958,973.

R. C. PENFIELD.

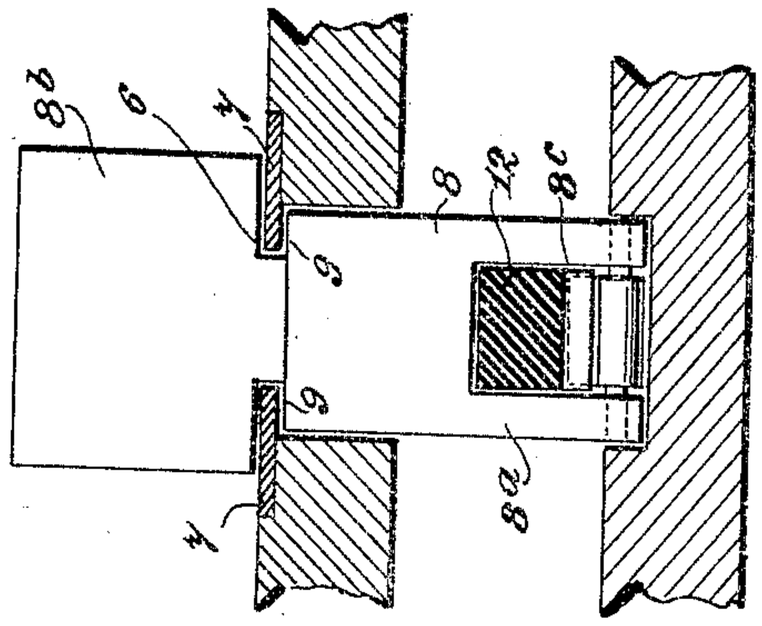
BRICK SETTING FRAME.

APPLICATION FILED OCT. 30, 1908.

Patented May 24, 1910.

2 SHEETS—SHEET 1.

Fig. 2.



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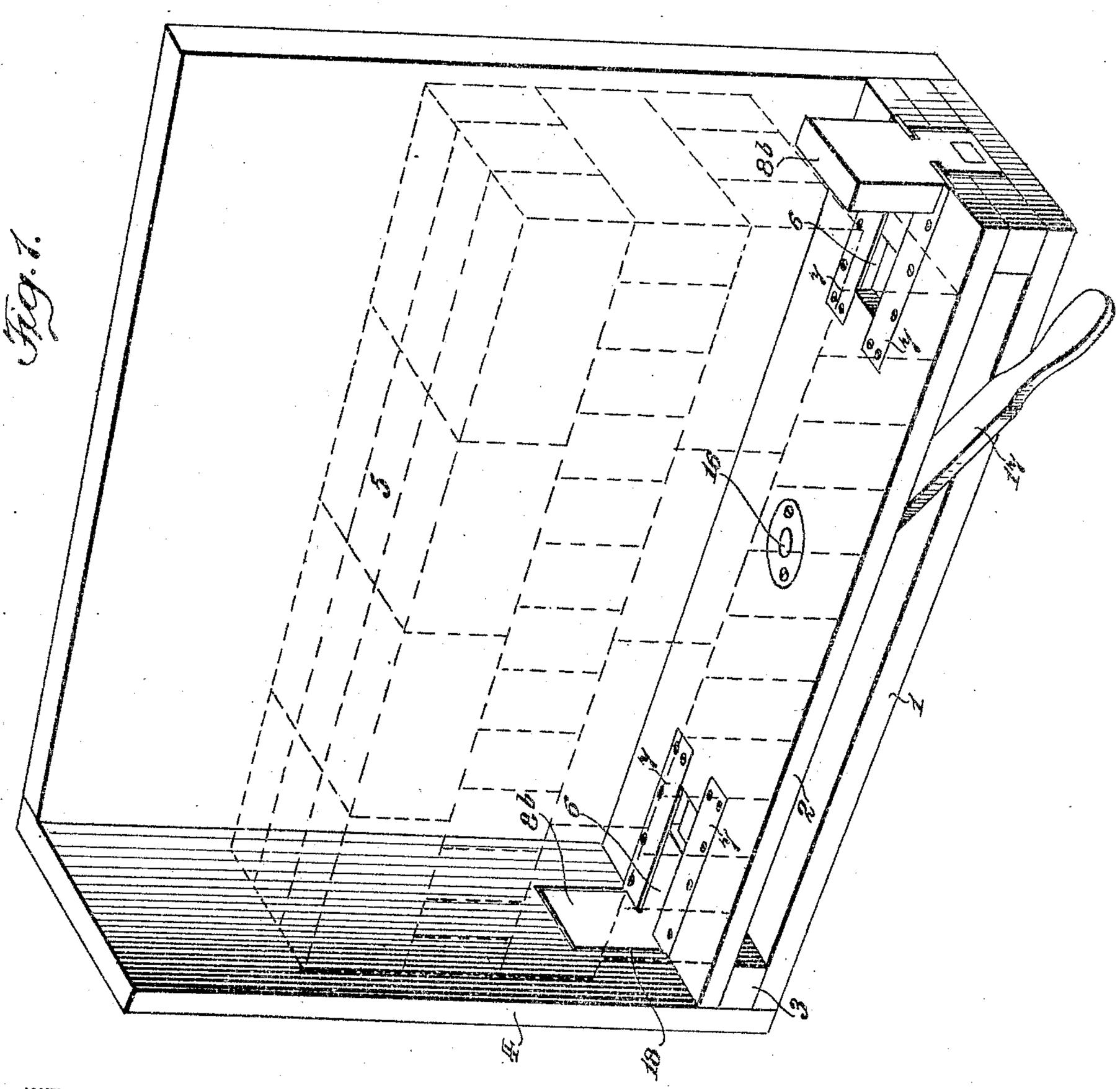

