(No Model.) 2 Sheets—Sheet 1.

H. & W. SUTCLIFFE.

APPARATUS FOR CASTING WATER CLOSET CISTERNS.

No. 266,917. Patented Oct. 31, 1882.

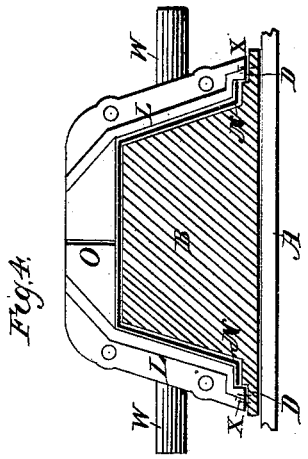

Fig. 4.

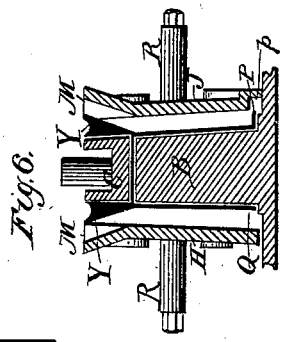

Fig. 6.

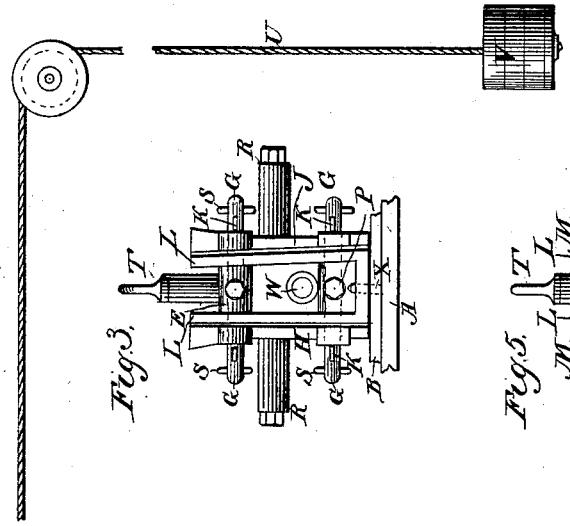

Fig. 3.

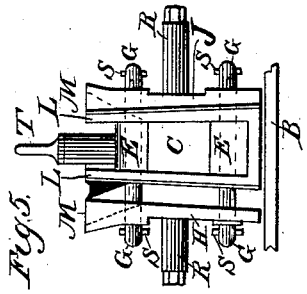

Fig. 5.

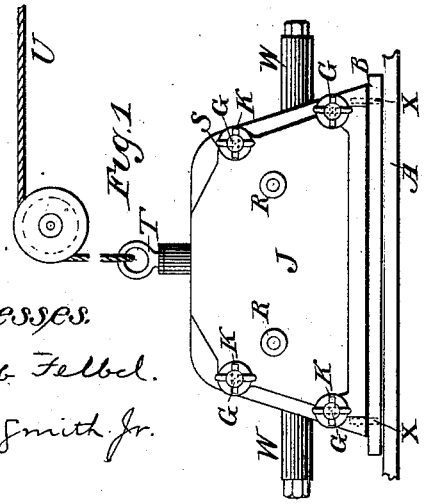

Fig. 1.

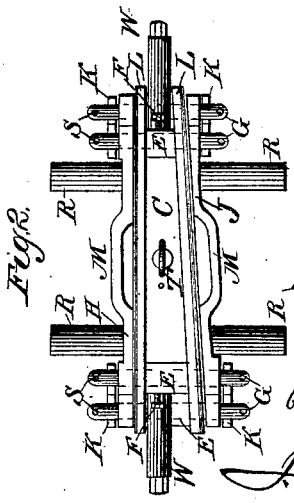

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 9.

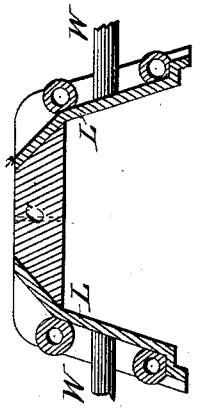


Fig. 13.

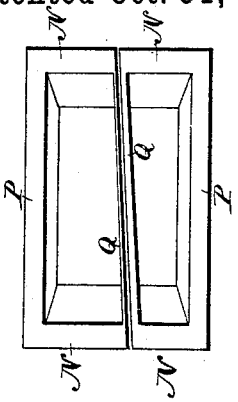


Fig. 8.

