3 Sheets--Sheet 1.

C. E. HAYNES.

Tools for Cutting Pipes.

No. 135,644. Patented Feb. 11, 1873.

Fig: 1.

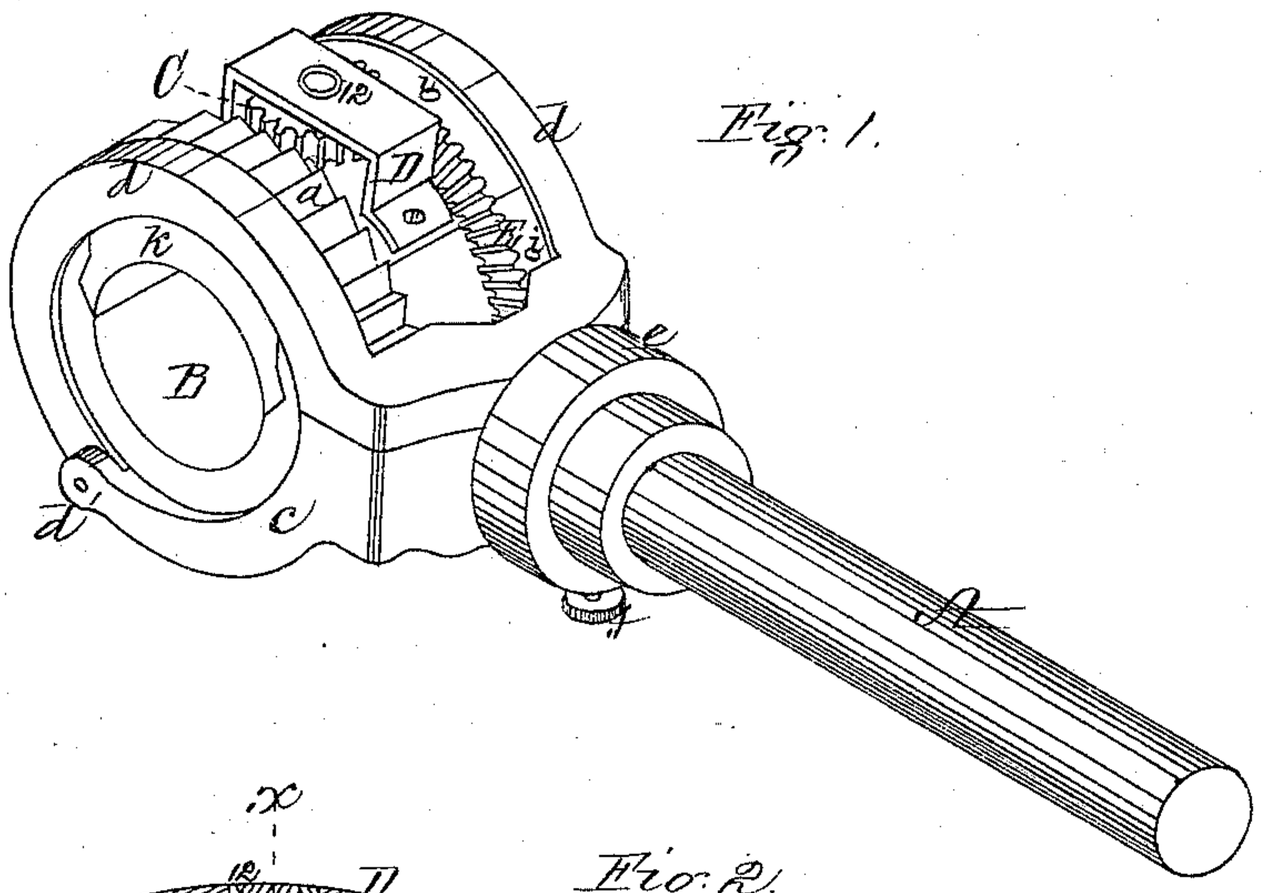


Fig: 2.

