April 15, 1924. 1,490,898

G. E. LUCE

CLAMPING DEVICE FOR BRICK HANDLING MACHINES

Original Filed March 29, 1920 2 Sheets-Sheet 1

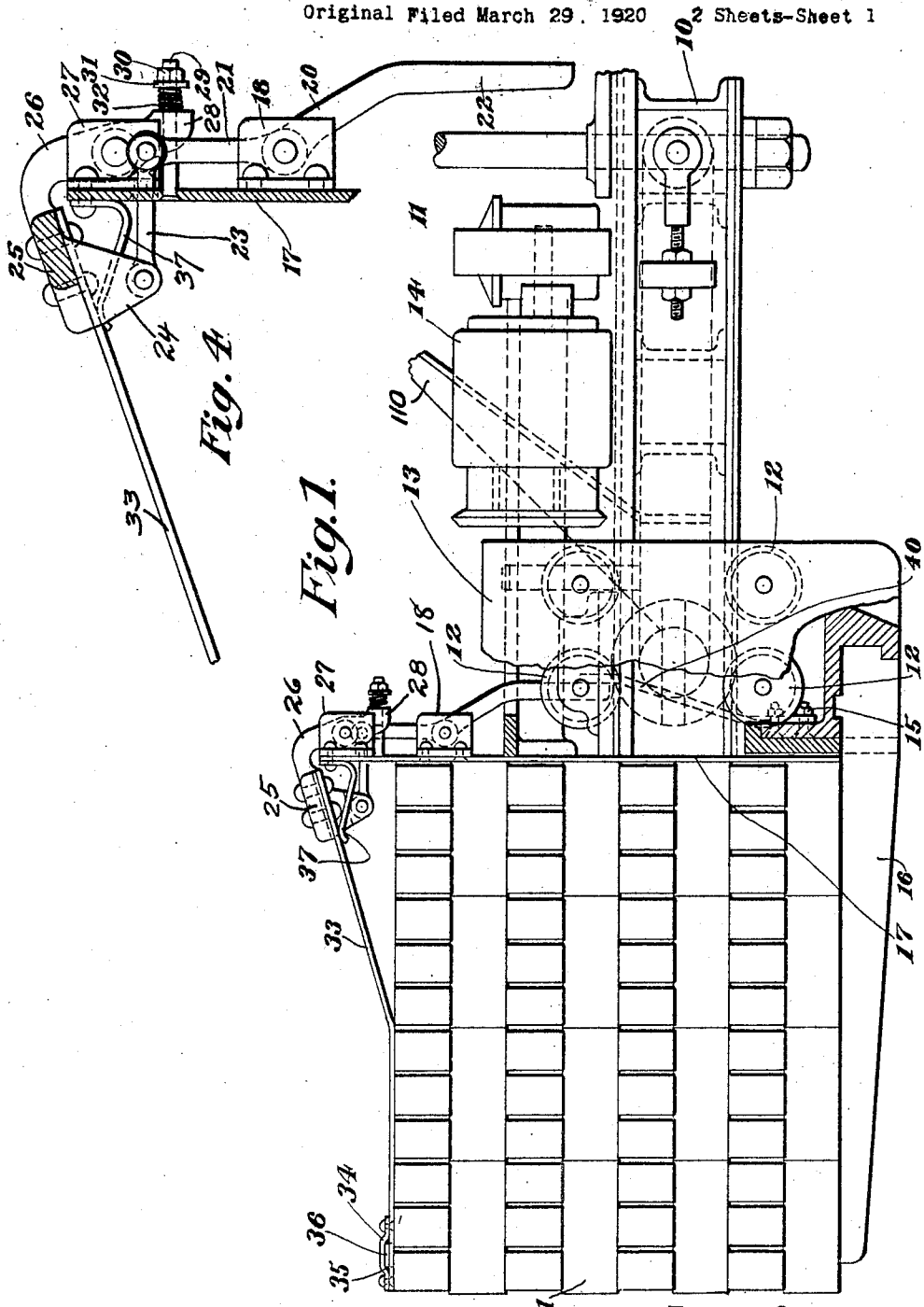


Fig. 4

Fig. 1.