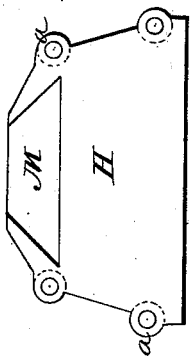


Fig. 12.

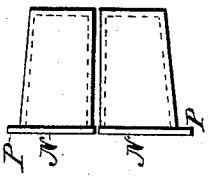


Fig. 11.

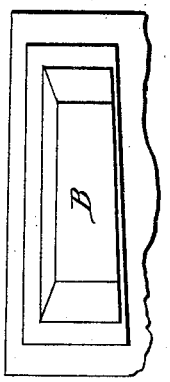


Fig. 7.

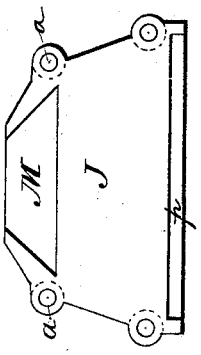
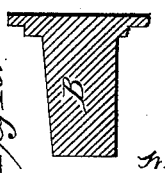


Fig. 10.



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UNITED STATES PATENT OFFICE.

HENRY SUTCLIFFE AND WRIGHT SUTCLIFFE, OF HALIFAX, COUNTY OF YORK, ENGLAND.

APPARATUS FOR CASTING WATER-CLOSET CISTERNS.

SPECIFICATION forming part of Letters Patent No. 266,917, dated October 31, 1882.

Application filed January 16, 1882. (No model.) Patented in England April 27, 1881, No. 1,815.

To all whom it may concern:

Be it known that we, HENRY SUTCLIFFE and WRIGHT SUTCLIFFE, of Halifax, in the county of York, England, have invented a new and useful Apparatus for Molding Water-Closet and other Cisterns; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this application.

Our invention relates to the manufacture of lead cisterns for use mainly in connection with water-closets; and our object is to make such cisterns entire, without seam or joint.

Previous to our invention cisterns have been made of lead, but have been formed not by casting the article whole or entire. Such cisterns as have heretofore been made have, so far as our knowledge extends, been made up of several pieces of sheet-lead, and have had their joints soldered or otherwise secured together.

It will be readily understood that cisterns or tanks made in this manner require frequent and skillful handling, which consequently involves considerable expense in their manufacture, besides which cisterns so made are necessarily frail at the lines of union of their several component parts, and require particularly careful management in their use.

We have devised and practically used an apparatus with which we have been able to cast in a most perfect manner lead cisterns whole or complete in one piece.

In this application we make claim only to our new apparatus; but in a separate application which we shall file we shall claim broadly a cast-lead cistern as a new article of manufacture.

The invention made the subject of this application consists in certain features of structure of the parts of the apparatus as well as in their arrangement together, all of which will be hereinafter fully described, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a molding apparatus made according to our invention with all its parts arranged ready for use. Fig. 2 is a top or plan view thereof. Fig. 3 is an end elevation. Fig. 4 is a side view with outer plate removed, and showing the cistern and core-box in section. Fig. 5 is an end view, showing one of the side plates as if pulled away from the rest of the molding parts. Fig. 6 is a cross-section, showing both side plates moved laterally away from the core and central part of the mold, and showing the cistern just after being cast, but still unremoved from the core. Figs. 7 and 8 are views of the inner faces of the two side plates. Fig. 9 is a side view of the central part of the mold. Figs. 10 and 11 are respectively sectional and plan views of the core. Figs. 12 and 13 are respectively end elevation and plan view of two cisterns forming one double cistern.

In the several views the same letters will be found to designate like parts.

A is a bed-plate or platform upon which to rest the apparatus.

B is a core or former, around which the cistern is cast. This core may of course be made of any desired shape, its contour governing the shape of the finished article.

C is what we call the "central part" or "bridge-piece" of the mold, and is a piece that goes over the top and ends of the core, (in the case in which we have illustrated its use,) between which and the core the bottom and the ends of the cistern are cast. The lower portions of the central part or bridge-piece rest on the extensions or flanges of the core, as at D. On the exterior of the part C are provided bosses E E, to receive the pins or studs G G, which latter are held tightly in place either by the set-screws F F or by any other suitable devices.

