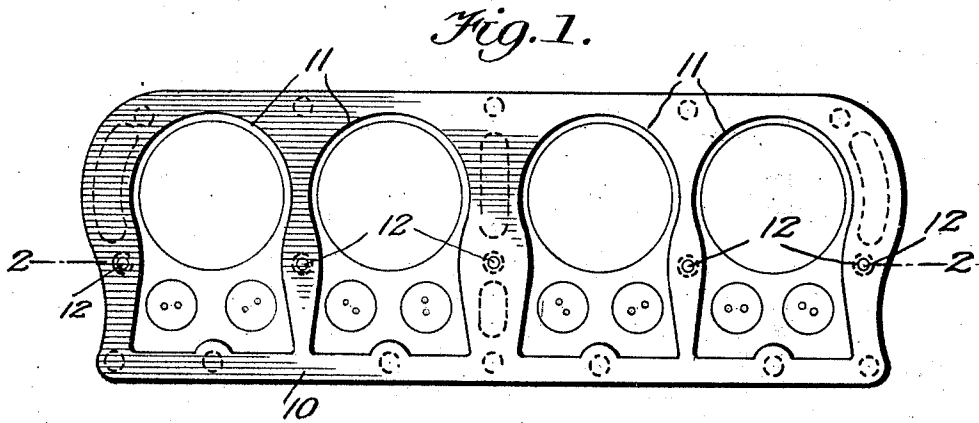
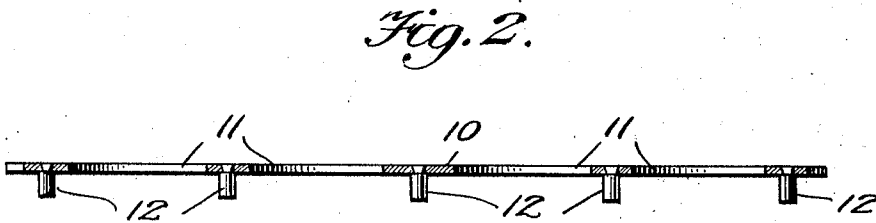
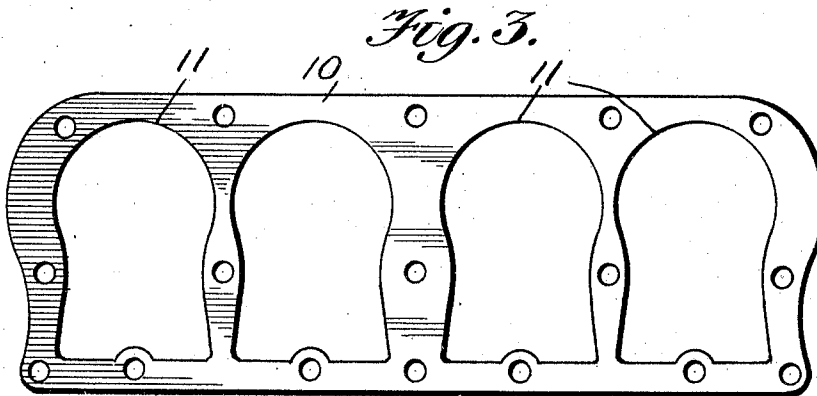
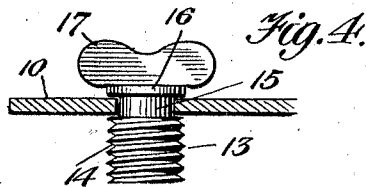


C. R. JOHNSON.
MOTOR CLEANING DEVICE.
APPLICATION FILED OCT. 31, 1919.

1,363,119.

Patented Dec. 21, 1920.



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MOTOR-CLEANING DEVICE.

1,363,119.

Specification of Letters Patent. Patented Dec. 21, 1920.

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To all whom it may concern:

Be it known that I, CARL R. JOHNSON, a citizen of the United States, residing at Bartlesville, in the county of Washington and State of Oklahoma, have invented new and useful Improvements in Motor-Cleaning Devices, of which the following is a specification.

This invention relates to devices for use in removing carbon from the cylinders of internal combustion engines, the object being to provide means for protecting the bolt openings and the water jacket openings in the upper end of the cylinder block, to prevent particles of carbon from falling therein.

