

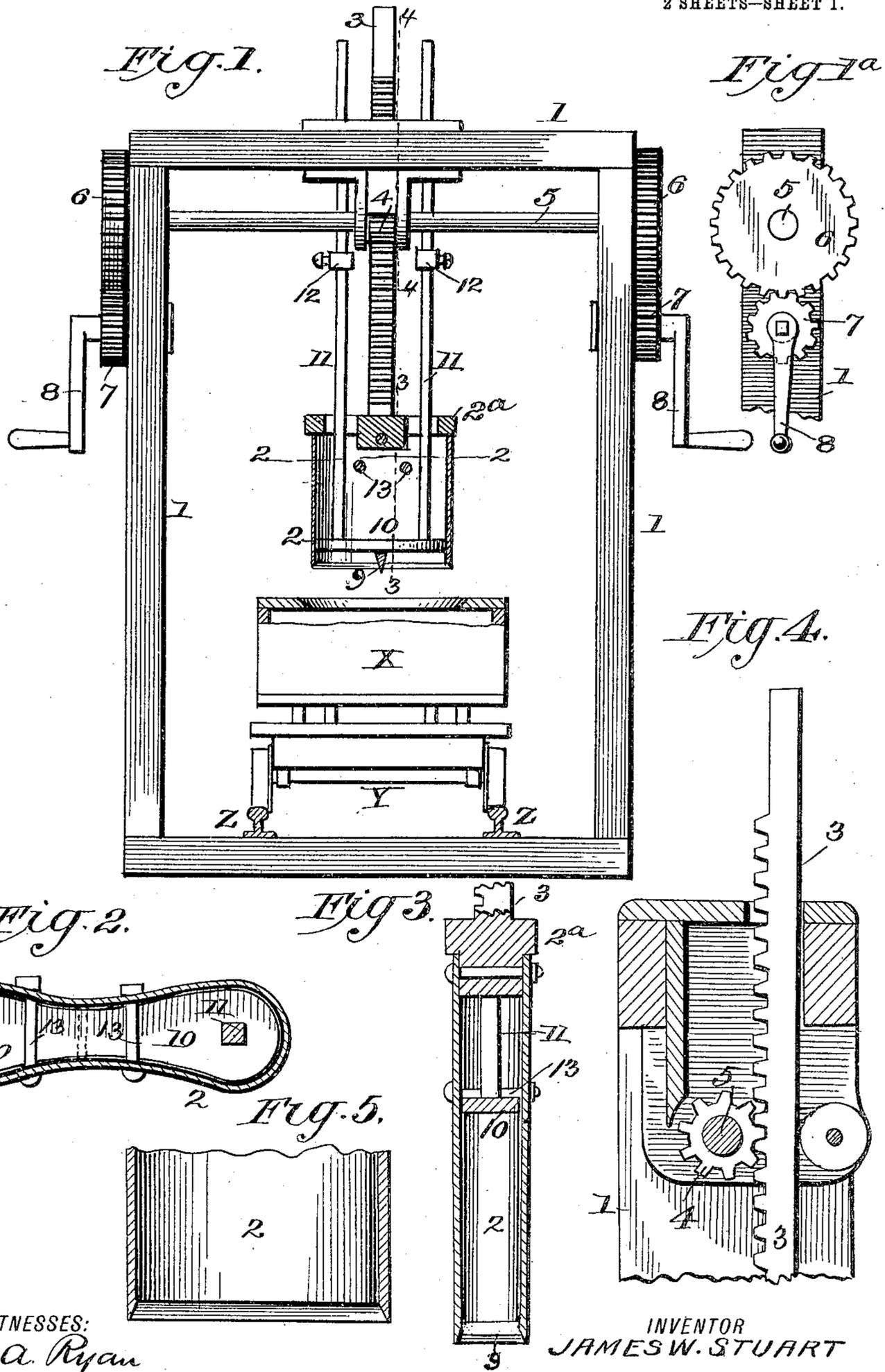
No. 812,702.

PATENTED FEB. 13, 1906.