WITNESSES

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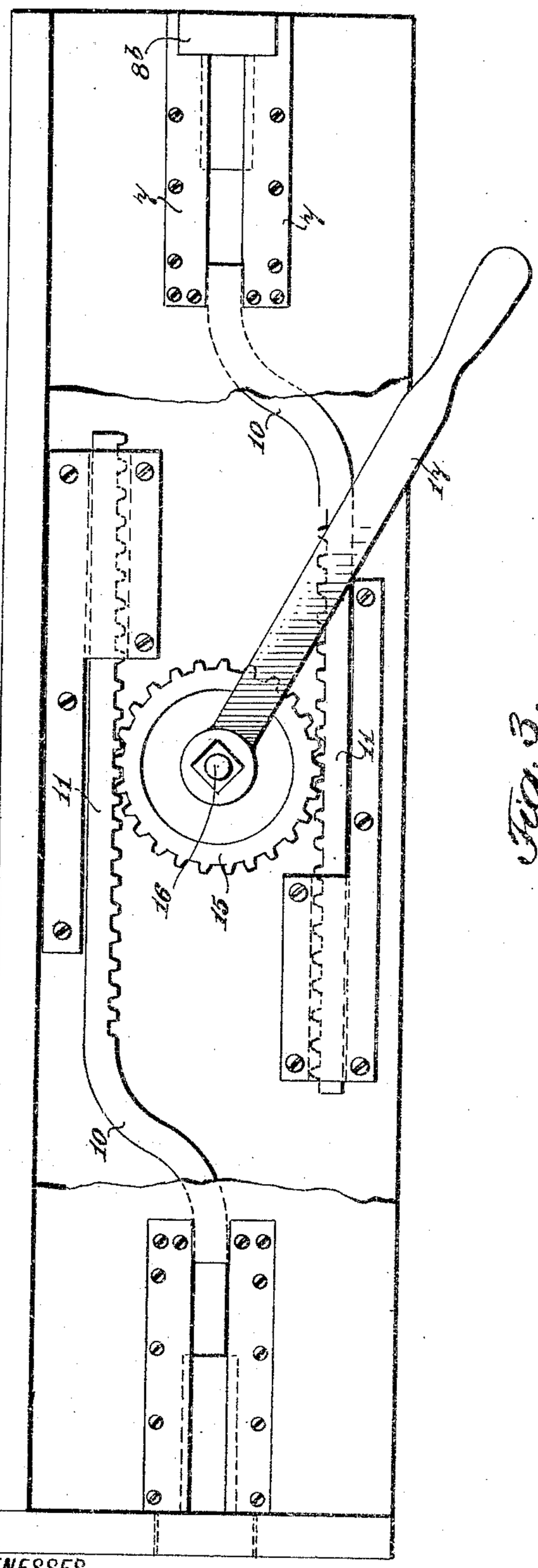

