May 25, 1965 M. S. BIRD 3,185,255

BALLAST ELEMENT

Filed July 26, 1960

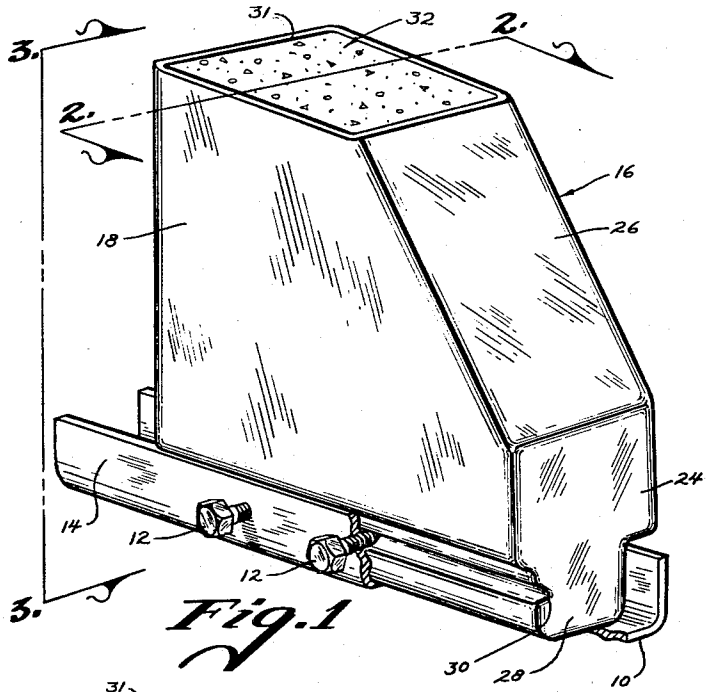


Fig. 1

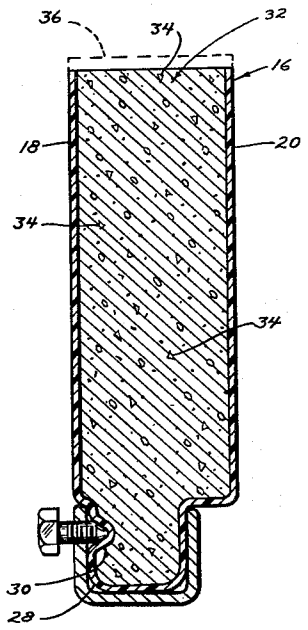


Fig. 2

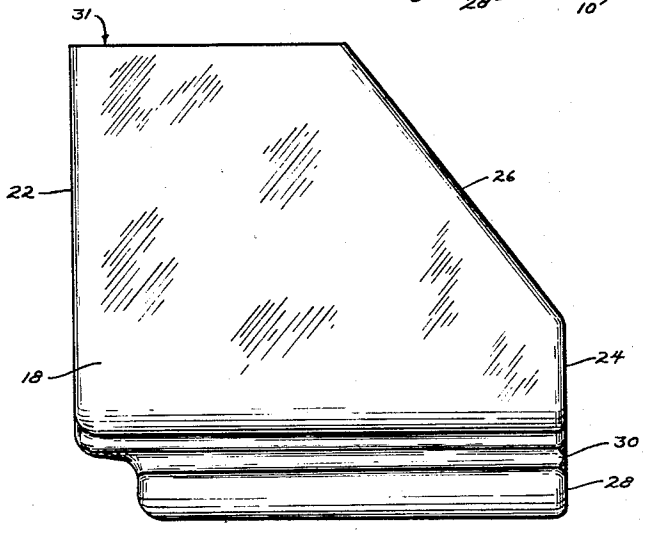


Fig. 3

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3,185,255
Patented May 25, 1965

3,185,255

BALLAST ELEMENT

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Filed July 26, 1960, Ser. No. 45,433
5 Claims. (Cl. 188—1)

My invention relates to ballast devices and more particularly a ballast element which is comprised substantially of concrete material.

