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W. R. CUNNINGHAM.

CUTTING WIRE ATTACHMENT FOR CLAY CUTTING MACHINERY.

APPLICATION FILED AUG. 17, 1905.

Fig. 1.

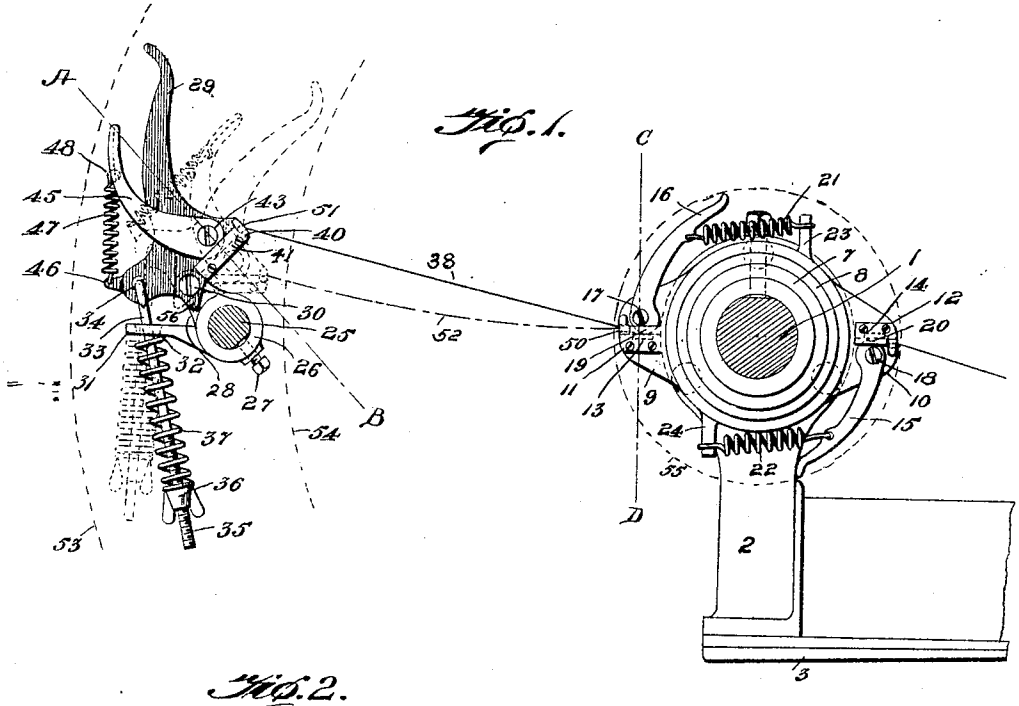


Fig. 2.

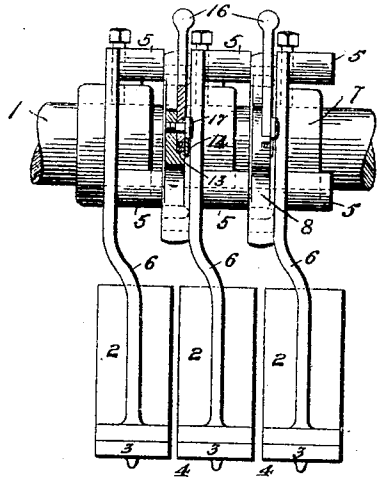


Fig. 3.

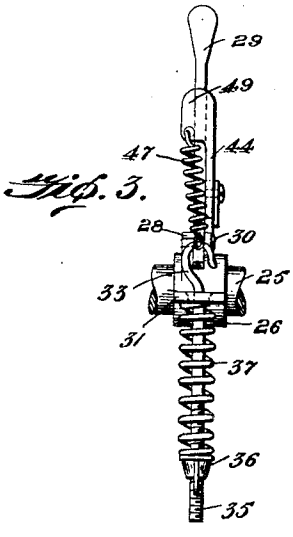
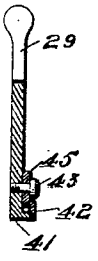


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM R. CUNNINGHAM, OF BUCYRUS, OHIO, ASSIGNOR TO THE AMERICAN CLAY MACHINERY COMPANY, OF BUCYRUS, OHIO, A CORPORATION OF NEW JERSEY.

