

No. 654,880.

Patented July 31, 1900.

J. B. Z. DUMAIS.
THREAD CUTTING MACHINE.

(Application filed July 29, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.

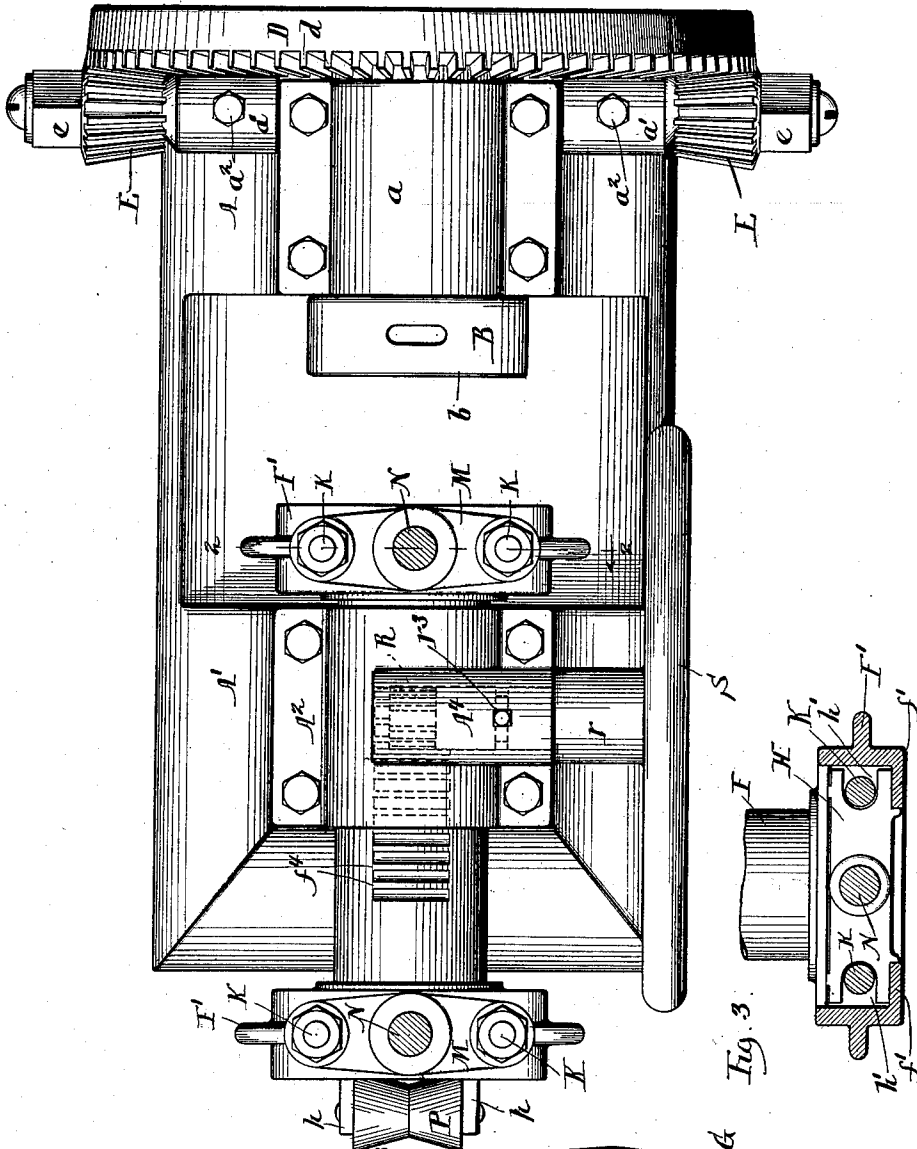


Fig. 3.

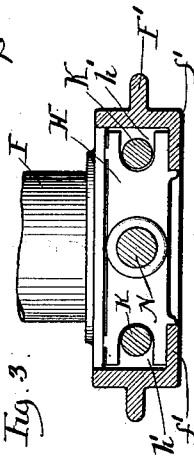
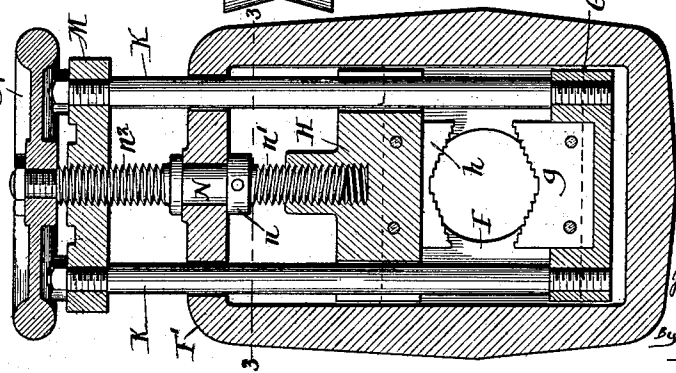


Fig. 2.



