(No Model.) 2 Sheets—Sheet 1.

R. W. LYLE.

MACHINE FOR CUTTING SEWER PIPE RINGS.

No. 267,700. Patented Nov. 21, 1882.

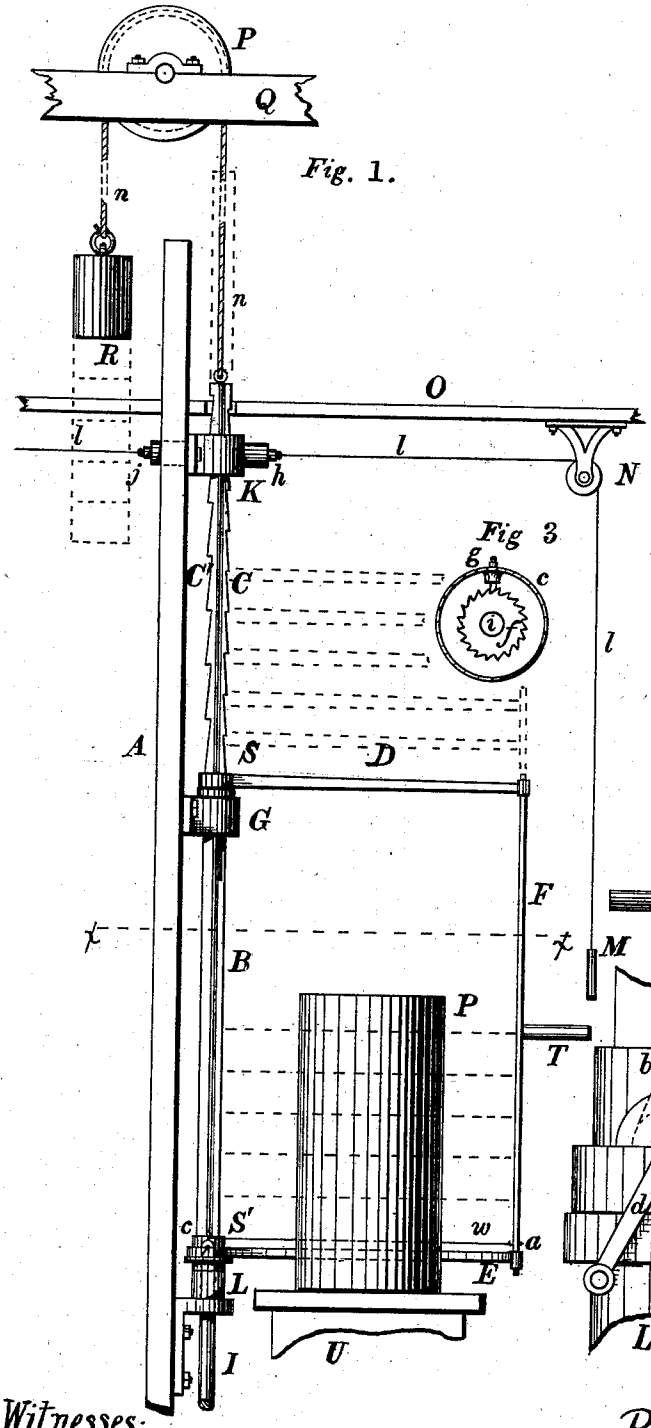


Fig. 1.

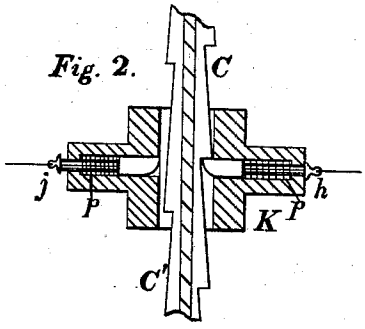


Fig. 2.

Fig 3

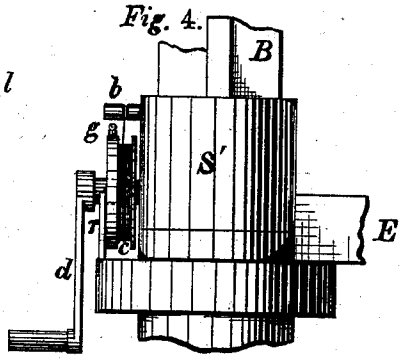


Fig. 4.

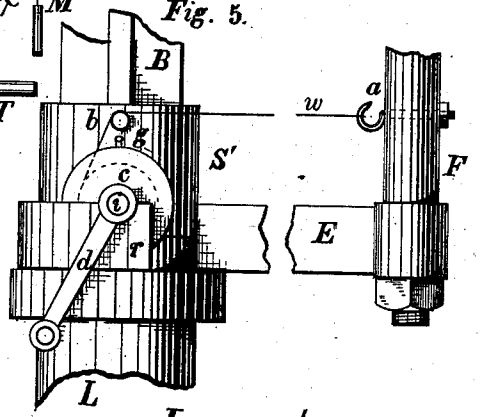


Fig. 5.

