

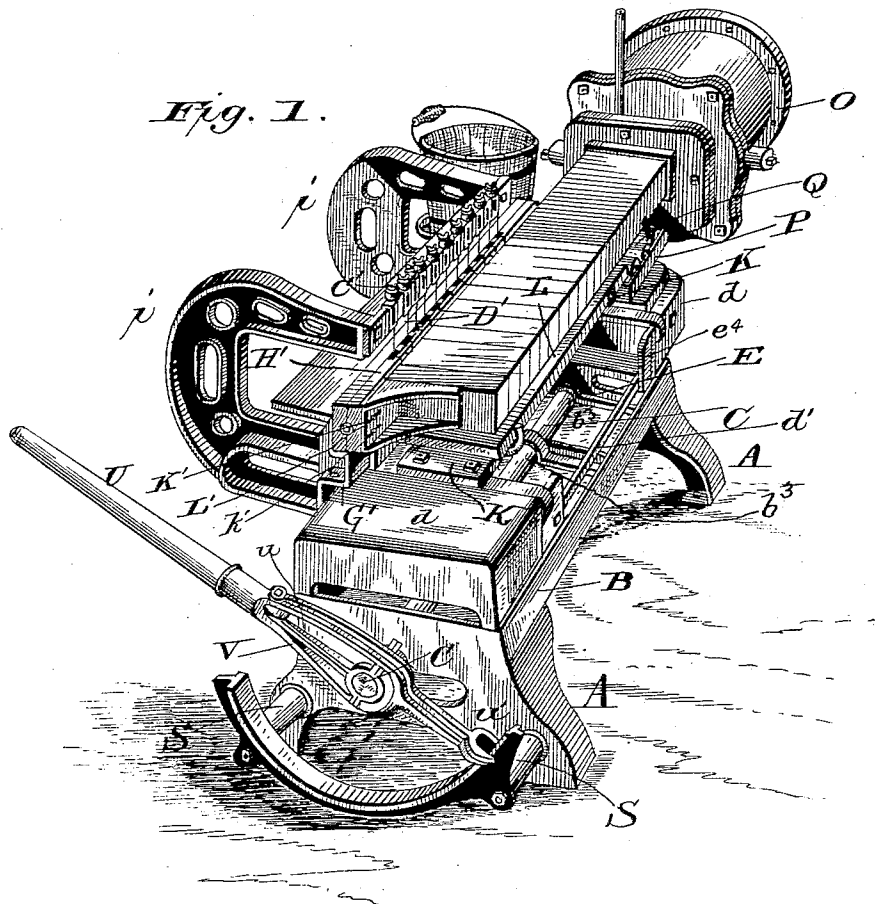
(No Model.)

6 Sheets—Sheet 1.

E. M. FREESE.
TILE OR BRICK CUTTER.

No. 476,627.

Patented June 7, 1892.



WITNESSES:
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Arthur L. Morsell

INVENTOR:
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J. J. Cagney & Co.
Attorneys.

