(No Model.)

L. HIS.

MOLD FORMING KNIFE.

No. 494,000. Patented Mar. 21, 1893.

Fig: 1.

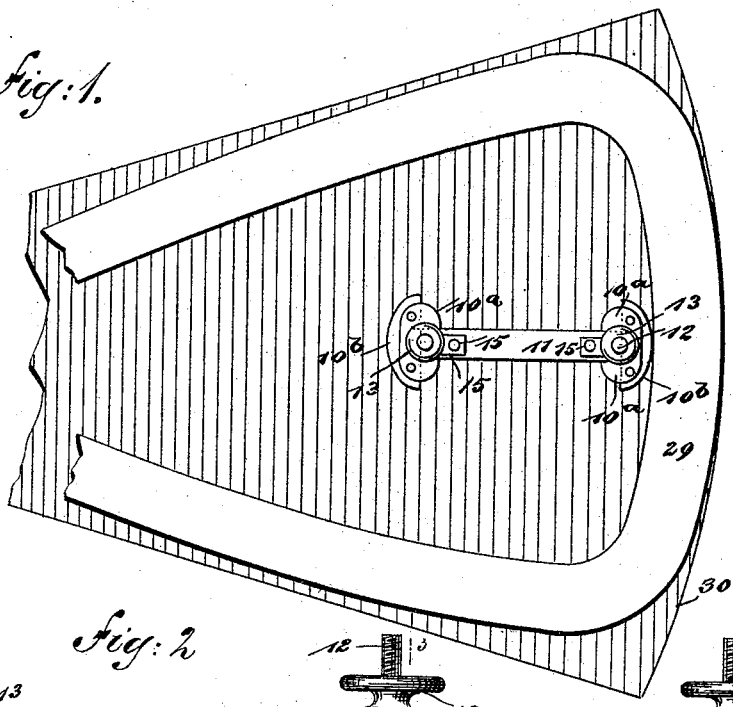


Fig: 2.

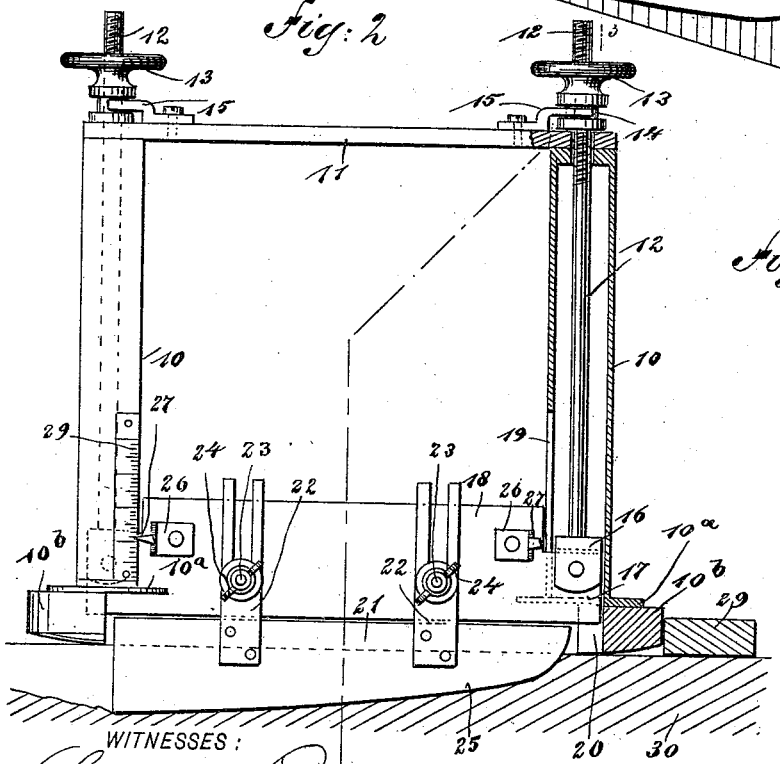
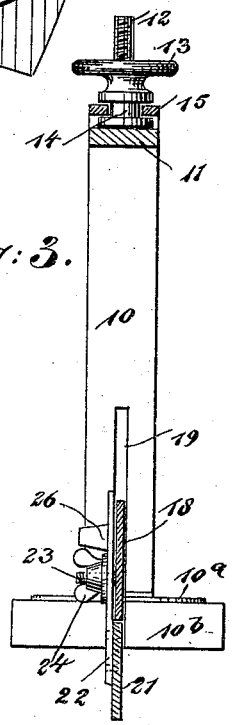


Fig: 3.



WITNESSES:

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LOUIS HIS, OF NEW YORK, N. Y.

MOLD-FORMING KNIFE.

SPECIFICATION forming part of Letters Patent No. 494,000, dated March 21, 1893.

Application filed April 26, 1892. Serial No. 430,761. (No model.)

To all whom it may concern:

Be it known that I, LOUIS HIS, of New York city, in the county and State of New York, have invented a new and Improved Mold-Forming Knife, of which the following is a full, clear, and exact description.

My invention relates to improvements in knives such as are used in forming molds in which metal is cast, and the object of my invention is to produce a knife by means of which the mold for a propeller blade may be quickly and accurately formed in a flask without the use of a pattern.