Another object is the provision of a device of this character which is simple in construction, easily applied and removed and when in use will not interfere with the operation of cleaning the cylinders.

Other objects and advantages of the invention will appear as the following description is read in connection with the accompanying drawing.

In the drawing:

Figure 1 is a top plan view of the invention in position for use, the openings in the cylinder block being shown by dotted lines.

Fig. 2 is a longitudinal sectional view of the same on the line 2—2 of Fig. 1.

Fig. 3 is a plan with a modified form of the invention, in which openings are provided for receiving bolts projecting from the engine block.

Fig. 4 is an enlarged fragmentary sectional view illustrating a modified form of fastening device for securing the plate in position.

Referring to the drawings in detail like characters of reference denote corresponding parts throughout the several views.

In carrying out the invention, there is provided a plate, which is preferably formed of metal, as indicated at 10. This plate is preferably shaped to conform to the shape of the cylinder block and is further provided with openings 11, of a sufficient size and shape to permit of ready access to the interior of the cylinders and the valves.

Extending at right angles from the face of the plate 10, is a plurality of studs 12, the said studs being spaced to engage the bolt openings, which are positioned on a line substantially central of the cylinder

block, the said studs being of a size to permit of their free insertion in the openings and of a sufficient length to prevent their accidental displacement.

In the use of the invention, after the cylinder head has been removed, the plate is placed in position upon the upper end of the cylinder block, with the studs 12 positioned within the bolt openings. The plate will thus remain in position to cover the bolt openings and the openings of the water jacket, so as to protect the same from the carbon scraped from the cylinders.

This will permit free access to the cylinders, with no danger of injury to the hands of the operator, or in any manner interfering with the work of removing the carbon.

The invention is susceptible of various changes in its form, proportions and minor details of construction and the right is herein reserved to make such changes as properly fall within the scope of the appended claims.

For example, the studs may be dispensed with and openings arranged around the guard for receiving bolts projecting upwardly from the engine block. This arrangement permits of the use of the invention upon engines where the bolts are difficult of removal.

A further example of the manner of securing the plate in position is illustrated in Fig. 4 of the drawings, in which there is provided fastening devices 13, one of which is adapted to be secured to the plate in position for insertion in each of the threaded bolt openings of the cylinder block. These devices include a screw 14, which is provided with a reduced shank 15, the latter extending through openings provided in the plate and having secured therein and spaced from the adjacent end of the screw 14, a collar or flange 16, so that the said screw is swiveled within the plate. The shank 15 is further provided with a finger piece 17.

Having described the invention, what is claimed is:

1. A removable protector for engine cylinders comprising a plate shaped to conform to the shape of the ends of the cylinder block and having openings therein of the same shape and size as the cylinder openings and means for removably holding the plate in position.

2. A removable protector for engine cyl-

inders comprising a plate adapted to be positioned upon the end of the cylinder block and having openings therein of the same shape and size as the cylinder openings and
5 a plurality of pins carried by the plate and extending into the bolt openings of the cylinder block to removably hold the said plate in position.

3. A removable protector for engine cylinders comprising a plate shaped to conform to the shape of the ends of the cylinder block and having openings therein of the same shape and size as the cylinder openings and fastening devices swiveled to the
10 plate for engagement with the threaded bolt openings of the cylinder block.

4. A removable protector for engine cylinders comprising a plate shaped to conform to the shape of the ends of the cylinder
15 block and having openings therein of the same shape and size as the cylinder open-

ings, and means for removably holding the plate in position, said means comprising a screw adapted to be received in the threaded bolt openings of the cylinder block, a reduced shank for said screw, said shank passing through an opening provided in the plate, a collar or flange secured to the shank and spaced from the adjacent end of the threaded portion of the screw and located
25 upon the face of the plate opposite the screw and means located at the end of the reduced shank whereby the screw may be rotated.

5. A removable protector for engine cylinders comprising a plate adapted to be positioned over the end of a cylinder block and having openings therein and means carried
30 by the plate for removably holding the latter in position.

In testimony whereof I affix my signature. 40

CARL R. JOHNSON.