CUTTING-WIRE ATTACHMENT FOR CLAY-CUTTING MACHINERY.

No. 805,266. Specification of Letters Patent. Patented Nov. 21, 1905.

Application filed August 17, 1905. Serial No. 274,602.

To all whom it may concern:

Be it known that I, WILLIAM R. CUNNINGHAM, a citizen of the United States, residing at Bucyrus, in the county of Crawford and State of Ohio, have invented new and useful Improvements in Cutting-Wire Attachments for Clay-Cutting Machinery, of which the following is a specification.

My invention relates to certain new and useful improvements in wire attachments for brick and tile cutting machines or devices for holding wires in a cutting-machine for cutting lengths or thicknesses of clay products as they issue from the die of the machine.

Heretofore, as far as I am aware, all wires that have been used on cutting-tables of every description for cutting clay products into lengths or thicknesses have been fashioned with a loop or knot on each end, and as these loops or knots must be specially formed they necessarily increase the cost of the cutting-wires to about double the cost of an ordinary plain wire. Further than this, the forming of the aforesaid loops or knots on the ends of the wires impairs the strength of said wires, this objection being due to bending or twisting the wire to form the loop or knot. In the majority of cases the wires are also soldered to prevent them from slipping where they are twisted to form the loop, and this soldering operation further increases the cost of the wires, and it draws the temper or hardens the wire, according to the care used in its manufacture.

My present invention is capable of attachment to any style of cutting-table, and it is so designed that I am enabled to dispense with all loops, knots, or twists, using simply a plain straight wire of uniform thickness from end to end. By dispensing with the loops, knots, or twists on the wire I also lengthen the life of said wire, which wire I can furnish the user at the cost of a plain wire. The life of said wire being lengthened by its strength not being impaired by twisting, looping, knotting, or soldering, I am permitted to increase the output of any machine provided with my improvement to the extent of the less number of wires broken. Further, my arrangement enables a plain straight wire to be attached in less time than can those provided with loops or knots.

In the accompanying drawings I show so much of a well-known type of brick and tile cutting machine as will be sufficient to make the present improvements fully understood, said machine being of the character shown in my former patents, No. 764,272, July 5, 1904, and No. 775,800, November 22, 1904; but it is obvious that the present invention is not confined to such style of machines and that it is applicable to any design of cutting-table employing a wire for cutting clay or other plastic products.

Figure 1 represents a cross-sectional view of the cutting portion of the machine, showing in side elevation a set of supports and wire attachments embodying my invention, the dotted lines showing the position of the parts when the wire is being attached. Fig. 2 is a vertical sectional view on the line C D of Fig. 1 looking to the right of said figure. Fig. 3 is a rear view of a single wire attachment for the outer end of the wire. Fig. 4 is a sectional view on the line A B of Fig. 1.

In said drawings the shaft 1 represents the usual longitudinal shaft upon which the push-board 2 is mounted, said board having secured to it in any usual and well-known manner the platen 3, which supports the column or bar of clay. In Fig. 3 I show three (3) push-boards and platens; but as many may be used as may be desired or necessary for given purposes or types of machines. The push-boards are each provided with spacing-pieces 5, which project from one side of the webs 6 thereof, and projecting from the opposite side of each of said webs is a circular bearing 7, over which a ring or annulus 8 is mounted, there being one of these rings for each set of wires. For machines of the type illustrated in the patents before noted I find it convenient to employ two series of wires; but as many can be used as desired. The ring 8 is provided in this case with two sets of wires, one on each side. The aforesaid ring 8 is formed or provided with substantially radial projections 9 and 10, which are rigid with offset shelves or projections 11 and 12, each of which has its face provided with a hardened-steel or other plate 13, which plates may be inserted in the surfaces of the shelves, and they serve as wear-plates to prevent the wire, which is to be gripped between them, from cutting in or wearing the softer material of the shelves, thereby lengthening the life and usefulness

