

961,367.

J. R. McWANE.
PIPE MOLDING FLASK.
APPLICATION FILED JUNE 22, 1909.

Patented June 14, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

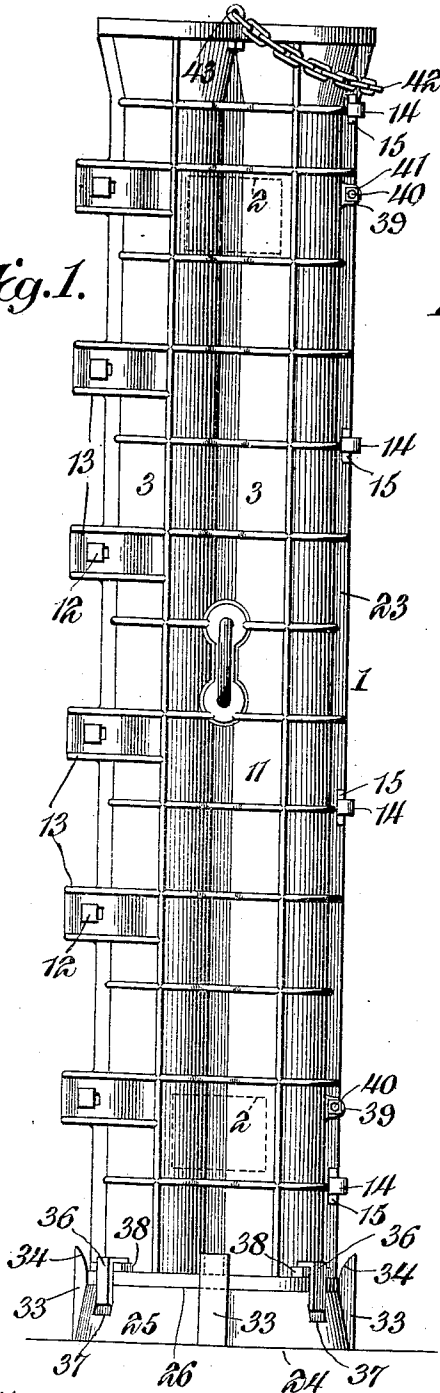
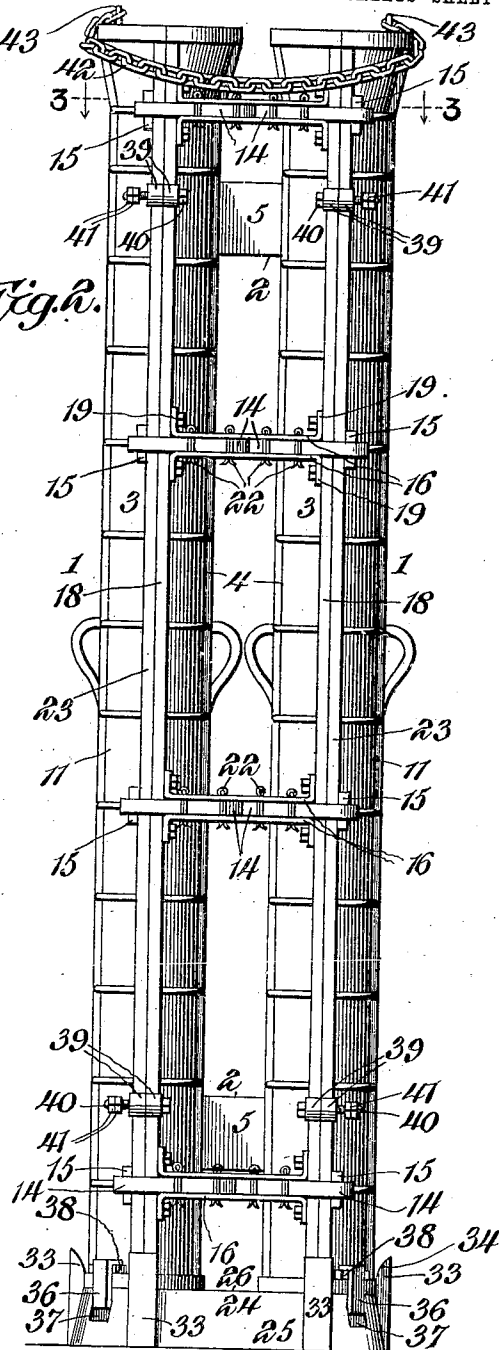


Fig. 2.



