(No Model.)

J. F. CADELL.

REAMER.

No. 598,904. Patented Feb. 15, 1898.

Fig. 1.

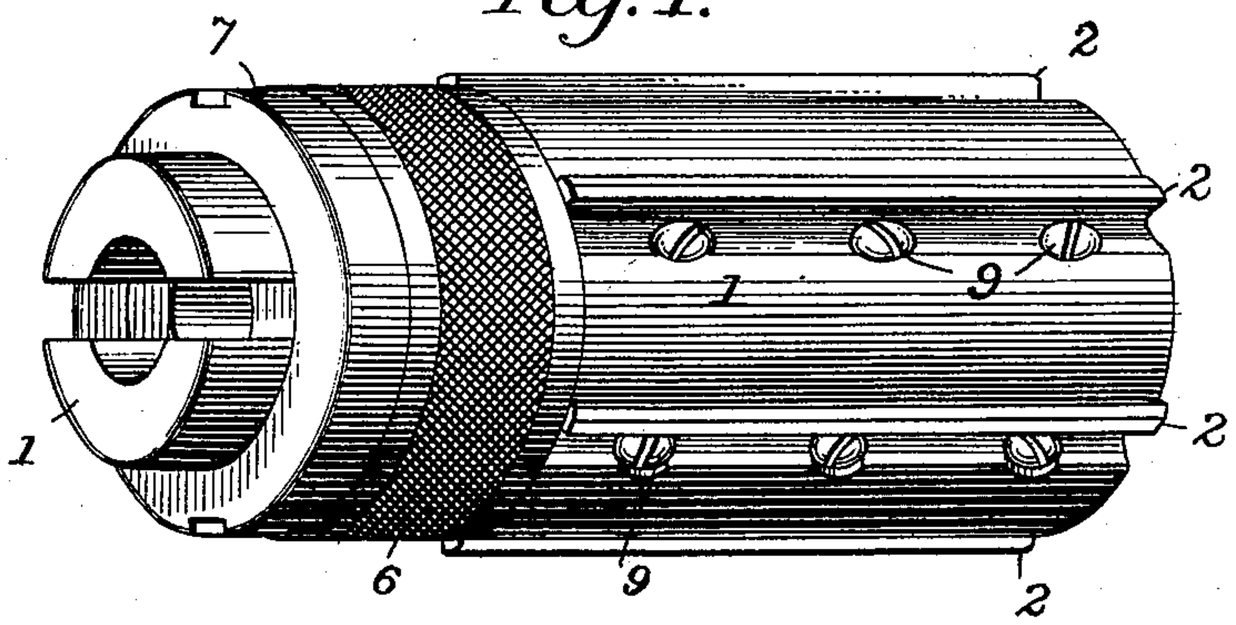


Fig. 2.