of the shelves. On the outside of the shelves or projections 11 and 12 is attached a steel plate 14, Fig. 2, the object of which is to prevent the wire when being attached or inserted between the plates 13 from moving out of position sidewise.

As shown in Fig. 1, I attach to each of the projections 9 and 10 suitable levers 15 and 16, these being held in place by screws 17 and 18, which pass through the levers at one end and which end is made eccentric or with a cam portion or head 19 and 20. The levers are each shown as of curved form, and the outer portion is attached to one end of a spring 21 22, whose opposite end is looped over a stud or projection 23 24, which forms a part of the ring 8. The shelves 11 12 form seats for the ends of the cutting-wire, and each shelf has a hole in its front wall through which the wire passes and by which said wire is guided and spaced.

The means for attaching the outer end of the wire is shown at the left-hand portion of Fig. 1, wherein 25 represents what is known as the "wire-bar," on which the desired number of attachments are mounted, and as these attachments are alike I shall only refer to one of them in the description of said parts. On the wire-bar 25 is a collar 26, carrying a set-screw 27, by which the collar is clamped to the bar, said collar being formed or provided with a projection or lug 28, to which a lever 29 is pivoted by means of a pivot or screw 30. The collar 26 is also provided with a second projection which constitutes a spring-seat and is pierced or provided with a hole 32, through which passes the adjustable spring-rod 33, said rod having a hook formation at its upper end adapted to engage with an eye 34 or equivalent part formed in or on the lever 29. The opposite or lower end of the spring-rod is threaded, as at 35, and a thumb-nut 36 on said threaded portion bears up under a spring 37 on the rod between the nut and the under side of the projection or spring-seat 31, and thereby affords means for regulating the tension of said spring. It will be observed that the attachment of the hook end of the rod 33 to the lever 29 is at one side of the pivotal point 30 of said lever and also on the opposite side of the pivotal center of the lever from where the cutting-wire 38 enters the clamping devices, which I will now describe. The lever 29 is formed or provided with a projecting portion 40, constructed with a shelf 41, which is designed as a seat for the outer end of the wire, as shown in Fig. 4, a plate 42 being attached to the outside of the shelf to prevent the wire from getting out of position when being attached.

To the lever 29 is pivotally attached, by means of screw 43, a second lever 45, one end of which is made eccentric or with a cam portion or head adapted to grip the wire between itself and the shelf or projection 41, and on the back part of the lever 29 is a projection 46, to which one end of a spring 47 is looped, the opposite end of said spring being attached to the lever 45 by suitable means, as by being hooked through a hole 48 therein. At the upper end the lever 45 is widened, as at 49, to provide a broad surface for the hand to rest against when placing the wires in position. It will also be observed that a hole is made in the projecting portion 40 of the lever 29 and also in the projecting portions 9 10 of the ring 8, as at 50 and 51, through which holes the wire passes and by means of which the said wires are accurately guided and spaced. In Fig. 1 I show the wire 38 under tension, and by dotted line 52 I show the wire loose, as when being inserted or placed in position. In inserting the said wire one end thereof is placed in the hole 50 in the ring 8, and the lever 16 is then pulled forward to enable the wire to be admitted beneath the eccentric or cam-head portion thereof. When the wire is properly positioned and the lever 16 is released, the spring 21 operates to throw the lever into the position shown in Fig. 1, thereby gripping the wire between the eccentric or cam-head portion thereof and the steel plate 13 and securing this end of the wire. The opposite end of the wire is now inserted in the hole 51 of the projecting part 40 of the lever 29 after the wire attachment at this end is swung to the position shown by dotted lines in Fig. 1, the operator pressing on the lever 45 in order to provide space beneath the eccentric or cam-head portion thereof and the shelf 41 to admit the wire. After this end of the wire is inserted, as just explained, the operator releases the pressure on the lever 45, when the spring 47 exerts its power to pull the lever to the full-line position of Fig. 1, thereby tightly gripping the wire between the eccentric or cam-head portion and the shelf 41. When the lever 45 has gripped the wire, the operator releases the other lever 29, when the spring 37 operates to swing the lever and its attachments from the dotted-line position to the full-line position of Fig. 1, thereby tightening the wire by lengthening the distance between the two attachments at the opposite ends of the wire. On the drawings I have also marked the curved lines 53, 54, and 55 to represent the space in which the wire attachments must be operated, and to prevent the attachments from coming in contact with some part of the cutting-machine and being damaged or broken the lever 29 is provided with a stop or projection 56, which engages with the collar 26 to prevent the lever from swinging too far. When the lever 29 is pushed forward, the shelf portion thereof comes in contact with the collar 26, which latter thereby serves as a stop for the for-