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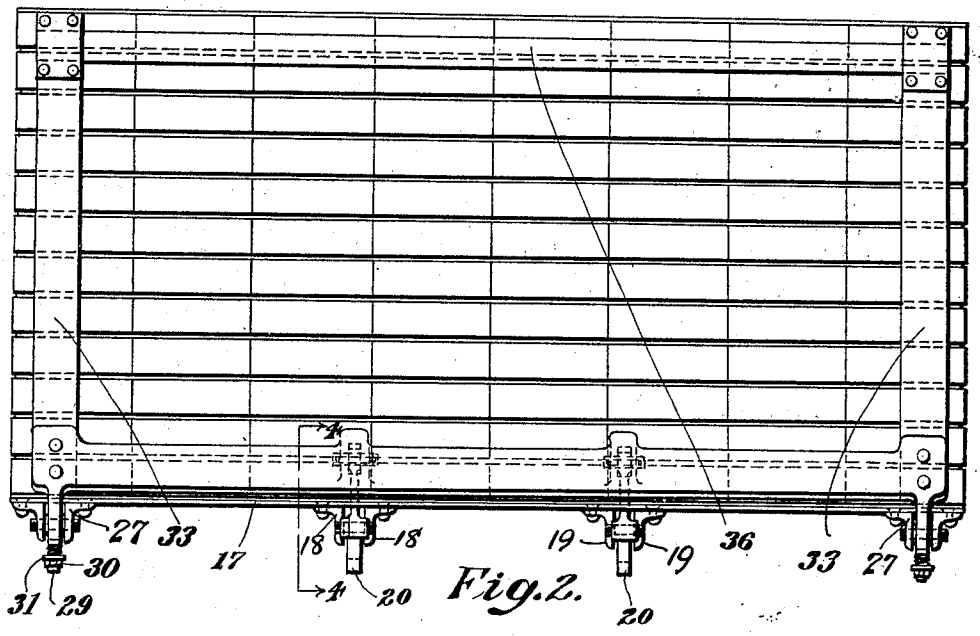
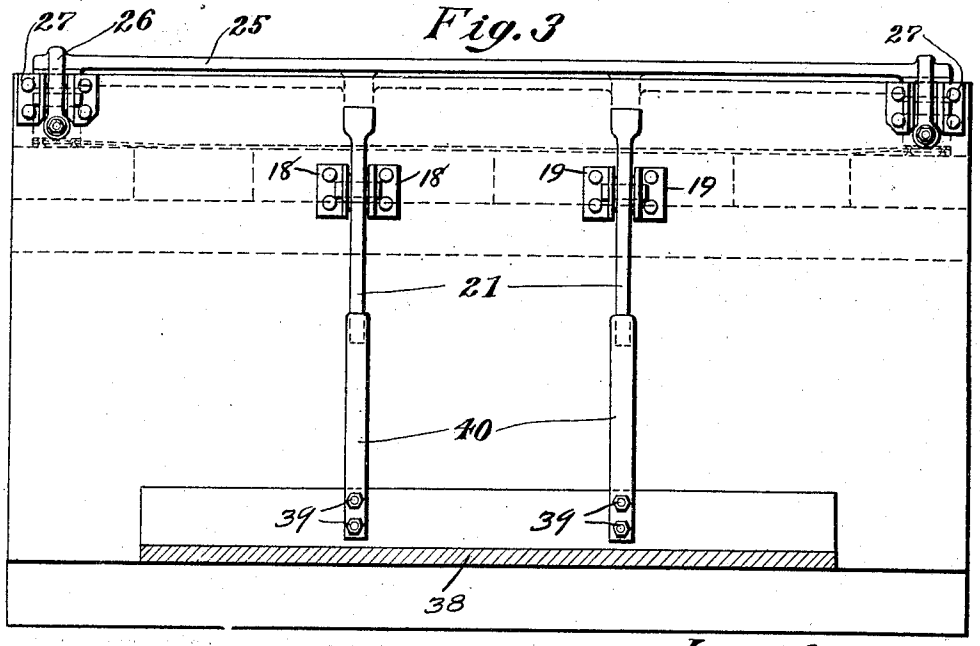


Fig. 2.

