

(No Model.)

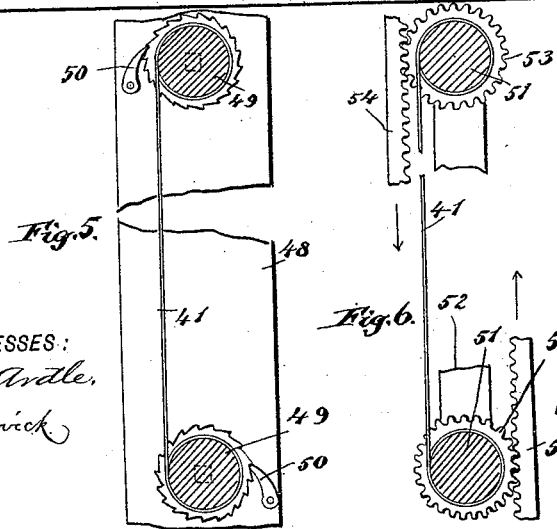
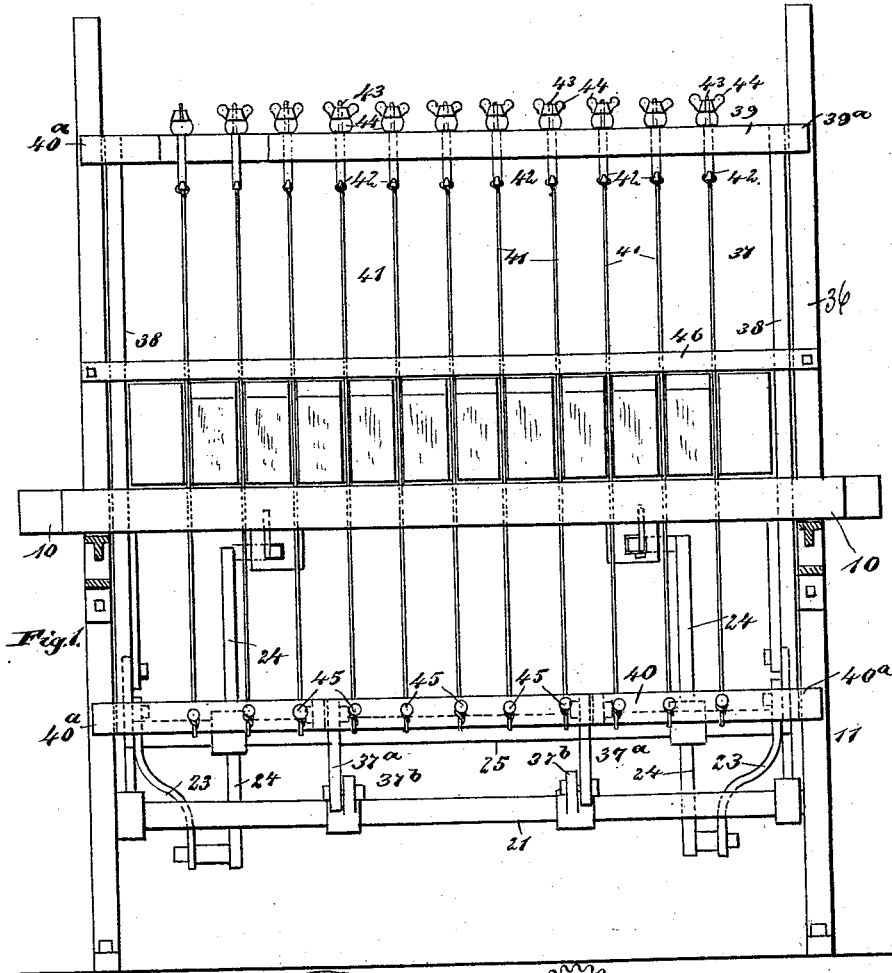
3 Sheets—Sheet 1.

J. CORNELIUS & E. R. COLLINS.

BRICK OR TILE CUTTER.

No. 492,663.

Patented Feb. 28, 1893.



