W. H. HILL.

BRICK, BLOCK, OR TILE CUTTER OR SHAPER.

APPLICATION FILED JAN. 15, 1908.

899,980.

Patented Sept. 29, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

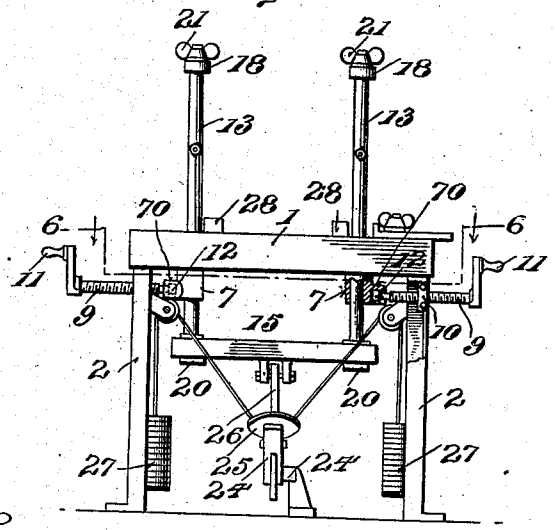


Fig. 2.

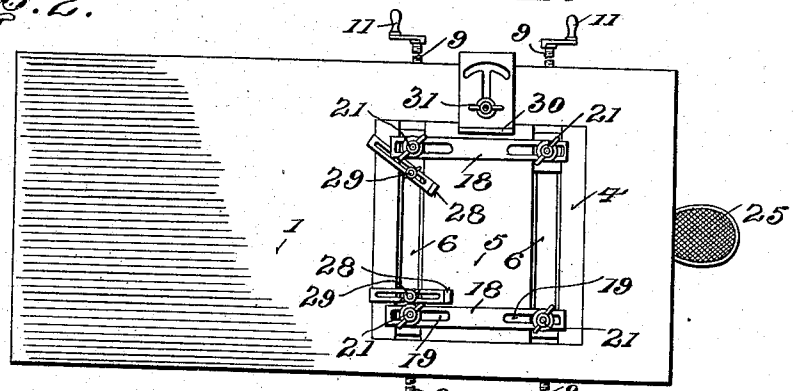
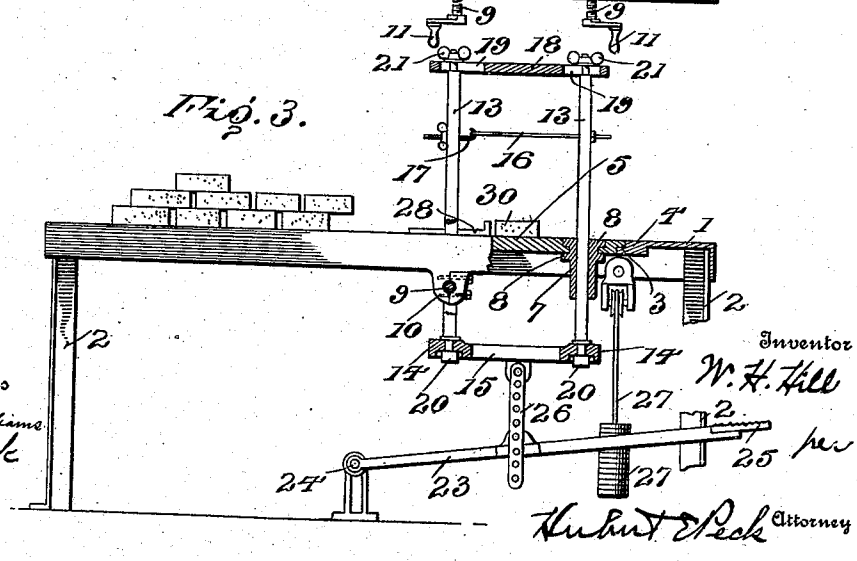


Fig. 3.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 6.

