

No. 666,671.

Patented Jan. 29, 1901.

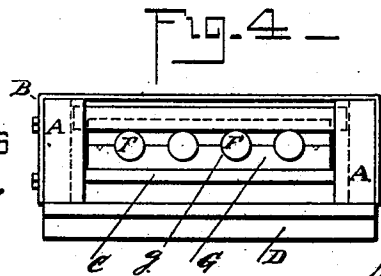
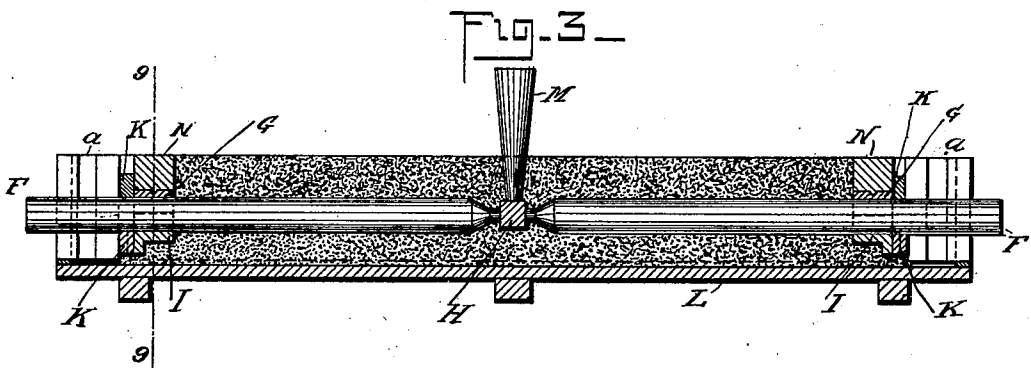
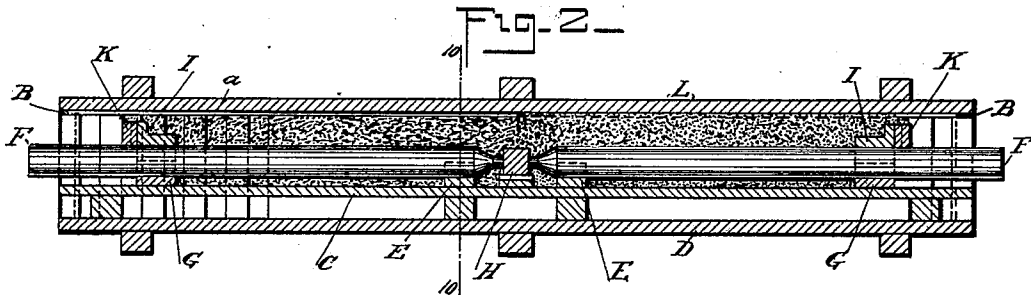
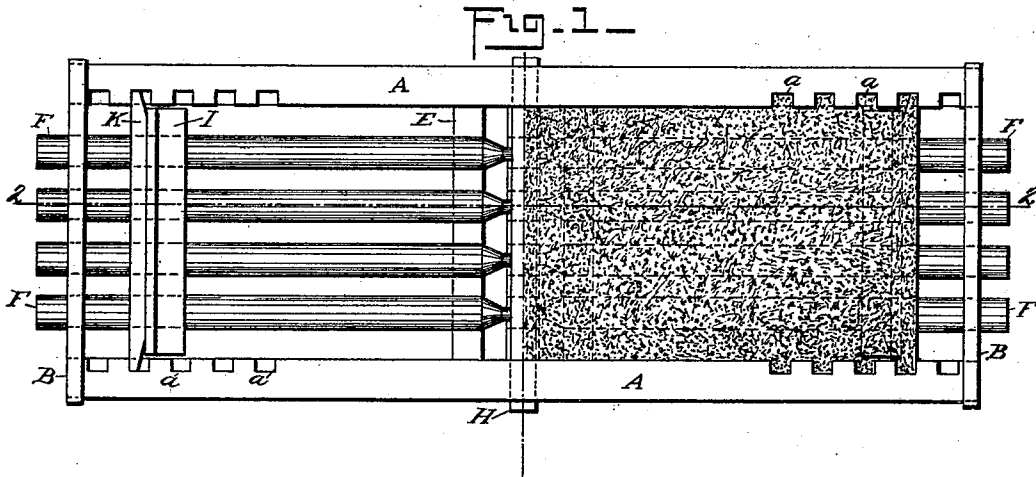
A. S. HODGES.