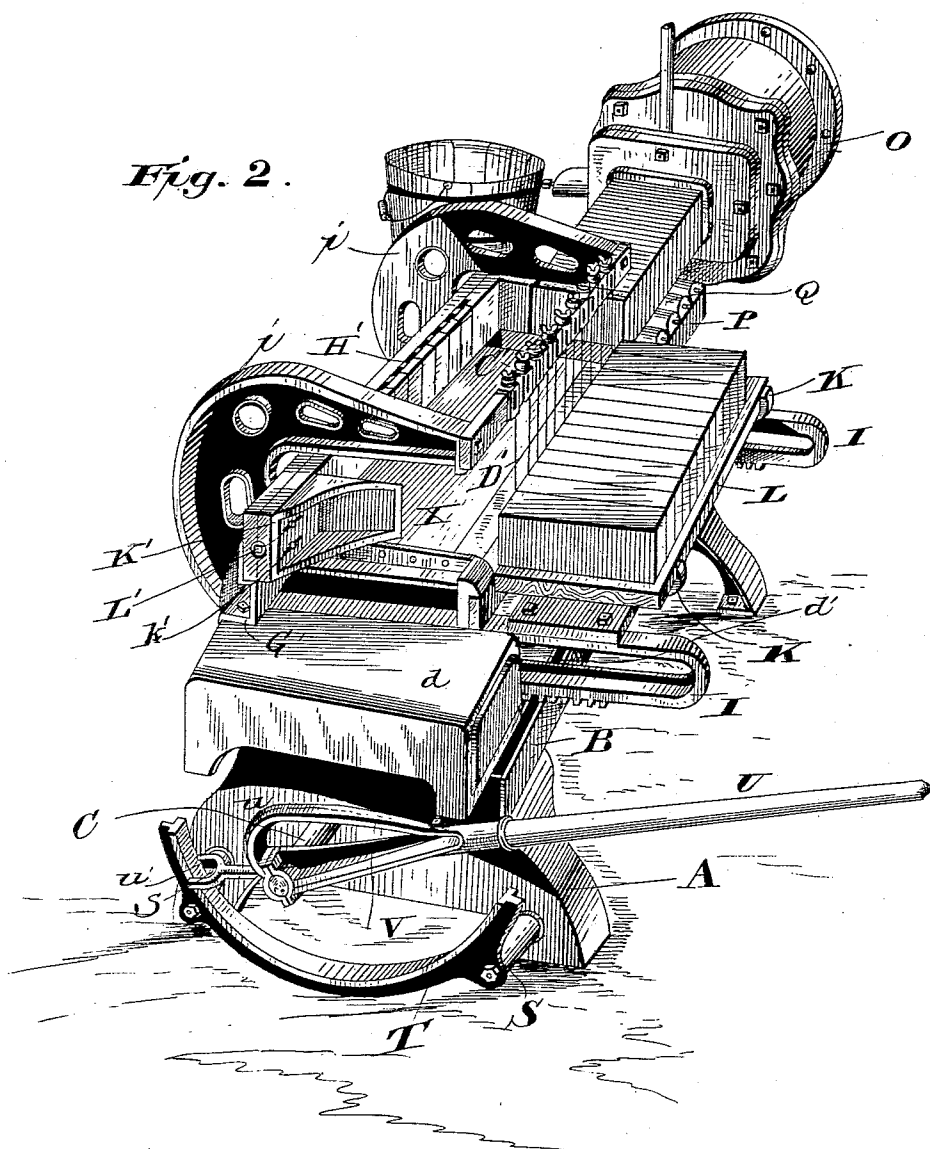
(No Model.)

6 Sheets—Sheet 2.

E. M. FREESE.
TILE OR BRICK CUTTER.

No. 476,627.

Patented June 7, 1892.



WITNESSES:
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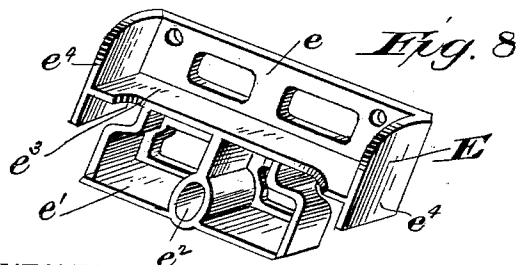
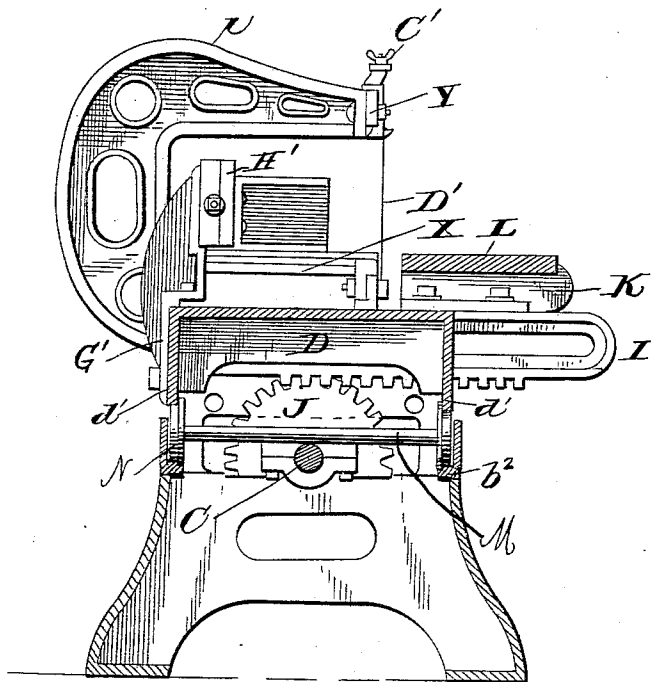
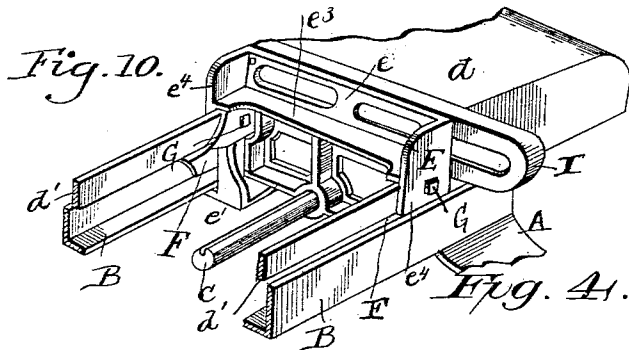
(No Model.)