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(No Model.) 2 Sheets—Sheet 2.

R. W. LYLE.

MACHINE FOR CUTTING SEWER PIPE RINGS.

No. 267,700. Patented Nov. 21, 1882.

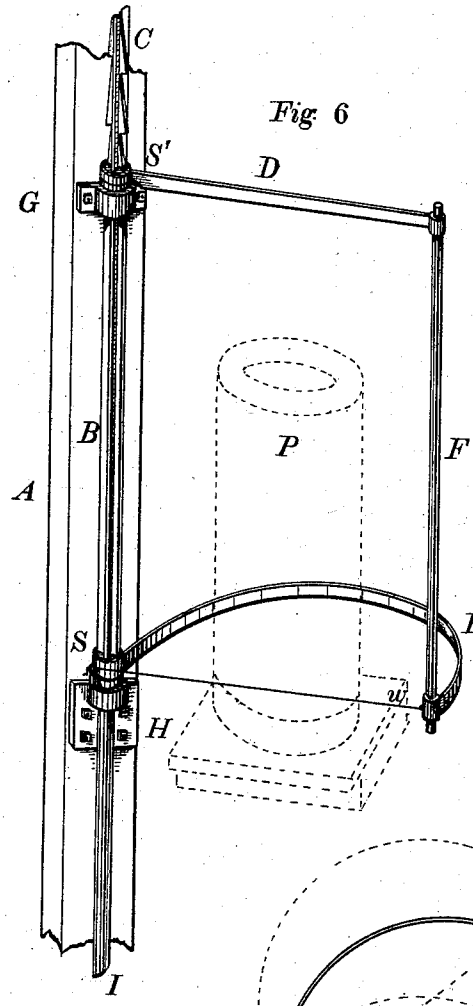


Fig. 6

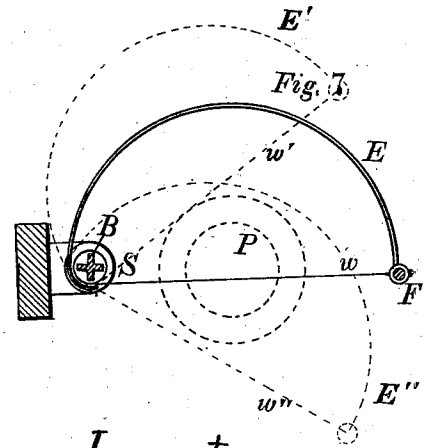


Fig. 7

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UNITED STATES PATENT OFFICE.

ROBERT W. LYLE, OF ROCHESTER, NEW YORK, ASSIGNOR TO OTIS & GOOSLINE, OF SAME PLACE.

MACHINE FOR CUTTING SEWER-PIPE RINGS.

SPECIFICATION forming part of Letters Patent No. 267,700, dated November 21, 1882.

Application filed September 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. LYLE, of Rochester, in the county of Monroe and State of New York, have invented an Improved Machine for Cutting Sewer-Pipe Rings, of which the following is a specification, reference being had to the annexed drawings.

The object of my invention is the production of a machine for cutting rings from clay pipe while in the green or undried condition in which they are formed, and which rings are designed, after burning, to be employed in the construction of drains and sewers, or for other purposes; and my invention consists in a horizontally-vibrating wire-carrying frame arranged to swing over a suitable pipe-supporting platform, and capable of being moved vertically between each vibration and supported in place during each vibration, so that the pipe is divided by the vibrating wire into successive rings.

My invention also consists in the mechanical details of the construction, as hereinafter more fully set forth.

My improved machine for cutting sewer-pipe rings is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a ring-cutter embodying my improvements. Fig. 2 is a vertical section through the upper socket, showing the catches which support the racks and wire frame. Fig. 3 is a sectional view, showing the ratchet of the wire-reel. Fig. 4 is an end view of the wire-reel on an enlarged scale, showing its mode of attachment to the lower arm of the wire-frame. Fig. 5 is a side view of the same. Fig. 6 is a perspective view of my improved ring-cutter. Fig. 7 is a sectional view on the line *x x*, Fig. 1.

My improved ring-cutter is represented in the accompanying drawings, in which—

A, Fig. 1, is an upright post or other suitable support, to which the swinging wire-carrying frame is attached by means of the lugs or sockets L G K and the sliding bar B.

P is the pipe, resting on the fixed platform or stand U, and *w* the wire strained on the swinging frame, by which the pipe is cut.