H and J are two plates that form the sides of the mold, between which plates and the core and bridge-piece C the cistern or other like hollow receptacle is cast entire. These plates H and J are provided with eyes or perforated lugs *a a*, through which the studs G G pass and support the plates in position vertically. After the plates have once been placed on the supporting-studs there is no occasion to remove them therefrom while the parts are fit for use, because, as is plainly shown in the

drawings, these studs G G are made of a length sufficient to permit the plates to be moved laterally thereon toward and away from the central part of the mold for some little distance to assist in the casting, and be afterward moved aside, so as to allow the cistern to be taken out with ease. To prevent these plates H and J from falling off the studs or arms G, we have provided the latter with holes, through which we pass pins or wedges S after the plates have been put on in position for use.

On the sides of the bridge-piece C are projecting face-pieces L L, against which the inner sides of the plates H and J come when the parts of the apparatus are adjusted for use, and thereby a space is created between the core B and plates H and J about as wide as the intended thickness of the sides of the cast cistern. The plates H and J are inclined outwardly at their upper portions to form "runners" M M for the molten metal.

At O, Fig. 4, is an air-vent cut through the central bridge, C, to allow the escape of the air in the mold during the pouring in of the metal.

R R are handles secured to or forming parts of the plates H and J, by which said plates are conveniently moved along on the studs G during use of the molding apparatus, or for otherwise conveniently handling the plates.

W W are handles on the bridge-piece C, for assisting in lowering said piece onto and lifting it from the core B.

At the top of the central part, C, is a hook or an eye fastened to which is one end of a rope or chain, U, running over suitable pulleys and in the desired direction, and to the other end of which rope or chain is hung a weight, V, which about counterbalances the weight of the bridge-piece C, by which means the bridge-piece is suspended when not in use, and is always held in a convenient and proper position ready to be lowered when the process of casting is to be carried on, and after said process has been finished the rope and other described devices, together with the handles W, serve to properly separate the bridge-piece from the other parts of the mold and hold it away therefrom while the completed cistern is being taken from the core.

When it is desired to cast a cistern having flanges at both sides, both of the plates H and J will have their inner faces provided with spaces therefor, as at *p*, on the right-hand side of Fig. 6, and as shown at Fig. 7. In the drawings I have illustrated only one plate, J, with this provision for casting a side flange on the cistern, the object of this construction of the plates—one adapted to cast a flange and the other not—being to produce cisterns with one side flange only, for the purpose of subsequently putting together two of such cisterns with their blank sides Q adjoining, so as to form one double cistern, as shown at Figs. 12 and 13. The side flanges of the cisterns are lettered P P and the end flanges N N.

K K are cotters or pins, which hold the plates H and J in position during use of the apparatus by being driven into holes or slots in the studs G G.

At Y Y are shown the "gates" of the casting, and at X X dowel or steadying pins for the core and bridge-piece.

After the above description of the construction and arrangement of the various parts of our apparatus, but a brief description is necessary to explain the manner in which the same is used.

When it is desired to mold the cistern the parts of the apparatus are brought into about the relationship shown at Figs. 1, 2, and 3, and the molten metal is poured in at the runners M M, and will surround the core B, as shown by the heavy lines in Figs. 4 and 6. The parts are left to stand in this condition the proper length of time for the metal to take the form of the mold and sufficiently cool, after which the cotters K K are knocked out and the side plates, H and J, drawn outwardly by the handles R R, along the studs G G and away from the bridge-piece C and cord B, (see Fig. 6,) whereupon the bridge-piece, by means of the handles W W and rope and its appendages, is raised clear of and high enough above the core to admit of the removal of the cast cistern. After the cistern has been removed from the apparatus we place it on a workbench and give it a finish by sawing off the gates and planing the rough edges.

Having now so fully described our invention tion that those skilled in the art can make and operate an apparatus embodying the same, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination with the core, the bridge-piece and the side plates.

2. In combination with the core, the bridge-piece provided with studs and the side plates provided with holes or slots.

3. The bridge-piece formed with bosses; and the studs therein, in combination with the binding-screws or other like devices.

4. The bridge-piece provided with studs and pins S, to limit the lateral movement of the side plates, and thereby prevent them from falling off.

5. The bridge-piece provided with projecting faces L L, in combination with the side plates and means for holding them contiguous.

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