6 Sheets--Sheet 4.

E. M. FREESE.
TILE OR BRICK CUTTER.

No. 476,627.

Patented June 7, 1892.



WITNESSES:
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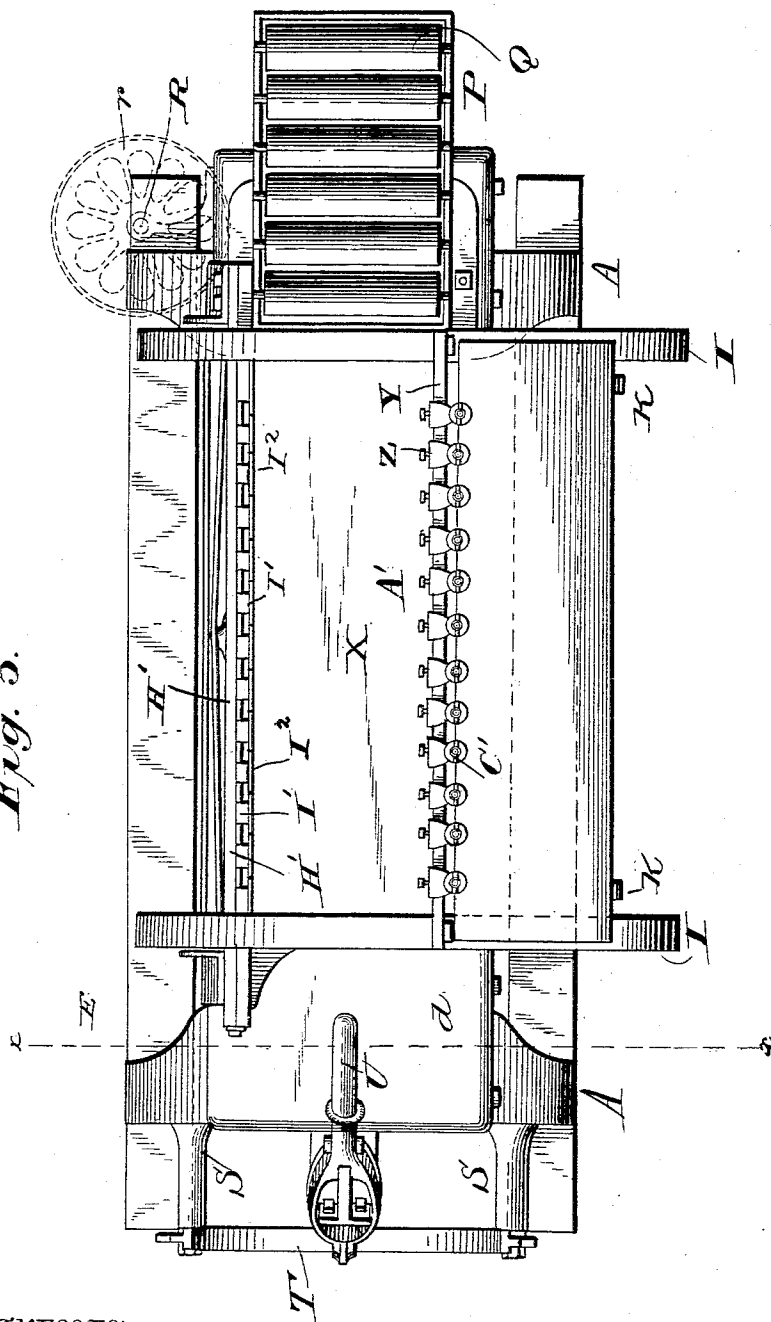
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E. M. FREESE.
TILE OR BRICK CUTTER.

No. 476,627.

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Fig. 5.



