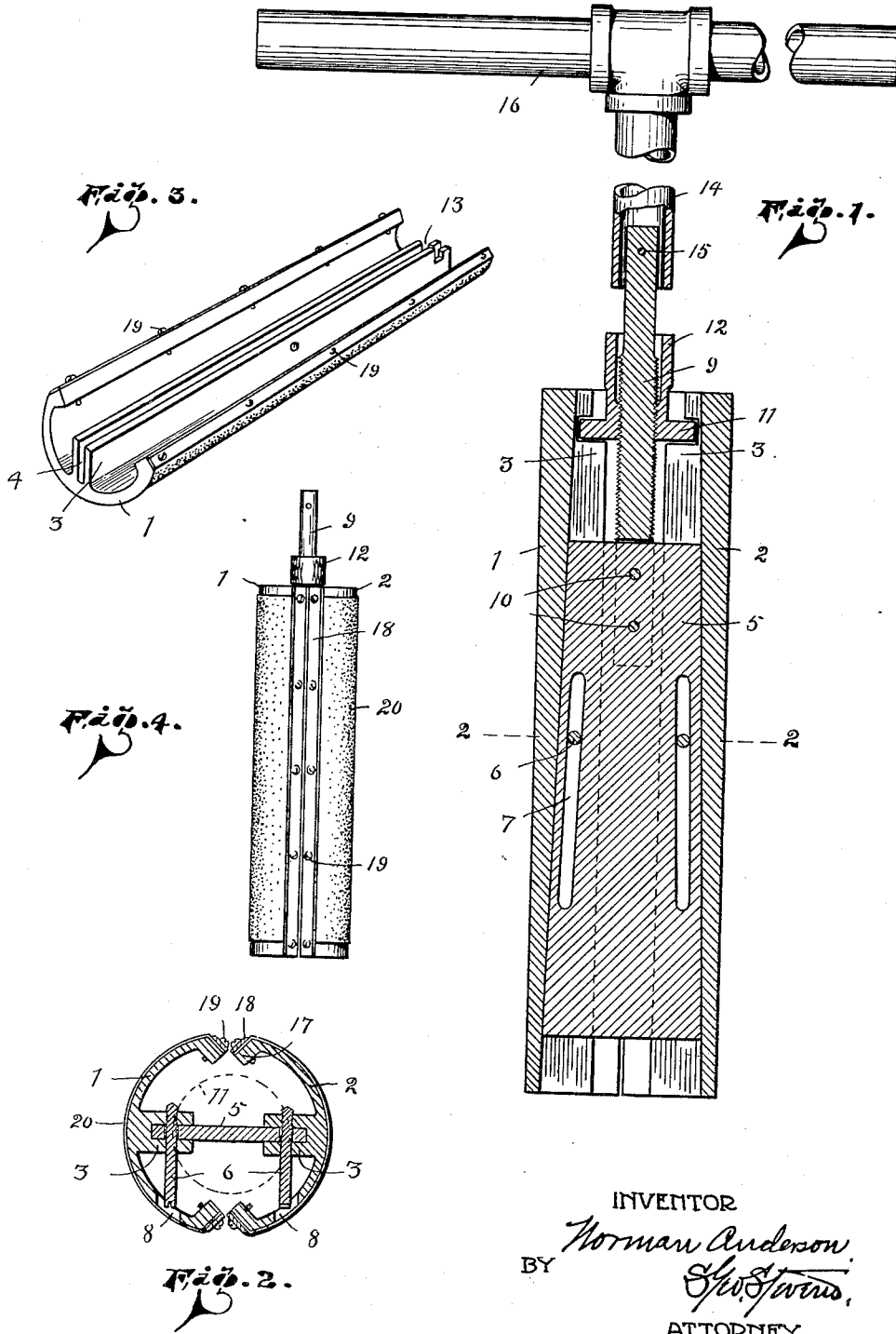


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CYLINDER REAMER.
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1,395,245.

Patented Nov. 1, 1921.



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CYLINDER-REAMER.

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To all whom it may concern:

Be it known that I, NORMAN ANDERSON, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Cylinder-Reamers, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to engine cylinder reamers and has special reference to such a device particularly designed for manual use in the reaming or enlarging and smoothing of internal combustion engines the cylinder heads of which are usually readily removed for such purpose.

The reaming of such cylinders, as now practised frequently necessitates the complete dismantling of the engine and removal of the cylinders, to avoid which is one of the principal objects of my present invention.

Another one of the principal objects is to provide a device of this character that will insure a true reaming and as nearly as possible perfect job.

Other objects and advantages of the peculiar construction will appear in the further description of the invention and particularly pointed out in the claims.

In the accompanying drawings forming part of this application:

Figure 1 is a central vertical sectional view of the assembled reamer through the adjusting member and showing the broken handle in elevation.

Fig. 2 is a transverse sectional view on the line 2-2, Fig. 1.

Fig. 3 is a perspective view of one half of the cylindrical body portion of the reamer, and

Fig. 4 is a perspective elevation of the reamer looking toward the division in the body portion thereof.

