

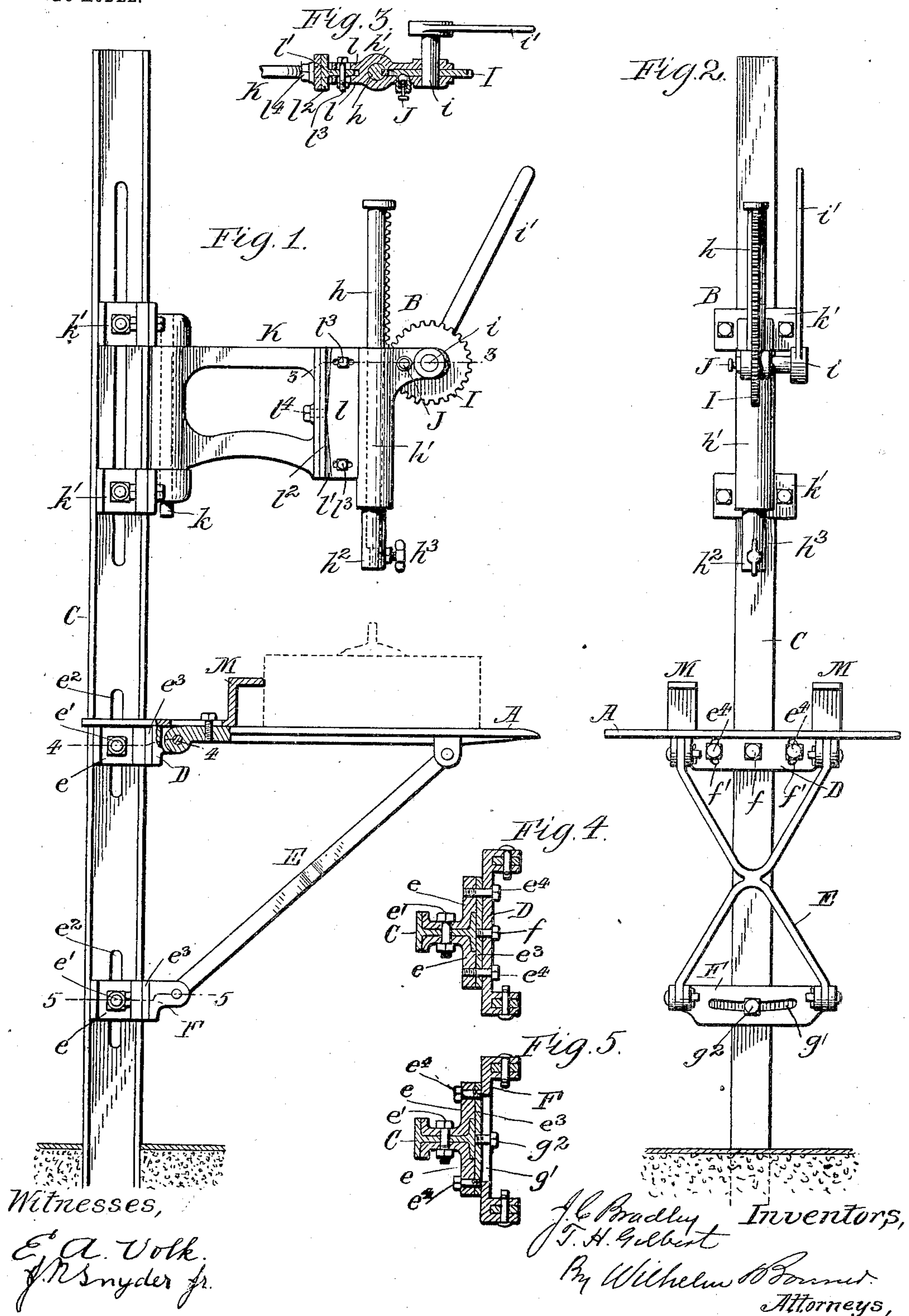
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J. C. BRADLEY & T. H. GILBERT.
MACHINE FOR DRAWING PATTERNS.

APPLICATION FILED AUG. 6, 1902.

NO MODEL.



UNITED STATES PATENT OFFICE.

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MACHINE FOR DRAWING PATTERNS.