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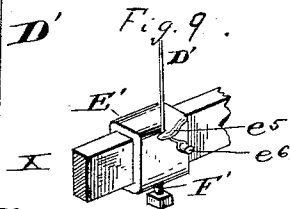
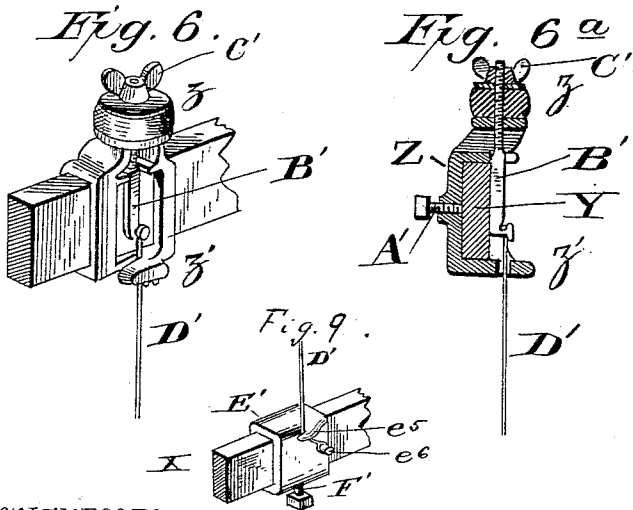
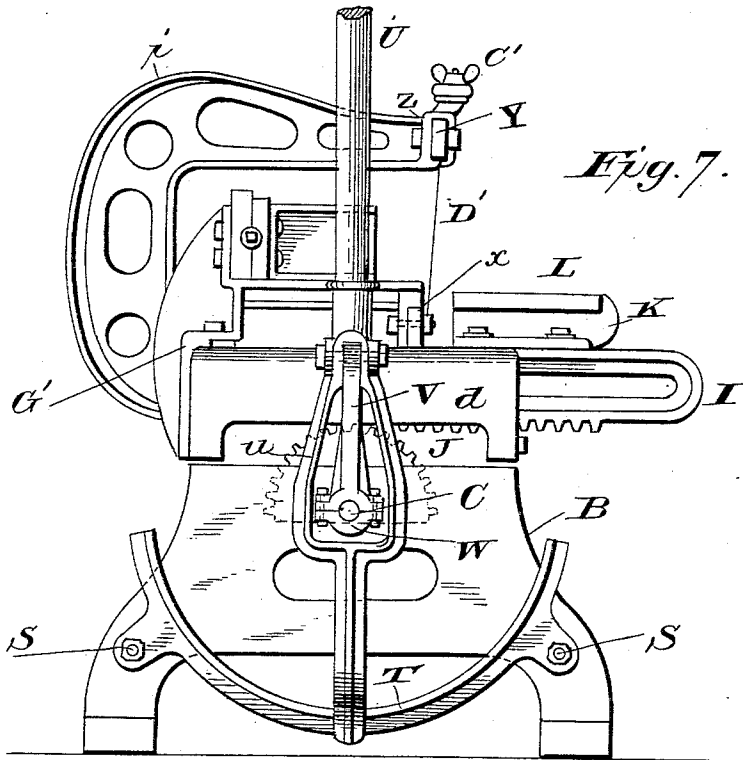
(No Model.)

6 Sheets—Sheet 6.

E. M. FREESE.
TILE OR BRICK CUTTER.

No. 476,627.

Patented June 7, 1892.



WITNESSES:
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UNITED STATES PATENT OFFICE.

EGBERT M. FREESE, OF PLYMOUTH, OHIO.

TILE OR BRICK CUTTER.

SPECIFICATION forming part of Letters Patent No. 476,627, dated June 7, 1892.

Application filed September 8, 1890. Serial No. 364,327. (No model.)

To all whom it may concern:

Be it known that I, EGBERT M. FREESE, a citizen of the United States, and a resident of Plymouth, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Brick-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has relation to improvements in board-delivery cutting-tables.

Heretofore in devices of this character serious obstacles have stood in the way to a perfectly operating and satisfactory machine, particularly those of the English type, wherein a clot or piece of the column of clay is cut off about thirty inches in length. This clot after being cut by hand near the die will lie on the roller side of the table. The operator is then compelled to dig his fingers into the clay at the cut and push the clot by hand, sliding it forward upon the cutting part of the table, it being necessary to exercise care in order to leave it in proper position for the wires, so that the required number of bricks may be made, a waste piece at each end of the clot, amounting from ten per cent. to twenty per cent. of the total output of the machine, having to be allowed for in first cutting off the clots, since the tables in the machines of the English pattern have no longitudinal movement, and the ends of the clot are not, therefore, squarely cut. After this operation it is necessary for the operator to seize the cutting-lever which operates the thrust-bar and move the whole clot laterally until the stationary cutting-wires have severed it into uniform thicknesses of the proper size and the bricks are deposited upon the pallet or off-bearing board, when the lever is returned and the waste pieces at each end removed by the operator. This citation of the general mode of operation of the English machines is deemed advisable in order to more clearly bring out the salient features of my invention. It is one of the objects of my invention to overcome the above-referred-to disadvantages

in a simple and convenient manner and to provide against the cutting off of clot or pushing the same by hand. I furthermore provide a construction whereby no waste pieces result, the entire output being saved.