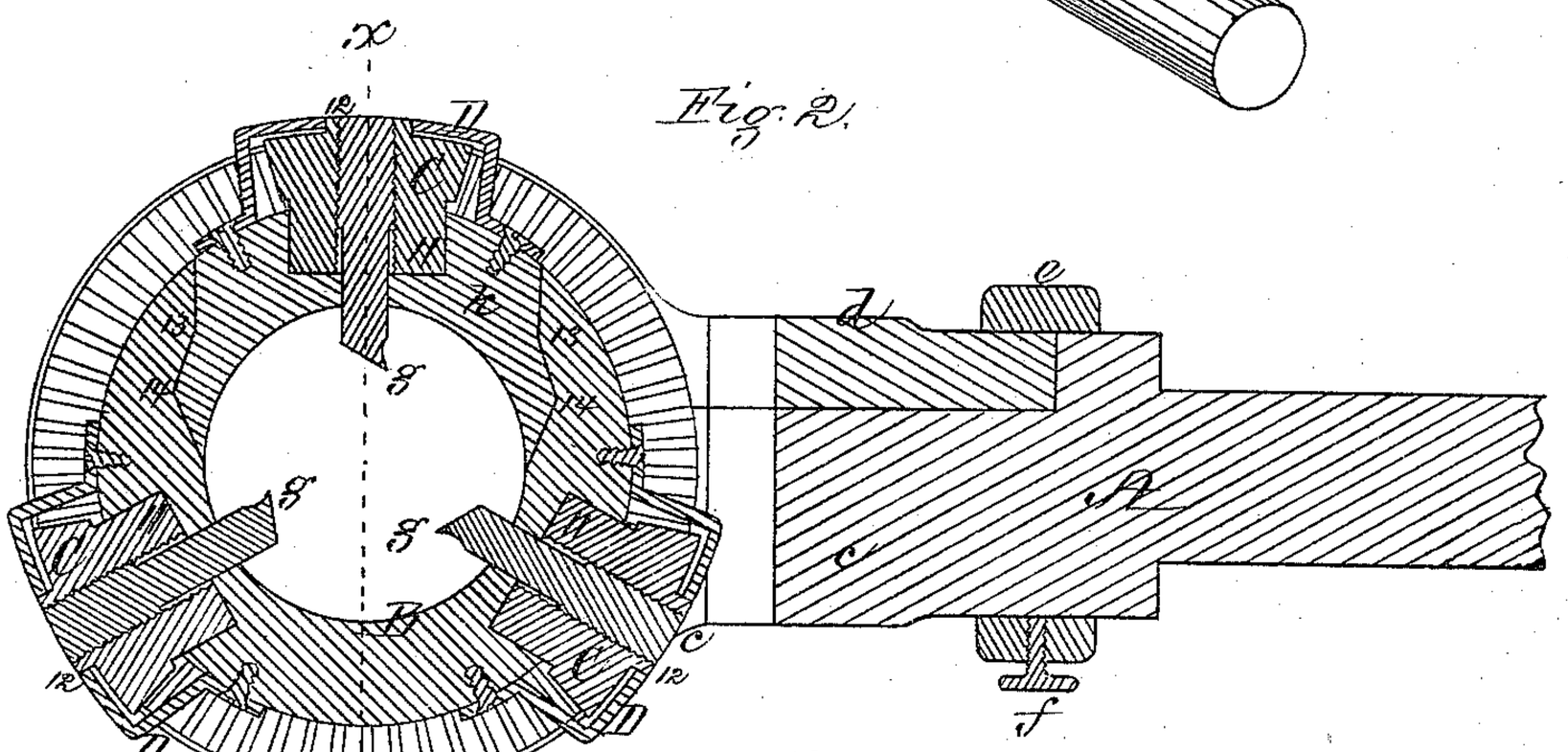
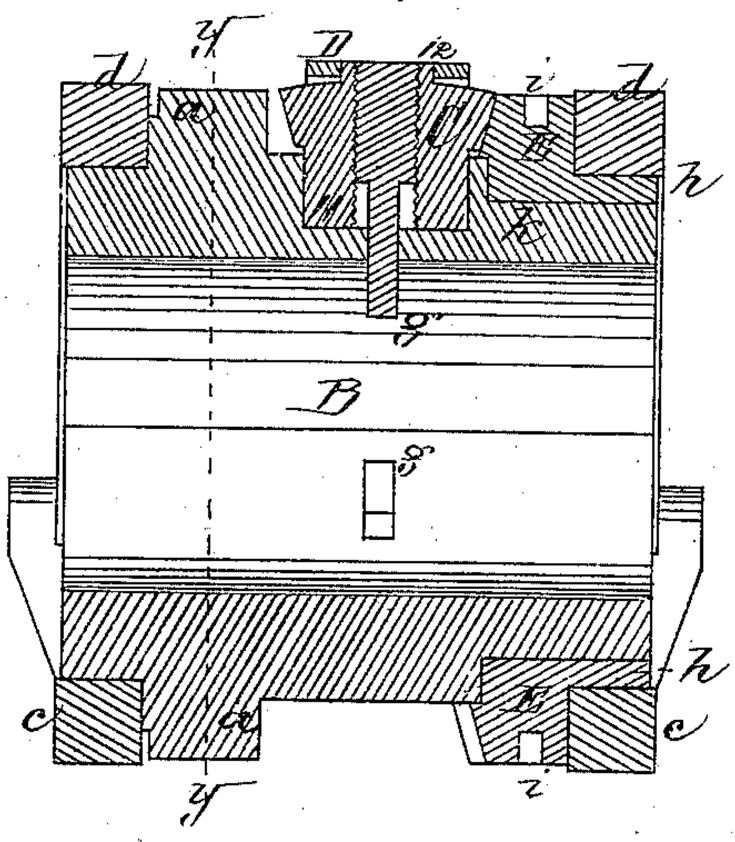