FLASK FOR MAKING SEAMLESS SASH WEIGHTS.

(Application filed Jan. 25, 1900.)

No Model.)

4 Sheets—Sheet 1.



Witnesses

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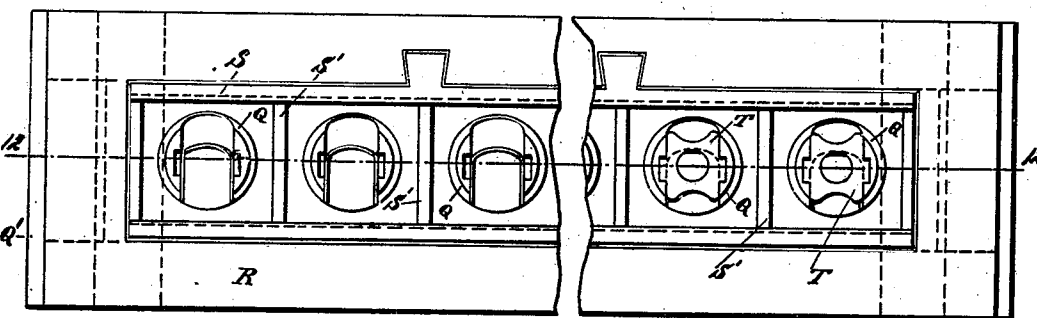
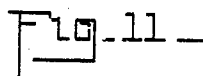
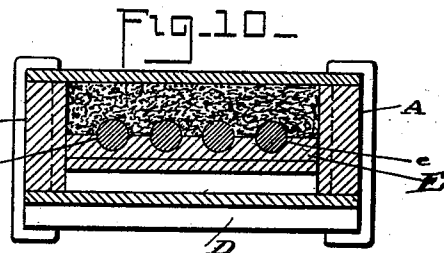
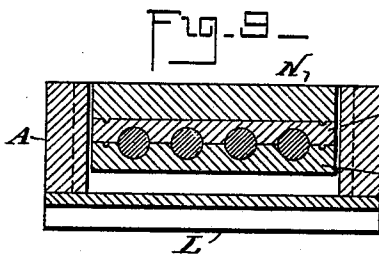
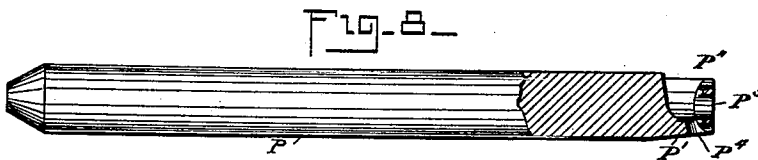
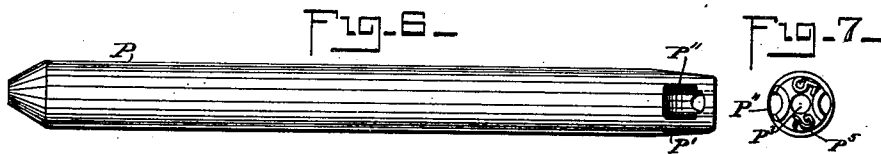
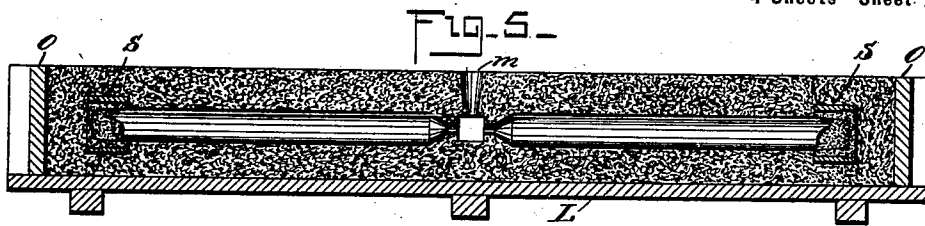
A. S. HODGES.

FLASK FOR MAKING SEAMLESS SASH WEIGHTS.

(Application filed Jan. 25, 1900.)

(No Model.)

4 Sheets—Sheet 2.



Witnesses

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No. 666,671.

Patented Jan. 29, 1901.