WITNESSES:
J. M. Arden
W. Sedgwick

INVENTORS:
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E. R. Collins
 BY *Munn & Co*
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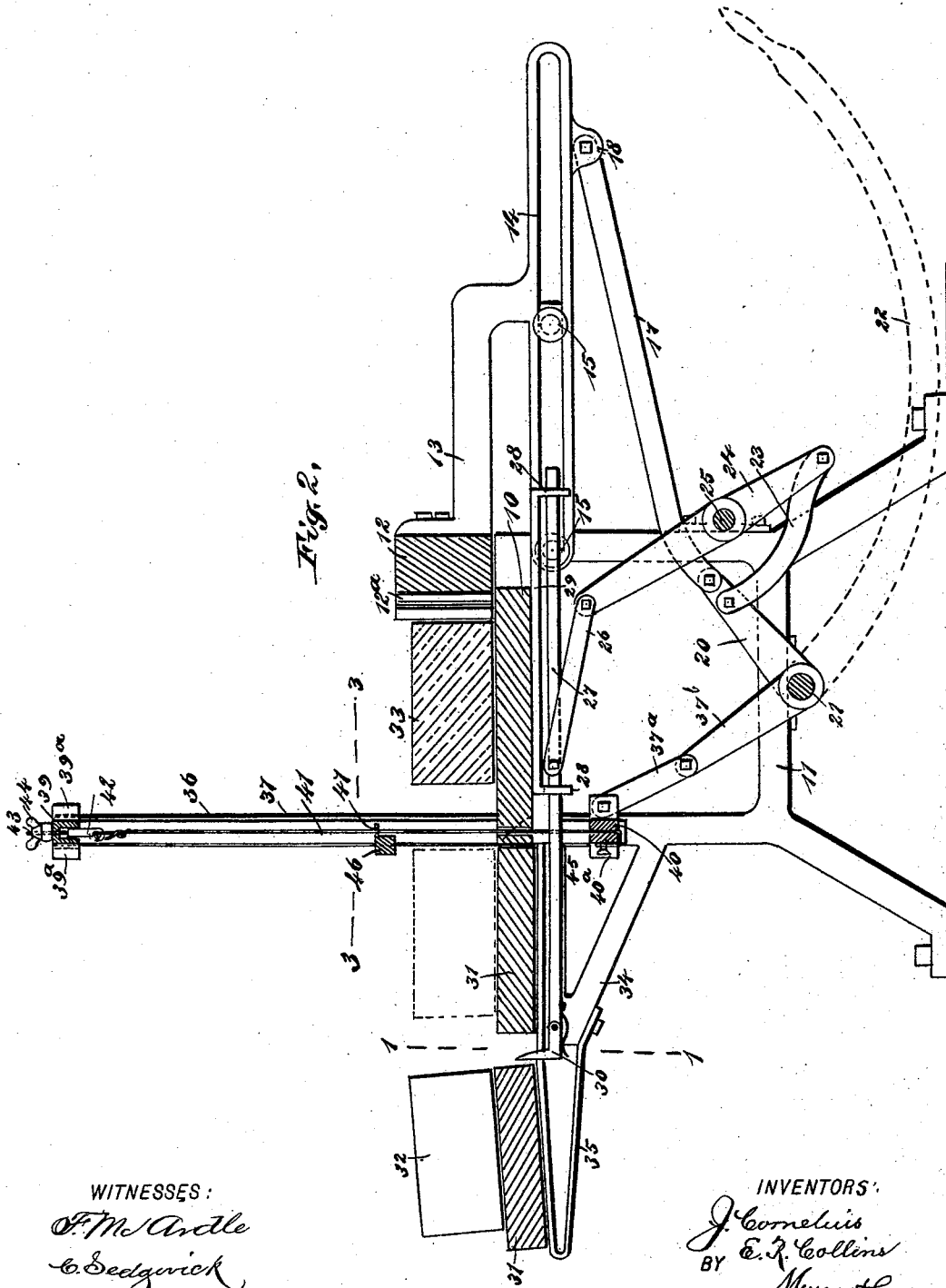


Fig. 2.

