor-freezer assembly 12. This would be done by directing the cold air from the compressor-freezer assembly through insulated plastic tubes so as to discharge in the storage chamber, and other tubes to direct the return air from the storage chamber and direct it to the compressor-freezer assembly for re-chilling purposes. This would, of course, require circulation pumps which could easily be mounted in housing 14.

Turning to FIG. 2, the trap door 78 is shown comprising two sections 81 and 82 pivotally mounted to the storage freezer assembly 22 by pivot pins 84 and 86 respectively. The two sections when positioned as shown in FIG. 1, unobstructed by either the ground or a locking assembly described below, will pivot around their respective pivot pins 84 and 86, due to the force of their own weight as well as the gravitational force exerted by pellets 16 stored thereon, so as to allow the pellets to fall therethrough and onto the pickup truck as described hereinafter. A locking assembly 88 includes a base 90 mounted to one of the sections, for example, section 81 and two locking bars 92 which as shown in solid lines extend across both of the sections 81 and 82 so as to prevent them from opening as described above. A handle 94 is also connected to the base 90 and mechanically coupled to the locking bars 92 so as to force the locking bars from their solid line positions to dotted line positions as shown in FIG. 2, when the handle 94 is positioned in its dotted position as shown. This removes the obstructing locking bars 92 so that the doors may freely open.

Turning to FIG. 3, refuse and garbage pickup is accomplished by a pickup type truck 100 with a crane hoist 102 attached thereto rather than the conventional garbage truck which utilizes a compressor unit for compressing the refuse within the truck. The storage area of the truck is properly refrigerated and insulated by means not shown for maintaining the pellets in their frozen state while stored therein. The crane hoist has the capability of extending 30 feet for transferring refuse to the truck. The garbage collector would drive the truck 100 onto driveway 72 near the storage freezer assembly 22; disconnect the freezer electrical connection 70; attach a crane hook 104 of crane hoist 102 to handle 76 of the storage freezer assembly; lift the storage freezer assembly over the body of truck 100; open the trap door 78 on the bottom of storage freezer assembly 22; and detach the pellets as described above from the truck. Finally, he would replace the empty storage freezer assembly and plug connection 70 into socket 74. It is to be noted that this same procedure would be followed whether the storage freezer assembly 22 where positioned as shown in FIGS. 1 and 3 or located in a shallow well outside the house as discussed above. If the storage freezer assembly 22 were of the type which is kept chilled by a continuous supply of cold air from the compressor-freezer assembly 12 as described above, the pickup procedure would be the same except that the collector would disconnect the plastic tubes as described above, from the storage freezer assembly rather than to disconnect the electrical cord from its socket.

Since the storage freezer assembly is capable of holding from 3 to 6 months of refuse and accumulation of garbage and refuse it is to be noted that the pickup procedure as described above is required only once in every 3 or 6 months rather than 27 times per 3 month period as is required by the prior art garbage collecting systems.

While the system 10 has been described for household use it is to be understood that the same may easily be used commercially such as in a hospital where large quantities of refuse are accumulated every day, and where sanitation is of utmost importance.

Turning to FIG. 4, a modified storage freezer assembly 110 is shown. The assembly may include the conventional refrigeration system as described above or the modified version shown in FIG. 4. The system 110 has a trap door 112 which is exactly the same as the trap door 68 of FIG. 1, and positioned in the same manner. This assembly differs, however, from the assembly 22 in that firstly, it does not have a trap door at its base similar to trap door 78 and secondly, it does not have a handle at its top similar to the handle 76 of assembly 22, but rather includes a handle 114 which is used to open the top of the freezer unit as shown in dotted lines in FIG. 4. When in its open position, there is free access to a bucket 116 which fits snugly within the unit 110. The bucket 116, which is made from a non-insulating type material so as to allow complete refrigeration throughout the assembly 110, includes a handle 118 which serves the same purpose as handle 76 of the storage freezer assembly 22. A trap door 120 including a locking assembly 122 is located at the bottom of the bucket 116 and is identical to and serves the same purpose as trap door 78 of the assembly 22. The bucket 116 finally includes an opening 124 therein which is located adjacent the trap door 112 so as to allow pellets 16, which enter the trap door, to fall within the bucket. The pickup procedure utilizing storage freezer assembly 110 is similar to that procedure discussed above with respect to storage freezer assembly 22 except that the freezer assembly per se is not moved but rather is opened as shown in dotted lines in FIG. 4, and the hook 104 of truck 100 is attached to the handle 118 for removal of bucket 116. The remaining procedure is exactly the same as above.