Witnesses

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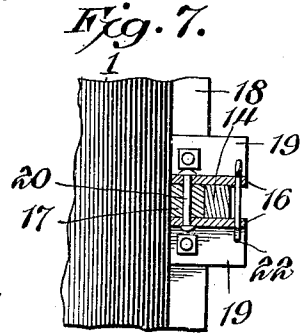
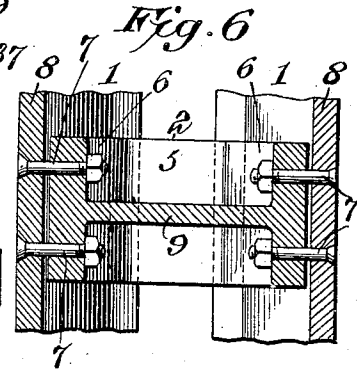
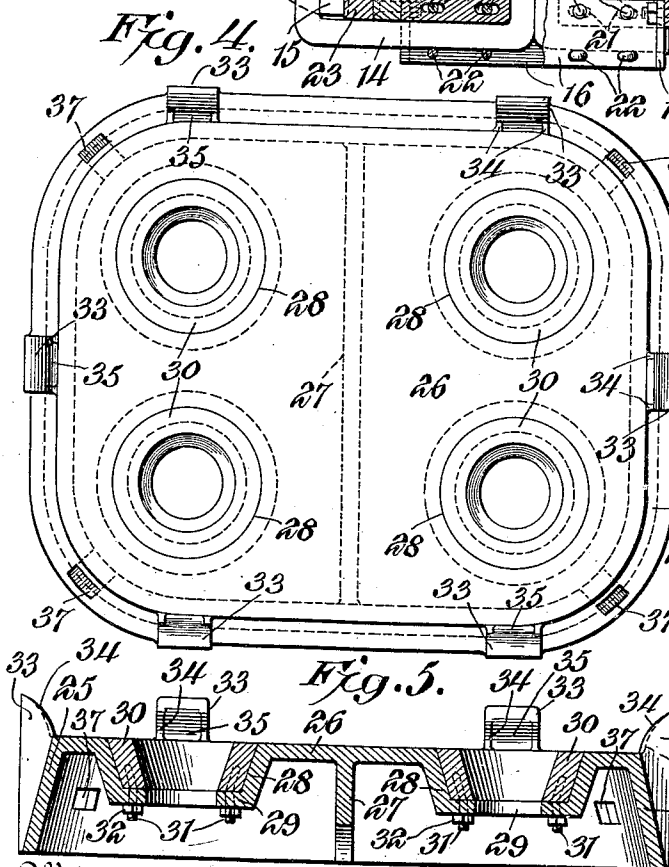
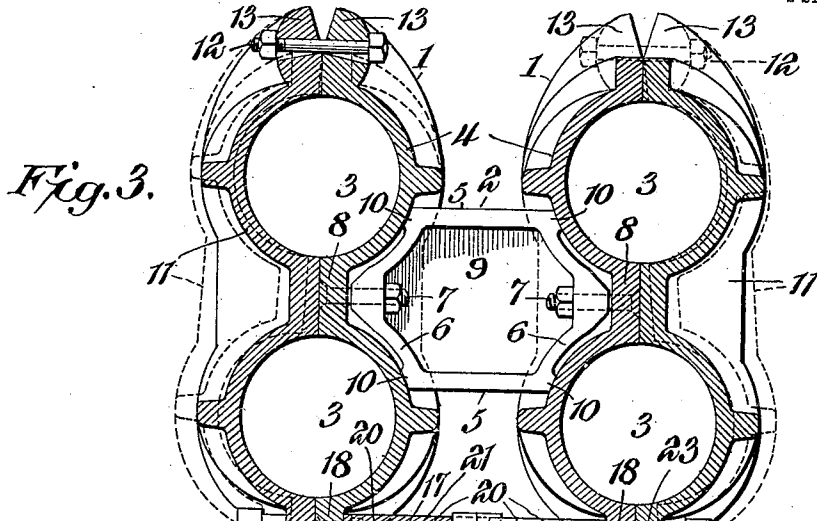
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2 SHEETS—SHEET 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES R. McWANE, OF BIRMINGHAM, ALABAMA.

PIPE-MOLDING FLASK.

961,367.

Specification of Letters Patent. Patented June 14, 1910.

Application filed June 22, 1909. Serial No. 503,704.

To all whom it may concern:

Be it known that I, JAMES R. McWANE, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented a new and useful Pipe-Molding Flask, of which the following is a specification.

The invention relates to improvements in pipe molding flasks.

10 The object of the present invention is to improve the construction of pipe molding flasks, and to provide a simple and comparatively inexpensive multiple flask, adapted to increase the capacity and the output of a foundry, and capable of enabling flasks to be handled with greater facility than heretofore, and with less danger both to the workmen and the flasks.