Witnesses:
F. A. Galand
Alberta Adamick

Inventor:
J. B. Z. Dumais
by Pine & Fisher
attorneys.

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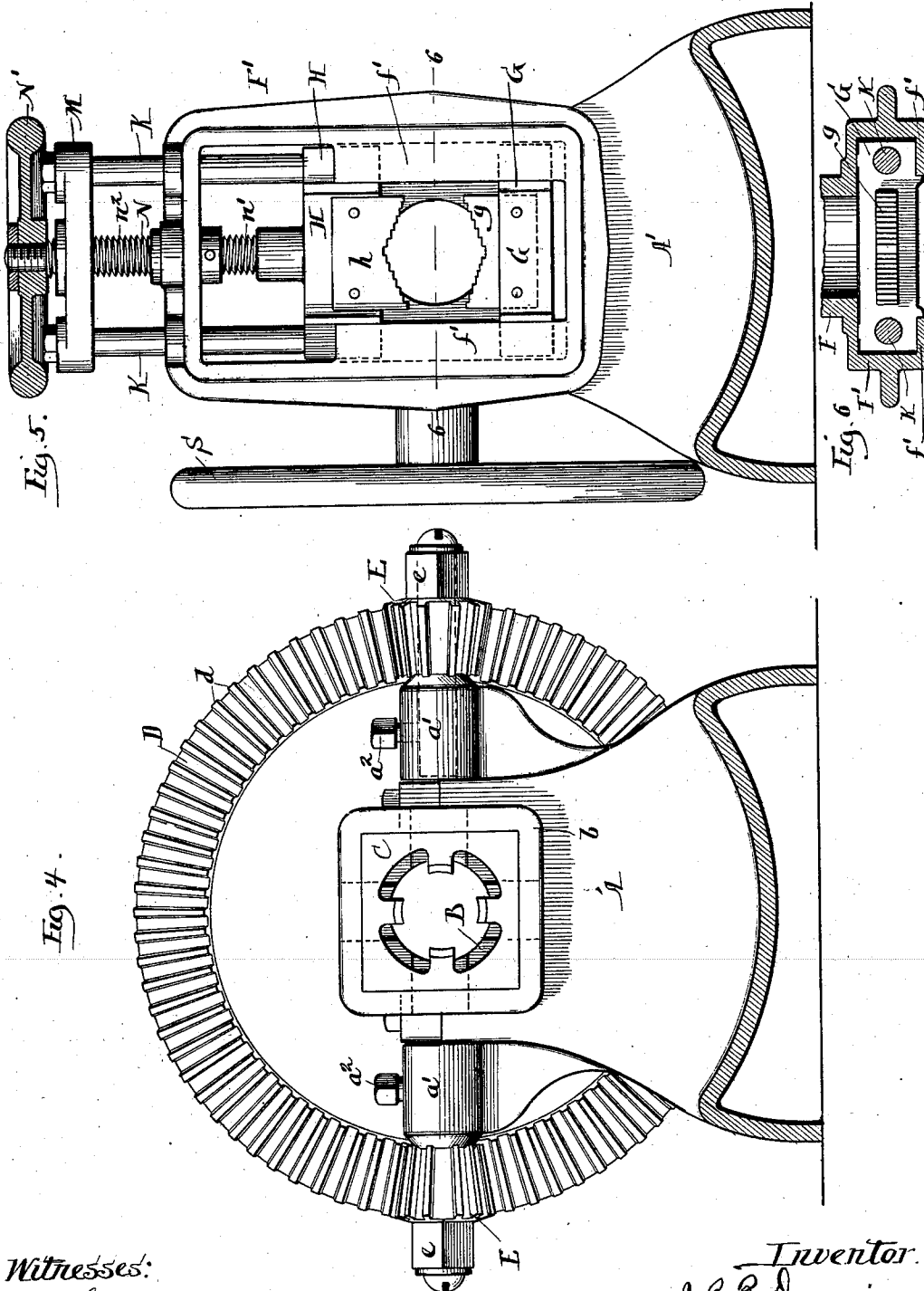
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Witnesses:
Frederick
Alberta Adamick

Inventor.
J. B. Z. Dumais
By *Perce Fisher*
Attorneys.