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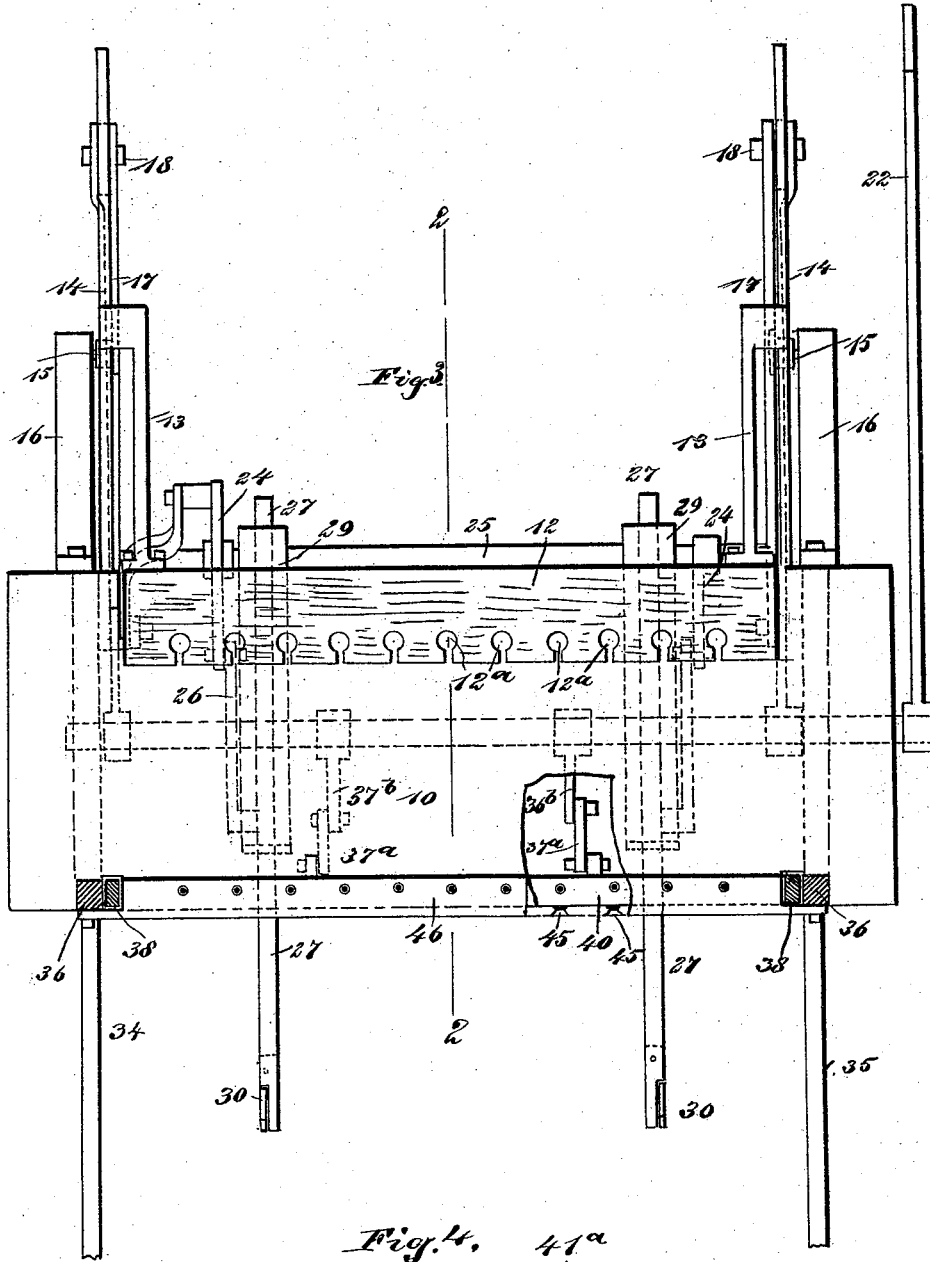
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UNITED STATES PATENT OFFICE.

JAMES CORNELIUS AND EDMUND R. COLLINS, OF BROOKLYN, NEW YORK

BRICK OR TILE CUTTER.

SPECIFICATION forming part of Letters Patent No. 492,663, dated February 28, 1893.

Application filed March 19, 1892. Serial No. 425,607. (No model.)