20 A further object of the invention is to provide a multiple flask of this character, in which the movable flask sections will have but a limited opening movement sufficient to permit the rupture of the sand in the pulling of the pipes, so that separate flasks may be tied together in the construction of a multiple flask, and whereby an old equipment may be utilized when desired.

30 With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

40 In the drawings:—Figure 1 is a side elevation of a multiple flask, constructed in accordance with this invention. Fig. 2 is a front elevation of the same. Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 2. Fig. 4 is a plan view of the bottom or base of the flask. Fig. 5 is a vertical sectional view of the same. Fig. 6 is a detail sectional view, illustrating the construction of the spacing members. Fig. 7 is a detail sectional view of one of the clamps.

50 Like numerals of reference designate corresponding parts in all the figures of the drawings.

55 In the embodiment of the invention illustrated in the accompanying drawings is shown a multiple flask, composed of two

sectional double flasks 1—1, tied or secured together in spaced relation by spacing members 2, but the multiple flask may be provided with any desired number of compartments 3, and the inner flask sections 4 may be connected together by integral portions instead of separate spacing members. The combined spacing and connecting members 2, which may be of any desired number, are preferably arranged at the upper and lower portions of the flask, as illustrated in Fig. 2 of the drawings, and each member 2, which preferably consists of a casting, is composed of straight vertical sides 5 and approximately V-shaped ends 6, which are secured by bolts 7 to the central connecting portions 8 of the inner sections of the flasks. The combined connecting and spacing member is also preferably reinforced and braced by a horizontal connecting web 9, arranged centrally of the member 2, as clearly shown in Fig. 6 of the drawings. The approximately V-shaped ends 6 of the members 2 have terminal abutting faces 10, which fit against the inner flask sections 4, the intermediate portions of the ends of the member 2 being arranged in spaced relation with the inner flask sections in order that the bolts 7, which are located above and below the horizontal web or flange 9, may draw the members 2 and the inner flask sections tightly in engagement with each other to form a rigid structure.

The double flasks 1, which are secured together back to back by the combined connecting and spacing members to form the body of the multiple flask, are each composed of the said inner section 4 and an outer hinged section 11, which is connected at the back of the multiple mold with the rigid or fixed inner section 4 by suitable hinges 12. Any suitable means may be employed for connecting the hinged edges of the sections of the mold, and the hinges 12 consist of bolts, arranged in suitable slots or openings of lugs or ears 13.

The hinged and fixed sections of the flask are secured in their closed position by clamps, which also limit the opening movement of the hinged flask sections, the opening movement being from about one inch to an inch and a half just sufficient to permit a rupture of the sand in pulling the pipes after the same have been cast. This comparatively slight movement is sufficient for the removal of the pipes, and at the same time enables

the multiple flask to be made up of a plurality of separate flasks tied together, whereas it would be impossible to employ such a structure in a flask, in which the movable section or sections of the flask are permitted to swing wide open, or any great distance.

The clamps, which are arranged at the front of the multiple flask, comprise approximately U-shaped clamping members 14 and wedges 15. The U-shaped clamping members, which are relatively long, are constructed of steel, and are permanently but removably mounted on the flask, so that when the wedges are knocked out to release the hinged flask sections, the U-shaped clamping members will not fall into the pit or otherwise become separated from the flask. The advantage of this arrangement is considerable, as it effects a great saving in time and labor in re-clamping the flasks, and the clamping members are not injured by the hot iron from run-outs in the pit, and the durability and efficiency of the clamps are materially increased. The clamps are arranged at suitable intervals, and each pair of clamping members 14 is supported between upper and lower horizontal plates 16, spaced apart to receive the inner portions of the clamping members 14 and also spacing blocks 17, which are interposed between the inner engaging ends of the clamping members and the front vertical flanges 18 of the inner fixed flask sections 4. The upper and lower horizontal plates, which form a partial casing or housing for the clamping members, are provided at their ends with attaching flanges 19, which are bolted or otherwise secured to the vertical flanges 18 of the fixed flask sections. The spacing blocks 17 are secured between the plates 16 by vertical rivets 20, or other suitable fastening devices, the spacing blocks 17 being provided with oblong slots 21 of a length greater than the diameter of the fastening devices 20 and extending beyond the same in opposite directions in order to prevent the shearing of the fastening devices when pressure is applied to the spacing blocks 17 for clamping the flask sections. The inner engaging ends of the U-shaped clamping members 14 are interposed between the inner ends of the spacing blocks 17, as clearly illustrated in Fig. 3 of the drawings, and the said clamping members are retained between the supporting plates 16 by outer vertical keys 22, or other suitable fastening means. The keys, which are split, pierce the upper and lower plates 16 adjacent to the upper edges thereof, and are removable to permit the clamping members to be detached when necessary or desirable. The wedges 15 are driven between the outer engaging ends of the clamping members 14 and the front vertical flanges 23 of the hinged flask sections. It is only necessary

to knock out the wedges for releasing the hinged flask sections, and when the pipes are pulled, the pressure on the sand will rupture the same and open the hinged sections and thereby free the molded pipe.

