April 24, 1962 W. J. HUSTON, SR., ETAL 3,030,678

METHOD OF DISINTEGRATING A SAND MOLD WHILE IN ASSOCIATION WITH A FLASK AND A CASTING

Filed Sept. 8, 1959

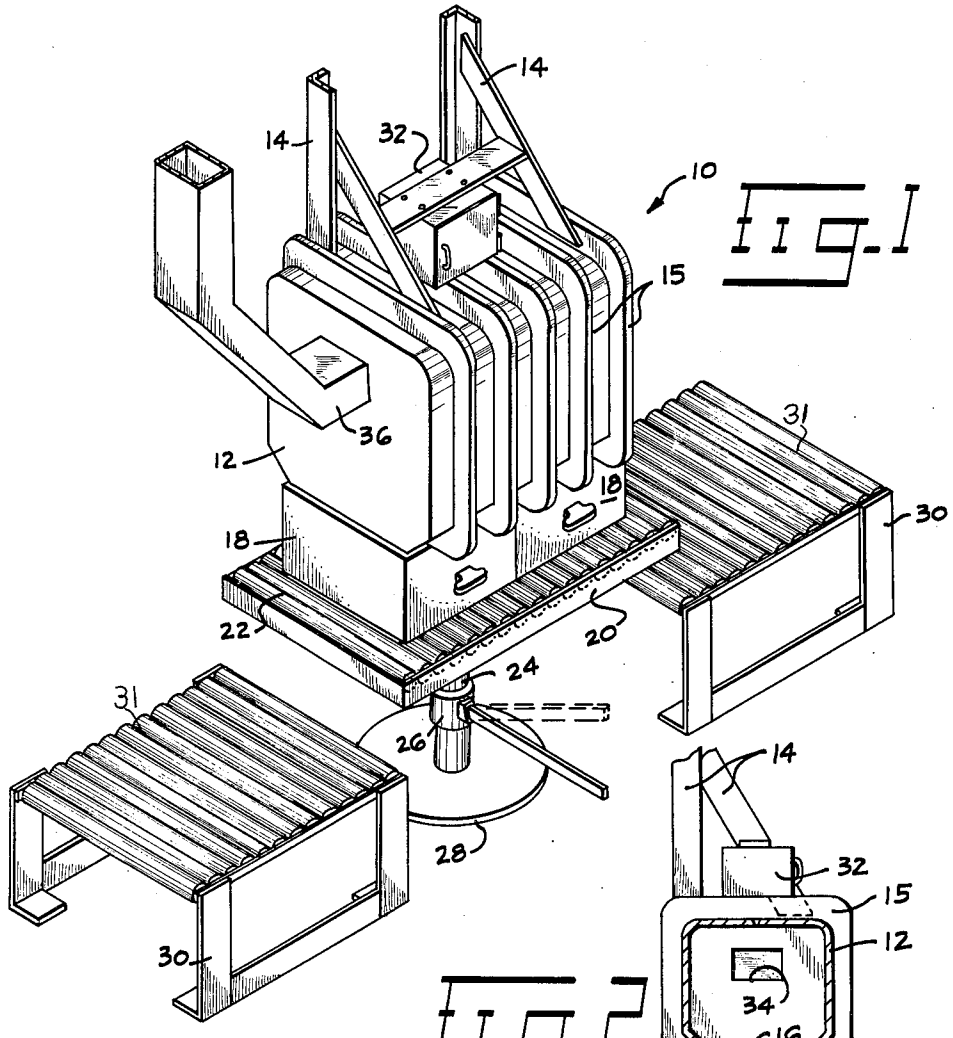


FIG. 1

FIG. 2

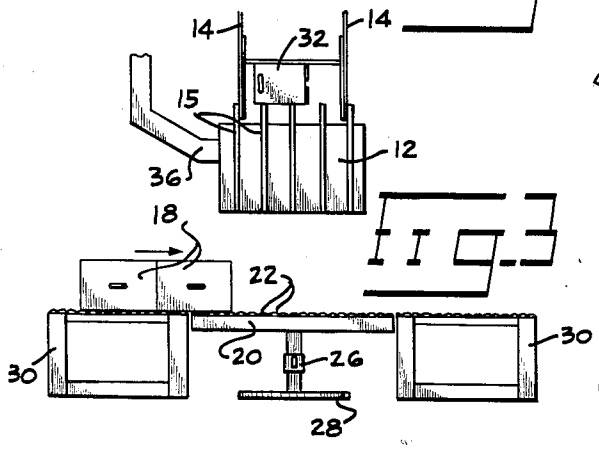


FIG. 3

INVENTORS
WILLIAM J. HUSTON, SR.
ARTHUR E. DE MOTT
BY
Carl Miller
ATTORNEY

United States Patent Office 3,030,678 Patented Apr. 24, 1962

3,030,678

METHOD OF DISINTEGRATING A SAND MOLD WHILE IN ASSOCIATION WITH A FLASK AND A CASTING

William J. Huston, Sr., Drayton Plains, Mich. (645 Northfield, Pontiac, Mich.); and Arthur E. De Mott, 4145 Eagle Ct., Rte. 1, Drayton Plains, Mich.

Filed Sept. 8, 1959, Ser. No. 838,537
4 Claims. (Cl. 22—190)

This invention relates to molding apparatus and, more particularly, to a flask and casting cleaner.