R is a counter-weight, by which the swinging frame is balanced; and C C′ are the racks, and *h j* the catches by which the length of the rings is determined.

The swinging frame employed in my improved ring-cutter consists preferably of an upper horizontal arm, D, an upright connecting-rod, F, and a lower curved arm, E. The inner or pivotal ends of the horizontal arms are formed into rings or journals S S′, which turn freely on socket-pieces affixed to the upright bar B, which has the capacity of sliding vertically up and down through the sockets L G K, carrying the swinging frame with it. The weight of the swinging frame and the bar B is nearly counterbalanced by a weight, R, attached to a cord, *n*, which passes over the pulley P, secured on any suitable support, Q, in such fashion that very little effort is required to move the frame and bar upward.

In order to provide for cutting rings of different lengths, two or more racks, C C′, are made on the upper end of the bar B. The distance between the teeth of these racks corresponds with the desired length of the rings to be cut by the machine. The bar B may be either round or square, or, as represented in the drawings, cross-shaped in section, in which case any desired number of racks up to four may be cut on the outer margins of the flanges of the bar. If the bar be round in section, any desired number of racks may be let into it in longitudinal grooves. Opposite each rack in the socket K are placed spring-catches *h j*, which engage with the teeth of the corresponding rack and support the bar and swinging frame in position vertically. Provision is made for disengaging the catches from the racks, when it is desired to lower the swinging frame, by means of the cords *l l*, attached to the catches, passing over suitable corner-pulleys, (of which one is shown at N, Fig. 1, attached to the ceiling or other support O,) and extending downward and terminating at M. The catches are forced inward against the rack by springs *p*, Fig. 2. A weight hung on the end of the cord *l* serves to withdraw the catch from engagement with the rack when it is not desired to employ the corresponding rack.

The lower arm, E, of the swinging frame is bent or curved horizontally, as represented in the drawings, Figs. 6 and 7, in order to permit

of the swinging motion of the frame by which the pipe is severed into rings. The vibration of the swinging frame during the pipe-cutting operation is represented by the dotted lines E′ E″, Fig. 7.

The frame may be made of sufficient strength to sustain the wire *w* without the curved arm E; but I prefer, for the sake of lightness, to employ it. Where it is not used the two rings S and S′ should be connected by an upright bar, so that they oscillate together. A handle, T, may be affixed to the swinging frame. The wire *w* is strained across the lower part of the swinging frame, as represented in the drawings. It may be fastened at its ends by screw-clamps or by being twisted about a hook, *a*, Fig. 5, or in any other suitable manner.

In order to prevent loss of time consumed in replacing the wire when it is accidentally broken, I attach to the ring S′ a reel, *e*, Figs. 4 and 5, about which a supply of wire is wound. The reel-shaft *i* is provided with a ratchet, *f*, Fig. 3, inclosed within a casing, which protects it from dirt, attached to the outer support, *r*, of the shaft, and which casing carries a catch, *g*, by which the reel is prevented from turning in the direction in which the wire unwinds. When the wire breaks all that is necessary with this arrangement is to raise the catch *g*, pull out the wire and secure it by twisting it about the hook *a*, or in any other suitable manner, and to strain up the wire tight by turning the reel by the handle *d*.

In the practical operation of my improved pipe-cutter, one or more of the pipes which it is desired to cut into rings being placed upright on the platform U, the operator, swinging the frame backward and forward from the positions indicated by E′ *w*′, Fig. 7, to E″ *w*″, passes the wire through the pipe and severs it. At each end of the oscillating motion of the swinging frame it is raised upward or depressed for a distance corresponding with one of the teeth of the racks C or C′, occupying in succession the positions indicated by the dotted lines in Fig. 2, and cutting a ring from the pipe while moving in each direction. A number of pipes may be cut into rings at one time, if placed on the platform U. After the completion of the cutting operation the rings, which remain on each other, are removed and the operation repeated.

I prefer to commence the cutting operation at the lower end of the pipe, moving the frame upward between each cut, and using the handle M only to disengage the dog *h* from the rack C when it becomes necessary to depress the swinging frame.

I claim—

1. A horizontally-vibrating wire-carrying frame arranged to swing over a suitable pipe-supporting platform, in combination with means, substantially as described, whereby the relative positions of the pipe and frame are changed between each vibration.

2. In combination with a suitable supporting-post, A, the swinging frame D F, wire *w*, sliding bar B, rack C, and spring-catch *h*, substantially as described.

3. In combination with the swinging wire-carrying frame D F, the sliding bar B, provided with two or more racks, C C′, having teeth of different sizes, and corresponding spring-catches *h j*, substantially as described.

ROBERT W. LYLE.

Witnesses:
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