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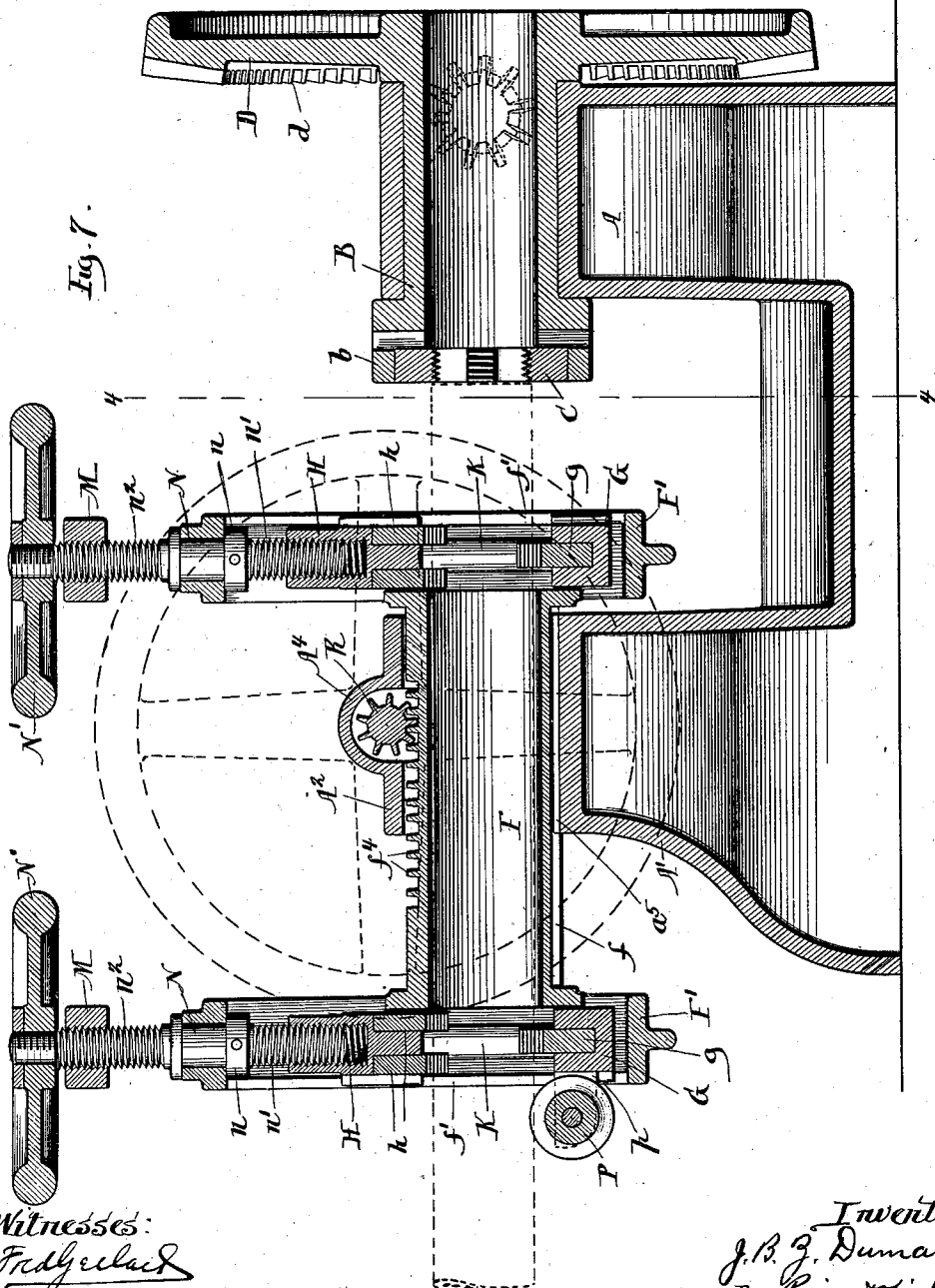
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(No Model.)

