(No Model.)

# J. M. CORNELL.

## FOUNDRY FLASK.

No. 418,170. Patented Dec. 31, 1889.

Fig. 1.

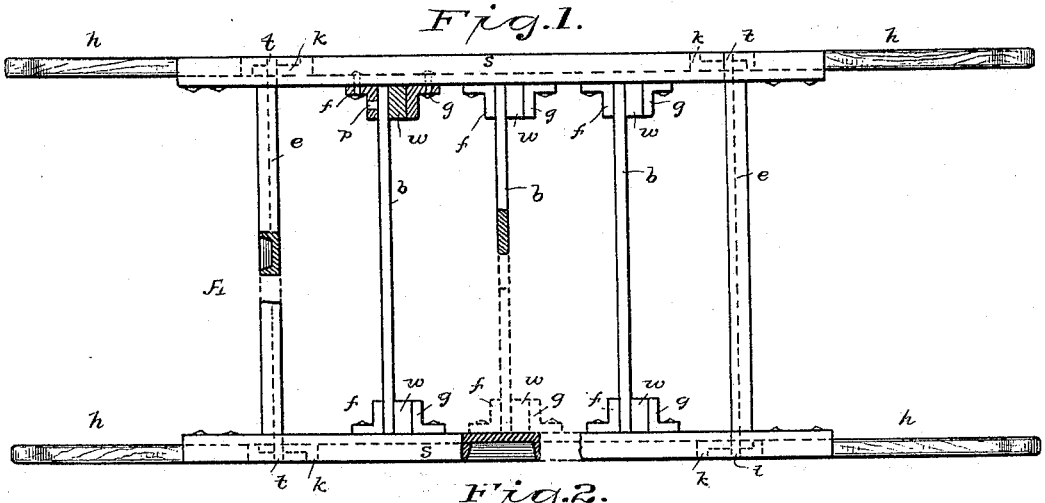



Fig. 2.

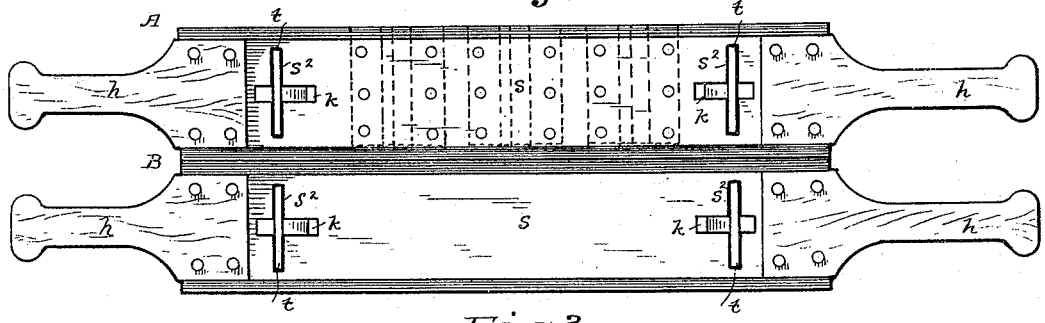



Fig. 3.

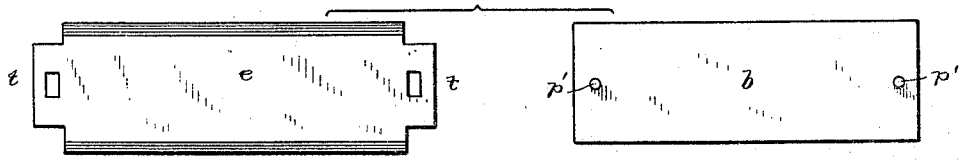



Fig. 4.

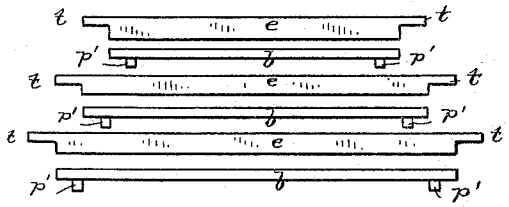



Fig. 5.

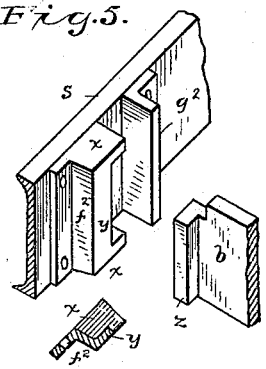
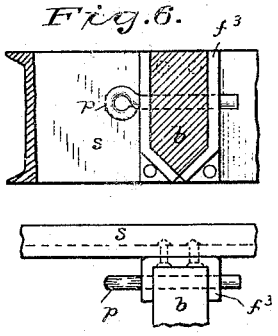



Fig. 6.




Witnesses

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# UNITED STATES PATENT OFFICE.

JOHN M. CORNELL, OF NEW YORK, N. Y.

## FOUNDRY-FLASK.

SPECIFICATION forming part of Letters Patent No. 418,170, dated December 31, 1889.

Application filed November 5, 1889. Serial No. 329,344. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. CORNELL, a citizen of the United States, and a resident of New York, in the State of New York, have invented a new and useful Improvement in Foundry-Flasks, of which the following is a specification.

This invention relates to flasks of iron and wood combined for inclosing molded molds in iron-foundries, and to means for rendering such flasks adjustable or variable in size, so as to reduce the number necessary to be kept on hand, and for adapting them to be readily taken apart, so as to economize storage-space.