A further object is to provide a device operated entirely by its only lever, one stroke of which cuts off twelve ordinary bricks from the moving column of clay, and at the same time deposits them upon a pallet or off-bearing board, the return of the lever carrying out the loaded pallet ready for removal; and a still further object consists in providing a construction whereby the entire upper portion of the machine may have a longitudinal movement, while the cutting-table *per se* may be given an independent lateral movement.

In the accompanying drawings, Figure 1 is a perspective view showing the brick cut and deposited upon pallet. Fig. 2 is a similar view showing loaded pallet ready for removal. Fig. 3 is a longitudinal sectional view. Fig. 4 is a cross-sectional view on the line *x x*, Fig. 5. Fig. 5 is a plan view. Fig. 6 is a detail perspective of the tension device. Fig. 6^a is a sectional view of the same. Fig. 7 is an end elevation. Fig. 8 is a detail view of one of the transverse brackets. Fig. 9 is a detail perspective view of the lower member of the tension device. Fig. 10 is a detail perspective view of a portion of one end of the machine, looking from the inside and showing the movable frame or table.

Referring to the drawings, the letters A A indicate the supporting-standards, to which is secured a rectangular frame B, provided with end cross-pieces *b b*, Fig. 3, and intermediate strengthening-pieces *b' b'*. This frame has also projecting inwardly from its lower edge a rectangular flange *b²*, Fig. 4, and a longitudinal shaft C passes beneath arch-shaped cavities *b³ b³* in the intermediate cross-pieces *b'*. This frame A carries an upper movable frame or table, which consists of the end pieces or hoods *d d* and the side connecting-bars *d' d'*, the ends of the latter being bolted or otherwise suitably secured to said end pieces. Connecting the side pieces of the upper frame are castings E E, said castings consisting of a back piece or wall *e*, a lower transverse ledge or flange *e'*, which is pro-

vided with a central bearing e^2 for the longitudinal shaft, and also an upper transverse ledge or flange e^3 , the ends of which rest upon the top of the side connecting-pieces of the movable frame and have formed integral therewith plates $e^4 e^4$, which bear against the outer sides of the connecting-pieces of the movable frame, and also form an integral part of the back piece e .

The letters F F also indicate inverted-T-shaped castings, the upper portions or heads thereof bearing against the inner sides of the connecting-pieces of the movable frame and secured thereto and also to the plates e^3 by means of bolts G G. The upper portions of these castings, in connection with said plates $e^3 e^3$, therefore form effective clamps for the side pieces of the movable frame. The heads or lower portions at right angles to the upper heads of the castings F F have one portion extending beneath the transverse ledge or flange e' , to which it is secured by means of vertical bolts, (not shown,) while the other portion passes beneath the side pieces of the lower rectangular frame B.

Between the end pieces $d d$ and the transverse castings E E are secured yokes I I, said yokes having their lower members formed into rack-bars, which are adapted when the movable frame is in its normal position to mesh with segments J J, Fig. 4, secured upon the longitudinal shaft, so that when rotation is imparted to said shaft the upper frame will be given a lateral movement. The upper and lower members of these yokes have also arranged therebetween rollers J' J', which are journaled upon short shafts J² J², extending laterally from the castings E E, which have the function of facilitating the lateral movement of the upper movable frame. Secured to the upper forward portion of the yokes are angular brackets K K, (see Figs. 4 and 7,) which receive and support a pallet L.

Shafts M M, carrying wheels N N, are interposed at each end of the machine between the ends $d d$ of the upper movable frame and the inwardly-extending flanges b^2 of the lower rectangular frame. These shafts have no journal-bearings, but, on the contrary, are loosely disposed in the manner described, whereby a free movement of the upper frame is attained.

The letter O indicates the die, which I prefer to make of the construction described in my application of even date herewith, and simultaneously filed.

Secured upon the end piece d of frame D, which is contiguous to the die, is a roller boxing or casing P, said casing receiving a series of rollers Q, which have their spindles journaled in suitable notches in the boxing, and over which rollers is fed the clay in its passage to the operative portion of the machine; or, instead of the rollers metallic or other surfaces are used, the clay sliding upon them instead of moving upon the rollers, as

shown. To the rear of this end of the machine is also secured a standard or upright R, having formed upon its upper end a bucket-support r . Projecting from the legs or supports at the opposite end of the machine are arms S S, to the ends of which is secured a segment T.

The letter U indicates the operating-lever, said lever provided with a yoke portion or oblong slot u and a bifurcated lower end u' , which engages the segment T. Pivoted in the upper portion of the yoke u is an arm V, which engages the longitudinal shaft through the medium of a cap W, suitably bolted thereto.