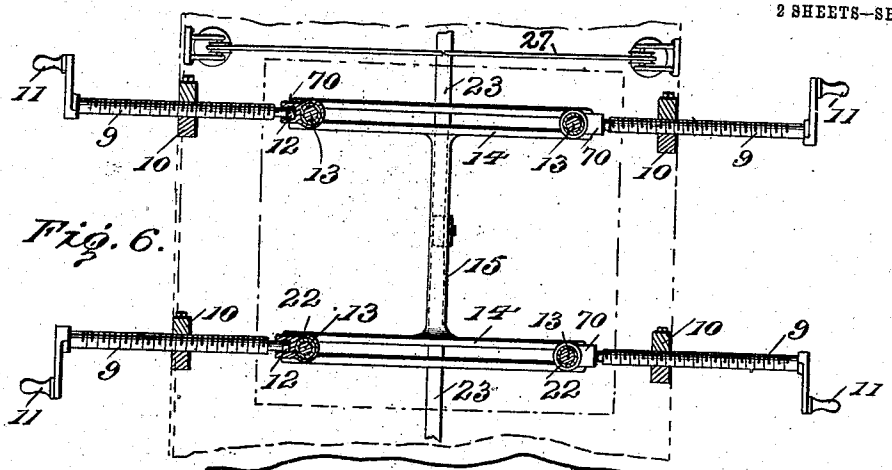


Fig. 5.

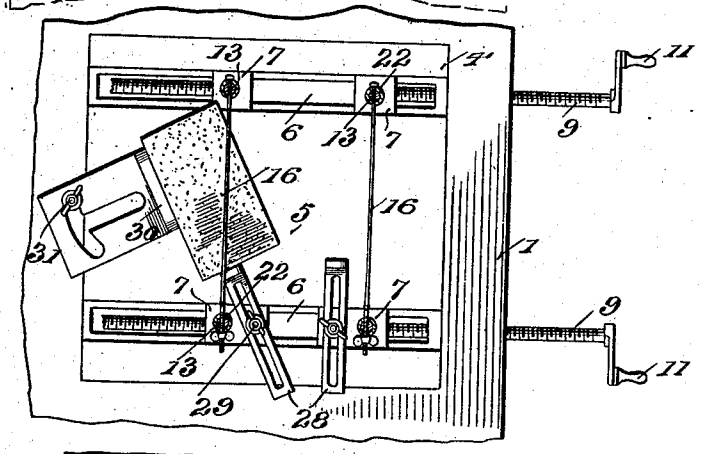
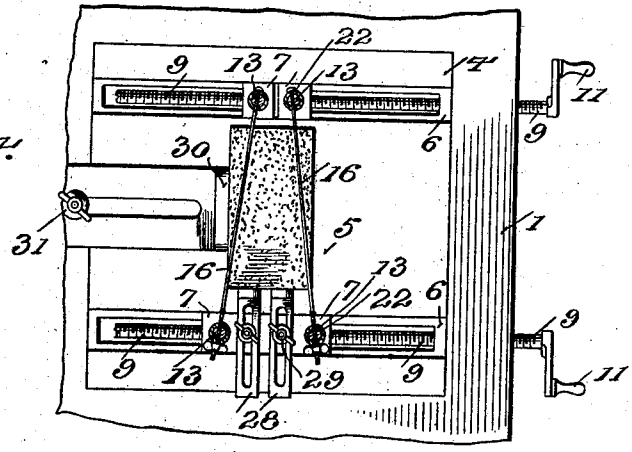


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM HENRY HILL, OF KUSHEQUA, PENNSYLVANIA.

BRICK, BLOCK, OR TILE CUTTER OR SHAPER.

No. 899,980. Specification of Letters Patent. Patented Sept. 29, 1908.

Application filed January 15, 1908. Serial No. 410,966.

To all whom it may concern:

Be it known that I, WILLIAM HENRY HILL, a citizen of the United States, residing at Kushequa, McKean county, Pennsylvania, have invented certain new and useful Improvements in Brick, Block, or Tile Cutters or Shapers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in brick, block or tile cutters, and relates more particularly to improvements in machines for producing special or peculiar shapes for use in construction or other work, and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanation of the structure shown by the accompanying drawings as my preferred embodiment from among other structures within the spirit and scope of my invention.

