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This invention relates broadly to packaging, and is more specifically concerned with a shipping assembly of cast iron soil pipe lengths and the soil pipe fittings which are ordinarily associated therewith.

Hereinafter according to general practise, most pipe fittings have been commercially shipped in bulk, some in wooden crates or other containers or merely tied together with wire into bundles. They were thus shipped by the manufacturer to the dealer or retailer in lots separated from the pipe lengths or mixed together indiscriminately in the cars, trucks or barges. This procedure necessitated the separation of the different types of fittings by the customer upon arrival of the shipment. Furthermore this procedure entailed the need for building storage bins for the fittings and required additional handling of the fittings when placing them into and removing them from the storage bins. In addition the manual handling of the castings in this manner caused appreciable losses due to breakage and pilferage. In short, these former practices of shipping and storing soil pipes and fittings were very expensive and uneconomical. It was a recognition of these problems, difficulties, and shortcomings of the prior practices in this field which led to the conception and development of the present invention.

Accordingly the primary object of the present invention is the aim of overcoming the above noted difficulties by providing a novel unitary package containing a number of pipe lengths and appropriate fittings therefor. One of the more specific objects of the invention is to reduce by an appreciable amount the man hours required in the loading of soil pipe and fittings and the costs thereof.

Another object of the invention is to eliminate the need of providing and maintaining bins for soil pipe fittings in connection with the shipping and storage thereof.

Still another object of the invention is to eliminate individual handling of pipes and fittings before, during and after shipment so that breakage and pilferage is greatly reduced.

A further object is to permit in the shipping of soil pipes and fittings the use of conventional loading and handling facilities such as slings, cranes, dets, grabs, forks and lift trucks or other powered handling trucks.

An additional object of the invention is to make economical use of floor space and loading space in trucks, cars and barges as well as in warehouses or open storage yards, in connection with the shipping and storing of soil pipes and fittings.

A still further object of the invention is to utilize in the construction of the soil pipe installation the material which is made use of in forming the walls of the shipping package.

A still further object is to permit separation of various types of fittings in individually marked packages for ready identification, for estimating weights, and for inventory purposes.

Another object of the invention is to permit shipment in separate compartments of the different types of fittings such as elbows, crosses, T’s reducers, plugs, offsets, traps, etc., by providing partition walls within the package.

Still another object of the invention is to provide a package in which a plurality of pipe lengths are cooperatively associated with end panels or bulkheads to form an elongated tubular casing which contains the pipe fittings.

A further object of the invention is to provide a unitary shipping assembly which is rugged and durable and can easily be stacked.

An additional object of the invention is to provide a unitary shipping assembly of soil pipe and fittings wherein the component parts are interlocked against enlarged pipe end portions to prevent spreading of the end walls and dislodging of the pipes when subject to vibration while being shipped.

An added object is to provide a unitary shipping package which is easy to assemble, low in cost, a convenience to the manufacturer, the dealer and ultimate user alike.

Still further objects and advantages of the present invention will appear as the description hereof proceeds.

To the accomplishment of the foregoing and related ends the invention then consists of the packaging means hereinafter fully described and particularly pointed out in the claims, the annexed drawing and the following description setting forth in detail certain means for carrying out the invention, such disclosed means illustrating, however, but a few of the various ways in which the principle of the invention may be used.

In the drawing:

Fig. 1 is an isometric view of the completed shipping assembly.

Fig. 2 is an isometric view of the shipping assembly with the top side layer of pipe lengths not applied.

Fig. 3 is an isometric view of the shipping assembly only partially assembled, i.e., without the pipe fittings, and showing compartments to hold various types of fittings.

Fig. 4 is an isometric view of the shipping assembly shown in a very early stage of assemblage.

Fig. 5 is a plan view of the partially assembled shipping assembly shown in conjunction with a wooden form or fixture used to facilitate erection of the assembly.

Fig. 6 is a sectional elevation of the assembly and fixture taken on line 6—6 of Fig. 5.

Figs. 7 and 8 show pairs of double hub pipe lengths with the pipes arranged side by side in the herein disclosed inventive manner of constructing the walls of the shipping assembly, with Fig. 7 showing alternate pipes being displaced longitudinally.

