

No. 734,825.

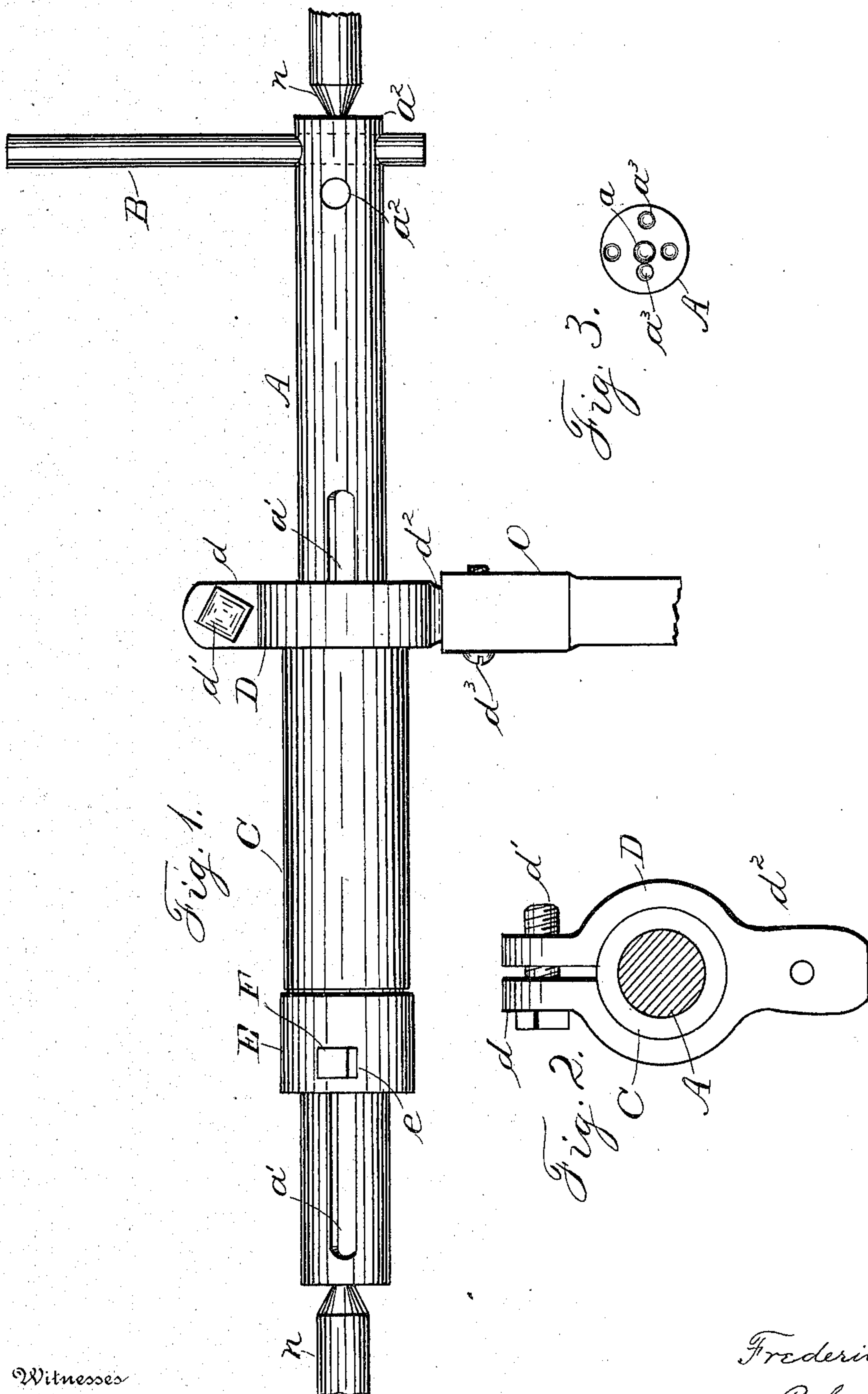
PATENTED JULY 28, 1903.