The invention consists in certain novel features in construction or in combinations and arrangements of parts as more fully and particularly set forth hereinafter.

An object of the invention is to provide improved means whereby bricks, blocks or tile of regular or standard sizes such as produced by machines or by hand, can be easily cut before drying and burning, to produce various special shapes or forms such as are often required in construction and other work.

A further object of the invention is to provide a brick, block or tile cutter embodying several cutting wires or other blades and actuating means therefor capable of varied adjustments within a wide range whereby either wire or blade can be arranged at any desired angle or position with respect to the work, or whereby the two wires or blades can be adjusted relatively to any desired position or angle, or can be brought into parallelism at a greater or less distance apart, all for the purpose of producing special shapes and forms from regular stock or standard sizes of brick or the like while in the green condition.

Referring to the accompanying drawings:—Figure 1, is a front elevation of the machine. Fig. 2, is a top plan view thereof. Fig. 3, is a partial longitudinal vertical section. Figs. 4 and 5, are horizontal sectional plans showing the cutting wires and gages or stops in various adjustments. Fig. 6, is a horizontal section on the line 6—6, Fig. 1.

In the drawings, I show a flat top table 1, supported by suitable legs or standards 2.

In the specific example illustrated, I show the table top formed with an opening occupied by a usually removable plate, frame or platform 4, resting on a depressed seat 3, with its top face preferably flush with the upper face of the table top. This platform 4, forms or carries the platen 5, on which the blocks or other articles rest while being cut or shaped to produce the desired special forms.

In the specific example illustrated, the platform 4, is shown formed with a pair of parallel transverse elongated slots 6, opening therethrough and extending substantially throughout the width of the platform on opposite sides of the platen 5, which is arranged between said slots. Each slot 6, forms a slideway for a pair of vertically arranged tubular guides or vertical guide sleeves 7, having opposite horizontal flanges 8, engaging the upper and lower faces of the edge portions of the platform 4, along said slots to permit any guide 7, to slide longitudinally of its slot and to hold the same therein against vertical movement, as will be readily understood.

In the specific example illustrated, I show four guides 7, two in each slot, each adjustable from one end thereof to and from the central portion of the slot. Each guide is adjusted longitudinally of its slot and is held in the desired adjustment by a horizontal adjusting screw 9, arranged beneath and transversely of the table top and platform and passing through a normally fixed nut 10, and at its outer end having suitable turning means, such as handle 11, accessible beside the table, and at its headed inner end 12, loosely and detachably confined to open bottom socket 70 projecting laterally from the lower portion of its guide 7, to rotate therein and yet so as to move the guide longitudinally in either direction in the slideway with the threaded rod or screw. The sockets 70 are so formed with open bottoms that the platform 4, can be lifted from the table with its guides 7, and the sockets will move up therewith from the heads 12 of the screws.

Vertical slide rods or posts 13, extend through and reciprocate vertically in said guides, each guide receiving a rod. At their lower ends, the rods are secured to a horizontally disposed spider frame through the medium of which all of the slide rods are simultaneously reciprocated.

In the specific example illustrated, the spider frame comprises two parallel bars 14, arranged below and in the planes of the platform slideways, respectively, and these bars 14, are longitudinally slotted to receive the lower ends of the slide rods and permit adjustment of said rods longitudinally of said bars by the movement of the guides in the platform slideways. These two bars 14, of the horizontal bottom spider frame are rigidly secured together by a center cross piece 15. The slide rods carry the cutting wires 16, or any other suitable cutting blades, arranged horizontally and transversely above the platform and platen hereinbefore described. Each wire 16, is carried by a pair of slide rods, usually by slide rods arranged at corresponding end portions of opposite slideways so that the cutting wires extend transversely of and above intermediate portions of the platen; normally above the opposite end portions of the platen. Each wire is stretched between its slide rods and removably attached thereto usually a distance below the upper ends of the rods, in any suitable manner so that the wires can be readily removed and replaced in the event of breakage. For instance, each wire can be headed at one end and pass removably through one slide rod and at its opposite end be removably secured to an adjustable hook 17, secured to the opposite slide rod by means of which the wire can be kept taut or under the desired tension. Each pair of slide rods, carrying a cutting wire, can be connected at their upper ends by a cross link or plate 18, having end longitudinal slots 19, receiving the upper ends of the slide rods.