The multiple flask is equipped with an approximately rectangular base 24, having inclined supporting walls or flanges 25 and a flat top 26. It is also braced by a central vertical web or flange 27, extending across the base from the front to rear and connecting the top with the front and rear side walls or flanges. The base may, however, be reinforced and braced in any other preferred manner.

The top of the base is provided with a plurality of tapering sockets or seats 28, each consisting of a depending inwardly tapered annular wall and a horizontal inwardly extending annular supporting flange 29. The sockets receive downwardly tapered chill rings 30, each consisting of a single integral piece, and secured in the sockets or seats by bolts 31, projecting from the lower edges of the chill rings. The bolts, which have their upper portions cast in the chill rings, pierce the horizontal flanges 29 and are provided with nuts 32 for engaging the said flanges 29. The sockets correspond with the compartments 3 of the flask sections, which are centered with relation to the sockets by means of upwardly projecting lugs 33, formed integral with the base 24 and extending above the top 26 thereof at the outer faces of the supporting walls or flanges 25. The lugs 33 are tapered, being provided with straight vertical outer edges and rounded inner edges 34, intervening recesses 35 being formed between the edges 34, which are adapted to be chiseled or otherwise trimmed to seat the flask sections properly with relation to the chill rings. The trimming edges 34 obviate the necessity of machine-planing the parts to secure the proper fit. The flask sections are adapted to be readily placed on the base by a crane (not shown), and the lugs will automatically center the flask sections. The flask sections are secured to the base by means of clamps, consisting of short approximately U-shaped clamping members 36, arranged vertically and having their lower portions extending into openings 37 in the walls or flanges 25 of the base and engaging the latter. The upper ends of the clamping members 36 extend above the bottom flange of the flask sections, and are engaged by wedges 38, interposed between the upper ends of the members 36 and the bottom flanges of the flask sections.

The front vertical flanges 18 and 23 of the flask sections are provided with upper and lower ears 39 for the reception of bolts 40, extending through the ears and provided at one end with a head and having a pair of

nuts 41 at the other end. These bolts cooperate with the clamping members 14 and limit the opening movement of the flask sections, and they are also adapted to restrict such opening movement, when it is not desirable to allow the hinged flask sections to swing outward the full limit permitted by the clamps.

The multiple flask is equipped with a chain bail 42, consisting of a chain connected at its ends by eye bolts 43 with the hinged flask sections at the top thereof. The eye bolts pierce the top flanges of the hinged sections, and the weight of the sections will close the flask when the latter are lifted to place the body of the flask upon the base, and when the body is arranged thereon, the centering lugs will engage the flask sections and maintain the same in their closed position while they are being clamped. Also the chain of the bail 42 is of sufficient length to permit the major portion of the bail to hang down below the upper edges of the flask sections in order to be out of the way, when pouring the metal. The chain bail also obviates the necessity of equipping a crane with chains of a length to extend below the tops of the flasks, and the attendant danger of such chains upsetting a row of flasks is entirely eliminated. The crane hook is always located above and beyond the flasks, and it is only necessary to lift up the chain bail and connect it with the crane hook, when it is desired to move a flask.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A flask including hinged flask sections, and a chain bail connected at its ends with the flask sections at the upper end thereof and adapted to close the sections when the flask is lifted and capable also of dropping below the upper edges of the sections.

2. A flask including hinged sections, a flexible bail connected at its ends with the sections at the top thereof and adapted to drop below the upper edges thereof and capable of automatically closing the sections when the same are lifted, and a base having projecting means adapted to interlock it with the flask sections to retain the same in their closed position.

3. A flask including hinged sections, a flexible bail connected at its ends with the sections at the top thereof and adapted to drop below the upper edges thereof and capable of automatically closing the sections when the same are lifted, and a base provided with upwardly projecting lugs presenting inner inclined edges to the flask sections for centering the same on the base.