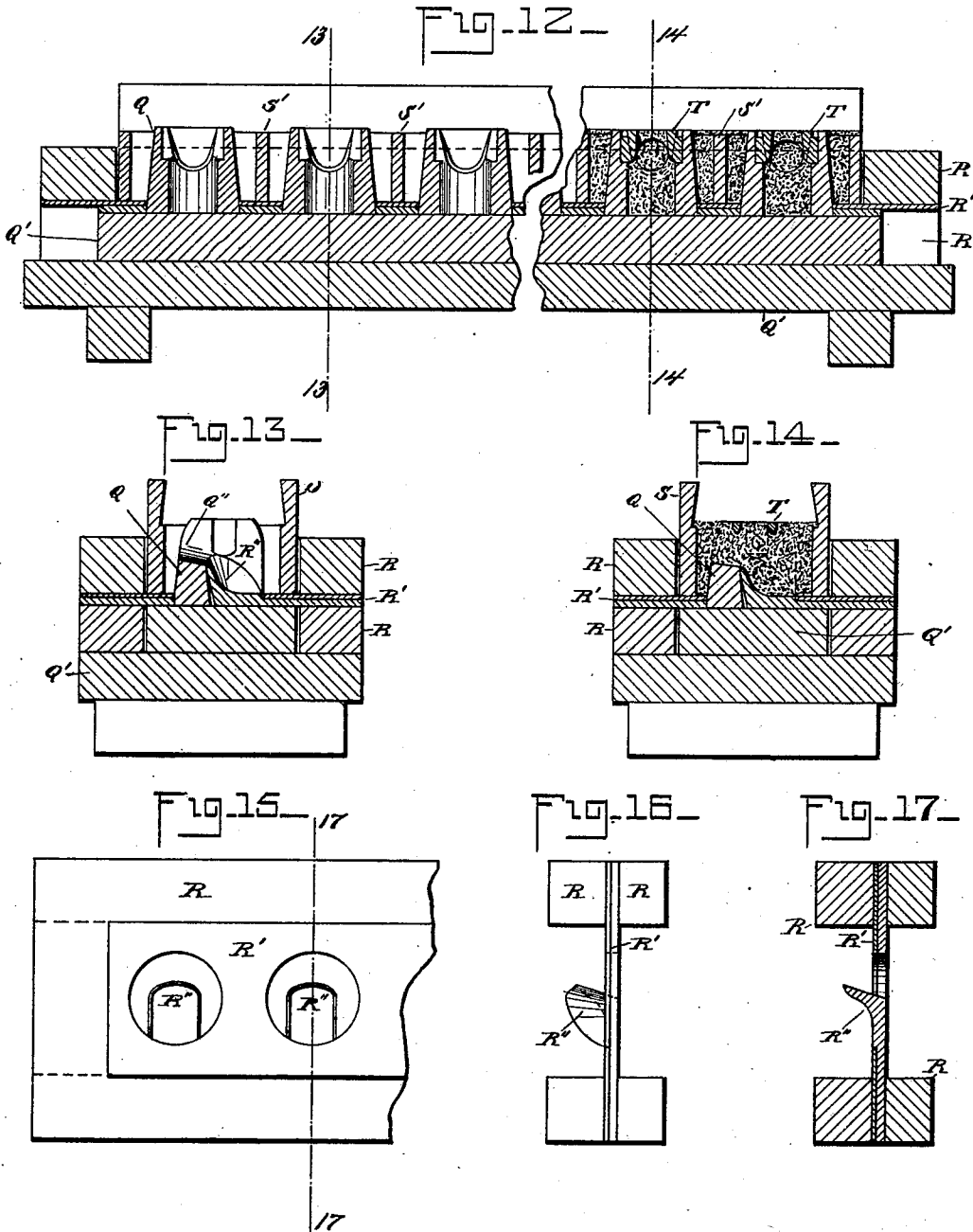
A. S. HODGES.

FLASK FOR MAKING SEAMLESS SASH WEIGHTS.

(Application filed Jan. 25, 1900.)

(No Model.)

4 Sheets—Sheet 3.



Witnesses

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No. 666,671.

Patented Jan. 29, 1901.