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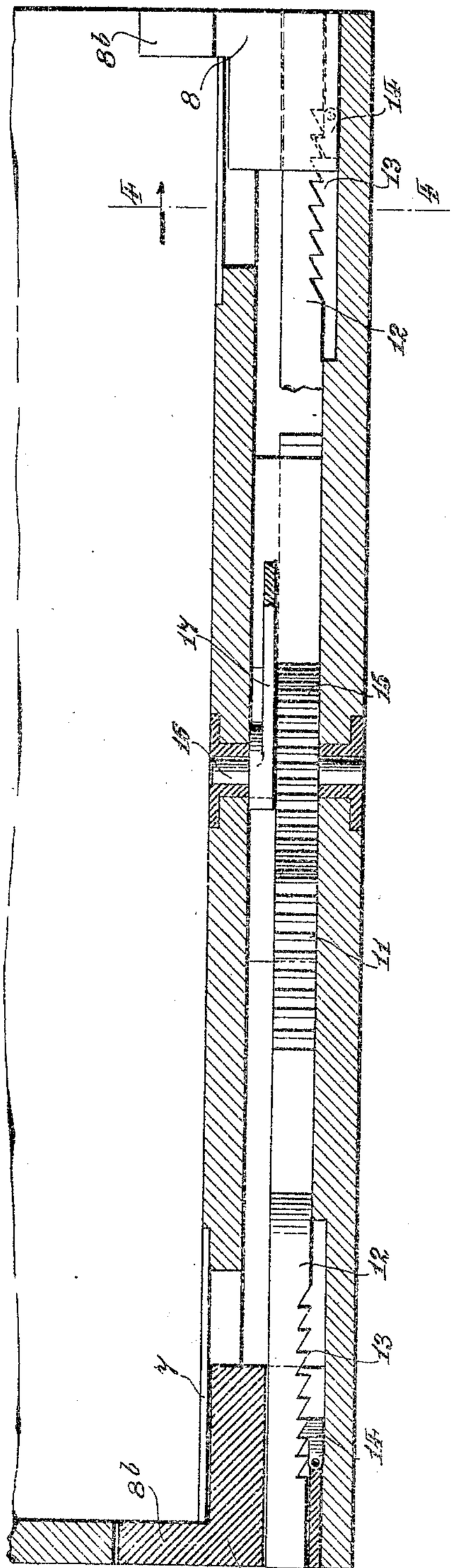

Fig. 3.

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BRICK-SETTING FRAME.

958,973. Specification of Letters Patent. Patented May 24, 1910.

Application filed October 30, 1908. Serial No. 460,249.

To all whom it may concern:

Be it known that I, RAYMOND C. PENFIELD, a citizen of the United States of America, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Brick-Setting Frames, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to means for enabling burned bricks to be arranged in a stack formation which will be of rectangular shape and perfectly symmetrical and regular.

Heretofore it has been customary to rehandle bricks repeatedly, thus requiring the expenditure of much labor involving large cost. According to certain improvements made by me and covered in pending applications for Letters Patent, the rehandling of the bricks is avoided by using mechanical devices which will lift a large number of brick in bulk after they have been set in a prearranged order, and will transport this bulk from point to point. It becomes necessary, however, to provide means whereby the bricks may be easily and readily set in a rectangular formation, and my invention to this end consists in a formation having upright back stops or alining boards set at a right-angle to each other and placed perpendicular to a surface on which the lower course of brick is set, thereby providing a right-angled corner, as it were, within which the bricks may be accurately placed and the rectangular formation built up evenly and neatly.