F. CROFT & R. CROFT, JR.  
BORING MACHINE.

APPLICATION FILED FEB. 4, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

H. F. Towner  
H. O. Finacom

Inventors

Frederick Croft.  
Robert Croft Jr.  
Chas. D. Swift,  
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By

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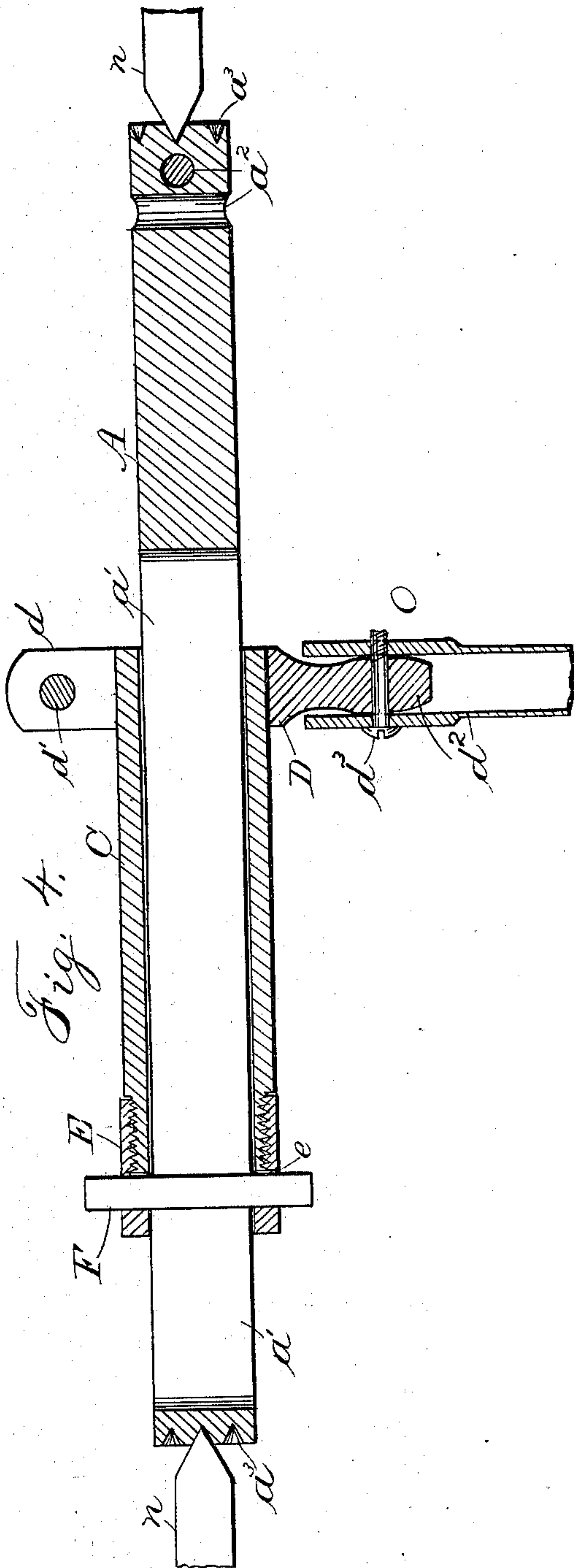
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Inventors

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Attorney



# UNITED STATES PATENT OFFICE.

FREDERICK CROFT AND ROBERT CROFT, JR., OF SALT LAKE CITY, UTAH.

## BORING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 734,825, dated July 28, 1903.

Application filed February 4, 1903. Serial No. 141,884. (No model.)

*To all whom it may concern:*

Be it known that we, FREDERICK CROFT and ROBERT CROFT, Jr., citizens of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Boring-Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to minimize or to remove altogether the difficulties encountered in boring out cylinders, ordnance, and castings generally. These difficulties are found in the liability to flexure of the boring-bar, instability of the tool-holder referable to defective construction, difficulty in adjusting and making rigid the bit or cutter, and a lack of harmony in the setting and relation of the different parts of the machine.

