

Nov. 10, 1931.

R. J. RUSSELL

1,830,855

TOOL FOR ASSEMBLING PISTONS TO CYLINDERS

Filed Feb. 15, 1929

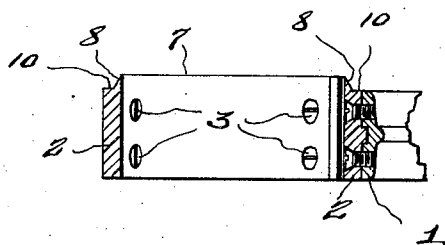


Fig. 3.

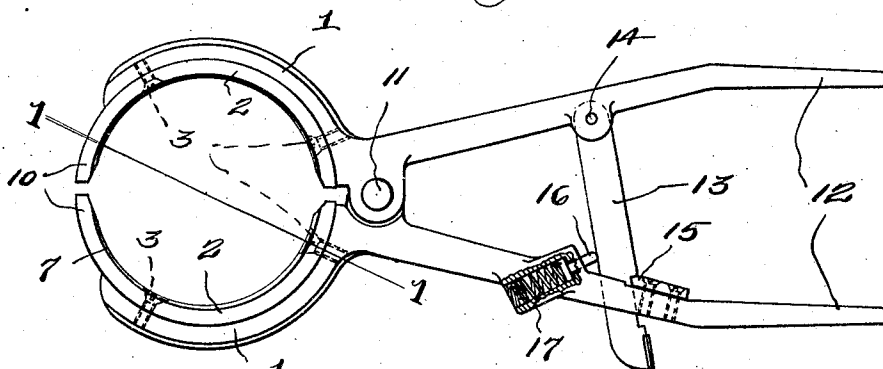


Fig. 1.

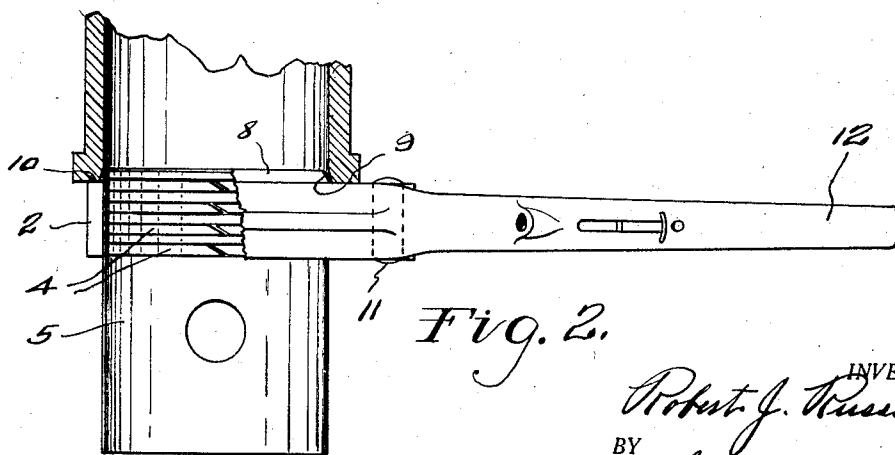


Fig. 2.

INVENTOR.
Robert J. Russell
BY
Frederic A. Rodell
ATTORNEY.

UNITED STATES PATENT OFFICE

ROBERT J. RUSSELL, OF SYRACUSE, NEW YORK, ASSIGNOR TO H. H. FRANKLIN MANUFACTURING COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK

TOOL FOR ASSEMBLING PISTONS TO CYLINDERS

Application filed February 15, 1929. Serial No. 340,276.

This invention has for its object a particularly simple and highly efficient tool for placing pistons with piston rings in cylinders as the cylinders of internal combustion engines.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is an elevation, partly in section, of this tool.

Figure 2 is an edge view showing the same clamped on the head of a piston and arranged in juxtaposition to a cylinder, a fragmentary portion of the cylinder being shown.

Figure 3 is an enlarged sectional view on line 1—1, Figure 1.

This tool comprises, generally, a pair of jaws which are nearly semicircular, the jaws being pivoted together and having means as handles by which they are operated and locking means as a latch which holds them in their operated position, the jaws being of a width to grasp and compress all the piston rings on the head of a cylinder and having means coacting with one end of the cylinder to center the tool relatively to the cylinder whereby the piston, with its rings contracted, is held by the tool is slidable through the jaws into the cylinder.

In the illustrated embodiment of my invention, the jaws include arcuate bodies 1 and jaw pieces 2 which are nearly semicircular, these being attached to the jaw bodies as by screws 3.

The jaws or the jaw pieces are of sufficient depth to compress all the piston rings 4 on the head of a piston 5, each jaw piece being provided along one of its arcuate edges with a guide rib 7 for entering one end of the cylinder and centering the tool relatively to the cylinder.

Each rib 7 is formed with its inner face cylindrical and flush with the inner semicylindrical face of the jaw piece 2 and with its outer face 8 conical for coacting with

the conical counterbore 9 at one end of the cylinder.

Also, the jaws are provided with shoulders 10 at the bases of the conical faces 8, for thrusting against the end of the cylinder.

The jaws are pivoted together at 11, the pivot being located so that when the jaws are compressed toward each other, the space enclosed by the jaw pieces 2 is practically cylindrical.

The means for operating the jaws comprises pinch handles 12, one on each jaw. The jaws are held in their operated position or compressed on the piston by suitable means as a latch 13 pivoted at 14 to one handle and cooperating with the keeper plate 15 on the other handle. The latch is pressed into engagement with the keeper plate by a spring pressed plunger 16, the spring 17 of which is located in a suitable socket in one of the handles 12.

In operation, the jaws are clamped on the piston or the head thereof to compress the piston rings nearly flush with the cylindrical surface of the body of the piston, and are held in their clamped or closed position by the latch 13.

The tool is then placed over one end of the cylinder with the guide ribs 8 fitting the conical counterbore 9 at one end of the cylinder and with the shoulders 10 abutting against the end of the cylinder so that the piston is exactly alined with the bore of the cylinder. The piston is then pushed through the tool into the cylinder.

What I claim is:

1. A tool for inserting pistons having rings into cylinders comprising a pair of arcuate jaws pivoted together and lever handles for the jaws, each of the jaws beyond said pivot having a guide rib along one of its arcuate edges for entering the end of the cylinder, the inner faces of the jaws being substantially smooth for engaging and compressing the piston rings whereby when a piston is held by the tool, the rings are held contracted and the piston can be pushed through the jaws and the arcuate guide ribs with the piston rings compressed into the cylinder, each arcuate guide rib having its outer wall tapered

for fitting a tapered counterbore at one end of the cylinder, and the jaws having shoulders at the bases of said guide ribs for abutting against the end of the cylinder, and a
5 latch for holding the jaws in their contracted position.

2. A tool for inserting pistons having rings into cylinders including a pair of jaws pivoted together, replaceable jaw pieces secured
10 to said jaws, handles for moving the jaws on their pivotal connection to clamp the jaw pieces about a piston, latch means for retaining the jaws in clamped position, spring means urging said latch means into latching
15 position, and a guide rib along one edge of each jaw piece, the inner face of the guide being flush with the inner face of the jaw piece and the outer face of the guide rib being conical to fit a conical counterbore at
20 one end of the cylinder.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga, and State of New York, this
31st day of January, 1929.

25 ROBERT J. RUSSELL.

30

35

40

45

50

55

60

65