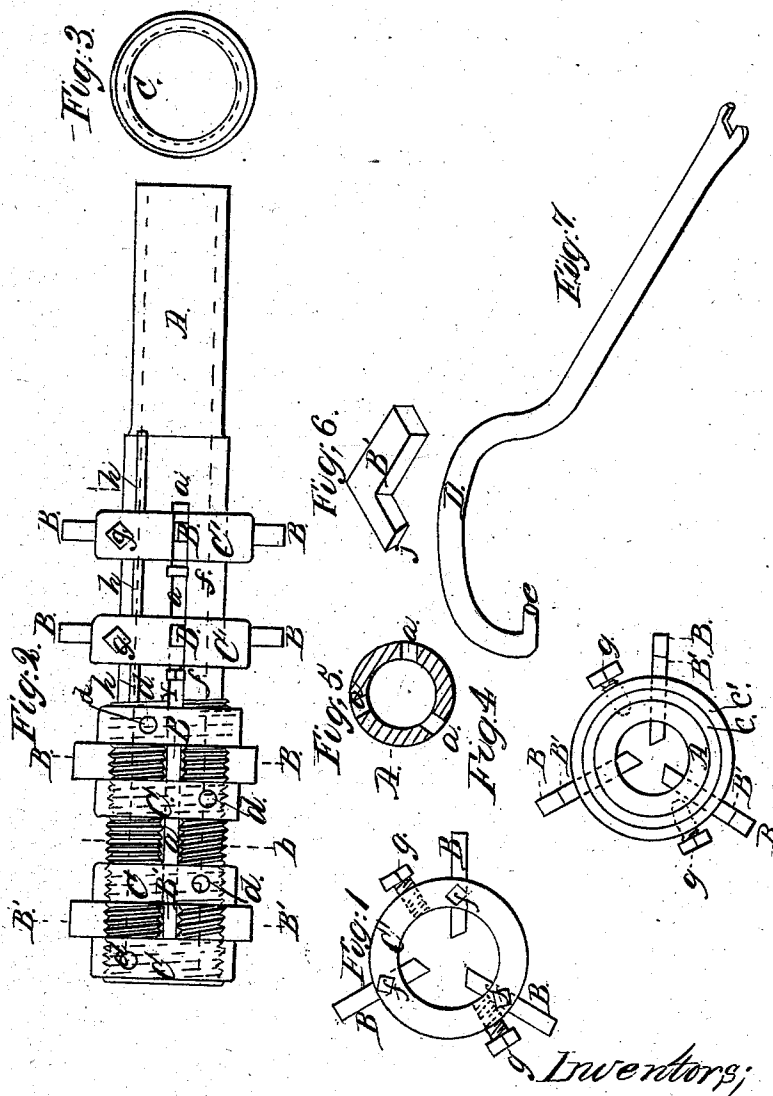


Mc Millan & Morris,

Turning Tool,

N^o 105,824.

Patented July 26, 1870



Witnesses;

*Thomas J. Bowler
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William H. McMillan

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By their Attorney
Stephen Welch*

United States Patent Office.

WILLIAM H. McMILLAN AND DAVID MORRIS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO MORRIS, TASKER & CO., OF SAME PLACE.

Letters Patent No. 105,824, dated July 26, 1870.

IMPROVEMENT IN TURNING DEVICES.

The Schedule referred to in these Letters Patent and making part of the same.

We, WILLIAM H. McMILLAN and DAVID MORRIS, of the city of Philadelphia and State of Pennsylvania, have invented certain Improvements in Turning-Tools, of which the following is a specification.

The nature of our invention consists of a tool formed of a hollow shaft, to receive rods to be turned, and around which the former is revolved by suitable mechanism, and a number of sectional cutters held between movable collars, and extending through longitudinal slots, and into the bore of the said shaft, the collars having connection with the shaft by means of screw-threads on its periphery and the bore of the former, to provide for the adjustment of the cutters, as hereinafter described.

To enable others skilled in the art to which our improvement appertains to make and use our invention, we will now give a detailed description thereof.

In the accompanying drawing which makes a part of this specification—

Figure 1 is an end view of the improved tool.

Figure 2 is a side view of the same.

Figure 3 is a side view of one of the movable collars, C.

Figure 4 is a like view of one of the collars, C', representing a modified plan of holding the cutters B.

Figure 5 is a cross-section of the cutter-shaft A at the line *x x* of fig. 2, the other parts of the tool being removed therefrom.

Figure 6 is an isometrical view of one of the cutters B.

Figure 7 is a like view of the wrench D.

Like letters in all the figures indicate the same parts.

A is a hollow shaft, which has longitudinal slots *a* to receive the radial cutters B, arranged in sets, as seen in fig. 2.

Each set of cutters B is susceptible of adjustment, so as to vary the diameter of the shaft at the respective points to be turned. They are held between the pairs of collars, C C C C, which have a longitudinal adjustment on the shaft by means of the screw-thread *b* on its periphery, and corresponding threads on the

inner periphery of the collars C, the same means serving for tightening the cutters, there being holes *d* in the outer periphery of the collars, for the connection of the pin *e* of the wrench D, shown in fig. 7.

A modified form of holding the cutters is shown in detail in figs. 2 and 4, in which they are placed in corresponding radial slots in the collars C', and held firmly by means of the screws *f*.

The inner ends of the cutters pass through the longitudinal slots *a* of the shaft A, as before explained, admitting of the longitudinal movement of the collars for the adjustment of the same.

There are screws *g* in the collars for confining them in their adjusted position on the shaft.

The ends of the screws bite in the longitudinal grooves *h* of the shaft, and thereby prevent the roughening of its periphery.

The cutters B, at the forward end of the shaft A, have a projection, *j*, as shown in detail in fig. 6, for the purpose of providing for turning at the extreme end of the tool, when circumstances require.

When such provision is not necessary, these cutters may be made of straight strips, the same as the others.

Although the tool is intended for turning the peripheries of shafts, or other solid pieces, yet it will be seen that it may be used for turning internal surfaces, by merely reversing the ends of the cutters.

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

The combination of the hollow shaft or mandrel, the cutters and the collars, the cutters being adjusted and fastened by means of the collars, substantially as set forth.

In testimony that the above is our invention, we have hereunto set our hands and affixed our seals this 7th day of May, 1870.

WILLIAM H. McMILLAN. [L. S.]
DAVID MORRIS. [L. S.]

Witnesses:

THOMAS J. BEWLEY,
STEPHEN USTICK.