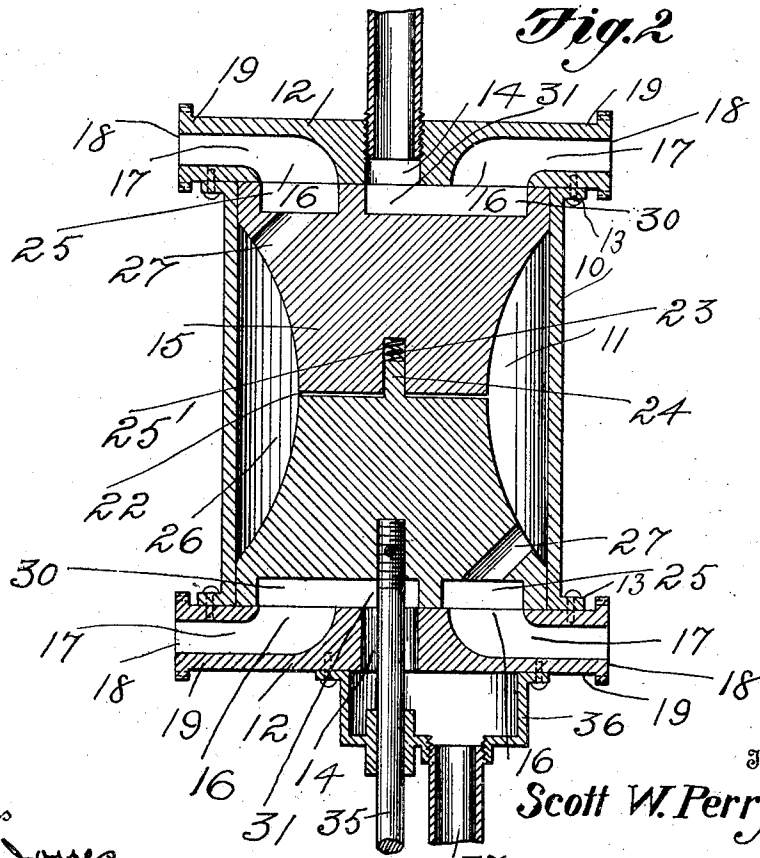
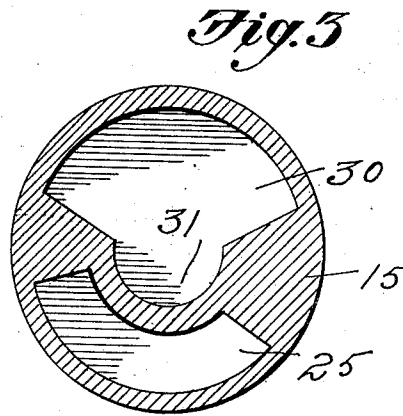
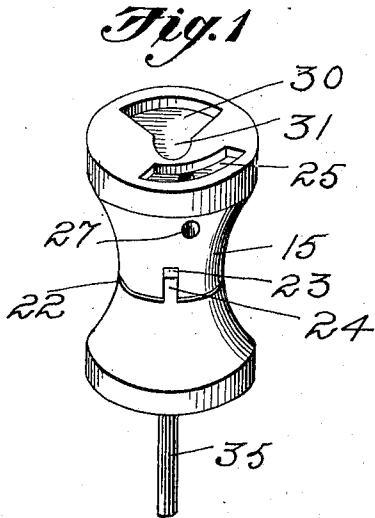


S. W. PERRY.
 ROTARY STEAM VALVE.
 APPLICATION FILED SEPT. 21, 1909.

967,827.

Patented Aug. 16, 1910.