Ordinarily, sand and castings are removed from molding flasks by shaking and jarring, such as with conventional equipment. It is an object of the present invention to provide apparatus for blowing out and emptying the molding flask of the sand and casting by combustion in place of the aforementioned shaking and jarring operations.

Another object of the present invention is to provide molding flask and cleaning apparatus which employs a combustion chamber for exploding a gas or other combustible mixture for blowing out and cleaning a flask so as to ready it for another molding operation.

Still a further object of the present invention is to provide a molding flask and cleaning assembly of the type described which includes exhaust means for emptying the combustion chamber, and for removing sand, dust, and other residue following the blowing out of the mold.

All of the foregoing and still further objects and advantages of this invention will become apparent from a study of the following specification, taken in connection with the accompanying drawing, wherein:

FIGURE 1 is a perspective view of a molding flask and cleaning apparatus made in accordance with the present invention in actual use;

FIGURE 2 is a longitudinal cross sectional view of the assembly taken through the lift table of the apparatus shown in FIGURE 1; and

FIGURE 3 is a front plan view of the assembly shown in FIGURE 1.

Referring now to the drawing, and more particularly to FIGURE 1 thereof, a molding flask and casting cleaner assembly **10** made in accordance with the present invention is shown to include a combustion chamber **12** having support brackets **14** for suspending it from a ceiling or wall above the floor level. The exterior of the combustion chamber **12** is provided with a plurality of outwardly extending flanges **15** which serve to cool the interior of the chamber after each explosion therewithin.

As is more clearly shown in FIGURE 2 of the drawing, the bottom of the combustion chamber **12** defines an opening **16** into which one or more molding flasks **18** are placed in association upon a lift table **20** having a plurality of spaced apart drawers **22**. The lift table **20** is carried upon a depending post **24** and may be selectively raised and lowered by means of a hand or power operated jack **26** carried upon a base **28**. In the lowered position, the lift table **20** is in a plane common to the upper plane of a pair of spaced apart loading tables **30** also having rollers **31** upon which the flasks **18** may be rolled into position beneath the combustion chamber **12**.

An ignition chamber **32** is supported upon the top of the combustion chamber **12** and is provided with any suitable means for supplying an explosive fluid to the interior of the combustion chamber **12** and for igniting such fluid to effect an explosion with the flasks **18** in association with the lowermost opening **16** thereof. The force of such explosion is sufficient to jar the sand and casting within the flasks **18** to allow for the removal of such sand casting to ready the flask for the next molding operation.

An outlet **34** has a dust removal duct **36** associated therewith, for removing dust, gas, and other residue from the interior of the combustion chamber **12**.

It will now be recognized that this apparatus may be used for high speed molding operations, and provides for the thorough cleaning of the molding flasks after each molding operation in a simple and efficient manner.

While this invention has been described with particular reference to the construction shown in the drawing, it is to be understood that such is not to be construed as imparting limitations upon the invention, which is best defined by the claims appended hereto.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:

1. The method of removing and recovering mold sand from mold flasks following the formation of a casting therein, including the steps of: receiving a mold sand retaining flask beneath a downwardly open combustion chamber, closing said combustion chamber with said flask, having an explosive charge within said combustion chamber, igniting the explosive charge in said combustion chamber, and directing the explosive wave forces resulting from the ignition of said explosive charge through said flask for blowing out said mold sand therewith and breaking up said mold sand in the course thereof.

2. The method of removing and recovering mold sand from mold flasks following the formation of a casting therein, including the steps of: receiving a mold sand retaining flask which is open at opposite sides thereof adjacent an open combustion chamber, closing said combustion chamber with said flask, introducing an explosive charge within said combustion chamber and igniting said charge therein, and directing the explosive wave forces resulting from the ignition of said explosive charge through said flask for blowing out said mold sand therewith and breaking up said mold sand in the course thereof.

3. The method of removing and recovering mold sand from mold flasks following the formation of a casting therein, including the steps of: receiving a mold sand retaining flask beneath a downwardly open combustion chamber, raising said flask into closing engagement with the opening in said combustion chamber, having an explosive charge within said combustion chamber, igniting the explosive charge in said combustion chamber, and directing the explosive wave forces resultant from the ignition of said explosive charge through said flask for blowing out said mold sand therewith and breaking up said mold sand in the course thereof.

4. The method of recovering castings and mold sand from mold flasks including the steps of: receiving a mold sand retaining flask having a casting encased in said sand beneath a downwardly open combustion chamber, closing said combustion chamber with said flask, having an explosive charge within said combustion chamber, igniting the explosive charge in said combustion chamber, and directing the explosive wave forces resulting from the ignition of said explosive charge through said flask for blowing out said casting and mold sand therewith and separating said mold sand from said casting.

References Cited in the file of this patent

UNITED STATES PATENTS

2,028,933	Dean et al.	May 4, 1937
2,399,680	Keefer	May 7, 1946
2,585,105	Frank	Feb. 12, 1952
2,651,087	Fellows	Sept. 8, 1953
2,714,563	Poorman	Aug. 2, 1955
2,826,369	Haltmeier	Mar. 11, 1958
2,829,406	Gernhardt	Apr. 8, 1958

FOREIGN PATENTS

1,030,974	Germany	May 29, 1958