Ballast elements are commonly used on industrial equipment and on many articles of manufacture. These ballast elements are composed primarily of metal castings which are specially formed in the foundry to assume the desired shape. Many times, the metal casting has to be machined after it is formed to provide finished surfaces which will facilitate its adaptation to the apparatus to which it is to be attached. Both the casting and machining operations make the metal ballast element quite expensive when its only function is to give a stabilizing affect to the attached apparatus.

Therefore, the principal object of my invention is to provide a ballast element that is comprised substantially of concrete material, but which will have all the attributes and characteristics of a metal ballast element.

A further object of my invention is to provide a ballast element that is comparable to but more economical, from a material standpoint, than a metal ballast element.

A still further object of my invention is to provide a ballast element comprised of concrete material that will not easily be broken, or if broken, will still remain intact.

A still further object of my invention is to provide a ballast element substantially comprised of concrete material which will have a finished surface that will not be injurious to the surfaces of other elements coming in contact therewith.

A still further object of my invention is to provide a ballast element that can be made without the expensive foundry and machining operations which are normally employed in creating a metal ballast element.

A still further object of my invention is to provide a ballast element that does not need to be painted and which will not rust or corrode.

A still further object of my invention is to provide a method of making a ballast element which will unite the concrete forming and plastic coating operations.

A still further object of my device is to provide a ballast element substantially comprised of concrete but which has a weight factor much heavier than normal concrete.

A still further object of my invention is to provide a ballast element that is durable in use and refined in appearance.

These and other objects will be apparent to those skilled in the art.

My invention consists in the construction, arrangements, and combination, of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, specifically pointed out in my claims, and illustrated in the accompanying drawing, in which:

FIG. 1 is a perspective view of my device mounted in a supporting channel of a washing machine apparatus;

FIG. 2 is a sectional view of my device taken on line 2—2 of FIG. 1; and

FIG. 3 is a side elevational view of my device as viewed on line 3—3 of FIG. 1 with the channel being removed therefrom.

I have used the numeral **10** to generally designate a steel channel member which may be a part of a washing machine chassis or other device which is subjected to vibrating forces and which has need of a ballast element. Threaded bolts **12** can extend laterally inwardly through appropriate holes in one of the vertical side flanges **14** of channel **10**.

The numeral **16** generally designates a hollow plastic container whose outside dimensions should conform to the desired shape of the ballast element. Container **16** may be comprised of vertical side walls **18** and **20**, vertical end walls **22** and **24**, a sloping portion **26**, and an indented bottom portion **28** having an elongated recess **30**. An opening **31** should be formed in the topmost portion of the container **16** as shown in FIG. 1. Container **16** can be comprised of a variety of plastics but it is preferred that the plastic have some characteristics of resiliency rather than being of a brittle nature.

The container **16** is filled with a moist concrete material **32** which, in addition to the usual concrete ingredients, has iron ore aggregate added thereto. These iron ore particles **34** are preferably a type of iron ore known as "hematite" which is an oxidized ore which will not rust or corrode, even in the presence of moisture. Whereas concrete has a specific gravity of approximately 2.6, the iron ore has a specific gravity of 4.2. Thus, by adding particles **34** of the ore to the normal concrete mixture, the weight of the concrete per cubic foot can be increased from a normal expectancy of 150 pounds to over 200 pounds, if desired, without adversely affecting the quality of the concrete. The concrete material **32** is permitted to harden within container **16**, and a plastic lid **36** can then be placed over the opening **31** by a suitable adhesive if desired, as shown by the dotted lines in FIG. 2.

The machining operations on metal ballast elements are eliminated with my device for container **16** can be formed to perfect predetermined dimensions with perfectly smooth and true exterior surfaces. The expensive and cumbersome foundry operation in the construction of metal ballast elements is also eliminated because thousands of perfect plastic containers can be easily made from one set of original dies.