3 SHEETS—SHEET 1.



Witnesses

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Fig. 4

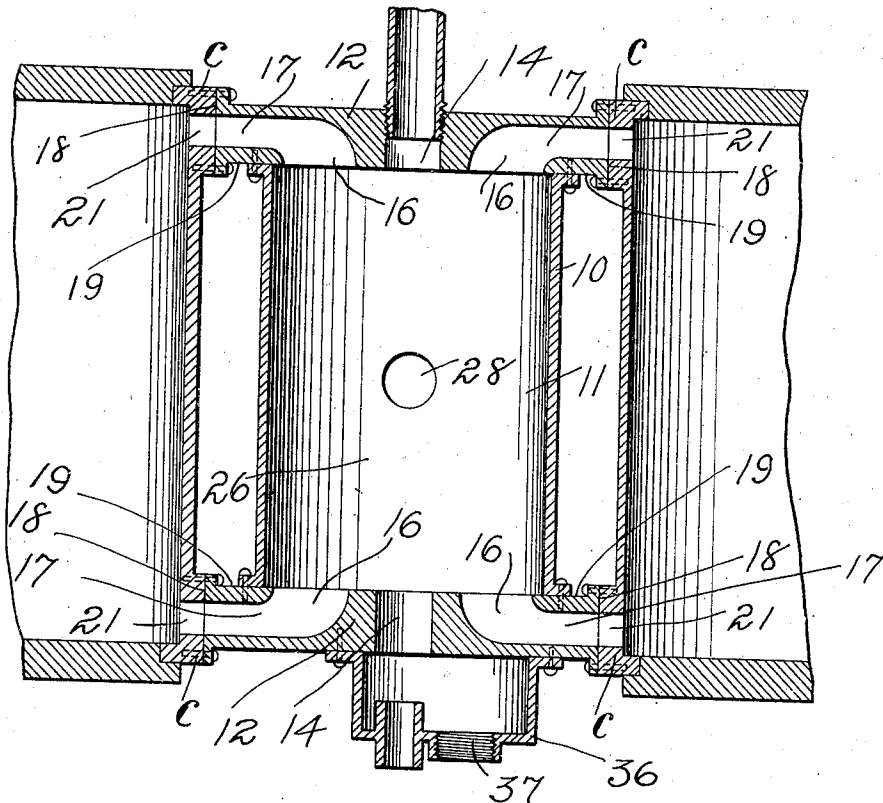
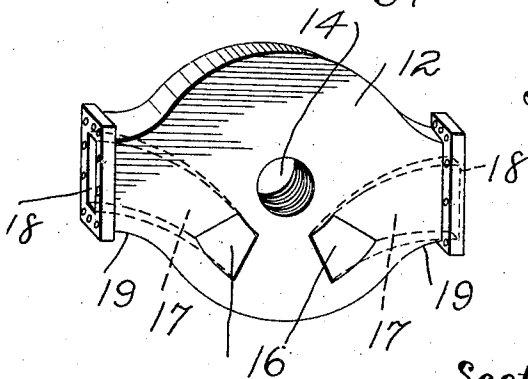