Figs. 9, 10; 11, 12 and 13 disclose our invention in somewhat different forms. These illustrations are similar to Fig. 7 with respect to longitudinal displacement, however they differ therefrom in that Fig. 9 shows two single hub pipes in place of double hub pipes; Fig. 10 shows the single hub pipes arranged alternately in right hand position and left hand position; Fig. 11 shows an arrangement combining a single hub pipe and a double hub pipe of equal overall length; and Figs. 12 and 13 show arrangements wherein the single hub pipe is shorter or longer respectively than the double hub pipe.

Fig. 14 shows an arrangement of groups of pipes wherein at least one double hub pipe is used with two single hub pipes, the single hub pipes being shown with or without flanges.

Fig. 15 shows an end view of a shipping assembly, utilizing groups of tubes as disclosed in Fig. 14, and taken on line 15—15 of Fig. 14.

Referring now to Figs. 1 and 2, the shipping assembly in its completed form comprises a base or bottom wall 10, two side walls 12 and 14, a top wall 16, two end
walls 18 and 20, all forming a boxlike container, and pipe fittings 22 occupying the space inside the container. The tubular walls 10, 12, 14 and 16 may be constructed of double hub pipe lengths 24 and/or single hub pipe lengths 26. These are generally disposed in side by side relation, various arrangements thereof being shown in Figs. 7 through 15. As illustrated in Figs. 7 and 8, double hub pipe 24 has a body portion 28 which terminates at both ends in enlarged end portions 35 and 38 forming peripheral shoulders 40 and 42 respectively as shown in Fig. 9.

In constructing the nine walls of double hub pipes, the pipes are preferably disposed in side by side relation as indicated in Fig. 7, so that the peripheries of hub 30 of one pipe contacts the periphery of hub 28 of the adjacent pipe. Both nine lengths are displaced longitudinally until the hub end 33 of each pipe bears against the hub shoulders 32 of the adjacent pipe. End walls 18 and 20 respectively are then placed against the hub shoulders 32 and 32L of one pipe and shoulder 32R of the adjacent pipe.

The pressure exerted by pipe fittings 22 when placed between end walls 18 and 20, as shown in Fig. 2, will cause end walls 18 and 20 to be locked in place against the respective shoulders of the pipes forming walls 10, 12, 14 and 16. This will prevent the spreading apart of the end walls or shifting of the pipes with respect to each other during shipment when the assembly may be subjected to considerable vibration and bunging such as is experienced on a freight car.

It may be desirable on occasion to assemble the double hub pipes in the manner indicated in Fig. 8, i.e., without longitudinal displacement so that the hub peripheries of one pipe contact the hub peripheries of the adjacent pipe. End walls 18 and 20 are then placed against shoulders 32.

In constructing the nine walls of single hub pipes the pipes may be disposed in side by side relation as illustrated in Fig. 9. Or they may be arranged in alternate right hand and left hand positions as shown in Fig. 10. In each case the peripheries of hub 36 and/or flange 38 of one pipe contacts the body portion 34 of the adjacent pipe. In Fig. 9 both pipes are displaced longitudinally until the hub end 41 of the one pipe bears against the hub shoulder 40 of the adjacent pipe. And in Fig. 10 both pipes are displaced longitudinally until the hub end 41 of the one pipe bears against the flange shoulder 42 of the adjacent pipe. End walls 18 and 20 respectively are then placed against hub shoulder 40L and flange shoulder 42 in the Fig. 9 arrangement, and against hub shoulder 40L and hub shoulder 40R in the Fig. 10 arrangement. In either case the walls and pipes are locked into position by the pressure of fittings 22 as earlier herein described.

Figs. 11, 12 and 13 show arrangements of pipes for constructing the walls of the herein disclosed shipping assembly, which are made up of double hub pipes and single hub pipes. Thus in Fig. 11 the pipes are of equal length and the flange end 43 of the single hub pipe 26 contacts the hub shoulder 32 of the double hub pipe 24, and the hub face 33 of the double hub pipe 24 contacts the hub shoulder 40 of the single hub pipe 26. In Figs. 12 and 13 similar arrangements are shown except that in Fig. 12 the single hub pipe is shorter and in Fig. 13 longer than the double hub pipe.