The main body portion of the reamer comprises two like semi-cylindrical sections 1 and 2, each having a central inwardly projecting bifurcated web 3 forming a longitudinally disposed channel 4 the entire length of each section and the bottom of which channel is graduated in depth from one end to the other, it being shallower at what will be termed the upper end and deeper at the lower end of the section.

When the two sections are in operative

position opposite each other the channels 4, in each section, will face each other and have slidably disposed therein the adjusting and holding member 5 which is operative longitudinally of the assembled sections within the slots 4 the offices of said member being that of holding the sections of the body portion together and regulating the distance apart of said sections. The side edges of the member 5 are inclined toward each other upwardly so that when the member is in place within the slots the edges thereof will engage the bottoms of the slots the entire length of the members and at the same time maintain the sections of the body portion in parallel relation to each other.

The adjustable union between the sections and the holding member 5 is accomplished by the through screw threaded bolts 6, which are mounted centrally of and through the walls of each web 3 and when the member 5 is in position, pass through the elongated slots 7 in said members and which slots are formed parallel with the inclined edges of the members, there being a suitable hole 8 in one of the side walls of each section of the body portion through which the bolt 6 may be removed or applied as desired. By this arrangement it is evident that the member 5 may be raised or lowered within the sections and by such action regulate the spaced relation of the sections.

As a convenient means for adjustment of the member 5, I have shown attached to the upper end thereof the screw threaded adjusting bolt 9, the lower end of which is bifurcated and straddles the upper end of the member 5 where it is securely fixed by riveting as at 10. The bolt 9 has screw threadedly mounted thereupon a circular nut 11 which is provided with an integral upstanding elongated manipulating portion 12 which projects upwardly beyond the ends of the assembled body portions 1 and 2 in convenient accessibility for adjusting the bolt. Adjacent the uppermost ends of the webs 3, they are each formed with an inwardly facing concentric notch 13 into which the circumferential edge of the nut 11 is engaged so that the axial relation of the nut to the assembled body portions remains the same at all times while the bolt 9 is adjustable axially when rotated.

As a means for manipulating the reamer I have shown a tubular stem 13 surrounding the

upper end of the bolt 9 and being preferably loosely attached thereto by a suitable through pin 15. Upon the upper end of the stem 14 is a suitable cross piece 16 which is conveniently grasped by the two hands of the operator who manipulates same from above, preferably with a combined vertically reciprocal and rotary motion when an engine cylinder is being reamed out.

The marginal edges of the sections 1 and 2 are turned inwardly as at 17 and each adjustably carries thereupon a longitudinally disposed clip or bar 18 said bars being adjustably held upon such inwardly turned portions by suitable screws 19 and in this manner sheets of emery or other suitable abrasive cloth or paper previously cut to the proper size may be securely held upon the outer surface of each section of the body portion, said abrasive sheets being shown at 20 in the drawings. This manner of holding the sheets upon the reamer permits of their ready removal or application for renewal or replacement by ones of different character as the work progresses.

From the foregoing it is evident that I have devised a simple and exceedingly adaptable means for reaming the cylinders of an engine by hand and which means is so constructed as to insure a most perfect and satisfactory job of the kind, in that the bore of a cylinder thus reamed will be true when completed as the walls of the reamer are at all times parallel and susceptible of the most careful and accurate adjustment to accomplish such satisfactory results, and attention is again directed to the fact that one essential feature of the device is that the supporting stem or handle of the reamer is loosely attached thereto which results in freedom of the lateral action of the reamer irrespective of otherwise undesirable tendencies of the operator's hands to misdirect the action of the reamer.

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

1. The combination with a reamer of the class described comprising a cylindrical body portion carrying an abrasive substance and an axially disposed supporting member, of an actuating member pivotally attached

to the supporting member for the purpose described.

2. In a device of the character described, the combination with a two part adjustable cylindrical body portion, of means carried intermediate of said parts for expanding or contracting same to various predetermined positive diametrical sizes, and means coöperatively connected therewith for manual manipulation of same.

3. A device of the character described having a body portion comprising two semi-cylindrical sections, means longitudinally thereof for expanding or contracting the sections, means at the upper ends thereof for adjusting said last mentioned means, means for holding sheets of abrasive material upon the surfaces of the sections and means for loosely supporting the body portions from the upper end thereof and by which they are manually manipulated.

4. A device of the character described comprising a body portion composed of two semi-cylindrical sections, a longitudinal channel formed in the inner wall of each section, a flat wedge shaped member slidably mounted within the channels of the sections, means for holding the wedge shaped member and sections together, an axially disposed supporting stem permanently attached to the upper end of the wedge shaped member, a manually adjustable sleeve about the stem and engaging the sections to prevent longitudinal movement independently of the stem and means for loosely supporting the device while in action.

5. In a device of the character described, the combination with a two part adjustable cylindrical body portion, of a single adjusting member intermediate of said parts and uniting same whereby the parts may be expanded or contracted to various predetermined positions, and means attached to one end of the body portion for manual manipulation of same.

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

NORMAN ANDERSON.

Witnesses:

ELLEN THEORIN,
S. GEO. STEVENS.