While the boring-bar and other parts of our machine are capable of various adaptations, they are set forth in this application in the form we prefer to use them—that is, on a lathe constructed to revolve the work or material to be bored and to feed the cutter irrevolubly into the bore of the work.

The accompanying drawings illustrate the invention, in which—

Figure 1 is a side elevation of the device; Fig. 2, a face view of the tool-holder or bar support; Fig. 3, an end of the boring-bar; Fig. 4, a longitudinal section of the boring-bar and sleeve with the bit in vertical position.

The different parts of the device are referred to by letters, similar letters denoting corresponding parts in the several views.

The letter A indicates a cylindrical boring-bar having the usual end sockets *a* for the lathe-centers *n*. A central longitudinal slot *a'* extends from about its middle to near its head, and transverse holes *a''* are formed near its opposite end for the insertion of a lever B, whose function will be presently explained.

C is a sleeve, snugly but movably holding the boring-bar. This sleeve is supported at one end by the holder D, whose jaws *d* are clamped tightly upon it by the screw-bolt *d'* and whose arm *d''* is socketed in the tool-post O and held by the screw *d'''*. This post is to be moved by a lead-screw in the usual man-

ner. The operative end of the sleeve C is exteriorly threaded to engage the interior thread of a thimble E, having transverse openings to form a bit-seat in its unthreaded portion and a direct central opening through which the boring-bar is passed. The bit F is of conventional form and when in operative position passes through the slot *a'* in the boring-bar, which, like the bar itself, is uniform in size throughout its length. It is apparent, therefore, that the sleeve and the bit are movable lengthwise of the bar to the extent of the length of the slot *a'*. The bit may be roughened or corrugated laterally, if desired, and is tightened in its seat by turning the bar A, with the lever B, in the direction of the lead of the thread in the thimble E. This movement rotates the bit and the thimble and forces the bit against the end of the sleeve by whatever pressure is applied to the lever. By this means the bit may be rendered perfectly rigid. The bit may be adapted for cutting at either one or both of its ends at once. Additional sockets *a'''* are provided in the ends of the boring-bar to engage the lathe-centers for the purpose of boring tapering holes without the use of compound rests or other lathe devices, a result which this variation of adjustment makes possible, as is too well known by those skilled in the art to require illustration or particular explanation.

It is evident that this device, whose boring-bar is reinforced and supported by a sleeve rigidly connected through the tool-holder D to the post O and with the bit held securely, possesses a rigidity which cannot be disturbed by any strain to which its proper use subjects it or be diverted in any degree when hard or soft spots or irregular metal is encountered. Its cutting power is so accurate and uniform that only one trip or cutting is ever necessary, and its construction and mode of action are so simple that it may be adjusted and operated by an apprentice as well as by a skilled mechanic.

Having now described our invention, what we claim is—

1. In a boring-machine the combination with a boring-bar having a longitudinal slot therein and a sleeve on said bar supported at one end on a transverse projection adapted to restrain the sleeve from rotary motion, of



a thimble adapted to be screwed upon its other end, transverse holes through said thimble, a bit seated in said holes and extending through said slot in the boring-bar, said thimble  
5 adapted to clamp a bit on the end of said sleeve, substantially as herein set forth.

2. In a boring-machine the combination with a boring-bar having a longitudinal slot therein and a sleeve on said bar supported at  
10 one end on a transverse projection adapted to restrain the sleeve from rotary motion, of a thimble adapted to be screwed upon its other end, transverse holes through said thimble, a

bit seated in said holes and extending through said slot in the boring-bar, said thimble  
15 adapted to clamp a bit on the end of said sleeve, and transverse holes through the outer end of said boring-bar to receive a lever for the purpose specified.

In testimony whereof we affix our signatures in presence of two witnesses.

FREDERICK CROFT.

ROBERT CROFT, JR.

Witnesses:

SADIE E. PRICE,

ANNIE BIESINGER.