3 Sheets—Sheet 3.

Fig. 7.



Witnesses:
Fred Grellard
Alberta Adamick

Inventor:
J. B. Z. Dumais
By *Peirce & Fisher*
Attorneys.

UNITED STATES PATENT OFFICE.

JEAN B. Z. DUMAIS, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
JAMES B. GALLOWAY, OF SAME PLACE.

THREAD-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 654,880, dated July 31, 1900.

Application filed July 29, 1898. Serial No. 687,203. (No model.)

To all whom it may concern:

Be it known that I, JEAN B. Z. DUMAIS, a resident of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Thread-Cutting Machines, of which I do declare the following to be a full, clear, and exact description.

The present invention has for its object to provide improved mechanism for cutting threads of pipes, rods, or the like; and the invention consists in the features of improvement hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of this specification.

Figure 1 is a plan view of a thread-cutting machine embodying my invention. Fig. 2 is a view in vertical cross-section on line 2 2 of Fig. 1. Fig. 3 is a view in cross-section on line 3 3 of Fig. 2. Fig. 4 is a view in vertical cross-section on line 4 4 of Fig. 7 looking toward the die-holder. Fig. 5 is a view in vertical cross-section on line 4 4 of Fig. 7 looking toward the work-holder, parts being shown in section. Fig. 6 is a detail view, in horizontal section, of one end of the work-holder, the section being taken on line 6 6 of Fig. 5. Fig. 7 is a view in central vertical longitudinal section through the machine.

The base of the machine is shown as a single casting having at one end a support A for the revoluble die-holder and having at its opposite end the raised support A', whereon the work-holder is mounted in a manner free to move toward and from the die-holder. The top of the support A is formed with a concave seat which, with the cap *a*, forms the bearing, wherein is revolubly mounted the die-holder B. The die-holder B is open from end to end and at its inner end is formed with a head *b* to receive a suitable die or cutter, while at its outer end the die-holder carries a beveled gear-wheel D, whereby revolution is imparted to the die-holder. With the teeth *d* of the gear-wheel D mesh the beveled pinions E, journaled upon stud-axes (see dotted lines, Fig. 4) held by set-screws *a*² in the brackets *a*¹, projecting from each side of the die-holding support A. The heads *e* of the pinions E are suitably formed to receive a crank-handle by means of which revo-

lution will be imparted to the pinions E, to the gear-wheel D, and to the die-holder B.

The upper portion of the support A' is formed with a concave seat, whereon rests the work-holder F, the upper part of the work-holder being closed by a cap-plate A², bolted to the support A'. (See Fig. 1.) Preferably the lower part of the body of the work-holder F is formed with a longitudinal groove *f*, adapted to receive a guide-rib *a*⁵, projecting from the seat at the top of the support A'. (See Fig. 7.) The body of the work-holder F comprises an open-ended cylinder, at the ends of which are carried the vises that serve to securely hold the pipe or rod during the threading operation. In the preferred form of the invention the ends of the work-holder F are formed with yokes or frames F', each of which serves to carry a vise. As shown, each of the yokes or frames F' has its outer face formed with guide-ribs *f*¹, between which and the adjacent end of the work-holder F are mounted the cross-heads G and H, that serve, respectively, to carry the jaws *g* and *h* of the vise.

In the top of each yoke or frame F' are formed two openings, through which pass the rods K. The bodies of the rods K pass freely through openings *h*¹, formed at the ends of the cross-head H, the lower ends of the rods K being connected to the cross-head G, while the upper ends of these rods are connected to the cross-bar M at a point above the yoke or frame F'. Within a suitable hole formed in the top of each yoke or frame F' is revolubly mounted the screw-shaft N, this shaft being held in position with respect to the yoke or frame F' by a suitable collar *n*. The screw-shaft N has its ends oppositely threaded, the lower threaded end *n*¹ of the shaft engaging a correspondingly-threaded socket formed in the cross-head H, while the upper threaded end *n*² of the screw-shaft engages a correspondingly-threaded opening formed in the cross-bar M. To the upper end of the screw-shaft N is fitted a hand-wheel N', whereby the shaft will be operated.