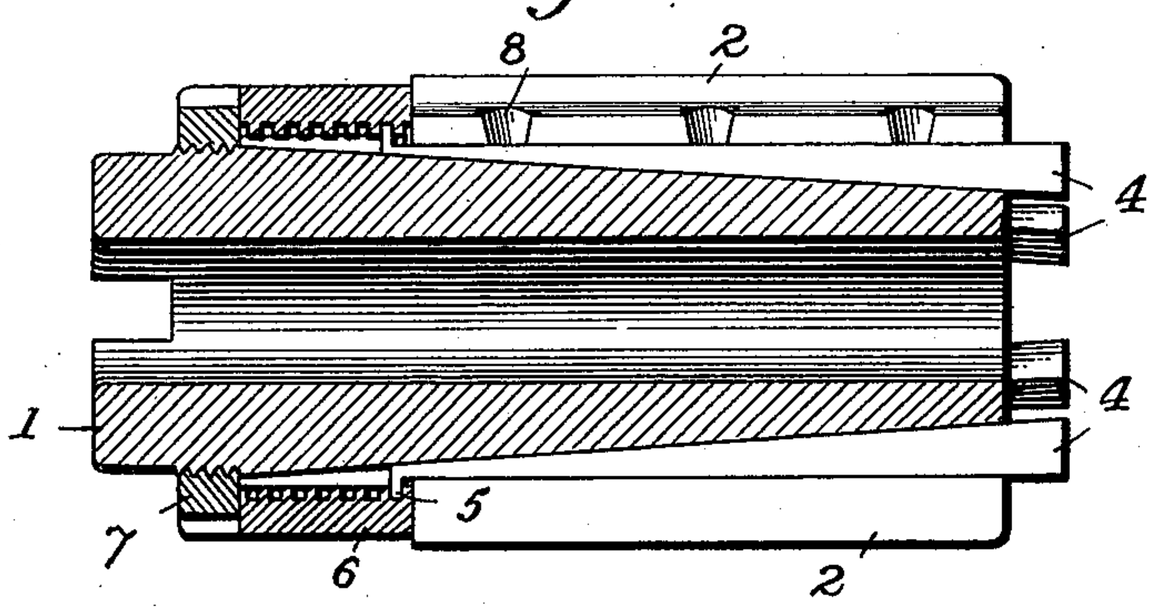


Fig. 3.

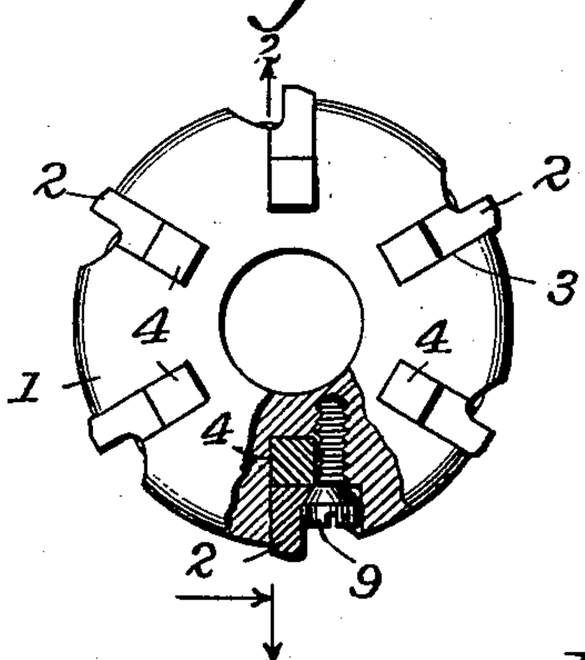


Fig. 7.

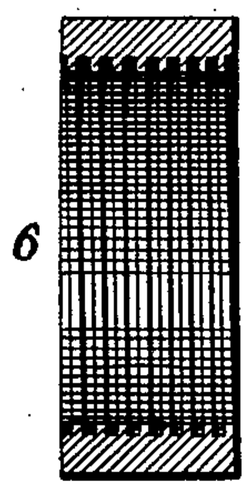


Fig. 6.

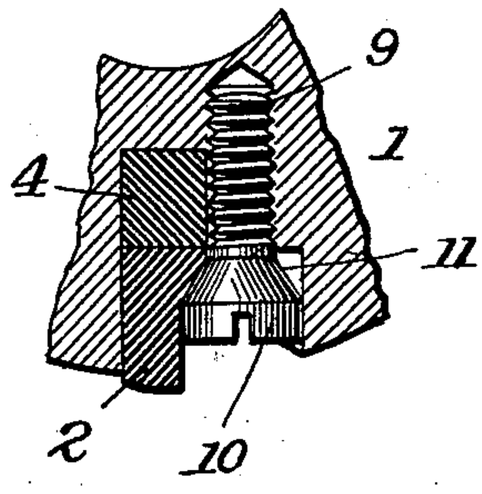


Fig. 4.

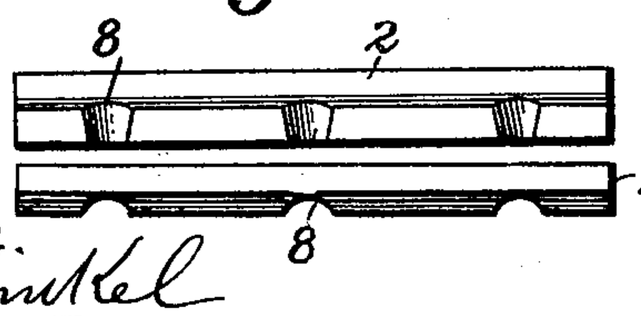
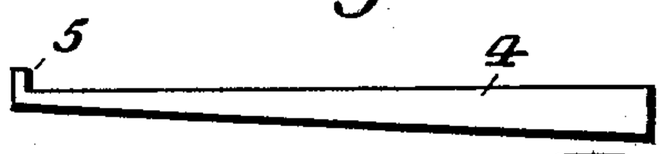


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN F. CADELL, OF BALTIMORE, MARYLAND.

