H. F. FIELD AND S. F. BURGOINE.

MEANS FOR CUTTING TUBES.

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1,403,901.

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Fig. 1

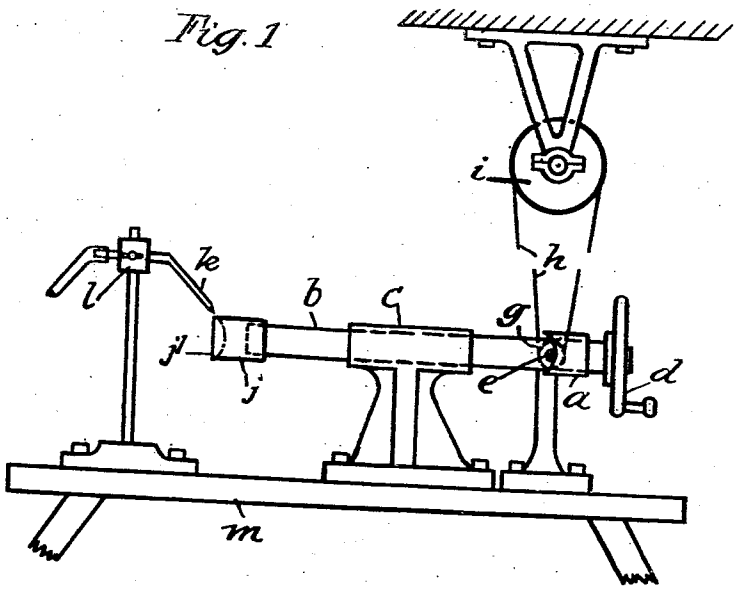
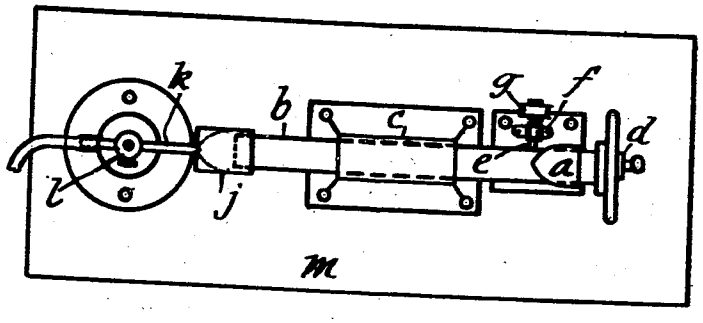


Fig. 2



Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY FRANCES FIELD AND SIDNEY FREDERIC BURGOINE, OF LONDON, ENGLAND.

MEANS FOR CUTTING TUBES.

1,403,901. Specification of Letters Patent. Patented Jan. 17, 1922.

Application filed November 8, 1919. Serial No. 336,652.

To all whom it may concern:

Be it known that we, HENRY FRANCES FIELD and SIDNEY FREDERIC BURGOINE, both subjects of the King of England, and residing at London, in the Kingdom of England, have invented new and useful Means for Cutting Tubes, of which the following is a specification.

Our invention relates to means for cutting out portions of tubes in conformity with a pattern so as to fit together in angular positions in the making of tubular vehicle frames and the like.

According to prevailing practice the tubular parts to form joints are milled to the required shape, whereas our object is to more expeditiously and economically carry out the shaping operation by the use of an oxy-acetylene jet-flame.

With this object in view we provide a stationary oxy-acetylene jet-flame to which the workpiece on a manually rotated mandrel carrying the stock-pattern or former is presented, said stock-pattern being continuously pushed endwise against a revolving tracer.

In order that our invention may be clearly understood and readily carried into effect, we will now describe the same fully with reference to the accompanying drawings which are intended as diagrammatic illustrations of the invention and shown by way of example only.

In these drawings:

Figure 1 shows a side view illustrating the invention and Fig. 2 shows a plan.

According to a simple construction of apparatus embodying this invention, we secure a stock-pattern *a* on a shaft *b* near one end thereof. The shaft *b* is mounted in a sleeve-bearing *c* and is capable of rotary and endwise movement by being operated by the handwheel *d* secured to the end of the shaft *b* near the pattern *a*. The pattern *a*, previously cut to the shape required for joining against another tube in building up a vehicle frame or the like, is pushed against a revolving tracer *e* which latter is journalled in a pedestal-bearing *f* and receives rotation by means of a pulley *g* driven by belt *h* from another pulley *i*.

To the free end of the shaft a projecting tube *j* is secured for the purpose of having its front or over-hanging edge j^1 trimmed or cut, to the shape of the stock pattern *a*, by the oxy-acetylene jet-flame from a burner *k* adjustably mounted in a stand *l*.

The bearings *c* and *f* together with the stand *l* may be mounted on a bench *m*. Although the machine hereinbefore described in general features is perfectly adapted for the performance of the work as stated, it is clear that modifications or improvements may be made without exceeding the scope of our invention.

The action is as follows:—

An operator slowly turns the shaft *b* by means of the handwheel *d* and whilst so turning he also presses the shaft forward by keeping the shaped edge of the stock-pattern *a* in constant touch with the revolving tracer *e*. The slow rotary and endwise movement of the shaft *b* causes the tube *j* to pass with a similar movement beneath the burner *k* so that the jet-flame therefrom produces a cut following the shape of the pattern *a*. It is found that with a thin and quick rotating tracer there are produced minute vibrations by the tracer-point and these vibrations serve to ensure a very smooth wiping contact with the edge of the pattern *a* thus producing a steady movement of the shaft *b* and tube *j* so that a fine and clean cut in the latter is made by the jet-flame.

Other patterns may be used, and the machine is particularly suitable for expeditiously cutting a more or less large number of tubes to an identical pattern, as for instance in the manufacture of sockets for aeroplane fittings and so forth.

We claim:—

1. A machine for cutting tubes to a stock-pattern which comprises an adjustable but stationary oxy-acetylene jet-burner, a manually rotatable and endwise moving shaft, a bearing for said shaft, a stock-pattern secured near one end, a projecting tubular workpiece fast at the other end of said shaft, and a revolving tracer in contact with the stock-pattern, the jet-burner being adjusted in proximity to the tubular workpiece to be cut.

2. A machine for cutting tubes comprising a bench, a sleeve-bearing fast on same, a rotary and endwise movable shaft in said

bearing, a handwheel fast on the shaft, a stock-pattern on the shaft near the handwheel and a tubular workpiece fast on the opposite end of the shaft, a stand and a jet-burner carried thereon in suitable proximity of the workpiece, a stand and a tracer mounted rotatably therein and in contact with the shaped edge of the stock pattern, a speed pulley connected with the tracer, means for rotating the tracer substantially as and for the purpose stated.

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