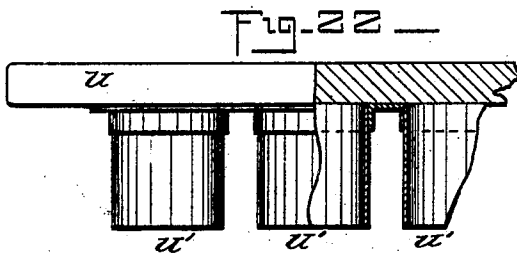
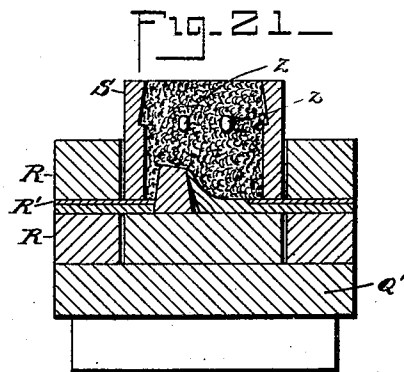
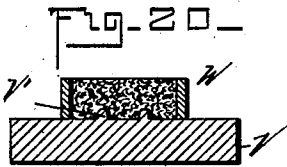
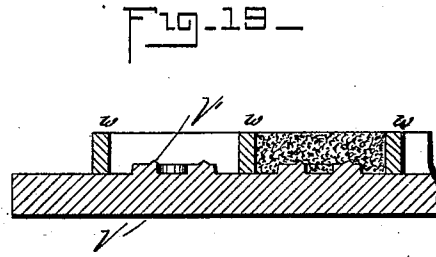
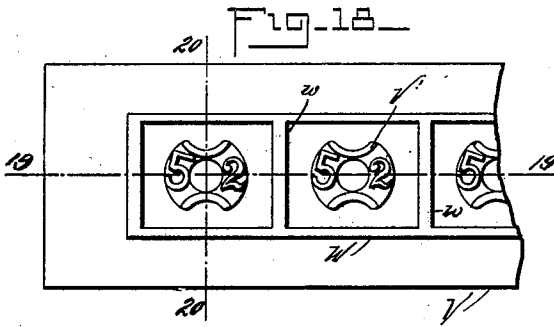
A. S. HODGES.

FLASK FOR MAKING SEAMLESS SASH WEIGHTS.

(Application filed Jan. 25, 1900.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses

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UNITED STATES PATENT OFFICE.

ADDISON S. HODGES, OF EVERETT, MASSACHUSETTS.

FLASK FOR MAKING SEAMLESS SASH-WEIGHTS.

SPECIFICATION forming part of Letters Patent No. 666,671, dated January 29, 1901.

Application filed January 25, 1900. Serial No. 2,807. (No model.)

To all whom it may concern:

Be it known that I, ADDISON S. HODGES, a citizen of the United States, residing at 14 Cedarstreet, Everett, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Flasks for Making Seamless Sash-Weights, of which the following is a specification.

This invention relates to improvements on the patent granted to me November 12, 1889, No. 414,838, for a flask for making seamless sash-weights, and it is carried out as follows, reference being had to the accompanying drawings, wherein—

15 Figure 1 represents a top plan view of the improved flask, showing the sash-weight patterns placed in position therein and showing the sand rammed in a portion of said flask. Fig. 2 represents a longitudinal section on the line 2 2 in Fig. 1, showing the sash-weight patterns in elevation and showing the bottom board placed in position after the sand has been rammed into the flask. Fig. 3 represents a longitudinal section of the flask and its bottom board after being turned upside down and the moldboard and false board removed. Fig. 4 represents an end view of Fig. 1. Fig. 5 represents a longitudinal section of the flask, showing the sash-weight patterns withdrawn and the mold parts for forming the heads of the weights placed in position within the flask ready for casting. Fig. 6 represents a side view of one of the finished seamless sash-weights. Fig. 7 represents an end view of Fig. 6, showing the lettered end of the sash-weight head. Fig. 8 represents a side view of Fig. 6, partly shown in section. Fig. 9 represents a cross-section on the line 9 9, shown in Fig. 3. Fig. 10 represents a cross-section on the line 10 10, shown in Fig. 2. Fig. 11 represents a detail top plan view of the head-molding device. Fig. 12 represents a longitudinal section on the line 12, shown in Fig. 11. Fig. 13 represents a cross-section on the line 13 13, shown in Fig. 12. Fig. 14 represents a similar cross-section on the line 14 14, shown in Fig. 12. Fig. 15 represents a detail plan view of the sand-lifter for sustaining the mold for the sash-weight head. Fig. 16 represents an end view of Fig. 15. Fig. 17 represents a cross-section on the line 17 17, shown in Fig. 15. Fig. 18 repre-