J. W. STUART.
CORE CUTTER FOR CEMENT BLOCK MACHINES.

APPLICATION FILED APR 14, 1905.

2 SHEETS—SHEET 1.



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Fig. 6.

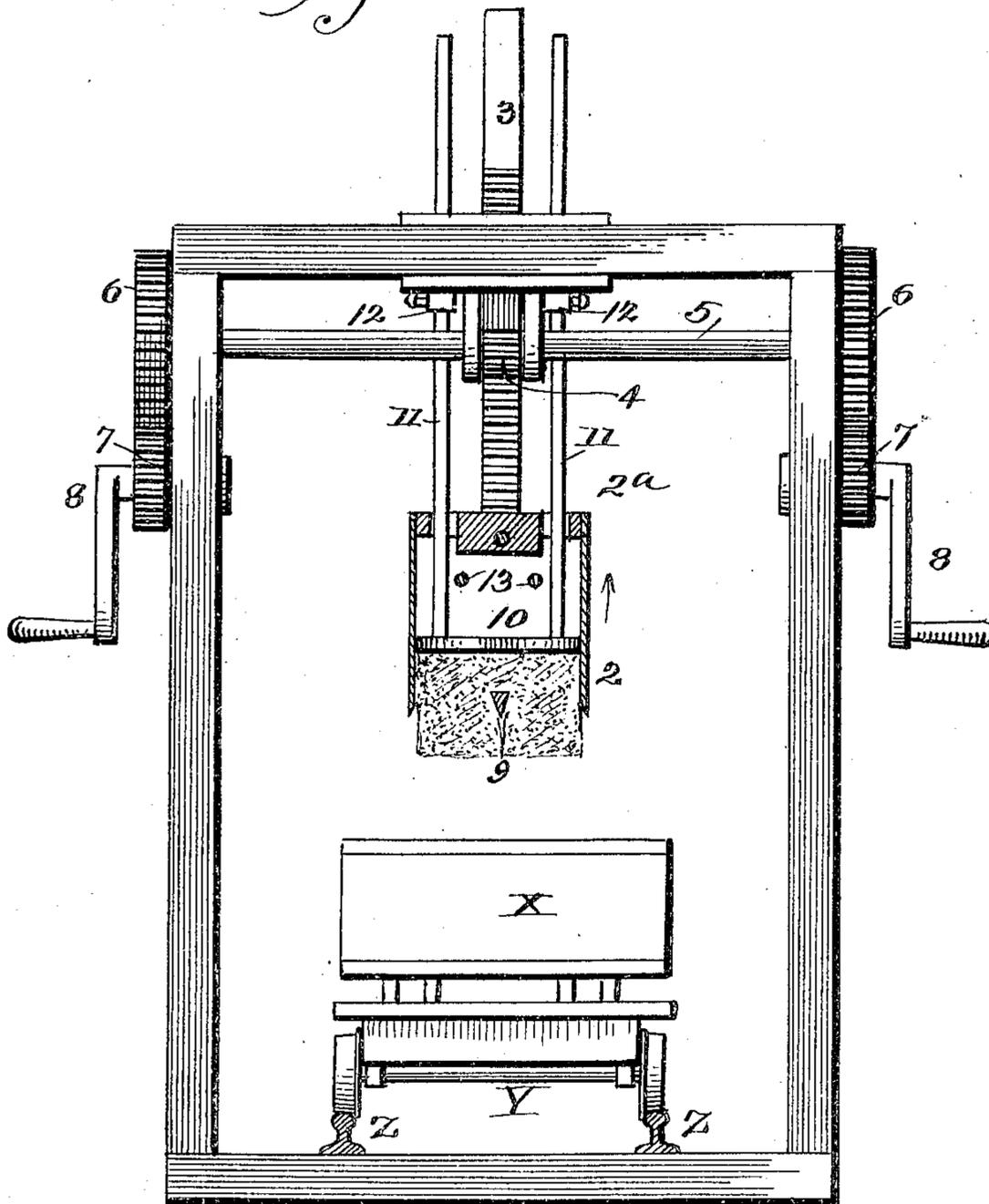
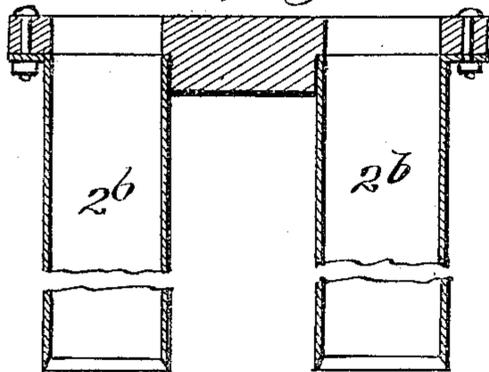