It will be noticed that the upper members of the yokes I I have secured thereto a table X, which is longitudinally movable with said yokes I I. It will also be noticed that the yokes I I are bent over and forwardly to form forwardly-extending arms $i i$, the ends of which are connected by means of a strip Y, which has arranged thereon a series of bands Z, secured thereto by means of rear set-screws A', which permit said bands to be adjusted relatively to each other, so as to adjust the thickness of the brick to be cut. The upper ends of these collars are formed into an apertured cap portion z , while their lower forward portions are provided with a slitted projection z' . The upper screw-threaded portions of arms or rods B' pass through these apertured caps and receive thumb-screws C', while the lower ends of said rods have secured thereto the cutting-wires D'. The front piece x of the table X is also provided with a series of bands E', which are arranged thereon relative to the upper bands Z, and are also adjustable by means of vertical set-screws F'. These bands have formed thereon slitted lugs e^5 , into which the cutting-wires pass, and are also formed with lugs e^6 , to which the extremities of the wires are secured. It will be seen from this construction that the wires can easily be adjusted as to tension, being supported by rubber cushions at the top, which gives them any degree of elasticity. Suitably secured to the rear of the caps or end pieces $d d$ are upwardly-extending plates G', to which in turn is secured the thrust-plate H'. This latter has secured thereto a series of vertical cleats I', arranged at suitable intervals apart, while secured to these cleats are a series of plates I², with a slight space between the contiguous edges of each on a line with the cutting-wires, so that when the table is moved laterally its full extent said wires may enter the spaces. It will be noticed from Fig. 3^a of the drawings that this thrust-bar is provided with an open back, which serves to prevent an accumulation of clay carried in by the cutting-wires, which otherwise would ultimately clog the openings behind the plates of the thrust-bar. The bar is also strengthened by means of longitudinal and transverse braces h and h' , respectively. Secured to the end of the

thrust board or plate is an angle plate or stop K', which is provided with elongated slots k' k' to receive bolts L' L', extending through the thrust-bar, and by means of which said angle-plates may be conveniently adjusted.

From the foregoing description it will be seen that the entire upper portion of the machine, including the movable frame D and the table X, is movable longitudinally, the same being accomplished through the medium of the longitudinal shaft C, which when operated lengthwise carries with it the movable frame D, which latter in turn carries with it the table X through the medium of the yokes I, to which said table is secured. The longitudinal movement of the shaft C is accomplished by a lateral thrust of the operating-lever U, which when thus actuated will cause the pivot-arm V to act upon the shaft and move the same in the direction stated. It will also be observed that the yokes I I and table X have a lateral movement entirely independent of the remaining portions of the machine, said movement in this case being attained by throwing the operating-lever either forward or rearward. As this is done, the segmental racks upon the shaft C will engage the rack portions of the yokes and move the same laterally, and as the latter are connected to the table X a corresponding movement will be imparted to said table.

The foregoing being the construction of my device, its operation and advantages are as follows: The machine in its normal position will occupy that shown in Fig. 2, there of course being no bricks upon the pallet, as shown in said figure. This pallet is simply a rectangular board loosely placed upon the supports K, so as to be readily removed therefrom, being held in place by the upturned outer ends thereof. As the clay emerges from the mold or die it is received upon the rollers Q of the frame D, from whence it is fed to the table X, along which it moves until near the end thereof. The operator then pushes the lever from him, so as to move the table toward the die, and holds it there until the moving column of clay comes in contact with the stop-bracket, when the table will move longitudinally. He then makes a lateral stroke with the lever by shifting it to the opposite side, which by means of shaft C, segments J J, yokes I I, and their rack-bars causes the arms *i i*, the table X, the wires, and the pallet to be moved laterally toward the thrust-bar, the table X passing underneath said bar. This movement causes the wires to sever the clay into completed bricks, which will be forced off of table X onto the pallet L. The operator then pulls the lever toward him, horizontally moving frame D and table X, so that said table and the pallet with the completed bricks will be drawn away from the advancing column of clay. The lever is then returned to normal position, when the movement of the table X and pallet will be reversed, and they will occupy the position shown in

Fig. 2. The pallet with the completed bricks is then removed, a new one substituted therefor, and the operation repeated.

From the above it will be seen that all the movements of the machine are made by a single complete stroke of the lever.

The object of giving the longitudinal movement to the frame D, the table X, and the pallet is to withdraw the same and the completed bricks away from the column of clay, for if no such provision were made said column of clay, which is fed continuously from the die without stoppage, would crowd and press against the completed bricks, not only injuring and damaging them, but also preventing them from being properly deposited upon the pallet. By the above means, however, the front rollers Q of the frame D are withdrawn from under the ends of the column of clay, allowing the latter to be continuously fed and the table X and pallet to be returned to normal position without interference with each other, so that when in such position the moving column of clay will again be received upon the table.

