H. E. STRATTON.

PIPE RING CUTTER.

APPLICATION FILED JULY 3, 1912.

**1,100,033.**

**Patented June 16, 1914.**

2 SHEETS—SHEET 1.

Fig. 1

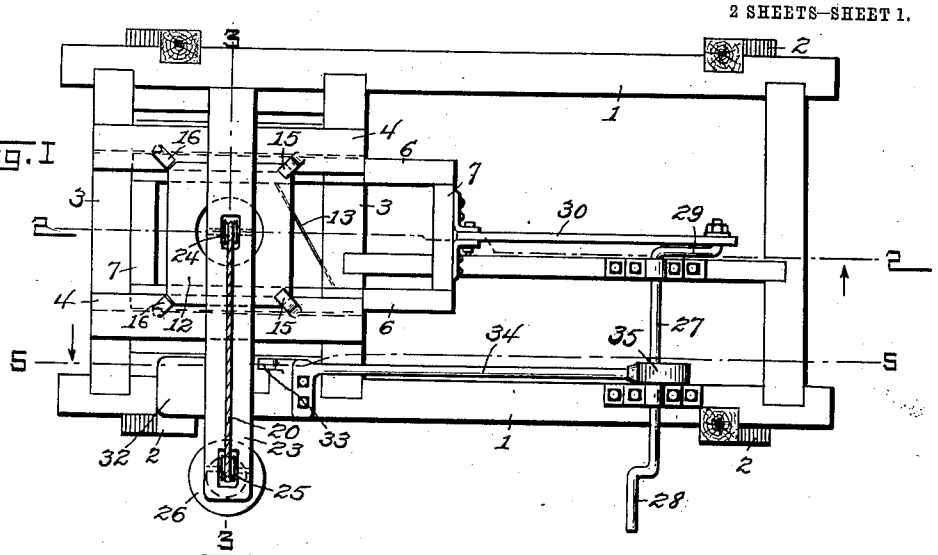
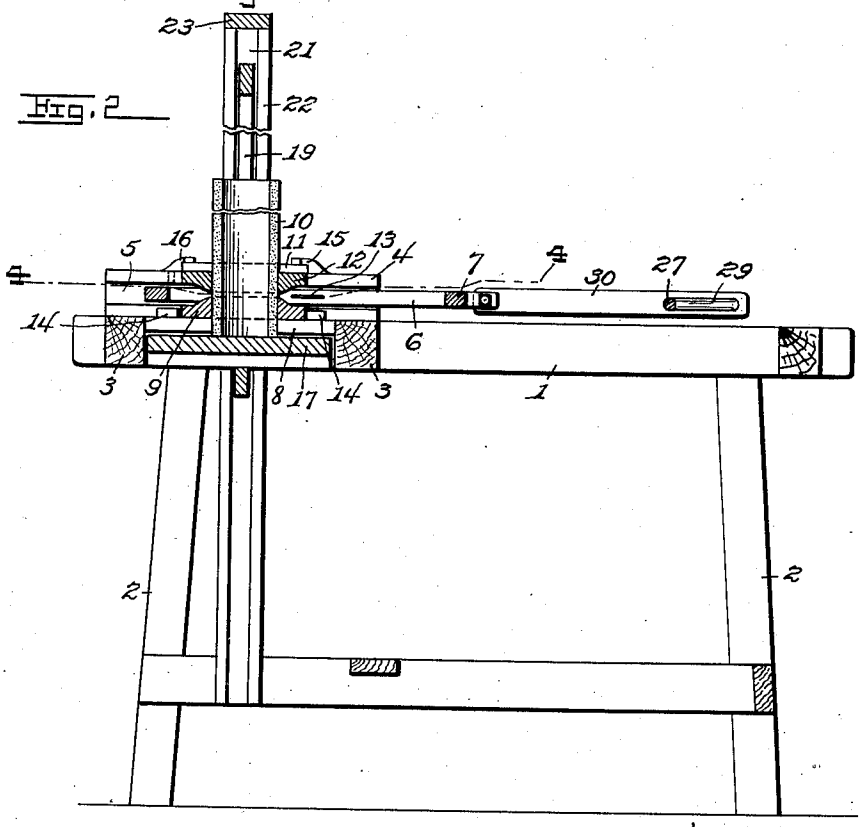