sents a top plan view of the sash-weight-head-marking device. Fig. 19 represents a longitudinal section on the line 19 19, shown in Fig. 18. Fig. 20 represents a cross-section on the line 20 20, shown in Fig. 18. Fig. 21 represents a cross-section similar to Fig. 14, showing the marking-core in position; and Fig. 22 represents a side elevation, partly shown in section, of the device for ramming the sand for forming the head-molds.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

The flask is non-divided, as shown and described in my aforesaid patent, and is composed of side pieces A A, secured at a proper distance apart by means of metal stays or braces B B, as shown.

C represents the moldboard, adapted to rest during a part of the molding operation upon what I term the "false board" or "moldboard" support D, as shown in Figs. 2 and 10.

To the upper part of the moldboard are secured, near its central portion, the pattern-rests E E, having semicircular recesses *eee* on their upper sides, adapted to receive one-half of the circumference of the cylindrical sash-weight patterns F F, like those shown and described in my aforesaid Letters Patent.

G G are detachable pattern-supports adjustable in position on the moldboard C, which are placed upon the said moldboard according to the desired length to be given to the sash-weights, said adjustable pattern-supports having on their upper sides semicylindrical notches or recesses *gg*, adapted to serve as supports for the outer ends of the sash-weight patterns F F, as shown in Figs. 2 and 4.

H is the gate-pattern, which is inserted through perforations in the sides A A of the flask previous to placing the patterns F F in positions within the flask in a manner like that shown and described in my aforesaid patent.

After the outer pattern-supports G G have been placed in positions upon the moldboard C according to the desired length of the sash-weights that are to be cast I place upon the sash-weight patterns F F, above the adjustable pattern-supports G G, similar notched bars I I, which are regulated in position by means of bars K K, the ends of which are re-

ceived in any one of the notches or recesses *a a* on the interior of the flask sides *A A*, as shown in Fig. 1.

After the gate *H*, pattern-supports *G G*, patterns *F F*, and notched bars *I I* have been placed in positions, as shown in Figs. 1, 2, 4, and 10, the sand is rammed into the flask between and around the patterns even with the upper edges of the sides *A A*, after which the bottom board *L* is placed on top of the flask, as shown in Fig. 2, and suitably clamped in position, after which the flask is reversed in position, as shown in Fig. 3, the false board or moldboard support *D* and moldboard *C* are removed, and the sprue-pattern *M* is placed in position upon the gate *H*, as shown in Fig. 3. Upon the pattern-supports *G G* are placed the stop-bars *N N*, after which the sand is rammed in, as shown in said Fig. 3. The sash-weight patterns *F F* are then withdrawn, after which the stop-bars *N N*, the pattern-supports *G G*, and notched bars *I I* are removed preparatory to placing in the spaces vacated by said parts the head-molding device for molding the perforated and lettered heads of the sash-weights, as will hereinafter be more fully described. I also remove the bars *K K* and insert in any of the notches *a a* the stop-boards *O O*, as shown in Fig. 5. I then remove the gate *H* and close up the side openings in the flask, as usual. The sprue-pattern *M* is then removed, leaving a sprue-hole *m*, through which the molten metal is afterward poured, as is common in the art of casting.

In the space vacated by the stop-bars *N N* and pattern rests and supports *G G* and *I I* are inserted the mold parts for casting the heads of the sash-weights, as will hereinafter be described.

P in Figs. 6, 7, and 8 represents one of the seamless sash-weights, of which *P'* is the head or upper end, provided on one side with a notch or recess *P''*, adapted to receive the knot on the end of the sash-cord. Through the end of the head *P'* is made a perforation *P³*, through which the sash-cord is passed after being knotted, as above mentioned. Opposite to the recess *P''* is a transverse perforation *P⁴*, through which and the recess *P''* the sash-cord may be passed and tied, as is common in sash-weights having a transverse eye or tying perforation through its head.

P⁵ in Fig. 7 represents raised or recessed marks or figures on the end of the head *P'*, indicating the weight, number, or size of the respective weights.