Fig. 7.



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JAMES WILLIAM STUART, OF PARIS, ILLINOIS.

CORE-CUTTER FOR CEMENT-BLOCK MACHINES.

No. 812,702.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed April 14, 1905. Serial No. 255,553.

To all whom it may concern:

Be it known that I, JAMES WILLIAM STUART, a citizen of the United States, residing at Paris, in the county of Edgar and State of Illinois, have made certain new and useful Improvements in Core-Cutters for Cement-Block Machines, of which the following is a specification.

My invention is an improved machine for forming building-blocks of cement or other plastic material, and especially for cutting out or coring the blocks when being molded, whereby they are produced with a central hole or passage of any desired shape, thus economizing material, reducing the weight of the blocks, and adapting them when duly laid in a wall to form continuous vertical air-passages.

The invention is embodied in the construction, arrangement, and combination of parts hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is in part a vertical section and in part an elevation of my improved machine. Fig. 1^a is a side view showing gearing forming part of the machine. Fig. 2 is an enlarged horizontal section on the line 2 2 of Fig. 1. Fig. 3 is an enlarged vertical section on the line 3 3 of Fig. 1. Fig. 4 is an enlarged detail section on the line 4 4 of Fig. 1. Fig. 5 is an enlarged section of the lower portion of the die or cutter. Fig. 6 is a view similar to Fig. 1, save that the core-cutting mechanism is shown in a different position, as when the core previously cut out is being ejected from the cutter. Fig. 7 is a sectional view showing a modification of the die or cutter.

In Figs. 1 and 6 the numeral 1 indicates a rectangular frame in which the working parts of the machine are arranged. A mold-box X is shown supported upon a truck Y, running on horizontal rails Z. This mold-box is thus adapted to be brought directly under the die or cutter 2, which is adjusted or moved vertically by means which will now be described. As shown in Fig. 2, the cutter is oblong in horizontal cross-section and is rounded at the ends and narrowed in the central portion. It is constructed of plate iron or steel, and its lower edge is beveled to form the cutter proper. (See Figs. 3 and 5.) The cutter is provided with a head 2^a, to which a rack-bar 3 is attached, the same extending upward in guides attached to the top portion of the frame 1. As shown in Figs. 1 and 4,

this rack-bar 3 engages a pinion 4, which is mounted upon a transverse shaft 5, journaled in the sides or vertical portions of the frame 1. Spur-gears 6 are keyed upon the ends of the shaft 5 and engaged by pinions 7, (see Fig. 1^a;) whose stub-shafts are provided with a hand-crank 8, whereby the shaft 5 may be rotated as required for raising or lowering the die or cutter 2. It is to be understood that in place of hand-power, which may be applied by the crank 8, I may substitute any other power which convenience may dictate. The mold-box X is provided with a top opening similar in outline or shape to the horizontal section of the die or cutter 2, so that when the mold-box is adjusted directly under the cutter, as illustrated in Figs. 1 and 6, the cutter will enter the mold-box, and the latter being filled with cement or other plastic material the die will cut out the central portion of the mass, and then, the cutter being raised, the core thus cut out will be lifted with the cutter and held therein until forcibly ejected. As shown in Fig. 1, the central portion of the die or cutter 2 is provided with a transverse bar 9, which performs three functions—that is to say, it connects and braces the sides of the cutter, and thus renders the latter more rigid, and being beveled so that its lower edge is sharp it serves as a knife or cutter adapted to enter the cement with comparatively little resistance, and when the cutter 2 is raised it aids in holding the core therein. For the latter purpose it is made duly thick or broad on the upper side.