Turning to FIG. 5, a modified garbage and refuse system is shown. Because this system includes most of the features incorporated in the system of FIG. 1, like numbers will designate like figures. Like the disposing system 10, system 128 includes a compressor-freezer assembly 12 contained within a housing 14 for receiving refuse which is compressed and frozen into solid pellets. The housing is positioned in the kitchen area. The system 128 also stores the pellets in the same manner as system 10 and pickup is performed in the same way. However, unlike the disposing system 10, system 128 does not include an automatic transfer assembly 18, but rather utilizes an extended transfer conveyance housing 130 which directly transfers the frozen pellets 16 from the compressor-freezer assembly 12 to the storage freezer assembly 22.

As seen in FIG. 5, the transfer conveyance housing 130, which is similar to the transfer conveyance housing 20 of system 10, has one open end thereof positioned directly beneath the trap door 42 for receiving the pellets and extends downward through the floor and wall 34 so that its otherwise free end is mounted into 16 into the storage freezer assembly 22 in the same manner as described above. Since the automatic transfer assembly 18 of system 10 is not necessary to system 128, the control devices required to operate the automatic transfer as-
assembly 18 are not required. When the trap door 42 is moved to its open position the pellets 16 are forced downward in the same manner as described above, and the pellets automatically fall into the transfer conveyance housing 130 where, due to the design of the apparatus, the pellets 16 are forced in the storage freezer assembly 22. It is to be understood that although this modified system has obvious advantages over the disposing system 10 the use of this system will depend greatly on the physical layout of the house in which it is to be installed.

Turning to FIG. 6, a second modification 150 of a garbage and refuse system is shown. Because this system includes many of the features incorporated in the systems of FIGS. 1, 2, and 5, like numerals will designate like features. Like the disposing systems 10 and 128, system 150 includes a compres-
sor-freezer assembly 12, located within a housing 14, for receiving refuse which is compressed and frozen into solid block or pellets. The system 150 also stores the pellets in the same manner as systems 10 and 128 and pickup is performed in the same way. Unlike system 10, the system 150 does not include an automatic transfer assembly 18, but rather utilizes an extended transfer conveyance housing 130 as does the system 128. The transfer conveyance housing 130 transfers the frozen pellets 16 from the compressor-freezer assembly 12, to the storage freezer assembly 22 in the same manner as described with respect to system 128.

Unlike either of the garbage or refuse systems disclosed hereinabove, the housing 14 of system 150 is positioned outside the house or dwelling and mounted to wall 34 by conventional means. The loading door 32 of the compressor-freezer assembly 12 is positioned adjacent the wall 34 and may be opened, as indicated in FIG. 6, from within the dwelling (kitchen area) through an opening or cavity 152 in wall 34. In addition to loading door 32 a second loading door 154 is provided for access into compressor-freezer assembly 12. This door is located outside the house or dwelling so that refuse (grass clippings, leaves, etc.) may be placed in the compres-
sor-freezer assembly 12 from outside thereof. The door 154 is hinge mounted to the compressor-freezer housing in the same manner as loading door 32 and functions in the same way. A loading hopper and screw conveyor (not shown) may be provided in addition to or instead of door 154 to facilitate the insertion of leaves, grass clippings and other yard refuse into the compressor-freezer assembly.

The storage freezer assembly 22 is positioned in a shallow well adjacent to the building 14 and is lifted from the well as indicated in dotted lines for transferring the pellets stored therein to the truck 100 as described hereinabove. The assembly 22 is maintained at below freezing temperatures as previously disclosed.

Turning to FIG. 7, a third modification 160 of a garbage or refuse system is shown. This system is identical to the system 150 discussed with respect to FIG. 6, with exceptions which will be noted hereinafter. Therefore, like numerals will designate like parts.

The garbage or refuse system 160 differs from the previously described systems 10, 28 and 150, in that this system does not require a transfer conveyance housing 20 or 120 as do the previously mentioned systems. In addition, the system 160 does not require an automatic transfer assembly 18 as does system 10. Rather, the housing 14 includes, at its base, a trap door 162 which is hinge and spring mounted at one end to the housing 14. The trap door 162 is spring biased so as to remain closed as indicated by solid lines shown in FIG. 7. When a pellet 16 is discharged from the compressor-freezer assembly 12, in the same manner described with respect to systems 10, 28 and 150, the weight of the pellet causes the trap door 162 to pivot about its hinge and spring connections to a position indicated by dotted lines in FIG. 7.

Like system 150, a storage freezer assembly 164 is positioned in a shallow well adjacent to and below the housing 14. The storage freezer assembly 164 is identical to the mentioned storage freezer assembly 22, with the following exceptions. Rather than including a trap door 68 on one of its side walls, as does the storage freezer assembly 22, a single section trap door 166 is provided at the top of storage freezer assembly 164. This trap door is spring mounted, at one side, to the top of the storage freezer assembly and is biased so as to remain closed as indicated by solid lines in FIG. 7. A longitudi-

...ну the upper left hand side of storage freezer as-

...semly 164 as viewed in FIG. 7. The guide member 168 is spring biased in a position extending outwardly from the storage freezer assembly 164 at an angle approximately 30° with a horizontal plane through the storage freezer assembly.

