A. HALL.

Furnace Block Presses.

No. 136,913. Patented March 18, 1873.

Fig: 1.

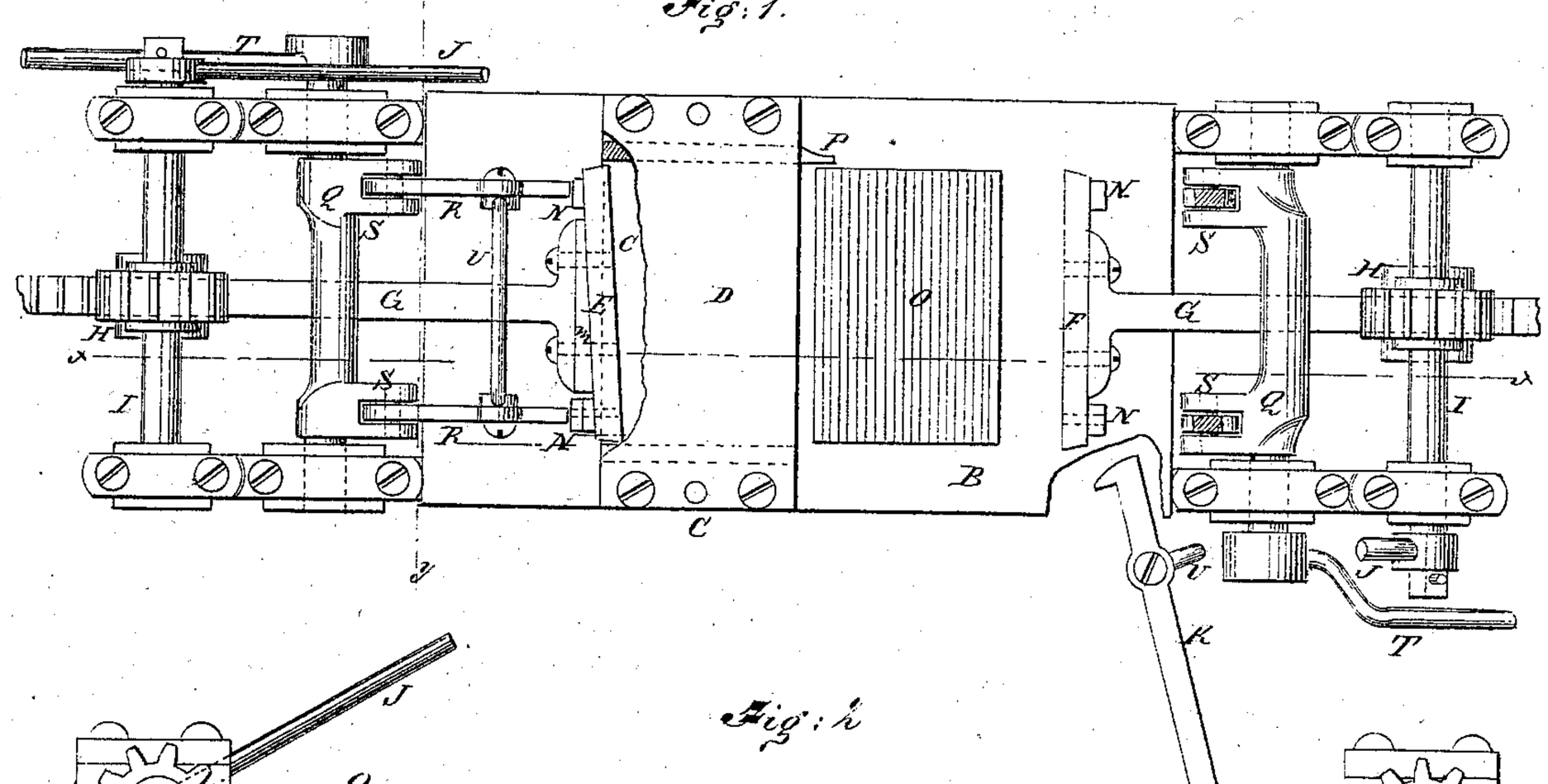

Fig: 2.