When the end of the bar or column reaches the stop or angle plate, the table, cutting-wires, and all the upper parts move together with the clay, thus insuring a square and perfect cut.

The cutting-wires are very short and do not readily yield to slight obstructions in the clay.

All the surfaces of the brick are left unusually smooth and perfect, as also the edges and corners.

The brick are not touched by the hands in the operation of cutting and removing to trucks or barrows, thus saving much labor.

This table cuts off no waste or imperfect ends, as in other board-delivery tables. This item alone saves about one thousand bricks in each twelve thousand molded, or again in the output of from one thousand to four thousand brick per day, besides saving the time and labor required to remove and throw back into the machine this large amount of waste clay.

My machine is also more easily operated than those in common use, requires little skill or practice, and is capable of much more rapid work than other tables. It is thoroughly and substantially built of iron and steel and is simple and durable. It can be furnished to cut brick of any thickness and to deliver them to either right or left side, and will work with any machine making "side-cut" brick. It will also cut building-blocks, paving-bricks, and all similar ware with equal success.

The thrust-bar against which the cut is made has no lateral movement, as in other tables, and the cutting-wires are moved through the bar of clay by means of the lever, instead of the bar of clay being pushed through the cutting-wires by lateral movable thrust-bar, as in the English form of table.

I do not wish to be understood as confining

myself to the particular method of producing the movement described, it being evident that this may be done in a variety of ways, either by hand-power or motive power of the machinery.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a brick and tile machine, the combination of a stationary frame or support, a cutting-table resting on said frame and capable of a combined longitudinal and lateral movement thereon, and a lever adapted to move said cutting-table in both directions, substantially as set forth.

2. In a brick and tile machine, the combination of a stationary bed-frame having track-rails on its sides, a table-frame mounted on the bed-frame and having a longitudinal movement thereon, a wire-cutting frame provided with a platen and movable transversely across the table-frame, and a lever to move the wire-cutting frame and the table-frame, substantially as described.

3. In a brick and tile machine, the combination of a stationary bed-frame having track-rails on its sides, an endwise-movable table-frame supported on rollers upon said track-pieces, a wire-cutting frame provided with a platen and adapted to move transversely across the table-frame, a removable brick board or pallet adjacent to the platen of the cutting-frame, a side-abutting plate or thrust-plate, and an end-abutting plate or stop, all substantially as described.

4. In a brick and tile machine, the combination, with the bed or frame, of a horizontally-movable carriage, a transversely and horizontally movable cutting-table having a stop or end-abutting plate, and a lever connected with said carriage and table, substantially as set forth.

5. In a brick-machine, the combination of an upper frame, a longitudinal shaft for imparting a longitudinal movement to said frame, a lever for operating said shaft, and a cutting-table and cutting-wires, substantially as set forth.

6. In a brick-machine, the combination of standards or supports, a rectangular frame rigidly secured thereto, said frame provided with inwardly-extending flanges, an upper frame, transverse shafts provided with end rollers, said rollers disposed between the flanged portion of the lower frame, a longitudinal shaft having bearings in said upper frame and adapted to impart movement thereto, and cutting table and wires, substantially as set forth.

7. In a brick-machine, the combination of standards or supports, a rectangular frame rigidly secured thereto and provided with transverse strengthening-pieces having arch-shaped cavities, an upper frame, a longitudinal shaft for imparting movement to the upper frame and said shaft passing beneath the arch-shaped cavities of the strengthening-

strips and having bearings in the lower frame and also in the upper frame, a lever for operating said shaft, and a cutting-table and cutting-wires, substantially as set forth.

8. In a brick-machine, the combination of a cutting-table having both longitudinal and lateral movement with pallet-supports moving in unison with said table.

9. In a brick-machine, the combination of a movable frame, a longitudinal shaft for imparting movement thereto, said shaft provided near opposite ends with segmental gears, transverse yokes having their lower members formed into racks meshing with the segmental gears of the shaft, and a cutting-table and cutting-wires, substantially as set forth.

10. In a brick-machine, the combination of a movable frame provided with end pieces or hoods, transverse brackets connecting the side pieces of said frame and provided with suitable bearings, a longitudinal shaft passing through said bearings, said shaft having segmental gears mounted thereon near opposite ends, transverse yokes interposed between the transverse brackets and the end pieces or hoods, said yokes having their lower members formed into racks adapted to mesh with the segmental gears, a cutting-table secured to said yokes, and cutting-wires, substantially as set forth.

