J. H. VINTON.

Screw-Cutting Dies and Holders.

No. 208,870. Patented Oct. 8, 1878.

Fig. 1.

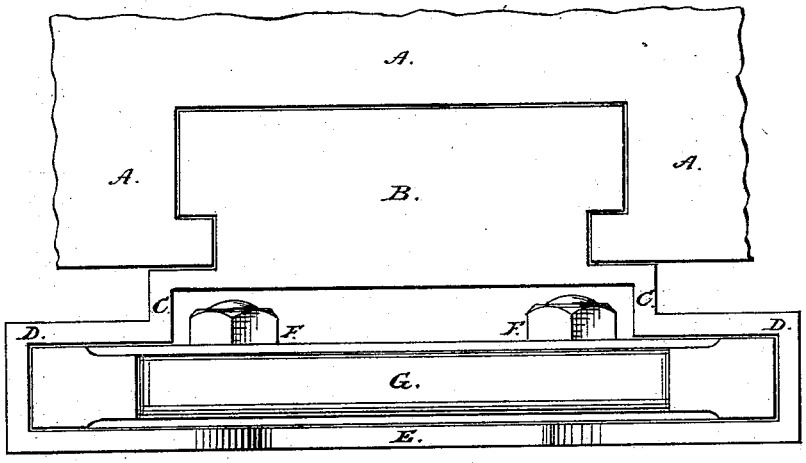


Fig. 2

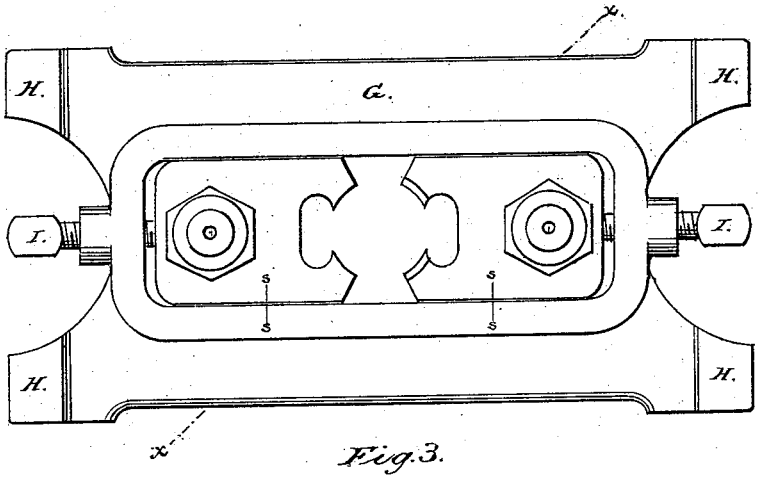
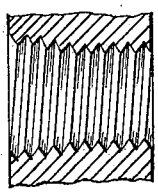


Fig. 3.



Witnesses;
John Tyler
M Gardner

Inventor;
J. H. Vinton
By atty Thos Curtis Jr

UNITED STATES PATENT OFFICE.

JOHN H. VINTON, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO FRANK ARMSTRONG, OF SAME PLACE.

IMPROVEMENT IN SCREW-CUTTING DIES AND HOLDERS.

Specification forming part of Letters Patent No. **208,870**, dated October 8, 1878; application filed August 13, 1878.

To all whom it may concern:

Be it known that I, JOHN H. VINTON, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Pipe-Cutting Dies and Holders; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention relates to certain improvements in the construction of pipe-cutting dies and plates, and their application to pipe-cutting machines.

It has for its object to so form the cutting-dies that they shall readily grasp the end of the pipe and lead the same with facility; and it also has for its object to so form the plate and plate-holder that the former shall be firmly held in position while the latter shall be capable of connection with pipe-cutting machines as at present made for the reception of solid dies.

Previous to my invention dies for cutting threads upon pipes have usually been made solid, and in some cases in parts; but in all cases the threads are cut on a gradual taper, and in order to facilitate the entrance of the pipe to be cut the initial portion of the thread is usually cut with an increased taper by shaving off the point or crown thereof, leaving practically flat threads, which shave off the excess of metal from the end of the pipe before the subsequent cutting-threads of the dies cut or form the holding-threads on the pipe. By this construction great power is necessary to induce the flat threads to perform their work, and they do not lead the pipe to the subsequent cutting-threads. One part of my invention is designed to overcome this disadvantage; and consists in forming the dies with a thread having a double taper, and of equal depth and pitch from end to end, as will be hereinafter more fully explained.

Prior to my invention it has been customary to use solid or non-adjustable dies with pipe-cutting machines, and the heads of all such machines have been made and adapted to receive such dies, so that adjustable dies, which are necessarily longer than the solid dies, could not be fitted into the head of the machines.

