R. T. CRANE & J. L. AGNEW.

DEVICE FOR TURNING VALVE STEMS, &c.

No. 177,992. Patented May 30, 1876.

Fig. 1.

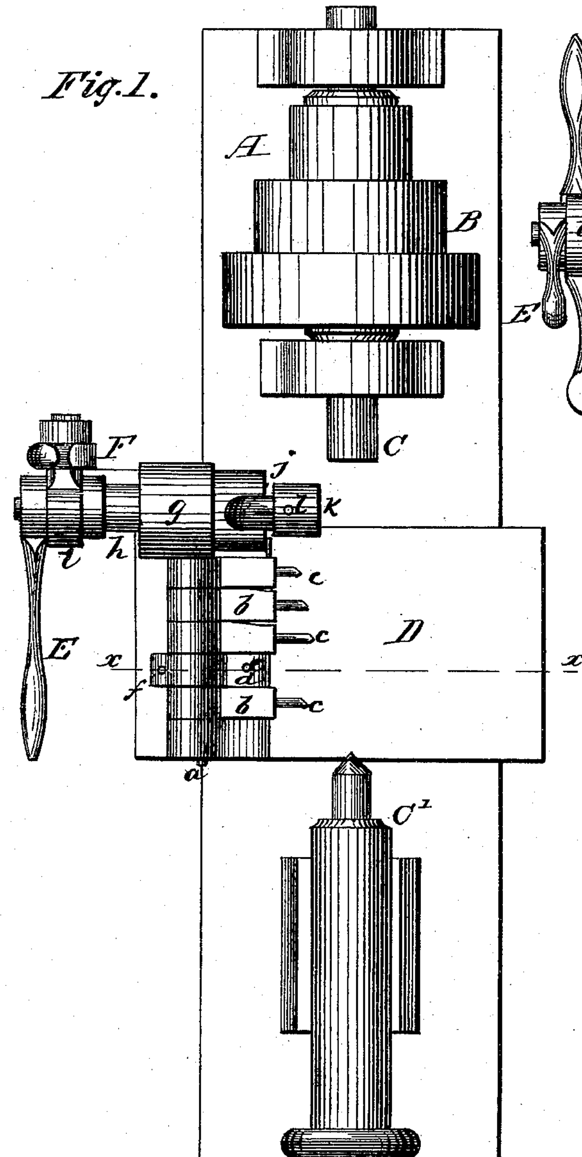


Fig. 2.

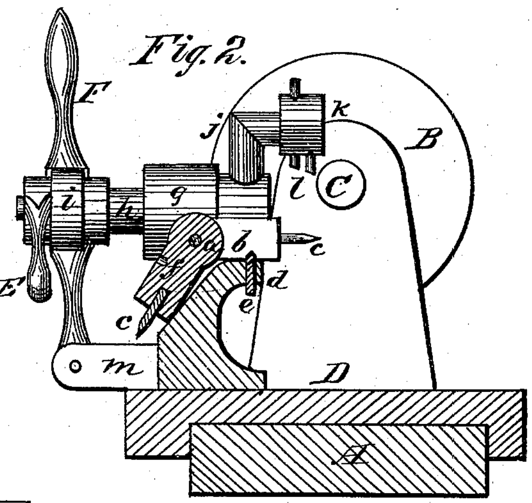
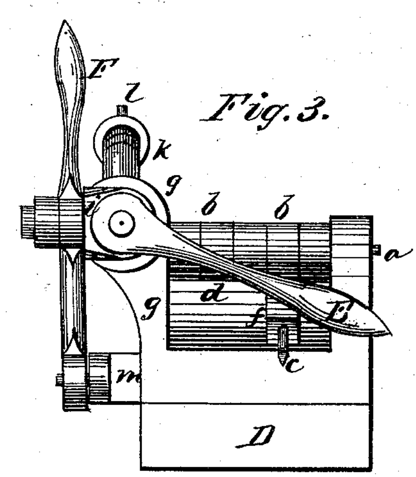


Fig. 3.