The present invention consists in certain novel combinations of parts, whereby channel-iron is utilized for the side and end bars, the iron side bars are provided with rigidly-attached wooden handles, and an adjustable and separable foundry-flask is constructed in a simple and thoroughly practicable manner, as hereinafter described and claimed.

A sheet of drawings accompanies this specification as part thereof.

Figure 1 of the drawings represents a top view of a small two-part flask constructed according to this invention, with breaks exposing to view cross-sections of the principal parts. Fig. 2 is a side view of the same. Fig. 3 represents face views of an end piece and one of the bars of the cope. Fig. 4 represents edge views of a series of interchangeable end pieces and bars. Fig. 5 is a perspective view of fragments of a side piece and the adjoining end of a bar, showing a modified bar-fastening; and Fig. 6 represents fragmentary sectional and top views showing another modified bar-fastening.

Like letters of reference indicate corresponding parts in the several figures.

The top half or cope A and the bottom half or drag B are composed in common of side pieces $s$ and end pieces $e$ of channel-iron, with the flanges turned out and with the attaching ends of endwise-projecting wooden handles $h$ riveted fast between the flanges at both ends of each side piece, the rivets passing through the web of the bar, and said attaching ends being tightly fitted between said flanges and having parallel upper and lower edges, with which the flanges coact to relieve the rivets from excessive strain. The side pieces are furthermore provided with vertical slot $s^2$, and tenons $t$ are formed on the ends of the end pieces by punching out their corners, and are slotted, as shown in Fig. 3, and keys $k$, passing through the slotted tenons, unite the side and end pieces of the cope and those of the drag, as shown in Figs. 1 and 2, with sufficient rigidity for use, and so that by removing the keys the flask may be quickly taken apart. The cope is further provided with the customary "bars" $b$ between and parallel with its end pieces $e$, and its side pieces $s$ are provided on their inner surfaces with fastening parts $f$ $g$ or $f^2$, $g^2$, or $f^3$, riveted fast and adapted to coact with wedges $w$, Fig. 1, or pins $p$, Fig. 6, to fasten a complement of bars in place when the flask is put together for use. In either form the bars are preferably so fastened as to tie together the side pieces of the flask when the latter is clamped, so as to aid in resisting the pressure of the molten iron within the mold.

In the bar-fastening arrangement represented in Figs. 1 to 4, inclusive, flat iron bars of either rolled or cast iron are provided with short stud-pins $p'$ near their ends, and the fastening parts $f$ $g$ consist of two pieces of angle-iron at each fastening-point, one of them $f$ being provided with a hole to receive the stud-pin $p'$ of the adjoining bar end, while sufficient space is provided between the two to facilitate interlocking the bar end with the perforated fastening part and to admit a wedge behind the bar end, between it and the abutment part $g$, to tighten and lock the fastening.

In the bar-fastening represented by Fig. 5 the part $f^2$ is a casting recessed to form horizontal stop portions $x$ at top and bottom and a connecting-wall or return $y$. These portions of said part $f^2$ engage with matching surfaces of an L-shaped terminal portion $z$ on the bar, which in this form is of cast-iron, so that when it is locked by means of wedges, like the form above described, the bar is secured against displacement upward or downward and the sides of the cope are securely tied together. The abutment part $g^2$ may be identical with said abutment parts $g$ or may be cast, as preferred.

In the fastening for wooden bars represented by Fig. 6 the single fastening part $f^3$ is cut from light channel-iron, punched, as

shown, and closed at its lower end by shearing and bending in its flanges to form a bottom stop. The end of the bar is fitted thereto and provided with a hole in line with holes in the sides of the fastening part to receive the locking-pin *p*.

With either form of bar-fastening each flask is provided with interchangeable end pieces and interchangeable bars of different lengths, as illustrated by Fig. 4, so as to provide for readily increasing or reducing the width of the flask, or, in other words, for setting it up of any required width. The end pieces of the cope are also interchangeable with those of the drag, and in the species illustrated by Figs. 1 to 4 both end pieces and bars may be put in with either edge up.

A greater or less number of bars may be used and the relative proportions of the parts may be varied to any required extent.

Having now described the said foundry-flask and modifications thereof, I claim as my invention and desire to patent under this specification—

1. A foundry-flask having side pieces of channel-iron with outwardly-projecting flanges and wooden handles projecting endwise, and having attaching ends which fit tightly between said flanges and are riveted fast to the webs of the bars, substantially as hereinbefore specified.

2. The combination, in a foundry-flask, of side pieces of channel-iron having outwardly-turned flanges and vertical slots, interchangeable end pieces of channel-iron having outwardly-turned flanges and provided at their ends with slotted tenons fitted to said slots in the side pieces, and keys fitted to the slots of said tenons and located between the flanges of the side pieces, substantially as hereinbefore specified.

3. The combination, in a foundry-flask, of side pieces of channel-iron having outwardly-turned flanges and vertical slots and provided with bar-fastenings affixed to their inner surfaces, interchangeable end pieces of channel-iron having outwardly-turned flanges and provided at their ends with tenons fitted to said slots in the side pieces, interchangeable bars having their ends fitted to said bar-fastenings, and suitable devices, as keys and wedges, for locking the several fastenings, substantially as hereinbefore specified.

4. In a foundry-flask, the combination, with interchangeable metallic bars of different lengths provided near their ends with laterally-projecting stud-pins, of side pieces provided with fastening parts of angle-iron having holes fitted to said stud-pins and abutment parts of angle-iron behind the bars, and interposed vertical wedges for locking the fastenings, substantially as hereinbefore specified.

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