The device for molding the heads of the sash-weights is fully shown in Figs. 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, and 21 and is constructed as follows: It consists of a series of head-patterns *Q Q*, secured at proper distances apart on a bottom frame *Q'*, as shown. The distances between the centers of said head-patterns are equal to the corresponding distances between the sash-weight patterns

F F in the flask. Upon said bottom frame is placed a hollow sand-lifter frame *R*, provided with a perforated metal sand-lifter plate *R'*, to which are attached the upwardly-projecting patterns *R''* for forming the mold-cavities for the side notches *P''* in the heads of the sash-weights. Each head-pattern *Q* is provided at one side with a notch or recess *Q''* for forming the mold-cavities for the side perforation *P⁴* in the head of the sash-weight. In connection with said bottom frame *Q'* and sand-lifter frame *R*, I use a metal core-holding frame *S*, having lateral divisions *S' S'* between the head-patterns *Q Q*, as shown in Figs. 11 and 12. The said core-holding frame *S* is adapted to be inserted within the hollow sand-lifter frame *R*, so as to rest upon its perforated sand-lifter plate *R'* during the core-forming operation for the heads of the sash-weights. *T T* are removable patterns adapted to be placed upon the upper ends of the head-patterns *Q*, as shown in the right-hand portions of Figs. 11 and 12, as well as in Fig. 14, for the purpose of forming the mold-cavity for the perforation *P³* in the end of the head of each sash-weight. *Z Z* in Fig. 21 represent the passages in the sand formed by the core-prints *T*. In using said head-molding device I place the sand-lifter frame *R* in position upon the bottom frame *Q'* and place the patterns *T* in position upon the ends of the head-patterns *Q Q*, as shown in the right-hand ends of Figs. 11 and 12 and in section of Fig. 14, and place the core-holding frame *S* within the sand-lifter frame *R*, as shown in Figs. 11, 12, 13, and 14, after which I ram the sand around and between said parts, preferably by means of a ramming-tool consisting of a plate *U*, provided with a series of cylindrical tubes *U'*, as shown in Fig. 22. I then remove the patterns *T T* and proceed to make the mold for the lettered or figured end of the sash-weight head, and for this purpose I employ a mold plate or frame *V*, containing a series of letter or figure patterns *V'*. Upon said mold plate or frame *V*, I place a skeleton metal frame *W*, divided in partitions by means of lateral braces *w w*, as shown in Figs. 18, 19, and 20. I then proceed to ram sand into the divided compartments of the frame *W* and smooth the sand even with the upper edge of said frame. I then remove the frame *W*, with the lettered or fingered sand-prints contained therein, and place said frame *W* and its sand-prints into the metal core-holding frame *S*, after which I raise said frame *W* and remove it from within the core-holding frame *S*, leaving the lettered or figured sand-prints supported on the sand in the metal core-holding frame *S*. I then pack the sand gently around and between said sand-prints, so as to keep them properly in position in the frame *S*, after which I place said frames containing the sand-molds for the formation of the heads of the sash-weights in the ends of the flask in the

spaces left vacant by the removal of the pattern-supports G I and stop-bars N, as shown in Fig. 5, after which I ram sand in between the metal frame S and stop-board O, as shown in said Fig. 5. The sash-weights are then ready to be cast by pouring the molten metal through the sprue-hole *m*.

What I wish to secure by Letters Patent and claim is—

1. The herein-described device for forming the perforated heads of sash-weights, consisting of a bottom board Q', head-patterns Q, secured to said bottom board, a sand-lifter frame R, provided with a perforated sand-lifter plate R', having upwardly-projecting patterns R'' for forming the side recess in the sash-weight head, removable patterns T, T, for forming the end perforation in the head, a removable metal core-holding frame S and a removable pattern for making the figures or letters on the ends of the sash-

weight heads, substantially as and for the purpose set forth.

2. The herein-described device for forming the perforated heads of sash-weights, consisting of a bottom board Q', head-patterns Q, secured to said bottom board, a sand-lifter frame R having a perforated sand-lifter plate R', upwardly-projecting patterns R'' secured to the latter, removable patterns T, T, a metal core-holding frame S, marking-pattern V' and a removable metal core-holding frame W for holding the patterns for forming the marks on the ends of the sash-weight heads, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ADDISON S. HODGES.

Witnesses:

ALBAN ANDRÉN,
ERNEST W. EMERY.