Fig. 2




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Fig. 3

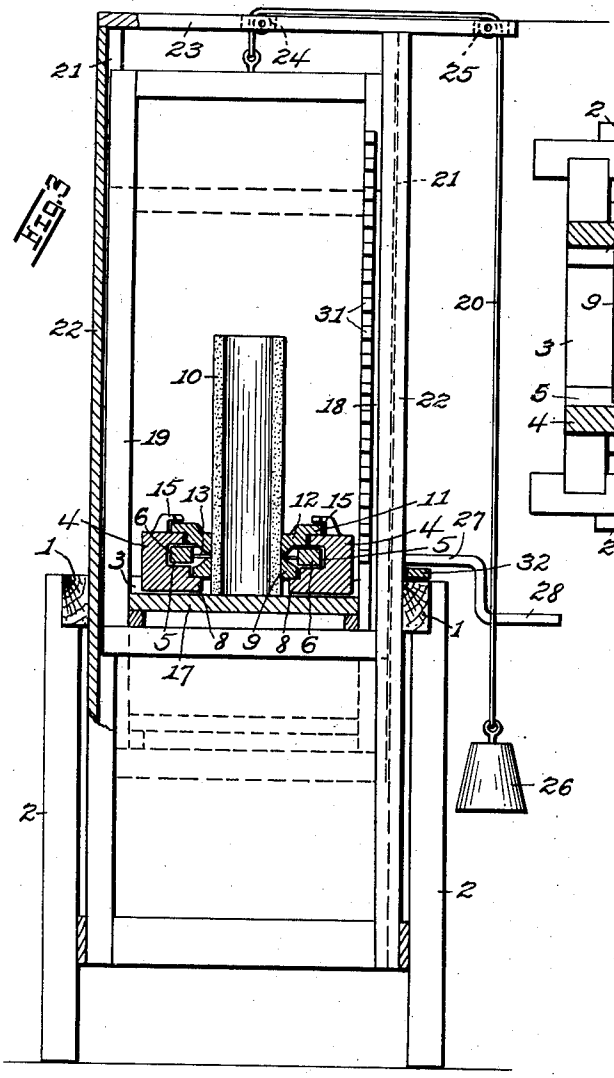



Fig. 4

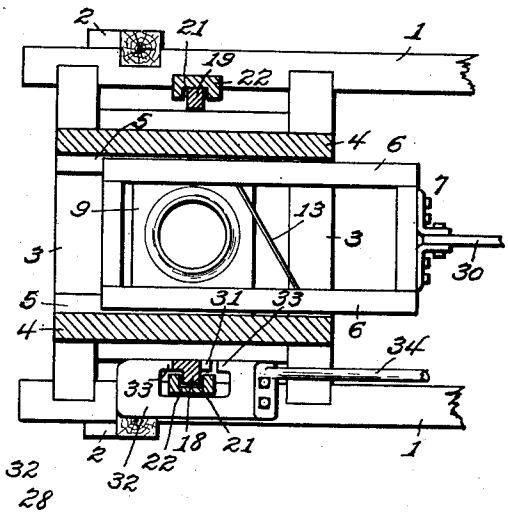
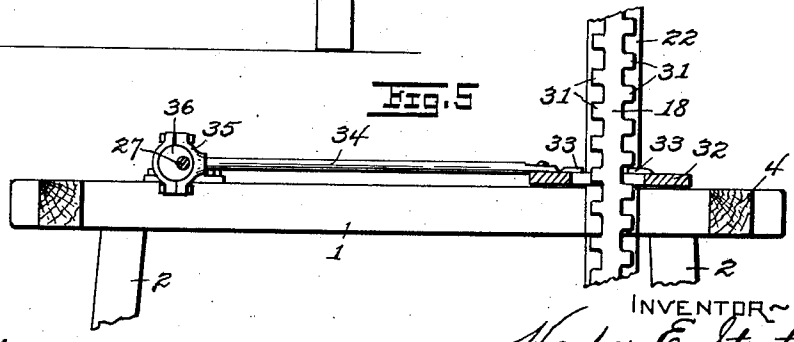



Fig. 5




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# UNITED STATES PATENT OFFICE.