ward movement of the lever. This arrangement of stops prevents the attachments from being pushed too far in either direction.

By reason of the foregoing construction I am enabled to use plain straight wires as distinguished from wires having looped or knotted enlargements at the ends, and I securely clamp or fasten these wires without danger of their slipping out of position.

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

1. A wire attachment of the character described, comprising means for holding one end of the wire, and a pair of independently-pivoted jaw members between which the opposite end of said wire is gripped.

2. In a mechanism of the character described, the combination of a plain wire of uniform thickness from end to end, means for gripping one end of the wire, a swinging lever to which the opposite end of the wire is fitted, and a clamping member pivotally mounted on said swinging lever and adapted to grip said other end of the wire between itself and said swinging lever.

3. In a mechanism of the character described the combination of a plain wire devoid of enlargement at any point in its length, wire supporting and securing means for one end of said wire, and a combined wire gripping and tightening means for the opposite end of said wire said last-named means comprising a swinging member upon which the free end of the wire is placed and a clamping member pivotally carried by said swinging member and adapted to clamp the end of said wire thereto.

4. A cutting mechanism for a brick and tile cutting machine said mechanism comprising a plain wire devoid of enlargements at the ends whereby its diameter is uniform from end to end, and a clamp for each end of the wire said clamp comprising a seat for each end portion of the wire, said seat portion having a guide-opening for the wire, and cam-levers adapted to grip the plain ends of the wire to the seats.

5. A cutting mechanism for a brick and tile cutting machine said mechanism comprising a plain wire devoid of end enlargements, means for securing one end of the wire, a clamp for the opposite end of the wire said clamp including a member provided with a seat for the wire, and a pivoted clamping-lever carried by said member and adapted to grip the wire between itself and said seat, said member being pivotally mounted and capable of stretching the wire after it has been gripped.

6. A cutting mechanism for a clay-cutting machine said mechanism including a wire, means for securing one end thereof, and means for securing the opposite end of the wire said last-named means comprising a support, a ring mounted thereon and having a projecting portion with an offset wire-seat, and a lever pivotally mounted on the projection and having an eccentric or cam-head adapted to grip the wire between itself and said seat, and means for holding the lever in its locked position said seat portion having a guide for spacing the wire.

7. A cutting mechanism for a clay-cutting machine said mechanism including a cutting-wire, a fixed and a movable jaw between which each end of the wire is gripped, and means for spacing and guiding the wire between each pair of jaws.

8. A cutting mechanism for a clay-cutting machine said mechanism including a cutting-wire, a fixed wire-seat and a movable clamping member coacting therewith to grip the end of the wire, said wire-seat provided with an opening through which the wire is passed and by which it is spaced.