Operationally, the pellets are discharged through the trap door 42 of the compressor-freezer assembly, and falls onto the trap door 162, causing the trap door 162 to open, the other-

...se free end of trap door 162 comes to rest on the otherwise free end of guide member 168. The pellet, due to gravity, drops from the housing 14 and is directed to the trap door 166 by the trap door 162 and guide member 168. The weight of the pellet in turn causes the trap door 166 to open so as to allow the pellet to fall within the storage freezer assembly 164. After the pellet falls within the storage freezer assembly, as is readily apparent, the trap doors 162 and 166 return to their biased closed positions.

The procedure for transferring the pellets to truck 100 is the same as described hereinabove. However, it is to be noted that as the storage freezer assembly '64 is lifted upward, as indicated by dotted lines in FIG. 7, the longitudinally extending guide member 168 comes in contact with the outwardly extending side of housing 14. Since the guide member is spring mounted to the storage freezer assembly, it will be forced downward as indicated in dotted lines, so as to allow the storage freezer assembly to be freely removed from the wall. It is to be finally noted that when the storage freezer assembly is returned to its initial or grounded position, the guide member 168 will pivot in an opposite direction from that described above so as to allow the storage freezer assembly to be freely placed into the well. The guide member will resume its biased position when placed within the well so as to again communicate with the trap door 162 when another pellet is trans-

...ed to the storage freezer assembly.

It will be understood that, broadly speaking, "refuse" and "garbage" are substantially synonymous and include other terms such as "rubbish." Since the process (and the apparatus) remains the same regardless of the specific nature of the item being handled, it is my intention that terms such as "refuse" or "garbage" shall be understood in their broadest senses in the absence of something requiring more specific definition.

A summary of one method of completely disposing of gar-

...age refuse which is collected within the household is inserted into the compressor-freezer assembly 12 through loading door 32 along with a freezable liquid such as water for moistening the refuse if the latter is necessary. When the door is closed, it actuates a control device in control panel 36 for energizing the compressor mechanism 44. The compressor mechanism 44 thereafter automatically drives its compressor head 46 from a retracted position to an extended position compressing the garbage and refuse therein against the trap door 42. The head is maintained in that position for approximately 30 seconds so that the garbage and refuse may be suffi-

...ently frozen into the pellets. After approximately 30 seconds the trap door 42 is moved to its retracted position as shown in FIG. 1, and the compressor head automatically moved downward a sufficient distance to force the pellets 16 onto the conveyor belt 52 of automatic transfer assembly 18. At this time the transfer assembly is automatically energized to transfer the pellet to the entrance of transfer conveyance housing 20 where pellets drop through the transfer conveyance housing 20 and enters the storage freezer assembly 22 through trap door 68 and is stored in its frozen state within the storage freezer as-
When the storage freezer assembly is filled to or near its capacity, which, as stated above, takes approximately 3 to 6 months for an average family of five, a garbage and refuse collector utilizing a truck 100 as described above mechanically transfers the pellets from the storage freezer assembly to the truck and thereafter, while maintaining the pellets in their frozen state, takes them to an area for use in a landfill operation. Although, in the past, refuse has been used as land fill, it has been found that refuse in the form of compressed pellets is both easier to work with and makes a more solid land fill.

While particular embodiments of the invention have been shown, it should be understood, of course, that the invention is not limited thereto since many modifications may be made; and it is, therefore, contemplated to cover by the appended claims any such modifications that fall within the true spirit and scope of the invention.

What is claimed is:

1. A method of disposing of nominally heterogeneous refuse normally including inedible portions comprising, in sequence, the steps of: placing such refuse in a housing receptacle; moistening said refuse in the event said refuse does not contain sufficient moisture to allow adherence when frozen; compressing the refuse; freezing the refuse so as to form a densified pellet; thereafter, automatically transferring said pellet from said housing to frozen storage adjacent to but separate from said housing; storing said pellet in its dense state in said frozen storage; and mechanically transferring said dense pellet from said frozen storage to a final disposal destination.

2. A method of disposing of refuse according to claim 1, wherein said housing receptacle is located inside a dwelling and said frozen storage is located outside of but adjacent to said dwelling, including the step of automatically transferring said pellet from said housing receptacle inside said dwelling to said frozen storage outside said dwelling.

3. A method of disposing of refuse according to claim 1, wherein said step of placing refuse in a housing receptacle is performed from outside said dwelling.