SPECIFICATION forming part of Letters Patent No. 725,210, dated April 14, 1903.

Application filed August 6, 1902. Serial No. 118,619. (No model.)

To all whom it may concern:

Be it known that we, JOHN COLLINS BRADLEY and TRUMAN H. GILBERT, citizens of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Machines for Drawing Patterns from Molds, of which the following is a specification.

This invention relates to a machine for drawing patterns from molds, such as sand molds, in which a vertically-movable drawing device is arranged above a mold-support and is provided with means for attaching it to the pattern in a mold placed on the support and with means for raising the drawing device to draw the pattern up out of the mold.

The match which supports the pattern while the mold or first section of the mold is being packed or rammed is not always made accurate, and the pattern is not supported in a true level or horizontal position. After the mold is completed it requires an expert molder to draw the pattern from the mold without injuring or breaking the latter, or if the pattern is drawn by a drawing device the mold will also be injured unless provision is made for relatively adjusting the position of the drawing device and mold-support to accommodate the untrue position of the pattern in the mold.

The object of the present invention is to provide an exceedingly simple and inexpensive machine for drawing patterns in which the relative position of the mold-support and drawing device can be quickly and easily adjusted to accommodate inaccuracies in the mold or when adjustment is required for any other reason.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a pattern-drawing machine embodying the invention. Fig. 2 is a front elevation thereof. Fig. 3 is a fragmentary section through the drawing-head in line 3 3, Fig. 1. Fig. 4 is a section through the upper clamp and hinge-block for the mold-table in line 4 4, Fig. 1. Fig. 5 is a section through the lower clamp and hinge-block in line 5 5, Fig. 1.

Like letters of reference refer to like parts in the several figures.

A represents the mold support or table on which the mold is supported while being formed and the pattern drawn, B the drawing device, which is arranged over the mold-table, and C the standard, which supports the mold-table and drawing device.

The mold-table is bodily adjustable vertically on the standard to place it at the desired height to suit the workman and is also universally adjustable to place it in true horizontal position or correct relative position to the drawing device. The mold-table is hinged at its inner or rear end to an upper hinge-block D on the standard and at its outer or front end is supported by an inclined brace or frame E, which is hinged at its upper end to the under side of the table and at its lower end to a lower hinge-block F on the standard. The hinge-blocks are connected to the standard by brackets or clamps, which are adjustable vertically on the standard. In the construction shown the standard is in the form of an I-beam, and each clamp consists of two side pieces e , arranged on opposite sides of the standards and which extend in between the flanges of the I-beams and bear against the opposite sides of its web. The side pieces are firmly clamped on the standard by a bolt e^1 , which passes through the side pieces and through a vertically-elongated slot e^2 in the web of the I-beam. The side pieces are connected by a front plate e^3 , which extends across the front face of the I-beam and is secured to the side pieces by bolts e^4 . The upper hinge-block is pivoted centrally to swing in a vertical plane on a bolt f , which extends through a hole in the hinge-block and is screwed into a threaded hole in the front plate e^3 of the upper clamp. The bolts e^4 , which connect the front plate of the side piece of the upper clamp, pass through slots f' , which are formed in the hinge-plate on opposite sides of its pivot-bolt and are curved concentric with said pivot-bolt. The lower hinge-block is provided with a long slot g , which is curved concentric with the pivot-

bolt f for the upper hinge-block, and through this slot passes a clamping-bolt g^2 , which is screwed into a threaded hole in the front plate of the lower clamp. When it is desired to elevate or depress the front portion of the table to adjust it relative to the drawing device, the clamp-bolt e' for the lower clamp is loosened and the clamp moved up or down on the standard to the desired extent, so as to raise or lower the brace and the front end of the table, the latter swinging on its hinge connection with the upper hinge-block. The clamp is fixed when adjusted by tightening the clamp-bolt e' . The sidewise adjustment is accomplished by loosening the clamping-bolts e^4 of the upper hinge-block and g^2 for the lower hinge-block, when the table, brace, and hinge-blocks can be swung or tilted sidewise on the pivot-bolt f for the upper hinge-block. When the desired adjustment is had, the table is fixed by tightening the bolts e^4 and g^2 . The table is thus universally adjustable on the clamps.