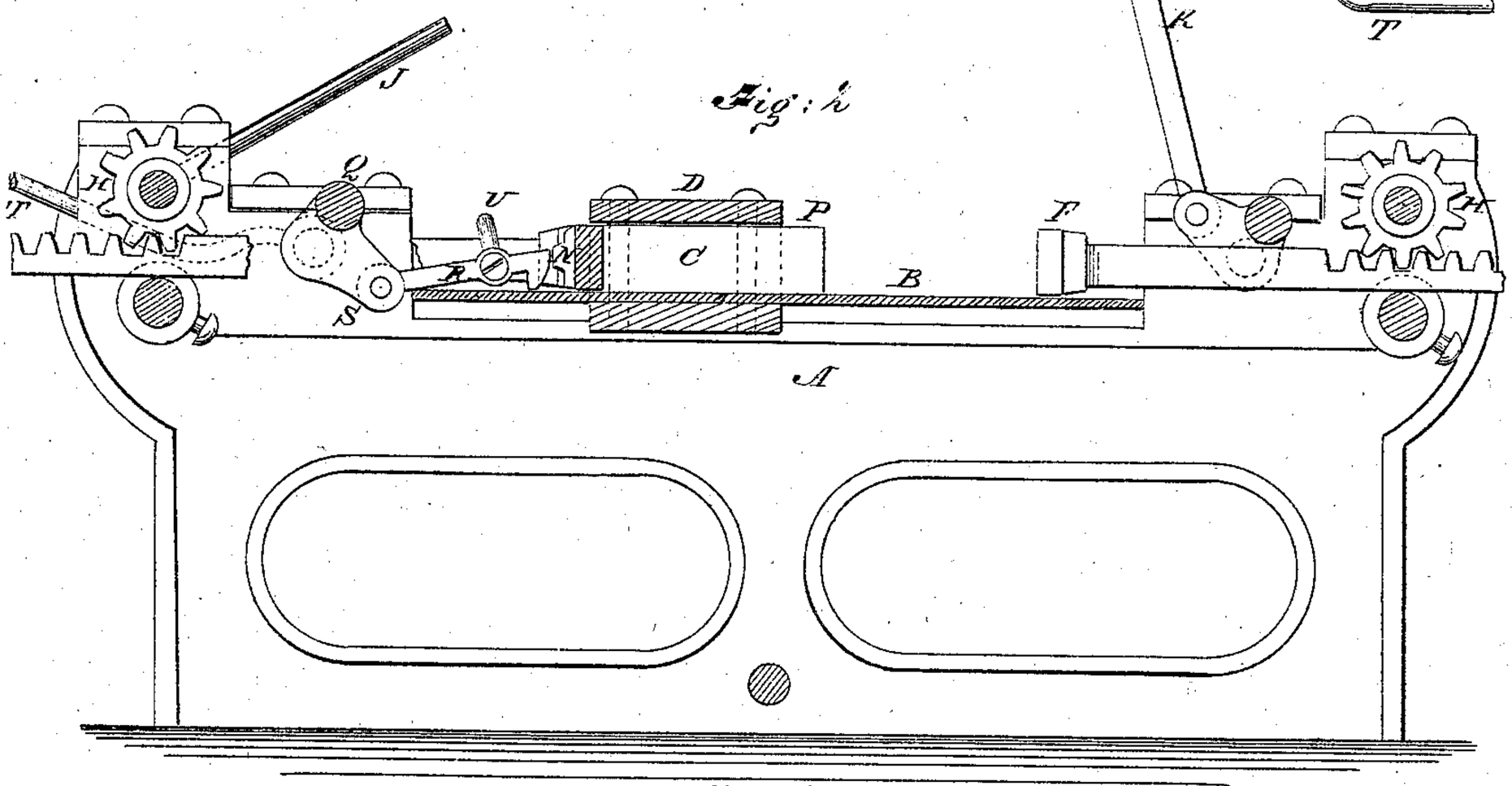

Fig: 3.

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UNITED STATES PATENT OFFICE.

ALFRED HALL, OF PERTH AMBOY, NEW JERSEY.

