

G. HARTWIG.
PISTON ROD CONNECTION.
APPLICATION FILED MAR. 7, 1921.

1,401,075.

Patented Dec. 20, 1921.

Fig. 1.

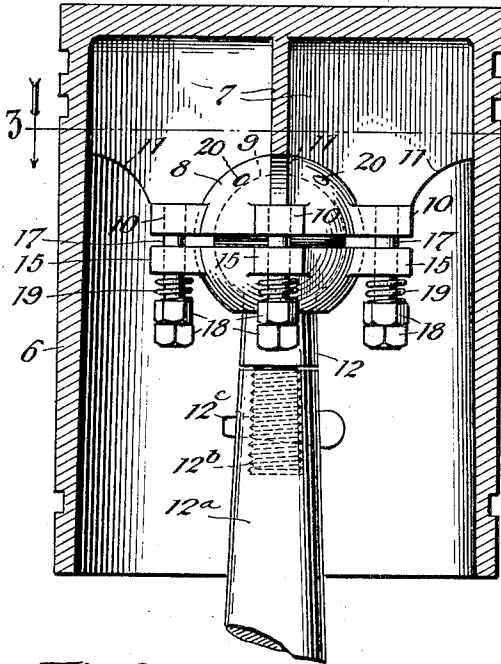


Fig. 2.

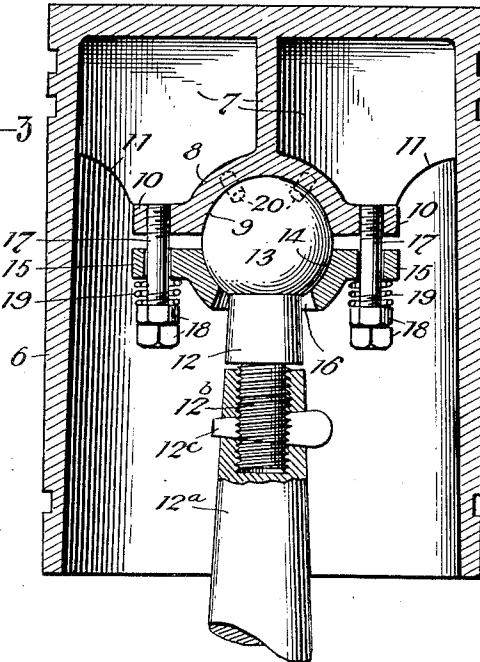


Fig. 3.

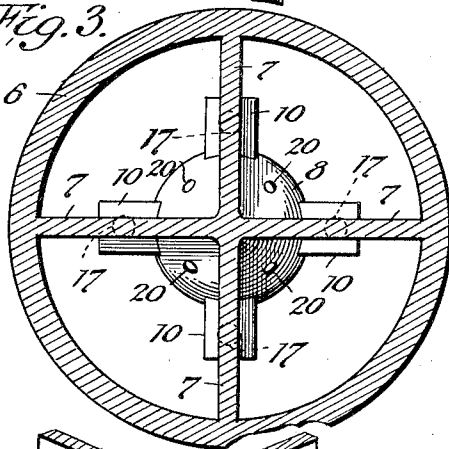


Fig. 4.

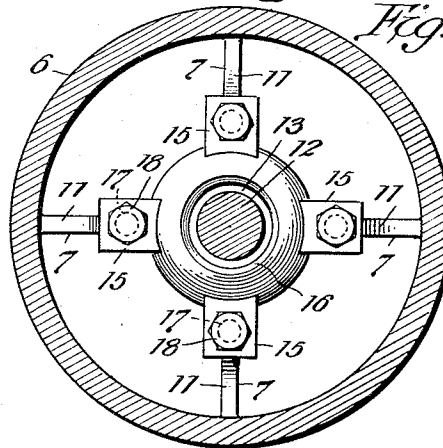
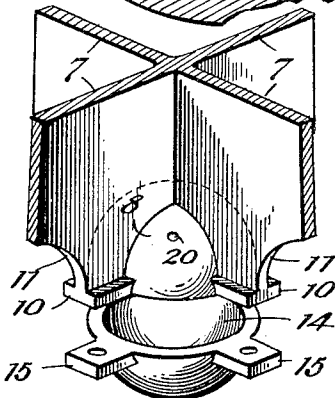


Fig. 5.



