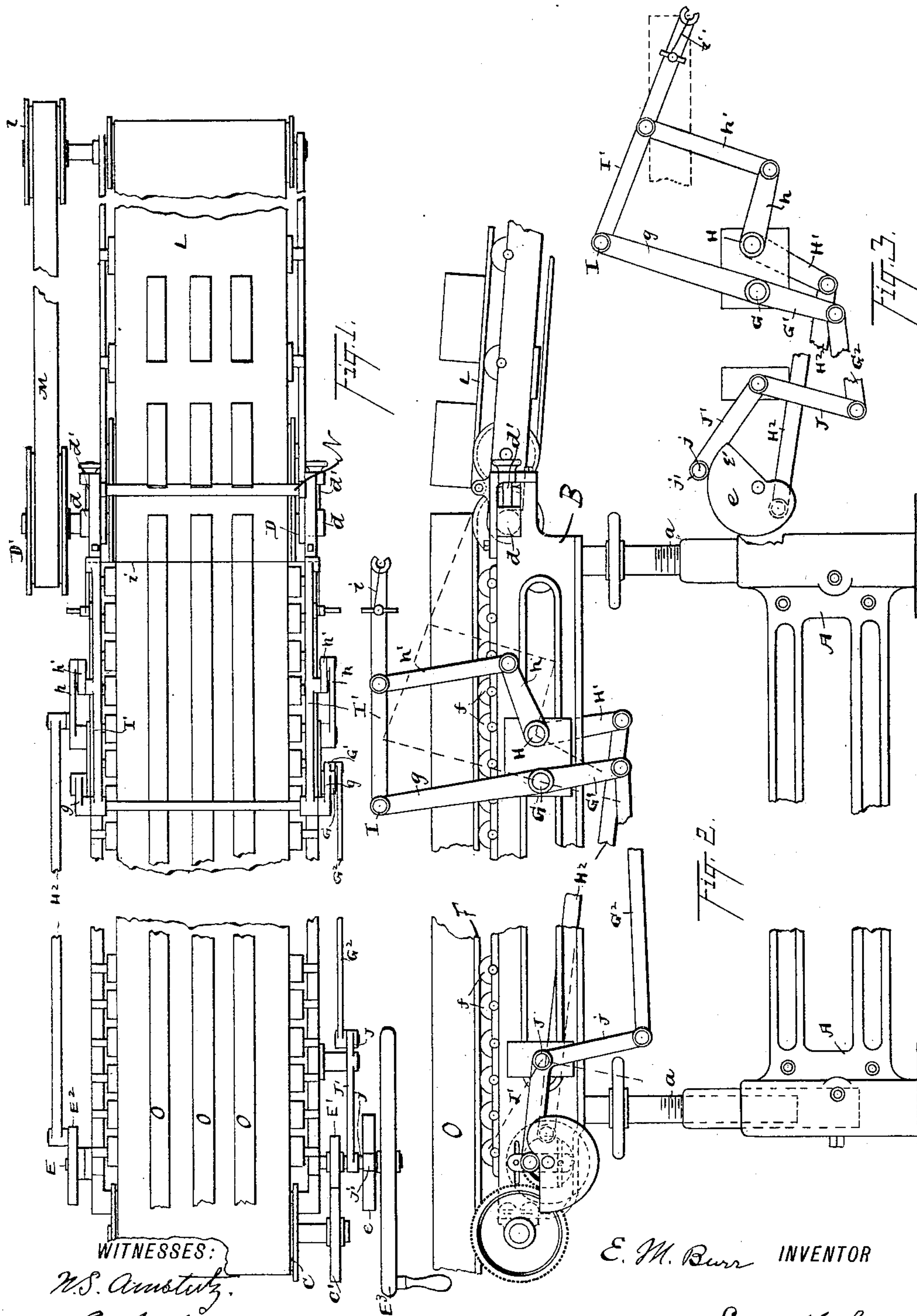


(No Model.)

E. M. BURR.
BRICK OR TILE CUTTING MACHINE.

No. 403,646.

Patented May 21, 1889.



WITNESSES:

W. S. Armstrong
Geo. W. King

E. M. Burr INVENTOR

BY Siggitt & Siggitt

ATTORNEYS

UNITED STATES PATENT OFFICE.

ELLIS M. BURR, OF CHAMPAIGN, ILLINOIS, ASSIGNOR TO J. W. PENFIELD & SON,
OF WILLOUGHBY, OHIO.

BRICK OR TILE CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 403,646, dated May 21, 1889.

Application filed September 27, 1888. Serial No. 286,486. (No model.)

To all whom it may concern:

Be it known that I, ELLIS M. BURR, of Champaign, in the county of Champaign and State of Illinois, have invented certain new and useful Improvements in Brick or Tile Cutting Machines; 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 pertains to make and use the same.

My invention relates to improvements in cut-off mechanism for brick or tile tables; and it consists in certain features of construction and in combination of parts, hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan. Fig. 2 is a side elevation. In each of these figures portions are broken away to reduce the size of the drawings. Fig. 3 is a side elevation, in detail.

A represents a suitable base-frame with upright adjusting-screws *a* at the corners thereof, for supporting and adjusting the table B.