9. A cutting mechanism for a brick and tile cutting machine said mechanism including a wire having plain ends, means for securing one end of the wire, and means for securing the opposite end of the wire said last-named means comprising a pivoted lever having an offset seat portion and a second pivoted lever carried by the first lever and having substantially a cam-shaped head between which and the said seat portion the end of the wire is gripped said first lever capable of movement to stretch the wire after it is gripped.

10. A cutting mechanism for a brick and tile cutting machine said mechanism including a wire, means for securing one end thereof, and means for securing the opposite end of the wire said last-named means comprising a support, an annulus supported loosely thereon, and provided with an offset seat portion upon which the end of the wire is placed, and a pivoted lever carried by the annulus and having substantially a cam-shaped portion between which and the said seat portion the end of the wire is gripped.

11. A cutting mechanism for a clay-cutting machine said mechanism including a wire, means for securing one end thereof, and means for securing the opposite end of the wire said last-named means comprising a support, a ring mounted loosely thereon, and provided with a projecting portion having a seat for the wire, and a pivoted substantially cam-shaped member mounted on the projection and acting in opposition to the seat portion to grip the wire between itself and said seat.

12. A cutting mechanism for a clay-cutting machine said mechanism including a wire, means for securing one end thereof, and means for securing the opposite end of the wire said last-named means comprising a support, a ring mounted thereon and having a projection with an offset portion forming a seat for the wire, and a lever pivotally mounted on the projection and having an eccentric or cam-head adapted to grip the wire between itself and

said seat, and a spring engaging the lever to hold it in a closed gripping position.

13. A cutting mechanism for a clay-cutting machine said mechanism including a cutting-wire, means for holding one end thereof, and means for holding the opposite end of the wire said last-named means comprising a fixed support, a collar thereon having a projecting portion, a lever pivoted to said projecting portion and provided with an offset seat for the wire, means provided on the offset portion for guiding and spacing the wire, a lever having an eccentric or cam-head adapted to grip the wire between itself and said seat, and means for holding the lever in its closed gripping position.

14. A cutting mechanism for a clay-cutting machine said mechanism including a cutting-wire, means for holding one end thereof, means for securing the opposite end of the wire said last-named means comprising a fixed support, a collar thereon and provided with a projection, a lever fulcrumed to the projection and having an offset portion forming a seat for the wire, a second lever pivoted to the first lever and having an eccentric or cam-head adapted to grip the wire between itself and said seat, a rod connected to the first lever and provided with a spring, said collar having a projection serving as a seat for the spring, means for regulating the tension of said spring and the tension on the wire, and means for holding the second lever in its closed gripping position.

15. A cutting mechanism for a clay-cutting machine said mechanism including a cutting-wire, means for operatively holding one end thereof, and means for securing the opposite end of the wire said last-named means comprising a fixed support, a lever pivoted thereto and having portions projecting each side of the pivotal point, one of said projecting portions having a seat for the wire, a spring-actuated member connected to the other projecting portion of the lever, and a cam-lever pivoted to the first lever and adapted to grip the wire to said seat said second lever being connected to means for holding it in its closed gripping position.

16. A cutting mechanism for a clay-cutting machine said mechanism including a cutting-wire, means for holding one end thereof, means for securing the opposite end of the wire said last-named means comprising a fixed support, a lever pivoted thereto and having portions projected to each side of its pivotal center, one of said projected portions having an offset seat for the wire and the other projected portion having an opening through it, a rod passing through said opening and hooking into engagement with the lever on the side thereof opposite to wire-seat, a spring on the rod and a follower-nut engaging the spring to regulate the tension thereof, a second lever pivoted on the first lever and having an eccentric or cam portion adapted to grip the wire between itself and said seat, and a spring connecting the second lever with a projected portion of the first lever.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM R. CUNNINGHAM.

Witnesses:

R. O. PERROTT,

J. H. LASHMUTT.