In all of the above arrangements shown in Figs. 11, 12 and 13 the end walls 18 and 20 are placed so that they bear against the shoulders 40L, 42 and 32R of hubs 36 and 36 respectively.

In Fig. 14 an arrangement of pipes is shown wherein one double hub pipe is used in conjunction with two single hub pipes, and in which the single hub pipe can be equipped with or without brackets 44, 44L. Fig. 15 illustrates a cross section from the shipping assembly of a wall in accordance with this arrangement. As can be noted from Fig. 14 the end walls 18 and 20 will bear against the hub shoulders 40L and 32R respectively.

While other arrangements of pipe lengths, not herein shown, are possible in constructing the package walls of pipe lengths having enlarged ends in accordance with the inventive principle herein disclosed, a preferred method of assembling the inventive shipping package will now be described in terms of an assembly wherein double hub pipe lengths are used throughout in constructing the tubular walls thereof.

For the sake of expediency a form or fixture 55 may be employed as indicated in Figs. 5 and 6. Fixture 55 is preferably made of wood and comprises four upright brackets, two right hand brackets 44R and two left hand brackets 44L, suitably spaced and secured by horizontal supporting members 46 and 48. Each bracket has a facing surface 69. The surface 50 of the right hand brackets 44L is spaced therefrom a suitable distance W. This distance is determined by the number of pipes which form the floor 10 or top 16 of the shipping package. Two wooden runners 52 are supported on and united with wooden blocks 54 with a steel band 56 or wire placed between runner 52 and blocks 54 as shown in Figs. 3 and 4. Two sub-assemblies of runners 52, blocks 54 and steel band 56 suitably spaced between pairs of brackets 44R and 44L serve as a support for the bottom layer 10 of pipes 24. These pipes are arranged in alternate positions as shown in Figs. 4 and 7 with the pipe ends bearing against the respective shoulders as earlier described.

Brackets 44R and 44L are so spaced that their faces 56 will touch the periphery of the outermost pipes.

The next step consists in placing end walls 18 and 20 which are preferably made of wood in an upright position and against the innermost shoulders 32L and 32R of pipes 24 as shown in Fig. 4. While these walls are held in upright position by suitable means not shown, the side walls 12 and 14 are assembled by inserting pipe lengths into the open spaces 60 between walls 18 and 20 and bracket faces 56. This is illustrated shown in Figs. 3 and 6.

In some cases it may be desirable to change the assembly with respect to type or size and place each type or size in a separate compartment. For this purpose the container may be provided with one or more partition walls 19 as indicated in dot and dash lines in Figs. 3 and 5.

If the container is to be completely enclosed, a top layer 16 of pipe lengths is provided with the corresponding wooden runner 62 below the upper tops 66 are fastened about the package, as illustrated in Fig. 1.

To accommodate the lifting arms or fork of a lift truck blocks 54 are of a suitable size and are suitably spaced, so that access can be had to the assembled package from any side.

While the invention has herein been described in connection with soil pipe lengths and fittings, the invention can with equally beneficial results be applied to shipping assemblies of pipes and fittings or accessories used for other purposes.

What we claim is:

1. A unitary package containing pipe fittings and comprising a tubular casing surrounding said fittings, said casing being formed of parallelly aligned pipe lengths having protuberances, said package including end walls for closing each end of said tubular casing, said wall being cooperatively associated with said pipe protuber-
ances in locked relation to provide a container, said pipe fittings being confined in said container, and girding means holding the pipe lengths and end walls in assembled relation.

2. A unitary package containing pipe fittings and comprising side, top and bottom walls having adjacent disposed edges, said walls being formed of parallelly aligned pipe lengths with protuberances at their ends, said package including end walls extending transversely between said side, top and bottom walls cooperatively associated with said pipe lengths and disposed in locking relation with said protuberances to provide a container casing, said pipe fittings being confined in said container and exerting a pressure against said end walls, and girding means holding the pipe lengths, pipe fittings and walls in assembled relation.