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## PIPE-RING CUTTER.

1,100,033. Specification of Letters Patent. Patented June 16, 1914.

Application filed July 3, 1912. Serial No. 707,465.

*To all whom it may concern:*

Be it known that I, HARPER E. STRATTON, a citizen of the United States of America, and resident of Empire, county of Jefferson, and State of Ohio, have invented certain new and useful Improvements in Pipe-Ring Cutters, of which the following is a specification.

This invention relates to devices for cutting supporting rings for sewer pipe, drain tile, fireproofing, and like clay products, and it has for its object to provide a simple apparatus whereby the rings employed during firing in the kiln for supporting hollow or tubular articles formed of clay may be cut evenly, accurately and expeditiously.

A further object is to provide a device of the character mentioned having interchangeable pipe-receiving plates, adapting the mechanism for cutting rings of widely varying sizes.

With these and other objects in view, the invention resides in the features of construction, arrangement of parts and combinations of elements which will hereinafter be fully described, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top plan view of the invention; Fig. 2 is a longitudinal section on the line 2—2, Fig. 1; Fig. 3 is a cross-section on the line 3—3, Fig. 1; Fig. 4 is a partial horizontal section on the line 4—4, Fig. 2; and Fig. 5 is a longitudinal section on the line 5—5, Fig. 1, some of the parts being shown broken.

Referring to said drawings, in which like designating characters distinguish like parts throughout the several views—1 indicates the side members of a substantially rectangular main supporting frame which is supported at a suitable height, as by legs 2. Located adjacent to one end of said frame and having their ends supported by said side members are two transversely disposed cross-members 3, and mounted on said cross-members are two longitudinally extending bars 4, a rectangular open space being thus defined by the members 3 and bars 4. The opposing faces of said bars 4 are mortised longitudinally to form channels or guideways 5 for the side-members 6 of a longitudinally reciprocating frame 7, the purpose of which will presently be explained. Inwardly directed flanges 8 are provided on the inner faces of said bars 4 below the guideways 5, said flanges constituting supporting ledges for the opposite edges of a plate 9 which has therein a centrally located opening of a size adapted for receiving a pipe 10 therein. Supported in overlying relation to said plate 9, as by outwardly directed lateral flanges 11 resting upon the upper faces of the bars 4, is a plate 12, also having a centrally located opening adapted for receiving a pipe 10. The adjacent faces of the plates 9 and 12 do not engage, being separated by a space sufficiently large to permit of the passage therebetween of a fine pipe-cutting wire 13 which is stretched across from one side member 6 of the reciprocating frame 7 to the other, said wire preferably having a diagonal disposition, as shown.

In order to adapt the machine for cutting rings from pipes 10 of varying sizes, a plurality of plates 9 and 12 having pipe-receiving openings of varying sizes are provided to be used interchangeably. For facilitating the ready removal of said plates when required, the same are not permanently fixed in position. Properly positioned plate-engaging stops 14 are fixed on the flanges 8 whereby the placing of the plate 9 in position is facilitated. For facilitating the mounting of plate 12, fixed lugs or clamps 15 are provided to be engaged by one end of said plate, and rotary lugs or clamps 16 are provided for engaging the opposite end thereof, said rotary clamps being adapted for adjustment after the plate has been mounted in position.