Fig. 3



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UNITED STATES PATENT OFFICE.

GRAFTON E. LUCE, OF CHICAGO, ILLINOIS.

CLAMPING DEVICE FOR BRICK-HANDLING MACHINES.

Application filed March 29, 1920, Serial No. 369,594. Renewed October 5, 1923.

To all whom it may concern:

Be it known that I, GRAFTON E. LUCE, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented an Improvement in Clamping Devices for Brick-Handling Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My present invention relates to brick handling machinery of the crane type, and more particularly to clamping devices for use in connection with such machines.

When using machinery to handle bricks, as for example, when a crane is used to pile or stack bricks in a kiln, the piles or units of brick are picked up by the crane and transported to the desired point in the kiln, where mechanical means is employed to remove them from the crane. The pile or unit of bricks rests on a platform constructed of a plurality of parallelly arranged fingers, and heretofore no support whatever has been employed to retain or steady the pile or unit on the platform, with the result that occasionally a pile or unit of bricks is prematurely dumped, or the position of the bricks on the platform disturbed to the extent that considerable manual labor is necessary to repair the results of such accidents.

I obviate the defects above noted, by combining with the lifting platform a clamp that is operated automatically by the movements of the platform with respect to the unloading mechanism. My improved clamping means is also arranged to clamp the pile or unit of bricks simultaneously with the movement of the lifting platform thereunder, pressure being applied to the clamps until the platform is fully under the pile or unit of bricks.

The object of my invention therefore, is the provision of an improved clamping means for retaining and holding a pile or unit of bricks on a carrying platform during transportation to the kiln.

Another object is a clamping means for exerting a downward pressure on a unit of brick during the time occupied by the lifting platform in moving into and out of position with the unit.

In the accompanying drawings illustrating the preferred embodiment of my invention;

Fig. 1 is a side elevation, partly in section, of my invention applied to a brick setting crane, only so much of the crane being shown as is necessary for a clear understanding of the invention,

Fig. 2 is a plan view,

Fig. 3 is a side elevation, and

Fig. 4 is an enlarged fragmentary sectional view of my invention, taken on the line 4—4 of Fig. 3.

Referring to the drawings, 10 designates a platform pivotally mounted by the vertical shaft 11 to any suitable part of the crane. A strut 110 connects the platform 10 to the pivotal mounting and acts as a support for the outer end of such platform. Mounted on wheels 12 is a framework 13, the wheels 12 being located on either side of the top and bottom of the platform, as shown in Fig. 1, this method of mounting ensuring easy longitudinal movement of the framework 13 on the platform 10. Mounted on the platform 10 and connected to the framework 13 is a motor 14 and by means of which the framework is moved relative to the platform.

Attached to the lower end of the framework 13 by bolts 15, or in any other suitable manner, is a plurality of forwardly extending fingers 16, the fingers being arranged parallel to each other, the distance between each finger being equal approximately to the thickness of an ordinary brick.

Rigidly attached to the forward end of the platform 10 is a crowding plate 17, approximately equal in width and height to the width and height of the pile or unit of bricks adapted to be supported on the fingers 16. Riveted to the back of the crowding plate 17 and spaced apart from each other, as shown in Figs. 2 and 3, are pairs of brackets 18, 18 and 19, 19, in each pair of which is pivotally mounted a lever 20, the upper end portion 21 of which lies normally parallel with the crowding plate, while the lower portion 22 extends downward and forward from the pivot point and then downward and parallel with the crowding plate. Pivotally attached to the upper end of the portion 21 of each lever 20 is one end of a link 23, which extends forwardly through a perforation, not shown, in the crowding plate. The outer or forward end of each link 23 is pivotally attached to a bracket 24 riveted, or otherwise secured, to a plate 25 which lies in front of and parallel to the crowding plate. Rearwardly and downwardly extending arms 26, formed integral

with and at each end of the plate 25, are pivotally mounted in brackets 27, riveted or otherwise secured to the back of the crowding plates. The arms 26 extend beyond and below the pivot point thereof and this extension 28 is provided with an elongated hole or slot, not shown, through which passes the bolt 29, riveted to the crowding plate 17. The outer or free end of the bolt 29 is provided with a nut 30 and washer 31, and located on the bolt 29, between the washer 31 and the extension 28 on the arm 26, is a compression spring 32, tending to raise the outer edge of the plate 25.