Witnesses:
E. A. West
[illegible]

Richard T. Crane
John L. Agnew
Inventors:

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

RICHARD T. CRANE AND JOHN L. AGNEW, OF CHICAGO, ILL., ASSIGNORS TO THE CRANE BROTHERS' MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN DEVICES FOR TURNING VALVE-STEMS, &c.

Specification forming part of Letters Patent No. **177,992**, dated May 30, 1876; application filed February 2, 1876.

To all whom it may concern:

Be it known that we, RICHARD T. CRANE and JOHN L. AGNEW, of the city of Chicago, Cook county, State of Illinois, have invented new and useful Improvements in Lathes, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a plan; Fig. 2, a section on line *x* of Fig. 1; Fig. 3, a front elevation of the parts therein represented.

This improvement is designed to be used in turning valve-stems and other pieces of metal which, when completed, are not uniform in size from end to end; and it consists, first, in providing a series of cutters of different lengths, hinged upon a rod or shaft, so that any desired number of them can be used at the same time, or thrown out of use; second, in devices to be used in shaping the heads of such articles.

In the drawings, A represents the bed of the lathe; B, driving-pulleys; C C′, chuck and centering-pin; D, sliding plate upon which the tool-rest is supported. All these parts are constructed and operated as usual. *a* is a rod or shaft, fixed in suitable supports, secured to D; *b b*, tool-holders, hinged upon *a*; *c*, tools or cutters, inserted in *b*, and held in place in any suitable manner. They are of different lengths, according to the work to be done by them. *d* is a rest, upon which *b b* are supported when in use; *e*, pins secured in *d* and projecting above it, to engage with holes in the under side of the holders *b*. *f* is one of the tool-holders, with its tool thrown back out of use. *g* is a bearing, supported on D. *h* is a shaft, supported in *g* and standing at right angles with the work. It can be partially rotated in *g*, and, as shown, can also be advanced and drawn back. E is a lever, secured to the outer end of *h*, by means of which it can be rotated. *i* is a collar on *h*, having a projection on one side, to which the lever F is secured, by the use of which *h* can be advanced and drawn back. The lower end of F is pivoted to a fixed bar, *m*, which is secured to D or to the standard which supports *g*. *j* is an elbow, one end of which is seeured to the inner end of *h*, while upon the other end is a head, *k*, in which are one or more cutters, *l*.

In use, the article to be turned is placed in the lathe and rotated as usual. Such of the cutters as are wanted are to be placed in position, and others are to be brought into position as required. The plate D and cutters thereto connected are to be moved along as usual. (The devices for this purpose are not represented.) Thus the different portions of the work which differ in size can be conveniently turned, and frequently different portions can be turned at the same time. Usually it will be advisable to turn and shape the head after the other portions of the work have been completed, which can be done as follows:

By means of the lever F the shaft *h* can be advanced until the cutters *l* come in contact with the head upon the work; then, by means of the lever E, the operator can turn *h* in *g*, carrying the cutters over the edge of the head, giving it a curved form. As represented, *h* is drawn back, so that the cutters *l* will not be in contact with the head. The shaft *h* might be arranged in a hinged bearing, so that it could be raised up at the inner end, to carry the cutters *l* away from the work, instead of advancing and withdrawing it, as described; and this shaft might be arranged upon the back side of the lathe, instead of in front, as shown. When *h* has been advanced so as to bring the cutters in contact with the head, it can be held there by means of a wedge or block inserted forward of *g*, or in some other suitable manner.

We use devices for advancing and adjusting the cutters *c* as may be necessary, but have not described or shown such devices, as they can be applied by any skilled mechanic.

What we claim as new, and desire to secure by Letters Patent, is as follows:

1. The series of cutter-holders *b*, hinged upon a single rod or shaft, *a*, in combination with the rest *d*, substantially as and for the purposes specified.

2. The shaft *h*, provided with a head, *k*, carrying one or more cutters, *l*, and adapted to be partially rotated in a bearing, *g*, by means of a lever, F, in combination with chuck C and center C′, substantially as and for the purposes specified.

RICHARD T. CRANE.
JOHN L. AGNEW.

Witnesses:
E. A. WEST,
O. W. BOND.