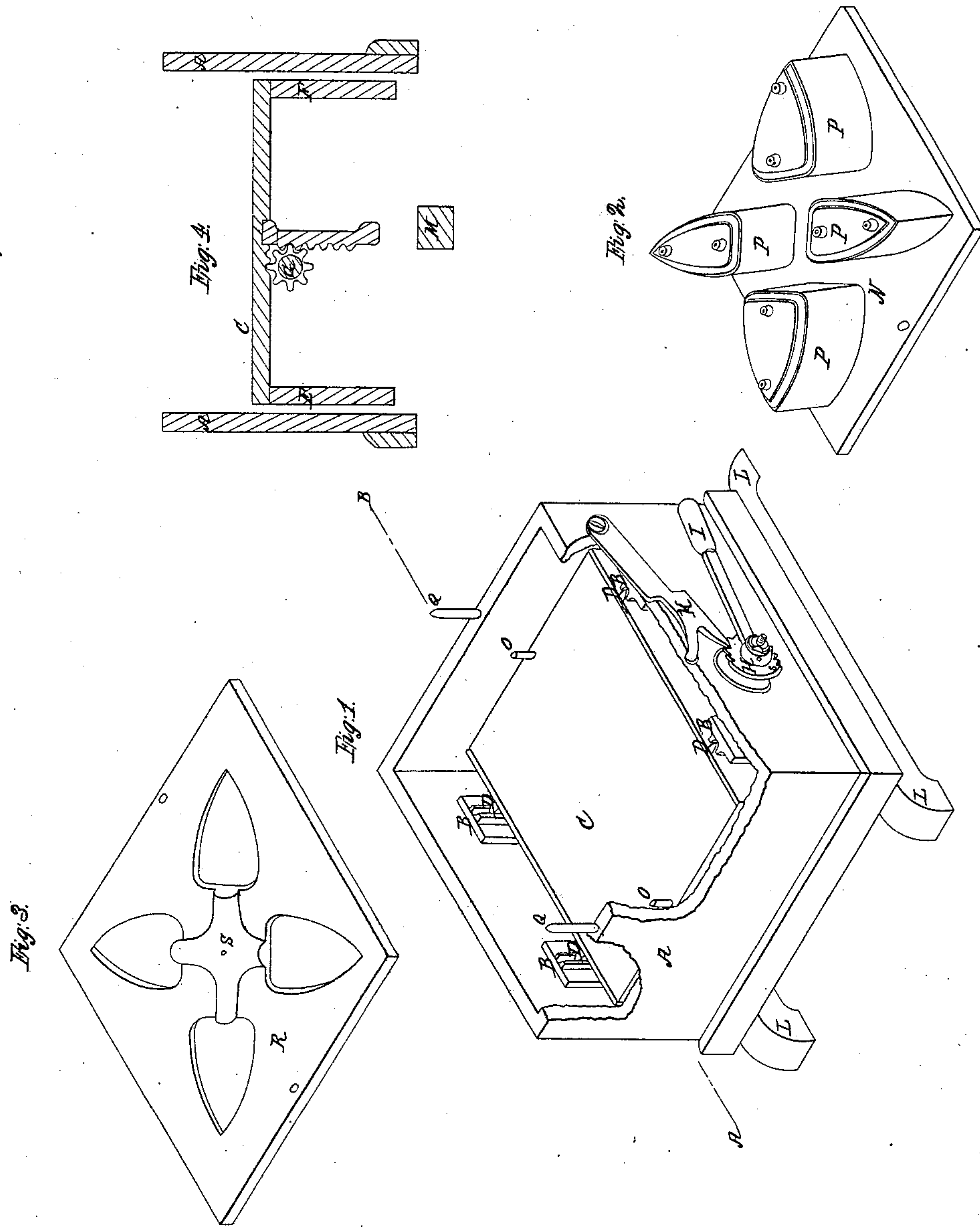


*J. J. Johnston,  
Molding Apparatus.*

*N<sup>o</sup> 14,724.*

*Patented Apr. 22, 1856.*





# UNITED STATES PATENT OFFICE.

JAMES J. JOHNSTON, OF ALLEGHENY, PENNSYLVANIA.

## IMPROVEMENT IN FLASKS FOR MOLDING.

Specification forming part of Letters Patent No. 14,724, dated April 22, 1856.

