

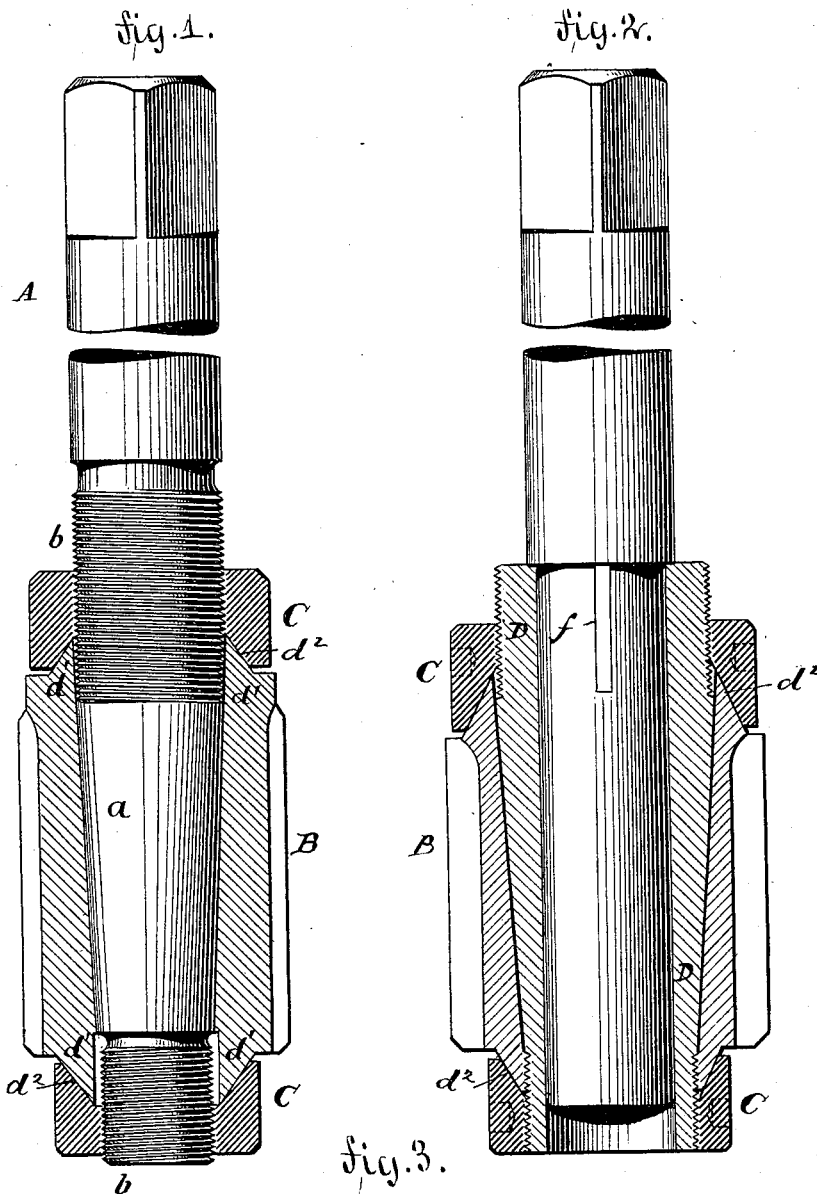
(No Model.)

T. H. MÜLLER.

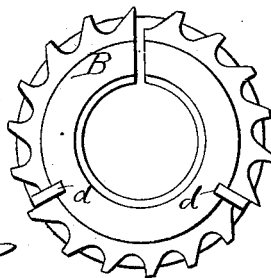
REAMER.

No. 346,214.

Patented July 27, 1886.



WITNESSES:
F. W. Rosenbaum
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INVENTOR
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UNITED STATES PATENT OFFICE.

TEILE H. MÜLLER, OF NEW YORK, N. Y.

REAMER.