To all whom it may concern:

Be it known that we, JAMES CORNELIUS and EDMUND R. COLLINS, both of Brooklyn, in the county of Kings and State of New York, have
5 invented a new and Improved Brick or Tile Cutting Machine, of which the following is a full, clear, and exact description.

Our invention relates to improvements in brick or tile cutting machines, and more especially in the arrangement and operation of
10 the wires for cutting a block of clay into bricks or tiles. As generally arranged the cutting wires are held in a stationary position, and the clay is forced through the wires,
15 which cut the clay into bricks or tiles of the right dimensions; but by having the wires move, the clay may be much more smoothly cut, and the object of our invention is to arrange the wires in a machine of this kind so
20 that they will reciprocate through the clay and thus pass quickly and smoothly through it, making a nicer quality of brick or tile.

To this end our invention consists in movable cutting wires supported adjacent to
25 a clay table, and this construction and arrangement will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification,
30 in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a sectional elevation of the machine on the line 1—1 in Fig. 2. Fig. 2 is a vertical section on the line 2—2 in Fig. 3.
35 Fig. 3 is a sectional plan on the line 3—3 in Fig. 2. Fig. 4 is a detail view of a modified form of cutting wire. Fig. 5 is a broken detail sectional view of a modified form of wire-carrying frame and tightening mechanism.
40 Fig. 6 is a broken detail sectional view showing the means of moving the wires independently of their supporting frame.

The cutting table 10 is of the usual kind and is supported upon the common form of
45 frame 11, the table being perforated near one edge so that the cutting wires may pass vertically through it, as shown in Fig. 2, and a common form of press bar 12 is held to slide across the table top so as to push the clay
50 therefrom, the inner edge of the press bar being provided with vertical holes 12^a to receive

the cutting wires and with slots opening from these holes so that the block may be pushed upon the wires.

The press bar 12 is secured to outwardly-
55 extending arms 13 which are secured to the bar near its ends and these bars are bent downward at their outer ends and are secured to slotted horizontal tracks or slides 14 which are held to slide on rollers 15, these being
60 journaled on the frame 10 and on arms 16, which project from one side of the frame.

The slides 14 and consequently the press bar are pivoted as shown at 18 to connecting
65 rods 17 and these extend inward and downward and are pivoted to cranks 20 on the driving shaft 21, and this shaft is given the necessary movement by a lever 22 which is secured to it at one end, the shaft being moved
70 by oscillating the lever. The cranks 20 are also connected by means of curved rods 23 with levers 24 which are held to oscillate on a shaft 25 journaled in the machine frame parallel with and a little above the shaft 21,
75 and the upper ends of the levers 24 connect by means of links 26 with slide bars 27 which are held to move beneath the table 10, and are supported in lugs 28 on the under side of the bars 29 which are secured to the bottom
80 of the table 10. These slide bars 27 project from the back-side of the table and terminate at their free ends in spring pressed elbow levers 30 which are adapted to engage the boards 31 used to support the bricks 32 or
85 other material which is cut from the clay 33. These boards 31 are detachable and are placed against the back edge of the table, being supported on the extended sides 34 and 35 of the table.

The function of the slide bars 27 and elbow
90 levers 30 is to push the boards 31 and bricks 32 away from the table, and to this end, when the bars are drawn forward the elbow levers 30 slide beneath the board 31 which is against the table, and when the bars are pushed back-
95 ward the upper ends of the elbow levers engage the front edge of the board 31 and push the board and the bricks thereon backward, and another board is then substituted in its place.

The clay 33 is fed in a block from the pug
100 mill to the table in the usual way, and is

pushed forward through the cutting wires by means of the press bar which is actuated by the lever mechanism connecting with the shaft 21, as above described.

5 The foregoing construction is all of the common kind and forms no part of our invention, the construction being shown simply to illustrate an operative machine, and the connection of our improvements with the machine.
10 Our improvements are in the cutting mechanism for severing the clay 33, and will be described below.