Within the cutter 2 I arrange a plate 10, which serves as an ejector for the core or material cut out and taken up by the cutter. Two vertical bars 11 are attached to the plate 10 and extend upward through suitable guides attached to the top portion of the frame 1. Collars 12, having screw-clamps, are attached to the bars 11 and serve as stops when they come in contact with the top frame, as shown in Fig. 6.

It will now be understood that by rotating the shaft 5 in one direction the rack-bar 3 will be fed downward and the cutter 2 thereby forced into the mold-box X and that previous to this operation the ejector or plate 10 will rest by gravity upon the cross-bar and cutter 9 of the die 2. As the latter enters the plastic material the plate 10, together with its guide-bars 11, is forced upward until it comes in contact with stops consisting of

cross-bolts 13, the same passing through the sides of the cutter 2 at a point removed from its head 2^a. It will be understood that these cross-bolts or stops 13 are so located that the space intervening the lower side of the ejector 10 and the cutting edge of the cutter 2 exactly corresponds to the depth of the mold-box X, or, in other words, to the thickness of the cement block which is to be produced.

Now upon reversing the rotation of the shaft 5 through the medium of the gearing shown or equivalent the rack-bar 3 is raised and the cutter 2 along with it, carrying also the core cut out of the cement block in the mold-box X. When the clamping-collars 12 strike the top portion of the frame, as shown in Fig. 6, the further upward movement of the ejector 10 will be arrested, and the upward movement of the cutter 2 continuing, as illustrated by the arrow in Fig. 6, the result is that the core (shown by dotted lines, Fig. 6) will be ejected from the cutter. In practice it is proposed to perform this operation at the time when a second mold-box X shall have been carried under the cutter, so that the core lifted from one mold-box will be dropped into the next one, thus securing an obvious economy in the handling of material.

It is to be understood that I do not propose to restrict myself in all cases to the particular and preferred form of die already described, since it is practicable to adopt various others. For example, in Fig. 7 I show two separate tubular cutters 2^b, which may be circular in cross-section. In such case two separate ejector-plates would be required; but the operation of the parts will be mainly the same, and of course the mold-box would be correspondingly constructed as to its top opening.

The machine described is exceedingly simple in organization, but very effective in use, and effects a great economy in the coring of large cement building-blocks.

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

1. The combination, with a frame, and a core-cutter for plastic material, and means for raising and lowering it, of a cross-bar arranged transversely within the cutter and near its lower edge, and means for ejecting the core cut out and taken up by the cutter, substantially as described.

2. In a machine of the class indicated, the combination, with the core-cutter a transverse bar connecting the sides of the cutter at a point adjacent to its lower edge, of an ejector consisting of a plate arranged within the cutter and having vertical guides provided with stops, the said ejector resting normally upon the cross-bar within the cutter, and being arrested by the stops when the cutter is moved upward beyond a certain point, substantially as described.

3. In a machine for the purpose specified, the combination, with a frame, a core-cutter, and means for raising and lowering it, of an ejector arranged within the cutter, vertical guide-bars attached to said ejector and extending up through the top portion of the frame stops applied to said guide-bars and made adjustable thereon so that they may be set at different distances from the ejector come in contact with the latter when the cutter is raised, and a stop arranged within the cutter for supporting the ejector when the cutter is empty, substantially as described.

4. The combination, with a frame, horizontal guide-rails, a truck adapted to run thereon, and a mold-box supported upon said truck and provided with a top having an opening, of a vertically - movable core - cutter adapted to enter the mold-box, means for raising and lowering the said cutter, an ejector contained within the cutter, and adapted to arrest the core and force the same out when the cutter is raised to a sufficient height, substantially as described.

JAMES WILLIAM STUART.

Witnesses:

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