(No Model.) 2 Sheets—Sheet 1.

W. R. FOX.

QUILL CUTTER.

No. 541,996. Patented July 2, 1895.

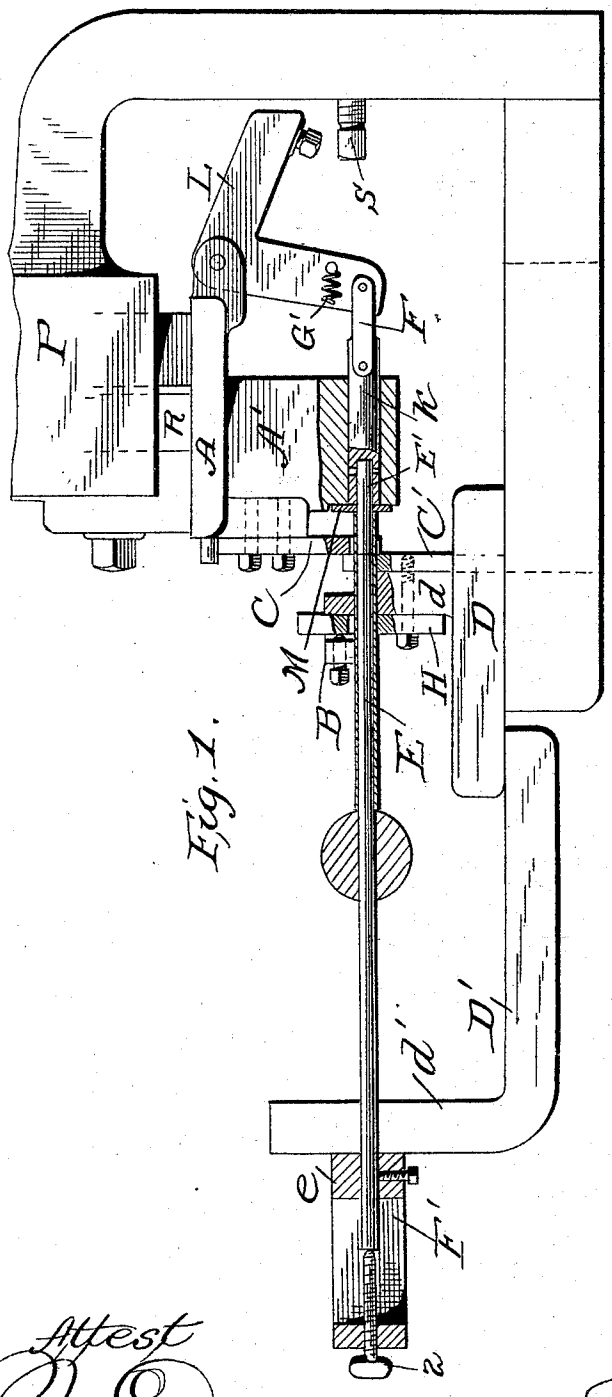

Fig. 1.

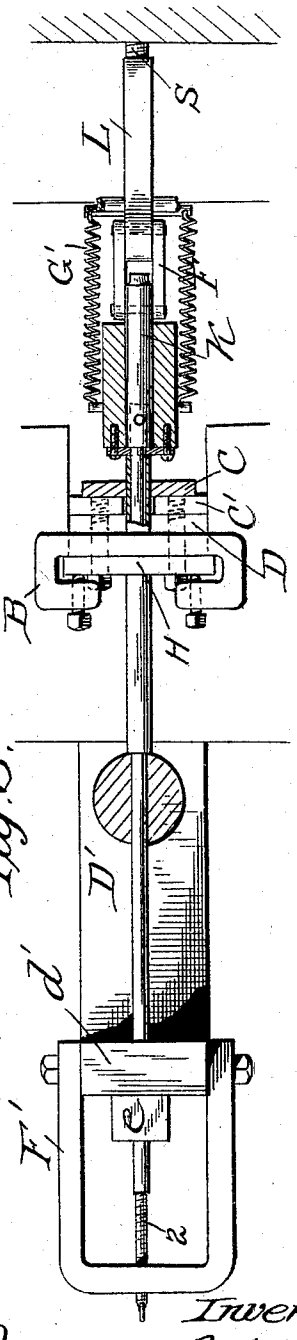

Fig. 3.

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(No Model.) 2 Sheets—Sheet 2.

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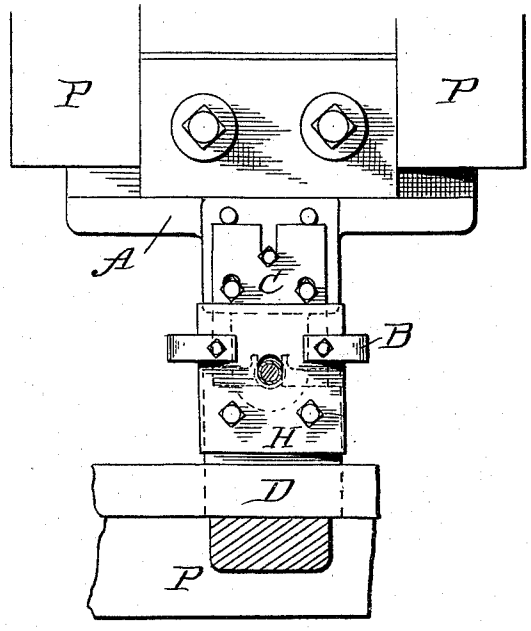
Fig. 2.



Attest
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F. L. Middleton

Inventor
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UNITED STATES PATENT OFFICE.

WILLIAM R. FOX, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO THE FOX MACHINE COMPANY, OF SAME PLACE.