Fig: 3



Witnesses,
W. W. Stearns
W. J. Cambridge

Inventor,
Cornelius E. Haynes

3 Sheets--Sheet 2.

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Fig. 4.

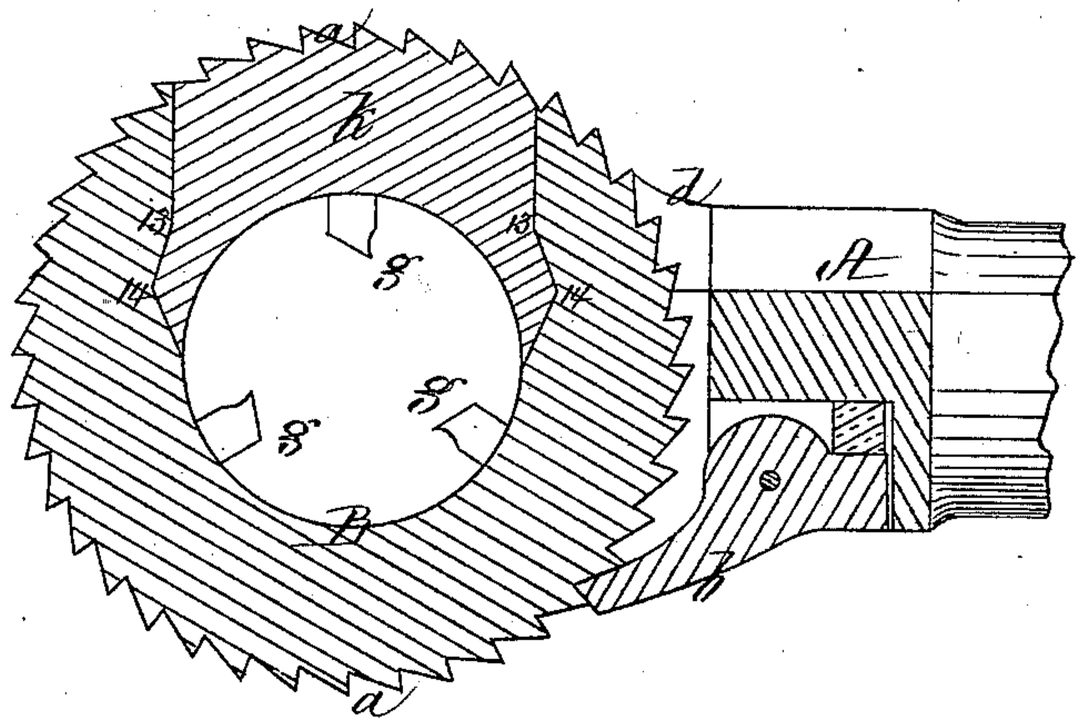
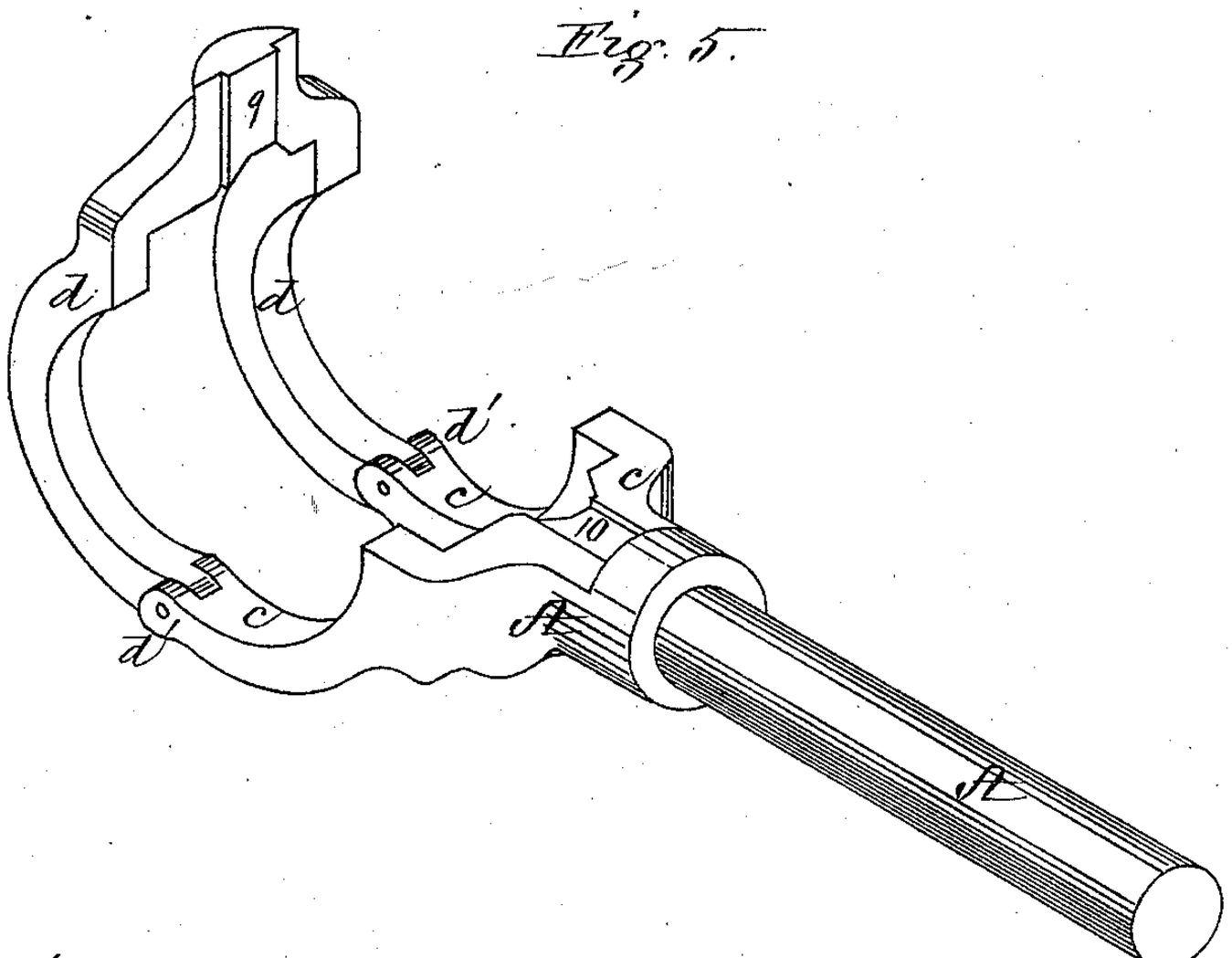


Fig. 5.