C and D are drums on which operates the endless apron F. The trunnions of these drums are journaled in suitable boxes connected with table B, as are also the trunnions of rollers *f*, that support the upper section of the apron between the drums. Sliding boxes *d*, operated by screws *d'*, are provided for shifting drum D lengthwise of the table to regulate the tension of the endless apron. From the tile or brick machine (not shown) one or more bars of clay, O, are projected onto the apron F, causing the apron to move with the bar of clay, and thus imparting motion to drums C and D. From drum C power is transmitted for operating the mechanism for cutting the bar or bars of clay into lengths during the end movement of such bar or bars of clay. On one of the trunnions of drum C is mounted gear C', the latter engaging gear E' of shaft E. Upon shaft E are mounted cam *e*, crank E², and usually a hand-crank, E³, the latter being convenient for adjusting and oiling the mechanism and for other purposes.

G and H are respectively rock-shafts, journaled in suitable boxes connected with table B. Shaft G has mounted thereon two upright

arms, *g g*, set in line with each other, and a depending arm, G', all of these arms being rigidly secured to the shaft and located substantially as shown. Shaft H has mounted thereon a pair of lateral arms, *h h*, and a depending arm, H', all rigidly secured to the shaft.

I is a rock-shaft, journaled in suitable boxes at the upper end of arms *g g*. On shaft I are mounted parallel arms I' I', these latter extending forward lengthwise of the table and being located outside the line of apron F. From arm to arm I' I' and across the free ends thereof, is stretched wire *i*, for cutting the clay into lengths. Arms I' I' midway thereof are connected by pitmen *h'* with the free ends of arms *h*, and the lower end of arm H' is connected by pitman H² with crank E². By revolving this crank it is evident that an up-and-down movement will be imparted to the cutting-wire *i*. During the cutting of the clay the latter is moving along endwise, and the severing-wire, in order to make a square cut, must move in concert with the bar of clay. To accomplish this I provide the following:

The lower end of rock-arm G' is connected by pitman G² with the depending arm J of a bell-crank lever, the latter being fulcrumed at the elbow thereof. The lateral arm J' of this lever is provided with wrist *j* and roller *j'*, the latter traveling on the face of cam *e*. The form of this cam is approximately shown in Fig. 2, and is such that, through the medium of the connecting mechanism shown, the wire *i*, during the time that it is severing the bar of clay, is moved endwise of the table in concert with the clay, thus insuring a square cut across the bar of clay.

Drum C is of such diameter that with one complete revolution thereof the apron F moves the length of a given number of bricks or tiles to be cut—for instance, two, three, or four tiles, as the case may be—and the relative diameters of gears C' E' are arranged correspondingly—two to one, three to one, or four to one, as the case may be—so that shaft E makes one revolution while apron F is moving a distance equal to the length of one brick or tile. The sweep of wire *i* up and

down is something more than the vertical distance through the bar of clay to be cut, and as the wire only comes down to the apron there is consequently ample time for the return-stroke of the cutting mechanism while the wire is above the bar of clay. While toe e' of cam e is in its elevated position and engaging roller j' wire i is at the extreme of its forward throw, and the arrangement of crank E' is such that the wire at such time is on its upstroke and above the bar of clay. When, therefore, with a slight farther advance of the cam toe e' leaves roller j' , the latter quickly descends, for instance, by gravity to the heel of the cam, thus quickly returning the cutting mechanism rearward to the place of beginning.

L is an endless apron that receives the severed tiles or bricks and carries them along forward, this apron being operated on drums substantially in the manner as apron F . The trunnion of the forward drum has mounted thereon band-wheel l , connected by belt M with band-wheel D' , the latter being mounted on one of the trunnions of drum D . The arrangement is such that apron L travels considerably faster than apron F , for purposes hereinafter shown. The upper surface of apron L is somewhat lower than the upper surface of apron F at the adjacent ends of these aprons, apron L being preferably on an inclined plane forward and downward. A small idle-roller, N , supports the bricks and tiles in their passage from one apron to the other, the upper surface of this roller being a trifle lower than the upper line of apron F . Wire i at the end of its downstroke reaches apron F at a point lengthwise of the table approximately over or perhaps a trifle forward of the axis of drum D , and consequently before the brick is entirely severed the overhanging forward end thereof descends by gravity until the forward end thereof rests upon apron L , the central portion thereof being supported

by roller N . As soon, therefore, as the brick is entirely severed by reason of the faster movement of apron L , the severed brick travels away from the bar of clay, so that the wire i during its upward movement is not confined in a narrow slit, but may move upward without friction; also, the downward movement of the forward end of the bricks or tiles during the cutting opens up the gash cut by the wire and relieves the latter a trifle, so that the latter portion of the cut is made with less resistance than it would otherwise be.

The movement of the parts is free and easy, and the whole apparatus operates with little wear and tear and friction.

What I claim is—

1. In brick or tile cutting machines, the combination, with horizontally-moving carrier, of cutter mounted on the free end of swinging frame having up-and-down movement to and from the carrier, said frame being pivoted to upright arms having oscillating movement lengthwise of the carrier, and mechanism, substantially as indicated, for reciprocating such frame and oscillating such arms automatically from the movement of the carrier, substantially as set forth.

2. The combination, with horizontally-moving carrier, and tilting frame with cutter attached, said frame being pivoted to upright oscillating arms, substantially as indicated, of crank and connecting mechanism for actuating such tilting frame, and cam and connecting mechanism for oscillating the said arms, both crank and cam being operatively connected with and actuated by the said carrier, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 29th day of May, 1888.

ELLIS M. BURR.

Witnesses:

GEO. F. BEARDSLY,
GEO. W. HARWOOD.