Riveted to the plate 25 at either end thereof, are flat strips 33 of sheet metal, which extend forwardly and downwardly and then forward and horizontal, as shown clearly in Fig. 1, a metal strap 34, riveted to the outer end of each strip 33, providing a slot 35 in which is located the ends of the strip 36 of sheet metal, which is thus located parallel to the plate 25. Riveted to the front face of the crowding plate 17, near the top thereof, are spring plates 37, the outer or free ends of which engage with the under face of the plate 25 and assist the spring 32 in forcing the outer edge of the plate 25 upwardly. Bolted to the lower tranverse member 38 of the framework 13, by bolts 39, and in alinement with the lower end 22 of the levers 20, are lugs 40. The upper ends of these lugs are located behind the lower end of the levers 20, as shown in Fig. 1.

The operation of my improved clamping device is as follows: The crowding plate 17 is brought up against the rear face of the pile or unit of brick 41, the fingers 16 having been previously moved back behind the crowding plate by the motor 14. With the crowding plate against the unit of bricks, the clamping device is in position for operation, being held above the pile or unit of bricks by the springs 37 and 32. Motor 14 is now operated to advance the fingers under the pile or unit of bricks 41, and as the framework 13 advances, the upper end of the lugs 40 are brought into engagement with the lower portion 22 of the levers 20, pushing said portion forward, and moving the link 23 rearwardly, rotating the plate 25 downward to the left about the pivot points of the arms 26 and forcing the horizontal portion of the plates 33 and plate 36 downward into engagement with the upper face of the pile or unit of bricks 41. Thus the unit of bricks is clamped before the fingers 16 are fully underneath the unit of bricks, and the fingers, continuing their travel cause the clamps to clamp tighter until the fingers cease their travel. The excess pressure of the clamps, due to the continued travel of the fingers, is compensated by means of the springs 37 and 32.

The device is now in the position shown in Fig. 1, when the unit of bricks may be safely transported to any desired part of the kiln for deposit. To release the clamps, the motor 14 is operated to move the framework 13 rearwardly, removing lugs 40 from contact with the levers 20, thereby allowing springs 37 and 32 to act, these springs rotating the plate 25 upwardly about the pivot point of the arms 26 to lift the metal strips 33 and 36 from engagement with the pile or unit of bricks.

While I have described the preferred embodiment of my invention somewhat in detail, it is to be understood that I may vary the size, shape, and arrangement of parts constituting my invention, within considerably wide limits without departing from the spirit of the invention.

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

1. In a clamping device for brick handling machines, the combination of a stationary plate, a clamp pivotally mounted thereon and extending forwardly thereof, a movable frame adapted to carry a load or pile of bricks and located beneath the clamps, and means on said frame for operating the clamping device to clamp a load or pile of bricks on the movable frame.

2. In a clamping device for brick machines, the combination of a plate, a frame movable with respect thereto, and adapted to support a load or pile of bricks, a clamp pivotally mounted on the plate and extending forwardly over the said frame for engagement with the top of the load or pile of bricks, an arm extending parallel to the plate for operating the clamp, and means on said frame and movable into and out of engagement with the arm for controlling the operation of the clamp.

3. In a clamping device for brick handling machines, the combination of a movable brick carrying frame, a clamp associated therewith for clamping a load of bricks thereon by pressure exerted on the top of the load, and means for applying the clamp to the load or pile of bricks during the loading of the bricks on the frame.

4. In a clamping device for brick handling machines, the combination of a movable brick carrying frame, a clamp associated therewith for clamping a load of bricks thereon by pressure exerted on the top of the load, means for applying the clamp to the load of bricks during the loading of the bricks on the frame, and means for equalizing the excess of pressure on the clamp.

In testimony whereof, I have signed my name to this specification.

GRAFTON E. LUCE.