4. A flask including relatively fixed inner flask sections connected with each other, outer hinged flask sections, and a flexible

bail connected at its ends to the outer hinged flask sections and adapted to close the same when the sections are lifted.

5. A multiple flask including inner flask sections arranged back to back in spaced relation, a combined spacing and connecting member interposed between the inner flask sections, fastening means for detachably securing the inner flask sections and the said member together, and outer flask sections hinged to the inner flask sections.

6. A multiple flask including fixed inner flask sections arranged with their backs opposing each other in spaced relation, outer sections hinged to the inner sections, clamps mounted rigidly on the fixed inner sections and having their outer ends loosely embracing the free edges of the hinged sections, and means cooperating with the clamps for locking the hinged sections in their closed position.

7. A multiple flask including separate sectional flasks having inner and outer flask sections, and a combined spacing and connecting member having tapered ends provided with spaced abutting portions fitted against the said inner flask sections.

8. A multiple flask including separate sectional flasks having inner and outer flask sections, and a combined spacing and connecting member having tapered ends provided with spaced abutting faces secured at points between the same to the inner flask sections.

9. A multiple flask including separate sectional flasks having inner and outer flask sections, and a combined connecting and spacing member composed of tapered ends having spaced abutting faces and secured between the same to the flask sections, sides connecting the tapered ends, and a web or flange extending across the said member and connecting the sides and ends.

10. A multiple flask including separate sectional flasks having inner and outer flask sections, and a combined connecting and spacing member composed of straight vertical sides, tapered ends connecting the sides and provided at their terminals with portions, and a centrally arranged horizontal web connecting the sides and ends, and fastening devices located above and below the horizontal web and piercing the tapered ends between the abutting faces thereof and securing the members to the inner flask sections.

11. A flask including hinged flask sections, and a clamp comprising a clamping member mounted on and carried by one of the sections and having a portion arranged to limit the opening movement of the other section, and a wedge cooperating with the clamping member and engaging the other flask section.

12. A flask including hinged flask sec-

tions, and a clamp comprising an approximately U-shaped clamping member arranged to limit the opening movement of the sections of the flasks and mounted on and carried by one flask section, and a wedge cooperating with the clamping member and engaging the other flask section.

13. A flask including hinged flask sections, and a clamp comprising an approximately U-shaped clamping member mounted on and carried by one flask section and having one of its ends arranged to limit the opening movement of the other flask section, and a wedge cooperating with such end of the clamping member and engaging the adjacent flask section for securing the sections of the flask in their closed position.

14. A flask including hinged flask sections, and a clamp comprising an approximately U-shaped clamping member mounted on and carried by one of the sections of the flask, a block interposed between such section and one end of the clamping member, and a wedge cooperating with the other end of the clamping member and engaging the other flask section.

15. A flask including hinged sections, and a clamp comprising an approximately U-shaped clamping member, a casing partially housing the clamping member and supporting the same, a block provided with elongated slots and interposed between one end of the clamping member and one of the sections of the flask, a wedge cooperating with the other end of the clamping member and engaging the other flask section, and fastening devices piercing the casing and passing through the elongated slots of the spacing block.

16. A flask including hinged sections, and a clamp comprising an approximately U-shaped clamping member, a casing partially housing the clamping member and supporting the same, a block provided with elongated slots and interposed between one end of the clamping member and one of the sections of the flask, a wedge cooperating with the other end of the clamping member and engaging the other flask section, fastening

devices piercing the casing and passing through the elongated slots of the spacing block, and keys also piercing the casing and arranged at the outer side of the clamping member for detachably retaining the latter within the casing.

17. A flask including fixed inner flask sections, and hinged outer flask sections, supporting plates extending across the space between and secured to the fixed flask sections, blocks spaced from each other and secured between the plates, clamping members fitted between the plates and having their inner ends arranged contiguous to each other and engaged with the said blocks, and means cooperating with the outer ends of the clamping members for engaging the outer flask sections.

18. A flask including hinged flask sections, clamping means for holding the flask sections in their closed position, and means located at the free edges of the flask sections opposite the hinged edges and carried by the flask sections for limiting the opening movement so as to allow the sections to open only a sufficient distance to permit a rupture of the sand.

19. A flask including hinged sections provided at their free edges with ears, clamping means for securing the sections in their closed position, and an adjustable device passing through the ears and limiting the opening movement of the sections.

20. A flask including hinged sections provided at their free edges with ears, clamping means for securing the sections in their closed position, and a bolt passing through the ears and provided at one end with a head and having nuts at the other end and limiting the opening movement of the sections.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES R. McWANE.

Witnesses:

W. D. MOORE,
A. E. NELSON.