The placing of a concrete casting in channel **10** would invite the fracture of the lower portion thereof when bolts **12** were tightened thereagainst. However, the presence of the plastic container **16** on the outside of the concrete material **32** helps to prevent this fracture from occurring as bolts **12** are tightened into recess **30**. Furthermore, if a fracture of the lower portion of the concrete in the bottom portion **28** of the container **16** did occur, the container would hold the broken portions of concrete intact and the weight of the unit would still be preserved for ballast purposes.

The container **16** can be made in different colors to eliminate painting thereof, and the oxidized ore particles prevent any rust from accumulating even though moisture does gain access to the hardened concrete. By substituting my concrete material for the more expensive steel or cast iron, and by eliminating the foundry, machining and painting operations that metal ballast elements require, my ballast element is at least 40 percent less expensive to produce than if made of metal. Obviously, my combination of a plastic container with a concrete filler could assume many different shapes without departing from the inventive concepts here involved. It is appreciated that a plastic piece could be glued on the concrete after it was formed, or that plastic substance could be sprayed thereon after it was formed, but my method of construction, namely, (1) to form the container, (2) to insert moist concrete into the container, and (3) to allow the concrete to harden within the container, unites the concrete forming and "plastic coating" concepts and is, therefore, a much preferred method of fabrication.

Therefore, in view of the above, it is seen that my device will accomplish at least all of its stated objectives.

Some changes may be made in the construction and arrangement of my ballast element and method for making Same without departing from the real spirit and purpose

of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. In combination with a machine having movable components wherein the operation thereof will induce vibration within said machine, a ballast element including a container, said container being comprised entirely of plastic material, means on said machine engaging said plastic container for securing said ballast element to said machine, said container being of continuous unitary construction, said container formed into a predetermined permanent shape, and a hardened concrete substance in said container.

2. In combination with a machine having moving parts wherein the operation of the machine induces vibrations within the machine, a support structure, a ballast element adapted to be adjustably secured to said support structure, said support structure having at least one adjustable securing means for engagement with said ballast element, said ballast element comprising a container formed of plastic material containing a hardened concrete material, and a container wall being positioned between said securing means and said hardened concrete, said securing means adapted to bear against said ballast element to such an extent that relative movement therebetween is prevented.

3. In combination with a machine having movable components wherein the operation thereof will induce vibration within said machine, a ballast element including a container, said container being comprised entirely of plastic material, means on said machine engaging said plastic container for securing said ballast element to said machine, said container being of continuous unitary construction, said container formed into a predetermined permanent shape and having a single access opening, and a hardened concrete substance in said container, said access opening being smaller in area than the largest cross-sectional area of said container whereby said hardened concrete is permanently encased within said container.

4. In combination with a machine having movable components wherein the operation thereof will induce vibration within said machine, a ballast element including a container, said container being comprised entirely of plastic material, means on said machine engaging said plastic container for securing said ballast element to said machine, said container being of continuous unitary construction, said container formed into a predetermined permanent shape, a hardened concrete substance in said container, and said hardened concrete substance including an aggregate of metallic particles.

5. In combination with a machine having movable components wherein the operation thereof will induce vibration within said machine, a ballast element including a container, said container being comprised entirely of plastic material, means on said machine engaging said plastic container for securing said ballast element to said machine, said container being of continuous unitary construction, said container formed into a predetermined shape, a hardened concrete substance in said container and said container being sufficiently rigid to support its permanent shape independently of said concrete substance.

References Cited by the Examiner

UNITED STATES PATENTS

64,976	5/67	Harvey	16—217
989,958	4/11	Frahm	188—1
1,753,776	4/30	De Vilbiss	50—103 X
2,250,107	7/41	Nelles	50—464 X
2,649,644	8/53	Lager	50—94 X
2,677,165	5/54	Copenhaver et al.	18—47
2,711,786	6/55	Weiss	50—268
2,838,137	6/58	Wallerstein	188—1

FOREIGN PATENTS

1,090,631	of 1954	France.
436,287	of 1935	Great Britain.
671,813	5/52	Great Britain.
758,868	of 1956	Great Britain.

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