Each slide rod can be provided with a head 20, at its lower end engaging the under face of the spider frame bar through which said rod passes, and can be threaded at its upper end to receive a thumb or other nut 21, adapted to screw down on and clamp the rod and cross link 18, rigidly together and the lower end of the rod rigidly in the desired adjustment in the spider frame. To attain this clamping action, an exterior spacing sleeve or tube 22, can be arranged on the rod, at its upper end abutting against the under face of the cross link and at its lower end abutting against the upper face of the spider frame.

Any suitable power or manually actuated means can be employed to vertically reciprocate the slide rods and thereby move the cutting wires down to the platen to perform the cutting stroke and raise the same on the return stroke. For instance, I show a vertically swinging foot treadle 23, fulcrumed at 24, and having foot pedal 25, beyond the front end of the table. Intermediate its length, this treadle is adjustably and removably coupled to the cross frame of carrying device of the cutting wires, by link 26. Counter weight mechanism 27, can be provided to yieldingly and normally hold the treadle and cutting wires and their supports in elevated positions and to return the same to such positions after completion of a cutting stroke.

On loosening the thumb nuts at the upper ends of the slide rods, the rods of a pair can be moved by the screws and guides to or from the longitudinal center line of the platen to carry the cutting wire of such rods to a position parallel with or at any desired angle to said center line and at the desired distance therefrom. The slide rods of the other cutting wire can, likewise, be independently adjusted to any desired position parallel with or at an angle to said center line, or to any desired position with respect to the first named cutting wire. The slide rods and wires can then be clamped and locked in the desired adjustments by the thumb nuts.

The wires can be adjusted to any desired position with respect to each other to simultaneously cut opposite portions of the same piece of work, one wire can be moved back from over the portion of the platen occupied by the work so that the other wire can do the work where one cut only on each piece of work is necessary to produce the form desired.

The wires can be so adjusted, and the pieces of work can be so arranged on the platen with respect to the wires, as to produce an almost infinite variety of forms and shapes from the ordinary standard or stock shape brick or block while in the "green" condition. Tiles and other clay, cement, or the like articles, while "green" can also be cut to special shape or form.

In order to hold the work on the platen in the desired position with respect to the wires to produce the form desired, I provide various adjustable stops or gages. For instance, 28, are a pair of separate gages usually employed over the surface of the platen between the two wires and adjustable to any angle with respect to the wires and longitudinally on the platen. Each gage 28, has an elongated longitudinally slotted shank and is secured by a removable clamp 29, to one of the slides 7, for instance. I also show a main or end gage 30 extending from the table top onto the platen between the two slideways in the platform. This gage is formed with a T-shaped slot in its shank or body receiving a clamping bolt, rising from the table top and having clamping nut 31, for locking the gage in the desired position and adjustment.

It is evident that various changes and modifications might be resorted to in the forms, constructions and arrangements of the parts described and that parts might be omitted or elements added without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact constructions set forth.

What I claim is:—

1. In combination, a table, a platen to receive the work, a vertically reciprocating frame provided with a cutter arranged horizontally above said platen and adapted to be moved by said frame toward said platen to cut the work thereon, means for reciprocating said frame, and means for adjusting said frame to horizontally vary the position or angle of the cutter with respect to the platen.

2. In combination, a platen to receive the work, cutting means provided with a cutter movable to and from said platen, and mechanism for adjusting said means for varying the position or angle of the cutter with respect to the platen and in a plane parallel with the plane of the platen, substantially as described.

3. In combination, a table having a removable platform inserted in its top and forming a platen, slide rods movable through said platform and provided with a cutter above the platen and between said rods, means for independently adjusting the positions of said rods, and means for reciprocating said rods.