REAMER.

SPECIFICATION forming part of Letters Patent No. 598,904, dated February 15, 1898.

Application filed November 30, 1897. Serial No. 660,262. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. CADELL, a citizen of the United States, residing at the city of Baltimore, State of Maryland, have invented certain new and useful Improvements in Reamers, of which the following is a specification.

My invention relates to reamers having adjustable cutters, means for adjusting the cutters simultaneously, and means for locking the cutters in any desired position within the range of their adjustment.

The invention consists in various improvements which will be described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved reamer. Fig. 2 is a longitudinal section of the same on the line 2 2 of Fig. 3. Fig. 3 is an end view partly broken away. Fig. 4 shows side and plan views of one of the cutters. Fig. 5 is a view of one of the adjusting-wedges. Fig. 6 is an enlarged view of the clamping device, and Fig. 7 is a sectional view of the adjusting-nut.

Referring to the drawings, 1 indicates the body of the reamer, which is preferably solid in the smaller sizes of tools and hollow, as illustrated, for the larger sizes. The blades or cutters 2 are adjustably seated in radial slots 3, which are arranged longitudinally on the outer surface of the body. The means of adjustment consist in a series of wedges 4, upon which the cutters are seated, said wedges having outer faces parallel with the axis of the body and inner faces inclined thereto which fit the correspondingly-inclined bottoms of the slots 3. The cutters are adjusted radially by moving the wedges longitudinally, and to accomplish the simultaneous adjustment of all the wedges they are provided with toes 5, which engage spiral grooves or threads cut in the inside of a cylindrical nut or collar 6. The nut turns upon a reduced cylindrical portion of the body 1, and it is held against longitudinal movement by a collar 7.

The cutters are provided on their forward sides with tapering recesses 8, and they are locked firmly in their seats by means of screws 9, having heads with cylindrical portions 10, which bear against the body and tapered portions 11, which bear upon the cutters, as best shown in Fig. 6. The screws thus act as wedges between the body and cutter and hold the latter immovable both radially and longitudinally. To adjust the cutters, the screws are loosened and the wedges 4 then moved forward or backward by turning the nut 6. After the wedges are adjusted the cutters are firmly locked against the sides and bottoms of their seats by means of the screws. This feature of firmly seating the back and bottom of each cutter by means of the tapered screws I consider of importance, as it renders the reamer as solid and reliable in any adjustment as if the cutters were integral with the body. Another important feature is the fact that the wedges are covered and protected from abuse and dirt, a feature of great importance in a tool of this kind. The adjusting-nut may, if desired, be provided with graduations, so as to indicate the amount of adjustment.

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

1. In a reamer, the combination of a cylindrical body-piece having tapering radial grooves arranged longitudinally on its outer surface, wedges seated in said grooves, cutters seated in the grooves upon the wedges, a nut engaging the wedges and adapted to move the same longitudinally, and means for fastening the cutters in any desired adjustment, substantially as described.

2. In a reamer, the combination of a cylindrical body-piece having tapering radial grooves arranged longitudinally on its outer surface, wedges seated in said grooves, an adjusting-nut provided with an internal thread, toes upon the wedges engaging said thread, cutters seated in the grooves upon the wedges, and means for fastening the cutters in any desired adjustment, substantially as described.

3. In an adjustable reamer, the combination with a cylindrical body having longitudinal grooves on its outer surface, adjustable wedges seated in said grooves, radially-adjustable cutters seated in said grooves upon the wedges, and locking-screws inserted in the body-piece and having tapered portions engaging the sides of the cutters and cylin-

drical heads engaging the body, whereby the cutters are securely seated, substantially as described.

4. In a reamer, the combination of the cylindrical body-piece having radial tapering grooves longitudinally arranged upon its outer surface, adjustable wedges in said grooves, cutters seated upon the wedges and provided with tapering recesses, and screws inserted in the body-piece and provided with inclines fitting the tapering recesses in the cutters, substantially as described.

5. In a reamer, the combination of the body, the cutters inserted in radial slots in the body and provided with tapering recesses, and the screws inserted in the body, said screws having cylindrical heads bearing upon the body and tapering portions fitting the recesses in the cutters, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN F. CADELL.

Witnesses:
J. H. BALTZLEY,
WM. REESE.