SPECIFICATION forming part of Letters Patent No. 346,214, dated July 27, 1886.

Application filed April 22, 1886. Serial No. 199,727. (No model.)

To all whom it may concern:

Be it known that I, TEILE H. MÜLLER, of the city, county, and State of New York, have invented certain new and useful Improvements in Expanding Reamers, of which the following is a specification.

This invention relates to an improved reamer that can be expanded on its mandrel when worn out, and reset after grinding, whereby it can be used for a greater length of time; and the invention consists of the combination of a mandrel having a conical end, a longitudinally-split shell-reamer that is fitted to the conical end of the mandrel, and nuts fitted on threaded cylindrical portions of the mandrel and provided with tapering or cupped recesses for engaging the tapering ends of the split reamer. The split shell-reamer is provided with radial recesses of greater depth than its teeth, by which it is rendered less rigid, so as to expand on the conical end of the mandrel when reset thereon after grinding.

In the accompanying drawings, Figure 1 represents a sectional elevation of my improved expanding reamer. Fig. 2 is a sectional elevation of a larger size of reamer, and Fig. 3 is an end view of the reaming-tool detached from the mandrel.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a mandrel, which is arranged with a conically-tapering portion, *a*, at the end, and provided at both ends of the conical portion with threaded cylindrical portions *b b*, that have, respectively, a right and a left screw-thread.

The shell-reamer B is made of tool-steel and split longitudinally, its inner surface being made conical, so as to fit on the end *a* of the mandrel A. Besides the longitudinal slit of the shell-reamer B, the same is provided at two or more points with radial recesses *d d*, of greater depth than its teeth, by which the shell-reamer is rendered less rigid, so as to adjust itself by expansion to the conical end *a* of the mandrel A when reset thereon after grinding. The ends of the shell-reamer B are beveled, the beveled ends *d' d'* being engaged by screw-nuts C C, that are provided with tapering or cupped nut-recesses *e' e'*, fitting over the tapering ends *d' d'* of the reamer B. The nuts C C are adjusted by a wrench, while in the larger sizes of reamers they are provided with socket-holes at their circumference,

as shown in Fig. 2, for inserting a spanner-wrench, by which they are readily adjusted on the threaded portions *b b* of the mandrel for engaging the beveled ends of the shell-reamer B. For larger sizes of reamers the shell B is applied to an interposed sleeve, D, which is attached by a key, *f*, to the cylindrical end of the mandrel A, as shown in Fig. 2. The sleeve D is made of cast-iron, and serves to save steel in making the shell-reamer D, and to render the latter lighter and less rigid. The sleeve D forms a part of the mandrel, and is provided with a conically-tapering part, *a*, and cylindrical screw-threaded ends *b b*, in the same manner as the mandrel A. When the reamer is worn out, it is sharpened and then adjusted forward on the conical portion of the mandrel, and reset by tightening the nuts C C onto the beveled ends of the split shell B. The split reamer B expands thereby and resumes its former diameter, it being again sharpened when worn out, and reset, and so on, it readjusting itself readily by expansion, so as to save considerable in stock, time, and labor.

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

1. The combination of a mandrel having a conically-tapering end portion, a longitudinally-split shell-reamer fitted to said conical portion, and screw-nuts for adjusting the reamer on said mandrel, substantially as set forth.

2. The combination of a mandrel having a conically-tapering end portion and cylindrical screw-threaded parts at both ends of the conical portion, a longitudinally-split shell-reamer fitted to the conical portion and having beveled ends, and screw-nuts having tapering or cupped recesses for engaging the beveled ends of the reamer and adjusting the same on the conical portion of the mandrel, substantially as set forth.

3. A longitudinally-split shell-reamer having radial recesses of greater depth than its teeth, for reducing its rigidity and permitting it to expand on the mandrel, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

Witnesses: TEILE H. MÜLLER.

PAUL GOEPEL,
MARTIN PETRY.