The lower end of a pipe 10 mounted in position to be cut into rings rests upon a vertically movable table 17 which is supported at opposite sides by vertical bars 18 and 19 which constitute the side members of a rectangular frame which is suspended at one end of a cable 20 and which is vertically movable, said side members having sliding movement in guide-channels 21 provided in upright supports 22 mounted on the main supporting frame. A cross-bar 23 mounted on said supports 22 has one end extended and carries suitably arranged pulleys, as 24 and 25, over which the cable 20 operates, the free end of said cable carrying a weight 26 which serves to partially counterbalance the weight of the table 17, the suspended frame, and a pipe mounted on said table. Journaled in suitable bearings located on the main supporting frame is a transversely directed shaft 27 having an operating crank 28 at one end and having at its other end a

crank 29 connected by a pitman 30 to an end of the reciprocating frame 7, whereby rotary movement of the shaft imparts a reciprocating movement to said frame for carrying the cutting wire 13 back and forth through the space between the plates 9 and 12 for severing the pipe 10 which is held in position and guided by said plates. For guiding said cutting wire to proper cutting position so that the pipe may be cut into rings of even length, the adjacent faces of the plates 9 and 12 are inclined into a slightly conical form, substantially as shown in Figs. 2, 3 and 4.

The upright bar 18 has a series of rack-bar teeth 31 formed on its front face and a like series on its rear face, the teeth of one series alternating with, or having staggered relation to, those of the other. A yoke-shaped plate 32 is slidably mounted upon the side member 1 and has oppositely disposed dogs or detents 33 which, upon reciprocation of said plate, are adapted to alternately assume interlocking supporting engagement with teeth 31 of the opposite series. An eccentric rod 34 is attached to one end of said plate 32 and has its opposite end fixed to the sheave 35 of an eccentric 36 carried by the shaft 27, whereby reciprocating movement is communicated to said plate. Thus, it will be apparent that, as the severance of the pipe 10 is accomplished with the reciprocations of the frame 7, the reciprocating of the plate 32 is effected, withdrawing one of the detents from supporting engagement with a tooth 31, allowing the table 17 carrying the pipe 10 to drop until the next above tooth of the opposite series is engaged by the opposite detent, said teeth being so spaced that the distance of each drop of the table is the width desired for the rings to be cut from the pipe.

It will of course be understood that the pipe 10 to be cut into rings is in its plastic, or green, state, and that the table 17 is elevated to its highest position prior to the beginning of the cutting operation. The table is lowered a definite distance after each forward and backward reciprocation of the cutter so that when the pipe has been fully disposed of, the table occupies a lowered position, with the rings in superposed relation, from which position said rings may be readily removed.

The rings formed in the manner hereinbefore described are cut squarely and are of regular, even size, as will be readily understood.

It is obvious that various changes within the scope of the appended claims may be made in the construction and arrangement of some of the parts, hence I would have it understood that I do not desire to limit myself to the precise construction and arrangement of parts herein shown and described.

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

1. A device of the character described, comprising a pair of rectangular plates disposed in superposed non-engaging relation and having registering pipe-receiving openings therein, a longitudinally reciprocating frame, a pipe-cutting element carried by said frame and adapted to be moved back and forth between said plates with successive reciprocations of said frame, means for reciprocating said frame, a pipe-supporting table located beneath said plates, a vertically movable bar disposed in supporting relation to said table, said bar having a series of spaced teeth on each of two opposite faces thereof, an eccentric rod connected to and actuated by said reciprocating means, and a movable yoke-shaped plate connected to said rod and having oppositely disposed detents adapted, upon reciprocation of said rod, to alternately assume interlocking engagement with teeth of the opposite series.

2. A device of the character described, comprising a pair of pipe-embracing plates, one superposed over the other at a spaced distance therefrom, and constituting guides, the adjacent faces of said plates being slightly conical; a pipe-cutting element, an operating shaft, means interposed between said shaft and said element whereby rotation of the former effects reciprocation of the latter between the conical faces of said plates, a pipe-supporting table located beneath said plates, a vertically movable bar disposed in supporting relation to said table, said bar having a series of spaced teeth on each of two opposite sides thereof, a yoke-shaped plate having oppositely disposed detents for alternately and successively interlocking with teeth of the opposite series, and means interposed between the operating shaft and the last-mentioned plate whereby the latter is reciprocated after each reciprocating stroke of the cutting element.

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

HARPER E. STRATTON.

Witnesses:

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A. R. MCLEAN.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**