11. In a brick-machine, the combination of a movable frame provided with end pieces or hoods, transverse brackets connecting the side pieces of said frame and provided with suitable bearings, said shaft having segmental gears mounted thereon, transverse yokes interposed between the transverse brackets and the end pieces or hoods, said yokes having their lower members formed into racks adapted to mesh with the segmental gears and rollers interposed between the upper and lower members of the yokes, said rollers mounted upon short shafts extending from the transverse brackets, a cutting-table secured to the yokes, and cutting-wires, substantially as set forth.

12. In a brick-machine, the combination of a movable frame, a longitudinal shaft for imparting movement thereto, said shaft provided with segmental gears, transverse yokes having their lower members formed into racks meshing with the segmental gears of the shaft, angular adjustable supports secured to the upper members of said yokes, said supports provided at their forward ends with upwardly-extending stops or flanges, a pallet resting upon said supports, a cutting-table secured to the yokes, and cutting-wires, substantially as set forth.

13. In a brick-machine, the combination of an upper movable frame, a longitudinal shaft for imparting motion thereto, and an operating-lever having a universal-joint connection with said shaft, whereby the same may be given either a longitudinal or lateral movement or a combined longitudinal and lateral movement, substantially as set forth.

14. In a brick-machine, the combination of an upper movable frame, a longitudinal shaft for imparting motion thereto, and an operating-lever having its fulcrum-point at its lower end and a pivotal connection with the longitudinal shaft above said fulcrum-point, substantially as set forth.

15. In a brick-machine, the combination of standards having arms projecting laterally therefrom, a segment secured to said arms, an upper movable frame, a longitudinal shaft for imparting motion thereto, an operating-lever having its lower bifurcated end working on the segment and provided with an oblong opening above said end, and an arm pivoted in the upper end of said oblong opening and having its lower end engaging the end of the longitudinal shaft, substantially as set forth.

16. In a brick-machine, the combination of a longitudinally-moving frame, a cutting-table having a combined longitudinal and lateral movement, cutting-wires moving in unison with said table, with a thrust-bar and an angle-plate or stop having longitudinal movement only.

17. In a brick-machine, the combination of an upper movable frame, a longitudinal shaft for imparting motion thereto, said shaft provided near opposite ends with segmental gears, transverse yokes having their lower members formed into racks adapted to engage the segmental gears, and an operating-lever having its fulcrum-point at its lower end and a pivotal connection with the longitudinal shaft above fulcrum-point, whereby a combined longitudinal and lateral motion is imparted to the movable frame, substantially as set forth.

18. In a brick-machine, the combination of standards or supports, a rectangular frame rigidly secured thereto, said frame provided with inwardly-extending flanges, an upper movable frame, transverse shafts carrying end rollers working between the flanges of the rectangular frame and the side pieces of the upper frame, transverse brackets connecting the side pieces of the movable frame, a longitudinal shaft having bearings in the upper frame and having mounted thereon segmental gears, an operating-lever therefor, transverse yokes having their lower members formed into racks engaging the segmental gears and curved from their rear ends up-

wardly, short shafts extending from the transverse brackets carrying rollers, which work between the two members of the yokes, a cutting-table connected to the yokes, a transverse strip connecting the ends of the forwardly-extending portions of the yokes, and cutting-wires extending from said strips to the forward portion of the cutting-table, substantially as set forth.

19. In a brick-machine, the combination of a transverse thrust-bar, a series of cleats secured thereto, a series of plates secured to said cleats with a space between the contiguous edges, a laterally-movable cutting-table, and cutting-wires adapted to pass between said spaces as the table is thrust rearwardly to its full extent, substantially as set forth.

20. In a brick-machine, the combination of a cutting-table, a transverse bar, adjustable bands arranged on said bar, said bands provided at their upper ends with apertured caps and at their lower ends with slotted extensions, rods having their upper screw-threaded ends passing through said apertures, thumb-nuts upon said screw-threaded ends, adjustable bands encircling the forward side piece of the cutting-table, said bands provided at their upper ends with slitted extensions or flanges and also provided with lugs or projections, and cutting-wires secured to the lower ends of the bars, passing into the slitted extensions of the upper and lower bands, and having their lower ends secured to the lugs of said lower bands, substantially as set forth.

21. In a brick-machine, the combination, with a movable cutting-table, of an adjustable end stop or angle-plate secured thereto, substantially as set forth.

22. In a brick-machine, the combination of a transverse thrust-bar provided with an open back, a series of cleats secured thereto, a series of plates secured to said cleats with a space between the contiguous edges, a laterally-movable cutting-table, and cutting-wires adapted to pass between said spaces as the table is thrust rearwardly to its full extent, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

EGBERT M. FREESE.

Witnesses:

JOHN O. LUDLAM,
H. A. RIGGS.