4. A method of disposing of refuse according to claim 1, wherein said step of placing refuse in a housing receptacle is also performed from inside said dwelling.

5. A method of disposing of refuse according to claim 1, wherein said step of automatically transferring said pellet from said housing receptacle to said frozen storage comprises the steps of power transferring and gravitationally transferring said pellet.

6. A method of disposing of refuse according to claim 1, wherein said step of automatically transferring said pellet from said housing receptacle to said frozen storage comprises the step of gravitationally transferring said pellet.

7. A method of disposing of refuse according to claim 1, wherein said step of mechanically transferring said dense solid pellet from said frozen storage to said final disposal destination includes the step of transferring said pellet to vehicular means.

8. A method of disposing of refuse according to claim 1, including the step of continuously maintaining the environment within said housing at a temperature below the freezing temperature of water prior to the compression of said refuse, for pre-chilling said refuse.

9. A method of disposing of refuse comprising, in sequence, the steps of: placing refuse in a housing receptacle; moistening said refuse in the event said refuse does not contain sufficient moisture to allow adherence when frozen; compressing the refuse; freezing the refuse so as to form a densified pellet; thereafter, automatically transferring said pellet from said housing to frozen storage; storing said pellet in its dense state in said frozen storage; and mechanically transferring said dense pellet from said frozen storage to a final disposal destination, said housing receptacle including a trap door at its base, and said step of automatically transferring said pellet to said frozen storage including the steps of opening said trap door and of discharging said pellet from said housing through said trap door.

10. A method of disposing of refuse comprising, in sequence, the steps of: placing refuse in a housing receptacle; moistening said refuse in the event said refuse does not contain sufficient moisture to allow adherence when frozen; compressing the refuse; freezing the refuse so as to form a densified pellet; thereafter, automatically transferring said pellet from said housing to frozen storage; storing said pellet in its dense state in said frozen storage; and mechanically transferring said dense pellet from said frozen storage to a final disposal destination, said step of mechanically transferring said solid pellet from said frozen storage to said final disposal destination including the step of transferring said pellet to vehicular means, said frozen storage including a freezer unit and wherein the step of mechanically transferring said pellet from said frozen storage to said vehicular means includes the steps of transferring said frozen unit to a position directly above said vehicular means and gravitationally transferring said pellet from said storage freezer unit to said vehicular means.

11. A method of disposing of refuse according to claim 12, wherein said frozen unit includes a trap door at its base, said step of mechanically transferring said pellet from said frozen unit to said vehicular means including the steps of opening said trap door and of discharging said pellet through said trap door.

12. A method of disposing of refuse comprising, in sequence, the steps of: placing refuse in a housing receptacle; moistening said refuse in the event said refuse does not contain sufficient moisture to allow adherence when frozen; compressing the refuse; freezing the refuse so as to form a densified pellet; thereafter, automatically transferring said pellet from said housing to frozen storage; storing said pellet in its dense state in said frozen storage; and mechanically transferring said dense pellet from said frozen storage to a final disposal destination, said step of mechanically transferring said solid pellet from said frozen storage to said final disposal destination including the step of transferring said pellet to vehicular means, said frozen storage including a freezer unit and wherein the step of mechanically transferring said pellet from said frozen storage to said vehicular means includes the steps of transferring said frozen unit to a position directly above said vehicular means and gravitationally transferring said pellet from said storage freezer unit to said vehicular means.

13. A method of disposing of refuse according to claim 12, wherein said frozen unit includes a trap door at its base, said step of mechanically transferring said pellet from said frozen unit to said vehicular means including the steps of opening said trap door and of discharging said pellet through said trap door.

14. A method of disposing of refuse comprising, in sequence, the steps of: placing refuse in a housing receptacle; moistening said refuse in the event said refuse does not contain sufficient moisture to allow adherence when frozen; compressing the refuse; freezing the refuse so as to form a densified pellet; thereafter, automatically transferring said pellet from said housing to frozen storage; storing said pellet in its dense state in said frozen storage; and mechanically transferring said dense pellet from said frozen storage to a final disposal destination, said step of mechanically transferring said solid pellet from said frozen storage to said final disposal destination including the step of transferring said pellet to vehicular means, said frozen storage including a freezer unit and wherein the step of mechanically transferring said pellet from said frozen storage to said vehicular means includes the steps of transferring said frozen unit to a position directly above said vehicular means and gravitationally transferring said pellet from said storage freezer unit to said vehicular means.

15. A method of disposing of refuse according to claim 14, wherein said bucket means includes a trap door at its base, said step of mechanically transferring said pellets from said frozen storage to said vehicular means including the step of discharging said pellets from said bucket means through said trap door.