*To all whom it may concern:*

Be it known that I, JAMES JONES JOHNSTON, of Allegheny, Pennsylvania, have invented a new and useful machine for molding in sand such articles as sad or smoothing irons, wagon-boxes, belt-pulleys, and such like patterns which require to be graduated in some particulars while they remain the same or unchanged in other particulars; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, made part of this specification and lettered to correspond herewith.

In casting sad or smoothing irons, wagon-boxes, belt-pulleys, and such like articles it is always desirable to be able to cast them of any weight, depth, breadth, or length, (according to the article in hand,) without changing the size of the pattern in some of its measurements. For instance, sad or smoothing irons of the same size of face are required to be of various weights, according as they are needed for hatters', washerwomen's, or other use; and in the case of wagon-boxes they are wanted of different lengths for different hubs, but without any change of barrel as to thickness or inside or outside diameter; and with regard to pulleys for belts, the same diameter of pulley is often used for different widths of belts. At present it requires, in the ordinary process of molding, a different set of patterns for different weights, length, or width. I effect molding these and such like articles of various weight, length, and breadth, respectively, from the same pattern or sets of patterns on one board by my machine, which is constructed as follows:

A, Figure 1, is a box or frame which may be cast of metal and of any shape required. I represent in the drawings and in isometrical perspective a square box which fully illustrates the idea.

B are slide grooves set in pairs perpendicularly on the inside of any two opposite faces of the box.

C is a table or platform which is raised or lowered inside the box by means of a rack and pinion, as seen in Fig. 4, which is a central and vertical section in the line A B, Fig. 1. Tongues D on the sides of this table play in the slide-grooves B, and for convenience of

construction and certainty of action the table C may be an inverted box, as seen in Fig. 4, to the sides E F of which the metal plates carrying the tongues D are fixed. It is best, however, to cast the box A and the table C of one piece each, as the machine would be firmer, stronger, and of equable shrinkage—points of great importance in this business. A shaft, G, carries the pinion. This shaft has bearings in the box A, and extends outside the box sufficiently to carry an index-wheel, H, and a handle, I, by raising or lowering the end of which handle the table C is raised to any height desired, the height being ascertained by the index-wheel, and the wheel retained at that position by means of a dog or catch, K, arranged on the outside of the box, the catch being raised from the index-wheel by hand whenever required. Parts of the two rear sides of the box, Fig. 1, are broken away to show the table, tongues, and slide-grooves more clearly. The box may be set on feet L.

M, Fig. 4, is a cross-bar for the feet.

On the table C, I place a follow-board, N, Fig. 2, which is kept to its place by pins O. On this follow-board I fix patterns—for instance, four smoothing-irons, P, the patterns being made of the greatest depth required for any weight of iron of that size of face. Similar follow-boards with sets of wagon-box patterns, or with sets of belt-pulleys, or other such like patterns, can be used with this same machine. On the box A, I place two pins, Q, which are to hold a plate, R, in place on the box A, the plate R being of the same size as the box A, so that the plate rests on and square with the box. This plate R has openings which conform to a corresponding pattern. For instance, the plate represented in Fig. 3 has openings for four smoothing-irons, such as represented in Fig. 2, Figs. 2 and 3 being in isometrical perspective.

S on plate R are the gates or spaces.

The pins Q also serve as guides for the flasks, as they are successively applied to the entire machine, as described, for the process of molding the patterns in sand. To do this the patterns are projected up through these openings by the rack and pinion, the weight, length, or width being adjusted as desired, and held to that adjustment by the dog and index-wheel, and a flask being placed on the

plate, the sand is put in the flask and the mold made in the usual way.

It is obvious that my process of molding articles herein named and other such articles has the following advantages: First, one machine will operate consecutively any number of follow-boards and patterns and plates conforming in their openings to the patterns in hand; second, one set of patterns serves for moldings of articles of different weights, lengths, or widths, as before explained; third, the patterns are graduated on the instant to the desired weight, length, or width, and with certainty and accuracy; fourth, the follow-boards and its patterns, together with the plate with openings corresponding and conforming to the patterns in hand, are readily removed and changed for other sets.

Having thus fully, clearly, and exactly described the nature, construction, and operation of my improvement in machines for molding in sand such articles as sad or smoothing irons, wagon-boxes, pulleys, and such like articles, what I claim therein as new, and desire to secure by Letters Patent, is—

The employment of the table C, follow-board N, and plate R, constructed and arranged as described, the whole, when adjusted by the vertical movement in guides, being for the purpose set forth.

JAMES J. JOHNSTON.

Witnesses:

WM. M. McCAULEY,  
HENRY EVERDELL.