IMPROVEMENT IN FURNACE-BLOCK PRESSES.

Specification forming part of Letters Patent No. **136,913**, dated March 18, 1873.

To all whom it may concern:

Be it known that I, ALFRED HALL, of Perth Amboy, in the county of Middlesex and State of New Jersey, have invented a new and Improved Furnace-Block Press, of which the following is a specification:

Fire-clay blocks for lining smelting and other furnaces have to be made, as regards their form, for that special purpose, and to vary in form according to the size and taper of the furnace to be lined.

Hitherto it has been found necessary to have a mold for every variation in the taper, thus involving much expense and unnecessary labor.

My object in this invention is to vary the form of the block by means of a single pair of adjustable plungers in a single mold, and to so arrange the machine or press that the labor will be greatly diminished and the blocks be pressed in a more complete and workmanlike manner; and the invention consists in adjustable plungers and changeable bearing presser-knobs, and in the general construction and arrangement of parts hereinafter more fully set forth and described.

In the accompanying drawing, Figure 1 represents a plan view of the press with the cap of the mold broken away. Fig. 2 is a vertical longitudinal section of Fig. 1 taken on the line *x x*. Fig. 3 is a vertical cross-section of Fig. 1 taken on the line *y y*.

Similar letters of reference indicate corresponding parts.

A is a rectangular-shaped horizontal frame of iron, upon which is the platform B and mold C. This mold consists of end-plates and the cap-plate D, the thickness of the pressed block being governed by the distance of the plate D from the platform. There are two plungers, E and F, which slide upon the platform to the mold from each end of the press. The plungers are attached to rack-bars G G, and are moved back and forth by means of pinions H H on the cross-shafts I I, and levers J J, which levers are fitted to one end of the shafts. The racks G G rest upon the bars K K between the guide-collars L L, (as see Fig. 3.)

In Fig. 1 the plunger is represented as adjusted by means of a wedge, *m*. The other plunger may be made adjustable in the same manner, so that when the block is pressed it will be narrower at one end than at the other.

N represents the removable presser-knobs, which are attached to the backs of the plungers, and against which the power is applied to press the block; and since the angle of the plungers to their rack-bars requires to be occasionally changed, the number or thickness of the knobs must be changed correspondingly on one side and the other of the plungers, so that the bars R may have a firm bearing-point under all adjustments. O is a block which has been previously molded and sufficiently dried, and laid upon the platform for pressing. P is a guide for governing the position of the block. The plunger E being placed about as seen in Fig. 1, the plunger F is moved up and the block O is forced into the mold; but the block may be shoved into the mold by hand, and then the plunger F is moved up to the block by means of the lever J. The block is now ready for pressing, and the toggle-joint presses are brought into requisition. Q Q are the toggle-joint presser-shafts; and R represents the presser-bars to bear against the knobs N. S represents slotted lugs on the shafts Q, to which the presser-bars R are attached by means of pins, thus forming toggle-joints, which are operated by turning the shafts with the levers T. Each pair of presser-bars R is connected together by the cross-piece U, by which the presser-bars are raised, as seen in Fig. 2.

The movement of the presser-bars is slight, but powerful. The pressure is given at each edge of the block, and while the thickness is governed by the depth of the mold the edges are made to conform to the position of the plungers. After the block is pressed it is shoved from the mold by moving up the plunger E, and is taken from the platform by hand, when another block is placed upon the platform, and the operation is repeated.

The press is operated by two men—one to each pair of levers—who put on and take off the blocks.

By this arrangement it will be seen that the pressing is effected by mechanical devices entirely independent of the ordinary movement of the plungers.

These devices may be varied in construction; but this system of pressing is an essential feature of my invention.

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

1. The combination, in a brick machine, of changeable presser-knobs N and wedges *m*, with the plungers, for the purpose of adapting said plungers to be adjusted at various angles to each other, as and for the purpose set forth.

2. In a brick machine, the combination and arrangement with plungers E F of rack-bars G, pinions H, shafts I, levers J, and toggle mechanism Q R S T U, as and for the purpose set forth.

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Witnesses:
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