Fig. 5



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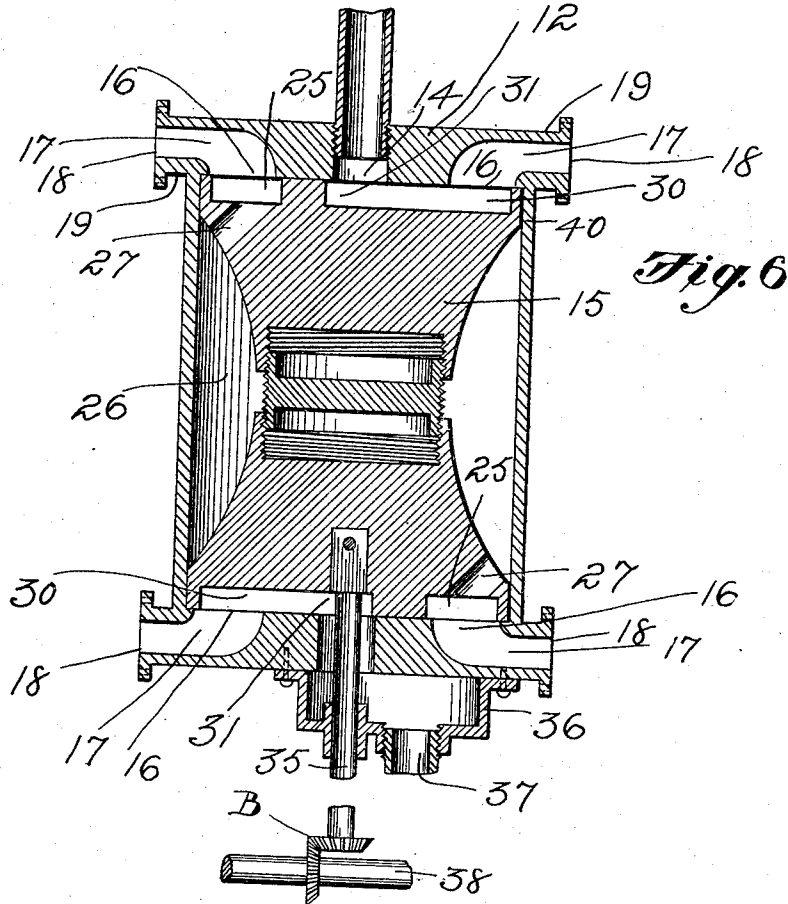


Fig. 6

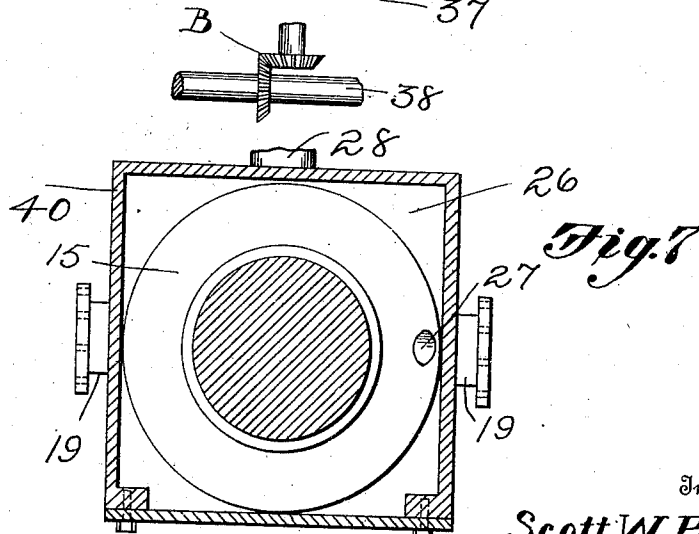


Fig. 7

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UNITED STATES PATENT OFFICE.

SCOTT W. PERRY, OF VERSAILLES, ILLINOIS.

ROTARY STEAM-VALVE.

967,827.

Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed September 21, 1909. Serial No. 518,779.

To all whom it may concern:

Be it known that I, SCOTT W. PERRY, a citizen of the United States, residing at Versailles, in the county of Brown and State of Illinois, have invented certain new and useful Improvements in Rotary Steam-Valves, of which the following is a specification.

This invention relates to steam engines, and more particularly to valves, and has for its object to provide a rotary valve of a novel and simple type.

A particular object of the invention is to provide a valve so constructed that the pressure of steam therein will hold it firmly seated to prevent the loss of steam therearound.

Another object is to provide a novel form of valve casing of simple construction and having a novel form of seating for the valve.

Another object is to provide such a device in which a novel form of exhaust is provided.

Other objects and advantages will be apparent from the following description, and it will be understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a perspective view of the valve member in this device, Fig. 2 is a longitudinal sectional view of the valve and casing in assembled order, Fig. 3 is a cross section through the end of the valve on the line 3—3 of Fig. 2, Fig. 4 is a cross section through the valve casing with the valve removed, and showing fragmentary portions of coengaged engine cylinders, Fig. 5 is a perspective view of one of the heads of the valve casing. Fig. 6 is a longitudinal section of a modified form of valve and steam chest, Fig. 7 is a cross section of the modification.