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By

[Signature]

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UNITED STATES PATENT OFFICE.

GEORGE HARTWIG, OF ST. LOUIS, MISSOURI.

PISTON-ROD CONNECTION.

1,401,075.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE HARTWIG, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Piston-Rod Connections, of which the following is a specification.

The present invention relates to means for connecting the pitman of an engine, preferably of the internal combustion type, to the piston head, and the object is the provision of simple means for this purpose that will constitute an effective coupling, allowing the necessary play of the parts and automatically taking up wear.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a sectional view through a piston, showing the connection in elevation.

Fig. 2 is a similar view but illustrating the connecting means in section.

Fig. 3 is a horizontal sectional view substantially on the line 3—3 of Fig. 1,

Fig. 4 is a bottom plan view,

Fig. 5 is a perspective view of the socket member of the coupling.

The piston head is designated generally by the reference numeral 6 and may be of any desired type, preferably in the form of a shell. Within the inner portion of this shell are formed radial webs 7, integral with which is a central cup 8 forming a socket 9. Radiating from this cup are flanges 10 that overlie and are integral with the webs 7. The flanges preferably terminate short of the cylindrical wall of the piston head and the webs between their outer ends and said wall are preferably cut-away or reduced, as shown at 11, to eliminate weight.

The pitman or connecting rod is composed of sections 12 and 12^a, one having a threaded stem 12^b that is screwed into a socket in the other section. A taper key 12^c serves to hold the sections against relative rotation. The section 12 is provided with a terminal ball 13 that engages in the socket 9 of the cup 8. The outer portion of the ball is received in the cupped portion 14 of a retaining cap that surrounds the pitman and is provided with outstanding ears 15. The opening 16 in the cap through which the pitman 12 passes is preferably flared to permit the lateral play of said pitman, and is of sufficient diameter to permit the cap being removed from the end of the section 12 when

it is disconnected from the section 12^a. The sectional construction also permits the replacement of a ball whenever it becomes unduly worn. Threaded into the flanges 10 are stud bolts 17 that pass through the openings in the ears 15 and have jam nuts 18 adjus- 60 tably threaded on their outer ends. Interposed between the inner jam nuts and the ears 15 are springs 19 that serve to yield- 65 ingly urge the cap toward the cup portion 8. Preferably said cup member 8 is provided with a plurality of oil ports 20 communicating with the socket 9.

It will be evident that with this construction a ball and socket connection is provided 70 between the connecting rod and the piston head, said connection allowing free play of the former and any wear is automatically taken up by the action of the springs 19. 75 The structure is relatively simple and comparatively little weight is added thereto by the piston, the bearing moreover being effectively lubricated.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, 80 shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

What I claim is:—

1. An engine piston provided with a socket member, a pitman having a ball that fits in the socket member, and a yielding retaining device for holding the ball in the socket member. 90

2. An engine piston shell provided with an internal socket section, a pitman having a ball that fits in the socket of said section, a retaining cap surrounding the pitman and fitting over the ball, and a yielding connection 95 between the cap and piston.

3. An engine piston shell provided with internal substantially radial webs having a centrally disposed socket, a pitman having a ball engaged in the socket, a retaining cap 100 surrounding the pitman, bolts engaged with the webs and passing through the cap, and springs on the bolts bearing against the cap.

4. An engine piston head having a socket, 110 a pitman having an enlargement that is engaged in the socket, a cap that surrounds the

pitman and engages over the ball, and means for securing the cap to the head, said pitman comprising detachable sections and said cap being removable from the section carrying the ball when the sections are disconnected.

5 5. An engine piston head having a socket, a tapered pitman comprising detachable sections, one of said sections having a terminal ball engaged in the socket, a retaining cap
10 surrounding the section and removable there-

from when the sections are detached, said cap engaging over the ball, and yielding means for holding the cap against said ball.

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

GEORGE HARTWIG.

Witnesses:

Mrs. GEO. HARTWIG,
JESSE G. HILL.