Another feature of my invention relates to so forming the plate or die holder that it may be readily secured within a suitable independent head of greater length than the machine-head, and so forming the die-plate holder that it in turn may be readily attached to the standard machines as at present used; and my invention, therefore, further consists in a die-plate for adjustable dies formed with lugs or extensions on each side of the adjusting-screws, extending longitudinally beyond said screws, so that when placed in a rectangular holder the said lugs will hold the die-plate against turning, and at the same time protect the adjusting-screws against accidental movement.

In order that those skilled may make and use my invention, I will proceed to describe the same, referring by letters to the accompanying drawing, in which—

Figure 1 is a top or plan view of my invention as applied to the head of a pipe-cutting machine. Fig. 2 is a rear side elevation of the die-plate and dies; and Fig. 3 is a cross-section of the threads of the cutting-dies, taken through line *x x*, Fig. 2.

Similar letters indicate like parts in the several figures.

A represents the head of an ordinary pipe-cutting machine, formed with a rectangular vertical recess adapted to receive the ordinary solid dies, which are usually of the same size as said recess; but where smaller solid dies are used, a rectangular box or bushing is sometimes employed.

B is my improved cast-iron box or die-plate holder, the rear portion of which is formed so as to enter the recess in the head of the machine. Projecting forward, it is extended laterally, as seen at C C, and again extended laterally, as seen at D D, then forward and returned toward the center, leaving a central opening, E, for the passage of the pipe. By this form and construction a recess is formed for the securing-nuts F of the die-plate, (which, in the manner of securing the dies adjustably, is preferably such as described in Letters Patent to Horace Griffing, dated April 6, 1875,)

and a front recess is also formed for the reception of the die-plate G, the ends of which are projected to form lugs, which, when the die-plate is in position, lie adjacent to and in the same plane with the ends of the box or receptacle. These lugs H, it will be seen, extend a distance not less than the length of the die-adjusting screws I, and any tendency of the die-plate to turn is prevented by the contact of said lugs with the box, while they at the same time protect the adjusting-screws from accidental movement.

It will be observed that by the peculiar formation of the box or receptacle B, dies and die-plates longer than the head of the standard machines may be used; and as the die-plate box or holder extends forward, a very short piece of pipe may be operated upon by the dies. The thickness of the front of the box in a working machine being only about one-quarter of an inch, the pipe-holder may approach to within that distance of the first thread of the cutting-dies.

By reference to Fig. 3 of the drawing, it will be seen that the thread of the dies is of a uniform depth and pitch throughout its whole extent, and that it is cut on two different tapers, the initial or front portion of the thread having a greater taper than the remaining portion, the advantage of this construction being that the teeth or thread of greatest taper permit the introduction of the end of the pipe, (which is usually enlarged or "burred" by the machine which cuts it into sections,) which, by reason of the perfect angular form of the thread, immediately grasps the pipe, and, while reducing or cutting away the excess of metal, also leads the pipe to the subsequent thread or cutter of less taper, which cuts it to the required gage, in contradistinction to the present double taper, which is simply a reduction of the height of the thread, which produces a flat surface that shaves off the excess of metal from the pipe, but does not take hold of the same to lead it to the remaining cutters or threads.

It is especially desirable that the die should have a double taper where the pipe upon which the threads are to be cut has a limited projection from the chuck or holder, as the greatest taper quickly embraces and removes the burr, while the smaller taper cuts the desired number of threads before coming in contact with the chuck or holder. In this respect it differs from a single or uniform taper die, whose length has to be increased in proportion to the diameter of the burr on the pipe end.

By my improved form of cutting-thread I am also enabled to remove the excess of metal at the end of the pipe with much less power, and when it is desirable to remove the pipe from the cutter it is much sooner relieved from strain or pressure.

My improved dies are formed by first making the die in a single piece and completing the double-taper cutting-thread, and then subsequently cutting the die apart, in contradistinction to the present process, which consists in forming a regular taper, cutting apart of the die, and subsequently reaming out one portion of the taper to increase the same, and then sharpening the cutting front or final portion of the thread.

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

1. The dies formed with the cutting-thread having a uniform depth and pitch from end to end, and with a double taper, substantially as and for the purposes hereinbefore set forth.

2. The die-plate G, made of a single piece, and having its ends extended at the four corners beyond the plane occupied by the head of the adjusting-screws, to form lugs H, which shall serve to maintain the plate against movement when in a die-box, and at the same time guard the adjusting-screws against accidental movement, as hereinbefore set forth.

3. The die-box B, adapted to enter the die-recess in the head of a pipe-cutting machine, and extended forward and laterally to form a receptacle for a die and die-plate, substantially as hereinbefore set forth.

Witness my hand and seal this 25th day of July, A. D. 1878.

JOHN H. VINTON. [L. S.]

In presence of—

WM. C. MCINTIRE,

THEO. COURTRIGHT.