3. A unitary package containing pipe fittings and having side, top and bottom walls with respectively adjacent edges, said walls being formed of parallelly aligned pipe lengths with enlarged end portions, said package including end walls extending crosswise between said named walls adjacent the ends of said pipes and cooperatively associated with said pipe end portions in locking relation thereto to provide a container casing, said pipe fittings being confined in said container and exerting a pressure against said end walls and girding means holding the pipe lengths, pipe fittings and end walls in assembled relation.

4. A unitary package containing pipe fittings and comprising spaced outer walls formed of parallelly disposed uniform pipe lengths having enlarged end portions, said package including end walls extending between said outer walls; cooperatively associated therewith to form a container casing, said end walls butting up against the inside shoulders of said enlarged end portions, said pipe fittings being confined in said container and exerting pressure against said end walls and girding means holding the pipe lengths, pipe fittings, and end walls in assembled relation.

5. A unitary shipping package containing pipe fittings and parallelly spaced top and bottom walls and side walls formed of uniform pipe lengths provided with an enlarged pipe hub at each end, said package including end panels disposed at the ends and between said walls and cooperatively associated with said top, bottom and side walls formed of said pipe lengths and butting up against the inside shoulders of said hubs to form a box, said pipe fittings being confined in said box and exerting pressure against said panels, and girding means holding the pipe lengths, pipe fittings, and panels in assembled locked relation.

6. A six sided shipping package enclosing a space containing pipe fittings and comprising parallelly disposed pipe lengths having enlarged end portions with peripheral shoulders, said pipe lengths forming four outer side walls of said package; two oppositely arranged panels forming the remaining two outer walls, said panels bearing against the inside shoulders of said enlarged end portions; said pipe lengths and said panels constituting a casing; said pipe fittings acting in forcing said panels against said shoulders; and girding means securing said pipe lengths, pipe fittings and panels in assembled locked relation.

7. An elongated shipping package containing pipe fittings and pipe lengths having enlarged end portions with peripheral shoulders; two oppositely spaced end panels forming the two end walls of said package; parallelly disposed pipe lengths arranged to form said walls about the periphery of said panels, said periphery being in close contact with the said pipe walls and with said peripheral pipe shoulders; said pipe fittings being confined within said walls and between said panels, said fittings exerting a normal gravitational pressure against said panels and indirectly against said peripheral pipe shoulders; said girding means securing said pipe lengths and end panels in assembled relation.

8. A many sided shipping assembly containing pipe fittings and comprising a plurality of pipe lengths in confining relation to said pipe fittings, each pipe length having a body portion terminating in two enlarged end portions of diameters larger than the diameter of said body portion, thereby forming peripheral shoulders on each end of said pipe body, the right hand shoulder being of different configuration than the left hand shoulder; two spaced panels constituting two opposing end walls of said assembly; at least three other walls of said assembly being constructed of parallelly aligned pipe lengths, said lengths being arranged in alternate right hand and left hand positions with respect to said right and left hand shoulders, and longitudinally displaced with the outside edge of the right hand end portion of one pipe contacting the body portion of the adjacent pipe and butting up against the right hand shoulder thereof, and the outside edge of the left hand end portion of the adjacent pipe contacting the body portion of said one pipe and butting up against the left hand shoulder thereof; said spaced panels being in confining relation with the body portion of said pipe lengths and butting up against the shoulders of at least three enlarged end portions thereof; said pipe walls and end panels constituting a shipping box, said pipe fittings being contained within said box; and girding means to secure said pipe lengths, pipe fittings and end panels in assembled relation.

9. A unitary package containing pipe fittings and having top, bottom and side walls formed of parallel pipe lengths having protuberances, said pipe lengths being arranged in side by side relation, said package including opposing end walls cooperatively associated with said pipe protuberances in locked relation to provide a container casing, at least one partition wall dividing the interior of said container into compartments, said pipe fittings being confined in said container within said compartments and girding means holding the pipe lengths and end walls in assembled relation.

References Cited in the file of this patent

UNITED STATES PATENTS

361,926 Caldwell Apr. 26, 1887
2,720,967 Wilson Oct. 18, 1955