The drawing device B comprises a rod or stem h , which is vertically movable in a bearing on a drawing-head h' and is provided at its lower end with any suitable means for attaching it to the pattern. As shown, the rod is provided with a socket h^2 , in which a stem on the pattern is adapted to enter and be held by a set-screw h^3 , carried by the socket. The drawing-rod is raised and lowered by suitable means. For this purpose a gear-wheel I is shown, which is secured to a shaft i and meshes with rack-teeth on the drawing-rod. The shaft i is journaled in suitable bearings on the head and is provided with an operating-lever i' .

J represents a spring-latch for holding the drawing-rod in its raised position. The latch is in the form of a pin, which is arranged in a pocket on the head and is pressed toward the gear-wheel by a spring. When the drawing-rod is in its raised position, the inner end of the latch-pin springs into a hole or depression in the face of the gear-wheel and holds the latter from turning. When the drawing-rod is to be again lowered, the latch-pin is pulled out to free the gear-wheel.

The drawing-head is mounted on the outer end of an arm or bracket K, which is hinged on the standard, so that the head can be swung to a position vertically over the mold-table when the pattern is to be drawn, or back to one side, where it is out of the way of the workman when he is making a mold. In the construction shown the arm is pivoted on a vertical pin k , which is supported at its upper and lower ends by lugs projecting forwardly from the clamps k' , which are constructed and adjustably secured on the standard, similar to the clamps for the mold-table. This manner of mounting the arm on the standard enables the drawing device to be fixed at the proper height to suit different sizes of molds.

The drawing-head shown is universally adjustable on the arm K, so that the drawing-rod can be properly adjusted relative to the mold-table when it is impractical or not desirable to change the position of the table. The head is provided with rearwardly-projecting vertical fins l , which straddle a rib l' on a pivoted plate l^2 . Bolts l^3 , passing through holes in the rib and fins, hold the parts together and permit a forward and backward tilting movement of the head. The swivel-plate is pivoted to swing from side to side on the arm by a bolt l^4 .

M represents gages or stops adjustably secured to the mold-table. The mold is placed against these stops when set on the table.

In the use of the machine, assuming the parts to be in the position indicated, the workman swings the drawing device B to one side out of the way and forms the mold on the table A in the usual manner. The pattern is then drawn by swinging the arm K around over the table, releasing the spring-latch J, lowering the drawing-rod h , and attaching it to the stem on the pattern and raising the drawing-rod by means of its operating-lever i' until the spring-latch J engages in the hole in the gear-wheel. The proper adjustments of the machine are made by a competent person in accordance with the requirements of the mold to be operated upon, and thereafter the machine can be operated and the pattern properly and rapidly drawn by an unskilled laborer.

We claim as our invention—

1. The combination of a mold-support, a pattern-drawing device, a block to which one of said devices is pivoted, and a support to which said block is pivoted to turn about an axis at an angle to the axis of the pivotal connection between said block and said device, substantially as set forth.

2. The combination of a standard, a pattern-drawing device mounted on said standard, devices vertically adjustable on said standard, and a mold-support supported by and universally adjustable on said devices, substantially as set forth.

3. The combination of a standard, a pattern-drawing device, a block pivoted on said standard, a mold-support connected to said block, a second block movably connected to said standard, and a brace connected to said mold-support and to said second block, substantially as set forth.

4. The combination of a standard, a hinge-block pivoted on said standard, a mold-support hinged to said hinge-block, a device adjustable vertically on said standard, a second hinge-block movably connected to said device, and a brace hinged to said mold-support and to said second hinge-block, substantially as set forth.

5. The combination of a standard, a hinge-block pivoted on the standard, a mold-support hinged to said hinge-block, a device ad-

justable vertically on said standard, a second hinge-block connected to said device and adapted to move on said device in an arc concentric with the pivot for said first hinge-block, and a brace hinged to said mold-support and to said second hinge-block, substantially as set forth.

Witness our hands this 28th day of July, 1902.

JOHN COLLINS BRADLEY.
TRUMAN H. GILBERT.

Witnesses:

MAX FRIEDRICH,
DANIEL B. SWEET.