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3 Sheets--Sheet 3.

C. E. HAYNES.

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Fig. 6.

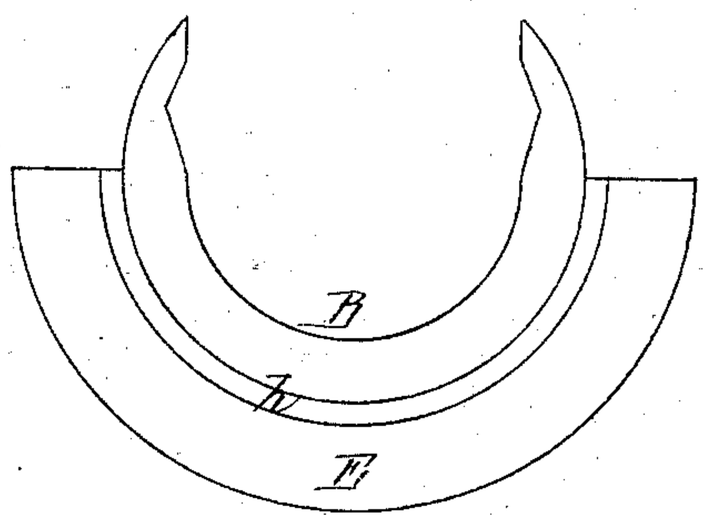


Fig. 7.

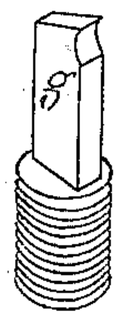
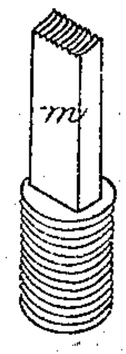


Fig. 8.



Witnesses,
N. W. Stearns
W. J. Cambridge

Inventor,
Cornelius E. Haynes

UNITED STATES PATENT OFFICE.

CORNELIUS E. HAYNES, OF BOSTON, ASSIGNOR TO HIMSELF AND ISAAC GARDNER, 2D, OF HINGHAM, MASSACHUSETTS.

IMPROVEMENT IN TOOLS FOR CUTTING PIPES.

Specification forming part of Letters Patent No. **135,644**, dated February 11, 1873.

To all whom it may concern:

Be it known that I, CORNELIUS E. HAYNES, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Tool for Cutting Pipes and forming screw-threads thereon, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a perspective view of my improved tool. Fig. 2 is a longitudinal vertical section through the center of the same. Fig. 3 is a transverse vertical section on the line *x x* of Fig. 2. Fig. 4 is a vertical section on the line *y y* of Fig. 3. Fig. 5 is a view of the hand-lever or holder open. Fig. 6 is an end elevation of the main portion of the cylinder, the removable portion being taken out. Fig. 7 is a view of one of the cutters. Fig. 8 is a view of one of the dies for cutting screw-threads.