From the foregoing description it will be seen that when the pipe to be threaded is passed through the open-ended work-holder F and between the jaws of the vises at the

ends thereof the operator, by turning the hand-wheels N' of the vises, will, by reason of the reverse threading of the screw-shaft N, cause the cross-heads H to move downward and the cross-heads G to move upward, thereby bringing the jaws *g* and *h* into firm engagement with the periphery of the pipe, the serrated edges of the jaws *g* and *h* serving to prevent the turning of the pipe within the jaws. In order to guard the lower jaw at the outer end of the work-holder from wear as the pipe or rod is placed in position, I provide the lower cross-head G at the outer end of the work-holder with a friction-roller P, conveniently supported by the arms *p*, projecting outwardly from the cross-head G. In order to advance the pipe or rod to be threaded to the action of the revoluble die or cutter C, rack-and-pinion mechanism is preferably employed, and in the preferred embodiment of the invention the upper portion of the work-holder F is formed with rack-teeth *f*⁴, with which will engage a pinion R, carried by or formed upon a shaft *r*, (see dotted lines, Fig. 1,) that is journaled within an extension or enlargement A⁴, formed at the top of cap-plate A². The shaft *r* is formed with an annular groove adapted to receive the end of a bolt *r*³, that serves to guard the shaft against longitudinal displacement, and upon the outer end of the shaft *r* is fixed a hand-wheel S, whereby the reciprocation of the work-holder F is effected.

From the foregoing description it will be seen that when the pipe or rod to be threaded has been passed through the body of the work-holder F and has been clamped with the vises at the ends thereof the operator will, by means of the hand-wheel S, advance the pipe or rod toward the die-holder and die, to which revolution will be imparted through the medium of the pinions E and gear-wheel D. As the die cuts the thread at the end of the pipe or rod it will pass into the open-ended die-holder B, and by shifting the work-holder backward upon the pipe or rod it will be seen that any desired length of thread may be cut upon its surface.

My improved work-holder affords a most efficient means for securely clamping the pipe or rod during the threading operation, and by the employment of the open-ended die-holder the necessity of shifting the die during the threading operation is avoided.

While I have described what I regard as the preferred embodiment of my invention, it is manifest that the details of construction above set out may be varied by the skilled mechanic without departure from the spirit of the invention and that features of my invention may be employed without its adoption as an entirety.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In apparatus of the character described, the combination with a supporting-base, of an open-ended die-holder revolubly mounted upon one end of said base, an open-ended work-holder mounted upon the opposite end of said support in line with said die-holder, means for holding said work-holder against revoluble movement, means for longitudinally moving the same, and vises at each of the opposite open ends of said work-holder, each of said vises comprising oppositely-disposed movable jaws and a reversely-threaded shaft connected to each set of jaws for operating the same to hold the work in axial alinement with said revoluble die-holder.

2. In apparatus of the character described, the combination with a supporting-base, of an open-ended die-holder revolubly mounted in a bearing at one end of said supporting-base, said die-holder provided with a gear and pinions for revolving the same, a cylindrical open-ended work-holder keyed in a bearing at the opposite end of said supporting-base and provided with a rack, an operating hand-wheel and pinion engaging said rack for longitudinally moving said work-holder, vises at the opposite open ends of said work-holder, each having a pair of oppositely-disposed movable jaws and each provided with an oppositely-threaded shaft and hand-wheel therefor suitably connected to each of the jaws, and a supporting-roll arranged adjacent the lower jaw of the outer vise.

3. In apparatus of the character described, the combination with a supporting-base, of an open-ended die-holder revolubly mounted on one end of said base, an open-ended work-holder keyed to the opposite end of said support in line with said die-holder, means for longitudinally moving said work-holder, and vises at the opposite open ends thereof, each of said vises mounted in a yoke or frame attached to said work-holder and comprising movable cross-heads and jaws thereon carried by said yoke or frame, rods connecting with one of said cross-heads at its ends, the cross-bar connecting opposite ends of said rods, and a reversely-threaded shaft carried by said yoke or frame, one section of said screw-threaded screw-shaft engaging said cross-bar and the other section engaging the opposite cross-head, and means for operating the screw-shaft of each of said vises to shift the jaws, whereby the work is held in axial alinement with said revoluble die-holder.

JEAN B. Z. DUMAIS.

Witnesses:

GEO. P. FISHER, Jr.,
ALBERTA ADAMICK.