On opposite ends of the machine are uprights 36 which are parallel with each other, and these support the vertically sliding cutting frame 37 which has side bars 38 arranged parallel with the uprights 36 and adapted to slide against the same. The side bars 38 are connected at top and bottom by cross bars 39 and 40, the lower bar 40 being arranged beneath the table 10, and the bars 39 and 40 have forked ends 39^a and 40^a shown in Figs. 1 and 2, the side pieces or forks of the bars sliding on the uprights 36 and serving as guides for the cutting frame. The upper and lower bars 39 and 40 are connected by wires 41 which are used to cut the clay 33 into bricks or other articles of the required size, and these wires are placed parallel with each other and such a distance apart that when they are forced through the clay or the clay between them, the clay will be cut into bricks. The upper ends of the wires are looped upon hooks 42 which are held in the cross bar 39, the hooks extending into vertical sockets in the bar as shown in Fig. 2, and the upper ends of the hooks are formed into threaded bolts 43 on which are thumb nuts 44 these being placed on the top side of the bar 39, and by adjusting the nuts the hooks may be raised or lowered so as to give the requisite tension to the wires 41. The lower ends of the wires 41 project through the lower bar 40 of the cutting frame and are doubled or bent upward over one side of the bar and fastened by set screws 45.

The cutting frame 37 is reciprocated by means of the connecting rods 37^a and cranks 37^b connecting it with the driving shaft 21.
50 A bar 46 extends transversely across the frame 37, the bar being rigidly secured to the uprights 36 and on one side of the bar is a perforated offset 47 through which the wires 41 pass. The bar 46 is placed a little higher than the clay which is to be forced between the wires, and the bar serves as a guide for the wires and also braces them so that they will not be displaced by the pressure of the clay.

60 When the machine is operated, the driving shaft 21 is oscillated by means of the lever 22, and the press bar 12 is forced backward and forward thus pushing the clay 33 to the rear of the table, where it is taken care of in the usual way, and the cranks 37^b and connecting rods 37^a will at the same time recip-

rocate the frame 37 so that the wires 41 will pass easily through the clay. In the main views we have shown the frame 37 provided with round wires 41 but it may have flat wires 41^a as shown in Fig. 4 if desired, and if necessary these flat wires or plates may be provided with teeth to facilitate the cutting. 70

In Fig. 5, we have shown another means of fastening the cutting wires 41, and in this case the side pieces 48 of the frame may be arranged to slide like the slide bars 38 already described, and the wires may be held on rollers 49 journaled in the frame pieces 48. The rollers have oppositely arranged ratchet wheels at their ends and pawls 50 to prevent the unwinding of the ratchet wheels and rollers. It will thus be seen that the rollers may be turned to tighten the wire and held by the pawls so as not to unwind. 85

In some cases the wire may be reciprocated instead of moving in its frame, and the means of doing this is shown in Fig. 6. Here the wires 41 are carried on rollers 51 held in a suitable supporting frame 52, and the rollers 51 have gear wheels 53 at their ends which are actuated by rack bars 54, and by employing machinery to move these rack bars alternately or to reciprocate them oppositely at the same time, the rollers 51 may be turned so as to wind the wire first on one and then on the other, thus giving it the necessary reciprocation and enabling it to pass through the clay. As a rule the wires are arranged to move vertically and at right angles to the cutting table, as shown in the drawings, but it will be understood that they may be arranged to move horizontally or in any desired position according to the nature of the articles to be cut from the clay by them. It will also be understood that while we have shown a crank mechanism for reciprocating the cutting frame 37, a gear mechanism or other suitable means may be substituted therefor. 95

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent— 100

1. In a machine of the character described, a clay cutter comprising parallel cutters held to reciprocate in the direction of their length, and arranged to move transversely through a body of clay, substantially as described. 115

2. In a machine of the character described, the combination with the cutting table adapted to carry a body of clay, of a series of cutters held to reciprocate in the direction of their length and arranged at an angle to the clay body so as to be forced through and sever the same, substantially as described. 120

3. The combination, with the cutting table having means for moving a block of clay thereon, of a vertically movable frame held to reciprocate adjacent to the table, and parallel cutters carried by the frame and arranged in the path of the clay, substantially as specified. 130

4. In a machine of the character described,

the combination with the reciprocating frame carrying cutters of a rigid guide for the cutters, substantially as described.

5 The combination with the reciprocating frame carrying parallel cutters, of a stationary perforated guide bar extending transversely across the frame and having the cut-

ters made to pass through it, substantially as described.

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