Referring to the drawings, there is shown a casing 10 comprising a cylinder 11, and oppositely disposed heads 12 of a similar construction, secured to the flanges 13 carried upon the cylinder 11. The heads 12 are plane on their inner faces, to provide a seating surface for the valve subsequently to be described. Formed centrally of each head there is an exhaust opening or port 14.

Formed in the seat faces of the heads 12, there are valve ports 16 from which extend passages 17 communicating respectively with openings 18 formed in flanged extensions 19 on opposite sides of the heads adapted to be secured upon similar portions of steam engine cylinders C as shown. It will be noted that the ports 16 are disposed in "quartered" relation with respect to the center of the head, though it will be understood that any suitable spacing may be utilized which may be found desirable. From the extension upon the cylinders C as shown, there are ports 21 opening into the cylinders as shown.

Engaged revolubly in the cylinder 11, there is a valve 15 having plane ends disposed snugly against the seat faces of the heads 12, the valve being split at its center as shown at 22 the opposite sections being provided with sockets 23 receiving projections 24 slidably therein, against springs 25' seated at the inner ends of the recesses 23. The springs thus bear outwardly against these sections to hold them normally in seated engagement with the inner faces of the heads 12.

Formed in the end faces of the opposite sections of the valve 15, there are segmental recesses 25 disposed on opposite sides of the axis of the valve and adapted to register at times with the ports 16. It will be noted that the valve is reduced or attenuated throughout its central portion, providing a central chamber 26 therearound within the cylinder 11. Opening from the recesses 25 into the chamber 26 there are passages 27. Communicating centrally with the cylinder 11, there is an inlet passage 28 for the admission of steam. It will thus be seen that upon admission of steam through the passage 28 it will circulate freely around the valve, the pressure thereof tending to distend or separate the sections and force them against the opposed seat faces of the heads 12. The steam enters the passages 27, and upon rotation of the valve is admitted alternately to the sets of ports 16 in the opposite ends of the casing.

Formed in the end faces of the valve 15 there are sector-shaped recesses 30, one radial edge of which is spaced from one end of the recess 25 slightly more than the width of the ports 16, as shown in Fig. 3, the opposite radial edge of the recess is disposed immediately adjacent a line drawn diamet-

rically across the valve in registry with the end of the recess 25 adjacent the recess 30. The length of the recess 25 may be varied to govern the period of admission of steam to the cylinders, as desired. The recess 30 is positioned to register with and allow the escape of steam through the ports 16 at one end of the valve during the admission of steam through the ports at the opposite end and thereafter for a proper period, as will be readily understood by those versed in the art. The central portion of each recess 30 communicates with the exhaust passage 14 at all times, and is slightly enlarged by the semicircular extension 31 to allow its full registry with the exhaust opening.

Secured to one end of the valve there is an axial shaft 35 extending centrally through the adjacent opening 14 and extending through a supplementary casing 36 secured to the head 12 and carrying an exhaust pipe 37 for the conduction of exhaust steam from the valve as will be understood. The shaft is geared to the driven shaft 38 as shown at B, for rotation coincidently with the driven shaft.

By the construction shown, the valve alternately admits live steam to the engine cylinders, and conducts exhaust steam therefrom in an efficient manner. The valve itself comprises but two simple parts and the casing therefor comprises but three parts, all of which are adapted to be constructed in the simplest possible manner, and it will be seen that no adjustments of the valve will be necessary to compensate for wear.

It will be seen that in operation the opposite sections of the valve member are longitudinally movable in the cylinder 11 and relatively; and under action of steam and the springs 23, will be held at all times in snug contact with the seat faces of the heads 12.

It will be understood that the form of the chamber within which the valve operates may be changed as desired, and in Figs. 6 and 7 there is shown a chest 40 formed integral with the heads, said chest being rectangular in cross section. In this form also the valve member is made without the use of springs for retaining it in firm seated engagement with the valve seat. The shaft carrying the valve is rectangular in cross section where it is secured to the valve and the valve is made in two sections having opposed threaded recesses and a stub sleeve having right and left handed threads in co-engagement therebetween for adjustment of the valve in snug contact with the seats.