In my co-pending application for Letters Patent, filed October 8, 1908, Serial No. 456,692, I have described a method of handling brick by setting the same in a unit stack with the lower layer or tier of brick shorter than the superposed mass. My present invention, therefore, aims to cover not only in a broad sense a brick-setting frame, wherein the bricks can be placed in a rectangular formation, but also to provide a mechanical contrivance whereby the unit stack having a short basic layer may be easily hacked up; and the invention, therefore, consists essentially in a supporting board or surface on which the lower row of bricks is set in a rectangular systematic and even series without openings or spaces between the units, but with their faces in close contact so that the row may form, as it were, a consolidated unit; and it further consists in a brick-setting frame having clamping means adjustable and regulative for different rows of bricks wherewith the short basic layer may be readily arranged in a tight and systematic manner and in readiness for the building of the superposed mass of bricks thereon, after the manner of the unit stack just alluded to, and also comprises various details and peculiarities in the construction and combination substantially as will be hereinafter described and then pointed out in the claims.

In the accompanying drawings illustrating my invention, Figure 1 is a perspective view of my improved brick setting board. Fig. 2 is a top plan view with the upper part removed. Fig. 3 is a longitudinal sectional view. Fig. 4 is a detail cross section on the line 4, 4 of Fig. 3.

Similar characters of reference designate coresponding parts throughout the different figures of the drawings.

1 denotes a bottom plate or board having a general rectangular shape over which lies a second similar rectangular board or plate 2, the same being separated by means of the end blocks 3 only for a short distance so as to accommodate between them certain portions of the mechanism, as I shall presently explain. At one end of the duplicate boards 1 and 2 is a vertical board 4, and alongside of the duplicate boards 1 and 2 is a longitudinal vertical board 5 which forms with the end board 4 a right-angled frame. Ordinarily it will not be found essential to employ another end board similar to board 4 at the opposite end of the device, although it may be used if preferred. The top board or plate 2 is provided at each end with central slots 6, 6, at the edges of which are plates 7 which overlap the slot in the manner shown in Fig. 4, in order that a pair of clamping blocks 8 having lateral longitudinal recesses 9 may be introduced in the slots 6 and be reciprocable therein, said blocks 8 having lateral grooves 9 entered by the overlapping plates 7, 7 so that the blocks 8 in their back and forth movements may be truly and accurately guided. The blocks 8 have a rectangular part 8^a which depends beneath the top board 2, and a rectangular upper part 8^b which projects vertically above the upper board 2. The upwardly projecting parts 8^b of these blocks 8 lie par-

allel to each other above the board 2 and serve as laterally movable clamps which are adapted to grip between them the bricks that are laid upon the top surface of the board 2. Further, the downwardly extending parts 8^a of the blocks 8 are slotted at 8^c to allow the passage through them of bars 10, of which there are two, one for each clamping block. These bars 10 are shown fully in plan view in Fig. 3, and they have inner parallel sections 11 formed as rack bars, and the outer sections 12 which pass through the blocks 8, which sections 12 are provided on their lower edges with teeth 13 which are adapted to be engaged by the pawls 14 pivoted to the under side of the clamping blocks 8 in the bottom of the recess 8^c already referred to. The parallel rack bars 11 are mutually in mesh with a gear wheel 15 supported on a central bolt 16 which is held in the parallel boards 1 and 2. This bolt 16 has attached thereto rigidly a horizontal lever 17 by means of which said bolt and the gear wheel 15 are rotated. The result of rotating the gear wheel 15 will be to actuate the rack bar portions 11 of the bars 8 in opposite directions to each other, and consequently to move the clamping blocks 8 either toward or away from each other.