Pipe-cutters as heretofore constructed have been objectionable for the reason that when a pipe to be cut was situated near a wall or other stationary object it became necessary to move or take down the pipe in order to obtain sufficient space to swing the lever or handle of the cutter. My invention has for its object to overcome this difficulty; and consists in a removable ring or cylinder, which contains the cutters for severing the pipe or dies for cutting screw-threads thereon, and is placed within the bifurcated end of a hand-lever or holder, by which it is revolved by means of a ratchet and pawl, the cutters or dies being caused to advance toward or recede from the center of the cylinder by suitable mechanism, by which construction I am enabled to place the tool upon a pipe when situated in close proximity to a wall or other stationary object, and by means of the ratchet and pawl the cylinder, with its cutters or dies, can be operated with a very slight motion of the lever or handle, and the necessity of taking down or disturbing the pipe consequently avoided.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawing, A represents a hand-lever, which is bifurcated and enlarged at one end so as to encircle the extremities of a cylinder, B, which is provided with a ratchet-wheel, *a*, with which engages a pawl, *b*, Fig. 4, attached to the lever A, by which means the cylinder is rotated as the hand-lever is vibrated. The enlarged end of the lever, which holds the cylinder B, consists of a stationary portion, *c*, and a movable portion, *d*, hinged thereto at *d'*, the two portions being held together by a sliding ring or clamp, *e*, Figs. 1 and 2, which is prevented from slipping when in place by a set-screw, *f*. The portion *d* is provided with a tenon or projection, 9, which fits into a corresponding groove, 10, in the portion *c*, by which device the parts are held firmly in their proper position. This construction admits of the cylinder being readily taken out of its holder and replaced when required. *g g g* are three cutters, (one of which is seen detached in Fig. 7,) which project out from the interior of the cylinder B. The shank of each cutter *g* is provided with a screw-thread, which fits a corresponding thread in an opening formed through the center of a beveled gear, C. Each of the gears C is provided with a cylindrical portion, 11, which fits into a corresponding recess in the cylinder, and a gudgeon, 12, which revolves in an opening or bearing in a bent strap, D, fitted over the gear and secured at each end to the cylinder B. The gears C are simultaneously revolved, so as to cause the cutters *g* to be advanced or fed toward the center of the cylinder as the work proceeds, by a toothed ring, E, which is formed in two parts and surrounds the cylinder B, this ring being held in place by a flange, *h*, which projects out horizontally therefrom between the end of the cylinder and its holder. The ring E is turned upon the cylinder B by a pin having its end fitted into one of the holes *i*, or in any other suitable manner. A portion, *k*, of the cylinder B, with its gear C and cutter *g*, is made removable so as to admit of the cylinder being placed around a pipe without the necessity of slipping it over the end thereof, and to allow of this being done the toothed ring E is made in two pieces, as above described. The portion *k* is made to slide longitudinally into the main portion of the cylinder, the form of the joint on each side from 13 to 14 being such as to insure its being held firmly in place.

In applying the tool to a pipe the cylinder

may be removed from the holder, or the holder merely thrown open and the upper half of the toothed ring E and the portion *k* of the cylinder removed, and after the tool is in position on the pipe the parts are again returned to their original position, as seen in Fig. 1, when, by vibrating the handle, the pipe will be severed as required. The cutters *g* can be removed and replaced by dies *m*, Fig. 8, for cutting screw-threads, and by turning the bevel-gears C by means of the ring E the dies *m* may be made to advance toward or recede from the center of the cylinder, and their distance from each other can thus be adjusted for cutting screw-threads upon pipes of different diameters; or the cylinder with the cutters *g* may be removed, and a separate cylinder having the screw-dies *m* applied thereto may be placed within the holder, if preferred.

By means of the above-described tool I am enabled to cut off a pipe or cut a screw-thread thereon when it is situated in close proximity to a wall or other stationary object, only sufficient space being required to enable the tool to be clasped around the pipe; and as the hand-lever A only needs to be slightly vibrated to operate the cutters or dies, instead of turned entirely around the pipe, as heretofore, my improved tool will be found extremely convenient for use in narrow or confined positions, and the necessity of taking down or disturbing the pipe to be operated upon is entirely avoided.

Claim.

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

1. The cylinder B, with its cutters *g* or screw-dies *m*, and ratchet-wheel *a*, in combination with the hand-lever or holder A and pawl *b*, by which it is revolved, operating substantially in the manner and for the purpose described.

2. The cylinder B, constructed with a removable portion, *k*, in combination with the cutters *g* or screw-dies *m*, substantially as and for the purpose set forth.

3. The toothed ring E on the cylinder B, in combination with the gears C and cutters *g* or screw-dies *m*, so arranged that the revolution of the ring upon the cylinder will cause the cutters or dies to advance or recede, substantially as and for the purpose described.

4. The hand-lever or holder A, with its stationary portion *c* and movable portion *d* hinged thereto, in combination with the clamping-ring *e*, substantially as and for the purpose described.

Witness my hand this 5th day of August, A. D. 1872.

CORNELIUS E. HAYNES.

In presence of—
N. W. STEARNS,
W. J. CAMBRIDGE.