What is claimed is:

1. A valve of the class described comprising a cylindrical casing having heads provided with ports in their inner faces and having passages communicating with the ports and opening laterally of the head for

communication with engine cylinders, said heads having central exhaust openings there-through, and a valve member revoluble within the casing and comprising opposite sections relatively movable longitudinally of the casing, resilient means engaged between the sections to press them resiliently against the heads, said valve member being peripherally reduced centrally to provide a circumscribing steam chamber, a steam inlet means communicating with the casing centrally thereof, said valve having segmental recesses respectively in its end faces adapted to register at times with the ports in the heads and passages communicating with the central reduced portion of the valve and opening into the segmental recesses; said valve having also sector-shaped recesses respectively in each end spaced from the first named recesses and adapted to register synchronously with the respective ports and exhaust openings in the heads, and means for rotating the valve.

2. A valve of the class described comprising a cylindrical casing having centrally perforated heads at each end, said heads having ports opening through their inner faces and having passages extending laterally therefrom, and a valve member revoluble within the casing and forming with the casing aforesaid a central steam chamber provided with a passage opening through the end of the valve and adapted to register at times with the ports, said valve having also a sector-shaped recess in its end adapted to register synchronously with the ports and perforation in the heads alternately of the registration of the last named passage and ports.

3. A valve of the class described comprising a cylindrical casing and ported heads, a revoluble valve member engaged revolubly within the casing and comprising opposite sections relatively movable longitudinally of the casing, resilient means engaged between the sections to hold them resiliently against the heads, said valve forming a central steam chamber with the casing and passages opening therefrom through the ends of the valve for registry with the ports at times, said valve having also recesses in its ends adapted to register synchronously with certain of the ports in the heads at other times, steam inlet means communicating with the casing, and means for rotating the valve.

4. A valve of the class described comprising a cylindrical casing and ported heads, a revoluble valve member engaged revolubly within the casing and comprising opposite sections relatively movable longitudinally of the casing, and adapted to be forced against the heads by a fluid power medium, said valve forming a central steam chamber with the casing and passages opening therefrom through the ends of the valve for registry

with the ports at times, said valve having also recesses in its ends adapted to register synchronously with certain of the ports in the heads at other times, steam inlet means 5 communicating with the casing, and means for rotating the valve.

5. A rotary valve comprising a casing, ported heads therefor, a valve member revoluble in said casing, said valve comprising 10 opposite sections relatively movable longitudinally in the casing, said valve forming a chamber intermediate of the casing and the valve, said valve also having passages communicating with the ports at the time, 15 the ends of said valve being provided with recesses adapted to register with the said ports in the heads, said casing being also provided with an inlet port and a shaft rigidly connected with the valve whereby 20 the same may be rotated.

6. A rotary valve comprising a casing and ported heads, a valve revoluble in the casing, said valve forming a central steam chamber with the casing and being provided 25 with passages communicating with the ports in the heads intermittently, the ends of said valve being provided with recesses adapted

to similarly register with the ports, said casing being provided with supply inlet means, a supplementary casing on one of 30 the heads, said heads and casing being provided with exhaust ports and a shaft carried by the valve and having bearings in the casing secured to the heads and means for rotating the shaft. 35

7. A valve of the class described comprising a casing and ported heads, a valve rotatable in the casing and comprising oppositely disposed sections, means for forcing said sections against the heads aforesaid, 40 said casing being provided with a supply inlet port, said valve being provided with passages communicating with the ports in the head and recesses intermediate of said passages and ports, said recesses and ports 45 adapted to register with said passages during the rotation of the valve and means for rotating the valve.

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

SCOTT W. PERRY.

Witnesses:

GRACE MYERS,
C. H. SMITH.