When the clamping blocks 8 are projected outside of the slots 6 of the top board 2 sufficiently far to expose the pawl 14 and the ratchet teeth 13, it will be evident that the clamping blocks may be adjusted along the ends 12 of the bars 10 for a certain distance, so as to regulate the distance of the clamping faces 8^b with relation to each other, bringing them nearer together, or placing them wider apart so as to enable the device to be used in shaping up a basic layer of greater or less length. After the length of the basic layer has been determined upon, and the clamps have been properly set with the pawls in engagement with those teeth of the bars 12 which will bring the faces 8^b the proper distance apart for the layer which is to be formed, it will be evident that by laying hold of the handle 17 and rotating the gear wheel 15, the clamps may be moved together against the bricks or may be separated for the purpose of relieving the bricks.

The operation of the device will be evident from the foregoing description of the construction and combination. The burned bricks will be placed on the upper board 2 by hand. They will be arranged on their edges transversely of the board 2 with their ends against the longitudinal guide board 5 and without any more space between the individual bricks than will naturally result from the handling thereof by the workman. After the proper number has thus been placed upon the board 2, the operator will manipulate the lever 17 and bring the clamps 8^b against the ends of the bricks, thus consolidating the layer and taking up any space that may exist between any of them, and bringing the whole series of units into close and tight contact, so that in this way a basic layer is formed of a series of bricks set on edge with their longitudinal faces in contact with each other and with no spaces or openings between the units. After this is done, the superposed mass can be built upon this basic layer, but the basic layer will be shorter than the superposed mass, because of the clamps 8^b which are at the ends thereof and fill the spaces at those points so that when the bricks of the second layer are laid upon the first and against the uprights 4 and 5, they will project over the clamps 8^b at each end. When the unit stack has been finished, and it is desired to remove it the lever 17 will be moved in the opposite direction and the result will be the removal of the clamps 8^b from the ends of the basic layer sufficiently far to allow the end clamps of a lifting mechanism to be inserted for the purpose of gripping the basic layer and allowing the stack formation to be lifted and transported. The end board 4 is provided with an opening 18 which will allow the clamp 8^b to pass away from the basic layer and out from under the overhanging edge of the superposed mass far enough to allow the aforesaid gripping clamps of the lifting mechanism to be inserted. This will be the case at both ends of the device, except that since there is no other board 4 opposite to the first one, the clamp 8^b on the open end of the device will occupy when released from the bricks the position shown in Fig. 1 which is substantially the same position as that occupied by the other plate 8^b which is inside the opening 8^c. Only one corner like that formed by the uprights 4 and 5 is needed in conjunction with the horizontal board 2 to provide the proper guiding and alining frame for a unit stack, and it will be found that the bricks can be accurately placed and properly alined by the use of these parts. The end board 4 is at right angles to the horizontal board 2, and the side 5 is likewise at right angles to the horizontal board 2 and at right angles to the vertical board 4. Hence when the bricks are placed on the board 2 side by side with their ends against the side 5 and with their sides parallel with the end 4 it will be seen that the lower basic layer will be properly placed; and as the other layers are built thereon, a due regard will be paid to properly alining and positioning them relatively to the first layer and to the corner 4, 5, and there will be no trouble about making the whole stack perfectly rectangular and symmetrical, and when it is lifted out of the forming and supporting device it can be carried about and

its rectangular formation preserved, so as to enable it to be properly set in conjunction with other similar unit stacks in a kiln or in a place of support or elsewhere.

Many changes in the exact construction and combination may be made without departing from the scope of the invention.

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

1. In a brick-setting support, the combination with an angular upright, of a horizontal board on which the bricks may be hacked up in stack formation, and parallel clamping blocks arranged to travel toward and away from each other on said horizontal board, for the purpose of closing up a series of bricks thereon.

2. In a brick-setting support, the combination with an angular upright, of a horizontal board on which the bricks may be hacked up in stack formation, and movable clamping blocks arranged in connection with the latter for acting upon a layer of bricks, one of said blocks being arranged to retreat through an opening in the upright.