A further object of my invention is to construct a knife so that it may be very quickly and nicely adjusted to form a mold of any necessary thickness, and to construct the parts so that they will be durable and cheap.

To this end, my invention consists in a mold-forming knife, the construction of which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a plan view showing the application of the knife to a flask. Fig. 2 is a front elevation, partly in section, of the knife; and Fig. 3 is a vertical cross section on the line 3—3 in Fig. 2.

The knife frame is provided on opposite sides with hollow columns 10, which terminate at their lower ends in flanges 10^a, adapted to be secured to the blocks 10^b which are for the purpose of being moved against a templet as hereinafter described, and the upper ends of the columns are connected by a cross bar 11. The templet blocks have oval outer sides so that they may be moved easily upon or against a templet.

Extending vertically through each column 10, is a longitudinally movable rod 12, which is screw-threaded at its upper end, this end extending through the top of the column and through the cross bar, and the threaded end is held to turn in a wheel nut 13, having an annular recess 14 in its hub, which recess receives the prongs of a forked lug 15, secured to the cross bar 11. It will thus be seen that by turning the nuts 13, the rods 12 may be adjusted up and down in the columns. The lower ends of the rods terminate in blocks 16, which are pivoted to the prolonged ends 17 of the knife-holding plate 18, which plate extends transversely across the knife frame and between the columns 10, the ends 17 being held to slide in vertical slots 19 in the columns 10, as shown best in Fig. 3. The base blocks 10^b are also slotted, as shown at 20, so that the knife-holding plate 18 may be moved downward to the bottom of the blocks. A blade 21 is carried by the plate 18, the blade being held at the lower edge of the plate so as to extend downward beneath the knife frame. The blade has upwardly-extending forked lugs 22, which are held to the plate 18 by means of bolts 23 and thumb-nuts 24, and consequently the blade may be firmly clamped to the plate and may be adjusted thereon if necessary. The blade 21 has an inclined and slightly rounded lower edge 25, the blade being relatively wide or high at one end and tapering gradually toward the other end, the taper of the edge corresponding to the taper of a propeller blade from its thicker middle portion toward its edge. The blade 21 is adapted to be adjusted vertically by the rods 12 and nuts 13, and to enable it to be accurately adjusted, indicating gages are used, and to this end the plate 18 is provided near its opposite ends with lugs 26, having indicating pointers 27, which are held to slide over gages 29, on the columns 10, and consequently the pointers will always indicate the height of the blade, and by means of the gages and the adjusting mechanism, the blade may be fixed and held in any desired position. The blades are made in various sizes, but by means of the adjusting mechanism described, one blade may be made to form many sizes of molds.

To illustrate the use of the knife, a templet 29^a is shown in Fig. 1 resting upon a sand bed 30. The sand bed is rammed into a flask in the usual way, and after the blade 21 is adjusted at the right height one of the blocks 10^b is moved around against the templet which serves as a guide, the blade being held in a vertical position with its wider or higher end near the center of the flask. During the operation of scraping out the mold, the knife blade may be adjusted so as to change the depth of the mold, and the end portions of the knife may be adjusted separately if de-

sired, so that the pitch of the mold may be also nicely regulated. It will thus be seen that the mold will be made deepest near the center and will gradually taper toward the edges, and by properly manipulating the knife the displaced sand may be flirted out of the flask and over the templet so as to leave a clean and accurately formed mold. By this means the mold is given just the shape desired, and it is as nice in every way as if formed from a pattern.

When using the knife to scrape out the sand, the wide end of the knife is placed inward, that is, farthest from the templet 29^a, and the inner block 10^b is high enough above the edge of the knife so that when moved across the sand it will not strike the latter.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A mold-forming knife comprising a movable supporting frame and a vertically adjustable blade having its opposite ends independently and adjustably secured to the frame, the said blade having also an inclined lower edge, substantially as described.

2. A mold-forming knife, comprising a supporting frame having opposite end uprights, a vertically adjustable knife having an inclined lower edge, and adjusting screws connected with the knife and held in the end uprights of the frame, substantially as described.

3. A mold-forming knife, comprising a supporting frame having end uprights, a vertically adjustable plate held to slide between the uprights, and a detachable mold shaping blade secured to the lower portion of the plate, substantially as described.

4. A mold-forming knife, comprising a supporting frame having end uprights with base blocks at their lower ends, a forming knife blade having an inclined lower edge, the said blade extending between the uprights, and a screw mechanism for adjusting the blade vertically, substantially as described.

5. A mold-forming knife, comprising a supporting frame having vertical hollow side columns or uprights with base blocks at their lower ends, adjusting screws held within the columns, a plate carried by the screws and extending between the columns, and a shaping or forming blade detachably secured to the lower portion of the plate, substantially as described.

6. The combination of the supporting frame having vertical columns or uprights at the ends, the vertically adjustable knife-holding plate held to slide in the frame, a gage secured to one of the uprights, a pointer carried by the plate and held to move over the gage, and a shaping knife secured to the lower portion of the plate, substantially as described.

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Witnesses:
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