QUILL-CUTTER.

SPECIFICATION forming part of Letters Patent No. 541,996, dated July 2, 1895.

Application filed February 20, 1895. Serial No. 539,063. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. FOX, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Quill-Cutters, of which the following is a specification, reference being had therein to the accompanying drawings.

The present invention is a machine for cutting tubes, and is designed for special work, though it may be adapted to other situations without material change without departing from the spirit of my invention.

In the manufacture of an improved sash-pulley of my invention the pulley or sheave is composed of two parts stamped up out of sheet metal, and these parts or sections are held together by a tube or quill fitted to a central opening in each section, with the ends bent over to secure the parts. This provides a tubular hub for the pulley, and it is the object of this invention to reduce the cost of these tubular portions, or, as I will term them, "quills," to the minimum, for the reason that the pulleys are sold at such a low figure that it is not possible, with profit, to use for this purpose the expensive seamless tubing which is well known. To reduce the cost, I take sheet metal, and after rolling it into tubular shape I cut it up into sections adapted for the purpose intended by the use of the machine now to be described.

In the drawings, Figure 1 is a side elevation of the machine with some of the parts in section. Fig. 2 is a front view with the front yoke omitted. Fig. 3 is a plan view partly in section.

In the figures the frame of the machine is shown at P, and fitted to reciprocate in guides therein is a slide R, to which is secured a bottom plate A, having a depending abutment A'. To the plate A and moving therewith is secured a cutter or shear plate C. To the base of the frame is secured a plate or platform D, and bolted to a projection *d* thereof is the bottom cutter or shear plate C'. Both shear plates are provided centrally with a U-shaped opening, and the plates are arranged relatively to each other, so that in the movement of the upper plate it passes down in rear of, but in contact with, the rear face of the plate C', the ends of the plates overlapping to shear off the tube. The abutment A' carries a horizontally-moving plunger K connected by links F to a bell-crank lever L pivoted to the moving slide or plate A and having its free end extending into the path of a stud or projection S, secured to or forming a part of the frame. Coil-springs G' return the parts to normal position. The front end of the plunger K is socketed to receive a hardened steel section E' secured therein, this section, in the normal position of the parts, projecting forward to the line of the rear face of the lower shear-plate, where it meets and contacts with a rod or mandrel E, which is in the shape of a rod of hardened steel of the same diameter as the section E. This rod or mandrel receives the length of tube to be cut, as shown in Figs. 1 and 3. This mandrel, with the tube upon it, is inserted through an opening in the supporting-plate H, bolted to the projection *d*, and through the opening in the shear-plate C', at which point the mandrel end contacts with the section E', while the tube extends over the said section through the opening in the upper shear-plate, its end finding a bearing against a wear-plate M inserted in or secured to the face of the abutment A'. The tube and mandrel are steadied and held by a yoke-piece B, extending around the upper end of the plate H, and held thereto by set-screws, the lower face of the yoke closing the opening through the plate and resting upon the upper periphery of the rod, clamping it into the channel formed in the plate H, the projection *d*, and the lower shear-plate C'.

Supported from the base D is a bracket D', having a turned-up end *d'*, and to this are secured the ends of a swinging yoke F', carrying upon its front end a set-screw 2, which engages the end of the mandrel E and forces it home against the section E'. In order to adjust the parts accurately, a collar *e* is secured to the mandrel, and this, coming in contact with the face of the bracket D', prevents the end of the mandrel from crossing the line of the lower shear. It will thus be seen that the mandrel is accurately adjusted and held, a firm support provided for the tube at all

points, a perfect shear secured of the tube into sections, and after each cut the plunger K recedes, carrying with it the section E′, and this permits the severed section of tube to drop into a receptacle to receive it.

The tube is placed upon the mandrel E, which is kept in place by the yoke F′ and its screw 2 bearing against the end thereof, and the tube is fed forward through the shear-plate C′ and over the mandrel-section E′ until it contacts with the wear-plate M of the abutment A′. Then the upper shear descends and a section of the tube is severed by the combined shear action of the mandrels E and E′ and the upper and lower shears C and C.

What I claim is—

1. In combination with the shear plates or cutters, a section or mandrel E′, a mandrel E, meeting the same at the shearing point, said mandrels adapted to receive the tube to be cut, substantially as described.

2. In combination with shear plates or cutters, a section or mandrel E′, a mandrel E meeting the same at the line of shear, said mandrels adapted to receive the tube to be cut and a plunger carrying said section E′ and adapted to recede with said section to discharge the cut section of tube, substantially as described.

3. In combination with shear plates or cutters, a sectional mandrel for receiving the tube to be cut, the sections meeting at the line of shear, a plunger carrying one of said mandrels and means for operating said plunger automatically to allow of the discharge of the cut section, substantially as described.

4. In combination with a lower shear plate or cutter, an upper shear plate, a movable support for the upper shear plate, a mandrel composed of two sections, the line of shear being the meeting point thereof one section being movable and carried by the support of the upper shear substantially as described.

5. In combination with the shears or cutters, a sectional mandrel, divided on the line of the shear a stop for the end of the tube to be cut and means for forcing both mandrel sections into position.

6. In combination with the shears or cutters, a sectional mandrel, divided on the line of the shear a stop for the end of the tube, beyond the line of shear and a pivoted yoke for forcing the mandrel into position, substantially as described.

7. In combination with the shear plates, the abutment A′, the plunger K, supported thereby the section E′ secured thereto and the bell crank lever operating said plunger, substantially as described.

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

WILLIAM R. FOX.

Witnesess:

JNO. DUFFY,

EARL STOKOR.