3. In a brick-setting support, the combination with a right-angled corner upright, of a horizontal support on which the bricks are placed, a clamping block arranged in connection with the upright so that it may be withdrawn through the latter after the bricks are set and thus removed from obstructing position, a second clamping block, said blocks being arranged to move toward and away from each other, and means for actuating the blocks.

4. In a brick-setting support, the combination with an angular upright, of a horizontal board on which the bricks are placed, and movable devices arranged in connection with the horizontal board for closing up a layer of bricks, said devices being adapted to be removed from beneath the overhanging mass of bricks after the latter are set, in order to allow lifting mechanism to engage the ends of the lower layer of the bricks.

5. In a brick-setting support, the combination with an angular upright, of a horizontal board on which the bricks are placed, parallel clamping blocks arranged at the ends of the board but inside the angular upright, said clamping blocks being adapted to move toward and away from each other, when moving toward each other clamping the layer of bricks and when moving away from each other leaving openings at the ends of the lower layer for the operation of a lifting mechanism.

6. In a brick-setting support, the combination with an angular upright, of a horizontal board on which the bricks are placed, movable clamping blocks arranged at the ends of the board but inside the angular upright, so that while the lower layer of bricks is inside the clamps the upper mass may overhang said lower layer, and said clamps being arranged so that in spreading apart one may pass beyond the inner surface of the upright.

7. In a brick-setting board, the combination with vertical uprights at right angles to each other, of a horizontal board on which the bricks are laid up, movable clamps at the ends of said board, means for moving said clamps toward and away from each other, all arranged so that when the clamps move toward each other the bricks of the lower layer may be brought closely together into a consolidated series, and when moved away from each other spaces may be left at the ends of said lower layer beneath the overhanging mass for the engagement of a lifting mechanism, one of said blocks in moving away from its companion passing beyond the surface of the angular upright so as not to form an obstruction to the use of lifting means.

8. In a brick-setting support, the combination with vertical uprights at right angles to each other, of a horizontal board, clamps at the ends thereof, one of which is adapted to pass through an opening in the upright when retreating from its clamping position, and means for actuating the clamps consisting essentially of a gear and rack bars, the latter being connected to the clamps.

9. In a brick-setting support, the combination with vertical uprights at right angles to each other, of a horizontal board, clamps at the ends thereof, and means for actuating said clamps consisting essentially of a gear and rack bars, the latter being connected to the clamps, said connection being made by means of a pawl pivoted to the clamps and engaging teeth on the bars.

10. In a brick-setting support, the combination of vertical uprights, one of which is provided with an opening, a horizontal board on which the bricks are placed, and a clamping mechanism arranged in connection with said board, a part of said mechanism being adapted to retreat in the opening in the upright.

11. A brick-setting board, comprising uprights arranged at an angle to each other a horizontal board on which the bricks are placed, and clamping means arranged in connection with said horizontal board, a part of said clamping means being adapted to pass beyond the adjacent upright when retreating from its clamping position.

12. A brick-setting support, comprising vertical uprights placed at an angle to each other, a horizontal board on which the bricks are placed, clamping devices at the ends of the board arranged to move toward and away from each other for the purpose of placing the lower layer in proper position, a gear and rack bars for actuating said

clamps, and a pawl connection between the clamps and the rack bars for adjusting the clamps.

13. In a brick-setting support, the combination with a horizontal board on which the bricks are placed, of movable blocks for straightening and closing up the lower row, and longitudinal bars for actuating said blocks, said blocks being adjustable relatively to the bars, together with means for actuating the bars.

14. In a brick-setting support, the combination with a horizontal board having guides or ways therein, blocks movable in said guides for the purpose of acting against the bricks to form a closely set lower layer, longitudinal bars and means for actuating them, and means for adjustably connecting the blocks to said bars consisting of pivoted members on the blocks engaging teeth on the bars.

In testimony whereof I affix my signature in presence of two witnesses.

RAYMOND C. PENFIELD.

Witnesses:
FRANK PAUL,
C. B. SCHROEDER.