4. In combination, a support provided with a platen, a pair of slide rods provided with a cutting wire stretched between the same above the platen, means for reciprocating said rods to carry the wire to and from the platen, and independent means for separately adjusting said rods laterally with respect to the direction of reciprocation thereof.

5. In combination, a support provided with a platen, two pairs of slide rods, each pair provided with a cutter confined to and extending between the rods thereof, means adjustably connecting all of said rods for reciprocating the same, and independent means for separately adjusting each rod laterally with respect to the direction of reciprocation thereof, substantially as described.

6. In combination, a support having a pair of slide-ways, independent tubular guides adjustable longitudinally therein, separate screws for independently adjusting said guides, series of reciprocating slide rods extending and slidable through said guides and adjustably connected together to reciprocate in unison, means for reciprocating said rods, and cutters carried by and extending between said rods.

7. A cutting or shaping apparatus comprising a support having a platen, angularly and longitudinally adjustable side and end gages arranged thereon, a reciprocatory frame having transverse cutters arranged over said platen, and means for adjusting said frame to separately and independently vary the positions of the cutters in a plane parallel with the plane of the platen.

8. A brick recutter comprising a support for the work to be cut, a reciprocatory frame provided with a transversely arranged cutter carried by said frame toward and from the work on said support for shaping the same, and means for shifting the position of said cutter in a plane transversely of the direction of reciprocation of said frame, said frame comprising means to maintain said cutter in a plane approximately at right angles to the plane of reciprocation of the frame, whatever the position of the cutter within its range of adjustment.

9. A brick recutter comprising a support for the work to be cut, a transversely arranged elongated cutter, a movable carrier therefor adapted to move the cutter to and from the work for shaping the same, and separate means for independently adjusting the cutter from either end in a plane approximately parallel with the plane of said support or the work thereon, substantially as described.

10. A brick recutter comprising a support for the work to be cut, a pair of transversely arranged cutters opposite said support, a movable carrier therefor adapted to move said cutters to and from the work for shaping the same, and means for independently adjusting said cutters toward or from each other, into parallelism, or at various angles with respect to each other, substantially as described.

11. A brick recutter comprising a support for the work to be cut, a pair of transversely arranged cutters opposite the support, means for bringing the support and cutters together for shaping the work on the support, and separate means for independently shifting the horizontal position of each cutter from either end thereof and for moving either cutter toward or from the other and into a position parallel therewith or at an angle thereto, substantially as described.

12. A brick recutter comprising a support for the work to be cut, a reciprocating frame comprising several pairs of simultaneously reciprocating and independently-laterally-adjustable rods, cutters between and carried by said rods and arranged transversely over said support, and means for independently adjusting said rods laterally for shifting the positions or angles of said cutters, substantially as described.

13. In combination, a table, guide sleeves carried thereby, means for horizontally shifting the positions of said sleeves, a work gage carried by and adjustably confined to one of said sleeves, a reciprocatory frame having laterally adjustable slide rods working through said sleeves, and a cutter carried by said rods and arranged transversely over said table.

14. In combination, a table having a removable platen having elongated slots there-

through, vertical sleeves carried by said platen and adjustable in said slots, horizontally arranged sleeve adjusting screws provided with nuts carried by said table, each screw removably coupled to a sleeve for adjusting the same longitudinally in a slot, a reciprocating frame having slide rods working through said sleeves, and provided with a cutter arranged above the platform.

15. In combination, a table, a vertically reciprocating frame comprising a horizontal spider having parallel longitudinal slots, pairs of laterally adjustable vertical slide rods, cross bars between the upper ends of each pair, the lower ends of the rods confined in said slots, and means for securing said bars to the rods and for clamping the lower ends of the rods in the desired adjustment in said slots and to said spider, cutters carried by said rods and arranged transversely above the table, adjustable guides for said rods and carried by said table, and means for adjusting said guides horizontally.

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

WILLIAM HENRY HILL.

Witnesses:
G. C. BURCH,
VENA TRUSLER.