No. 829,233. PATENTED AUG. 21, 1906.

A. RUSSELL.

CYLINDER HEAD FOR ENGINES.

APPLICATION FILED JUNE 24, 1905.

Fig. 1.

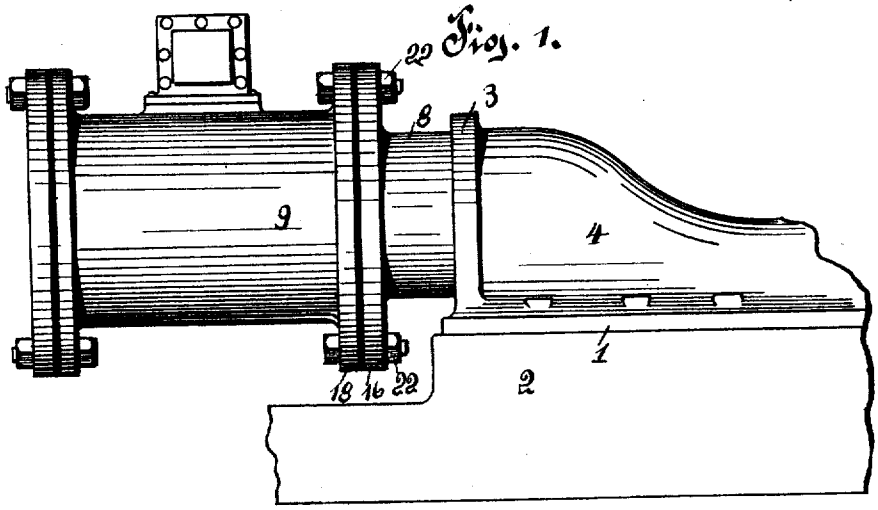


Fig. 2.

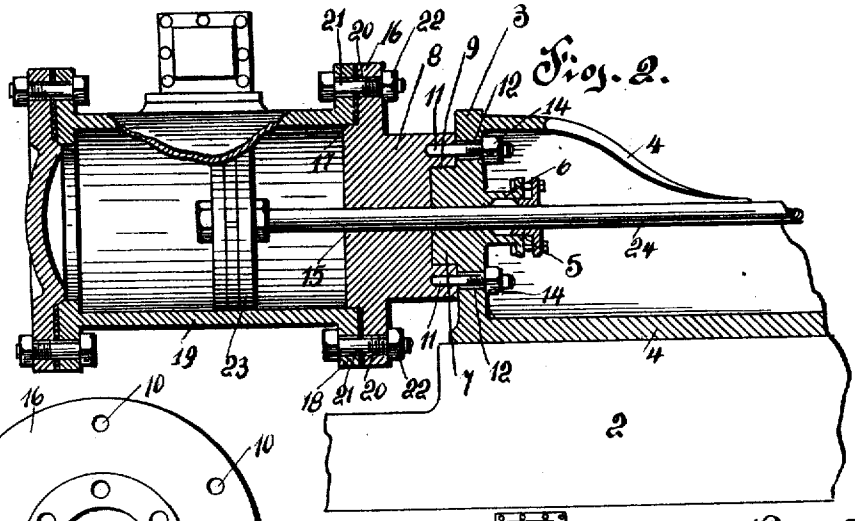


Fig. 3.

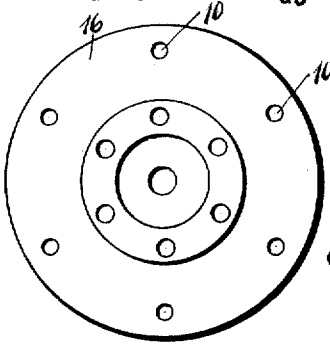
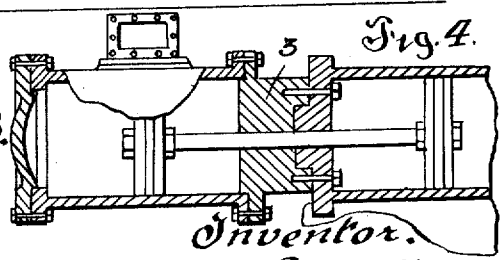


Fig. 4.



Witnesses:

R. F. Dieterich

C. Westermann.

Inventor.

Alexander Russell.

by A. C. Ewert & Co.

Attorneys.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALEXANDER RUSSELL, OF ST. MARYS, WEST VIRGINIA.

CYLINDER-HEAD FOR ENGINES.

No. 829,233. Specification of Letters Patent. Patented Aug. 21, 1906.

Application filed June 24, 1905. Serial No. 266,878.

To all whom it may concern:

Be it known that I, ALEXANDER RUSSELL, a citizen of the United States of America, residing at St. Marys, in the county of Pleasants and State of West Virginia, have invented certain new and useful Improvements in Cylinder-Heads for Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in cylinder-head for engines.

The primary object of this invention is to provide a novel form of intermediate head adapted to be interposed between the compressing-cylinder and the operating-cylinder of a pump, said head being constructed to support the compressing-cylinder either from the bed-plate of an engine or from the head of the operating-cylinder of a pump, as before said.

Another object of this invention is to provide a construction adapted to be used in connection with engines of the above type which will reduce the cost of manufacturing said engines to a minimum, at the same time strengthening the construction and providing a more compact arrangement of the operating parts of the engine.

With the above and other objects in view the invention consists in the novel construction, combination, and arrangement of parts, which will be hereinafter more fully described and then specifically pointed out in the claims, and, referring to the drawings accompanying this application, like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a side elevation view of a portion of an engine equipped with my improved head. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a front elevation of the intermediate head, and Fig. 4 is a sectional view of a modified construction.

In the accompanying drawings I have illustrated that portion of a pump or compressor to which my invention is applicable. I have illustrated the forward end of a bed-plate 1, which is secured to a suitable foundation 2. The bed-plate 1 is provided with a vertical wall 3, which is suitably braced by side flanges 4 4 from the bed-plate 1 of the pump or compressor. The vertical wall 3 upon its one side is provided with a conventional form of stuffing-box 5, adapted to surround the central opening 6, formed in the vertical wall. The opposite side of the wall is provided with an annular enlargement, which also surrounds the opening 6 of the wall and provides a suitable support for my improved intermediate head.

The head in the accompanying drawings is designated 8, and the one face, which I will hereinafter term the "front" face, is provided with an annular recess 9, adapted to receive the annular enlargement 7 of the wall 3. This face is also provided with a plurality of apertures 10, in which are secured by suitable fastening means rearwardly-extending screw-bolts 11, that extend through apertures 12, formed in the vertical wall 3, and are secured in engagement with said wall by nuts 14. The head 8 is provided with a central opening or bore 15, adapted to aline horizontally with the opening 6, formed centrally within the vertical wall 3. The head 8 is also provided with a peripheral flange 16, which is chamfered, as indicated at 17, to form an annular shoulder upon which the peripheral flange 18 of a cylinder 19 is adapted to rest, said flange 18 and peripheral flange 16 being provided with suitable apertures 20, through which headed bolts 21 pass, that are secured therein by nuts 22.

Within the cylinder 19 is mounted a conventional form of piston-head 23, carrying a piston-rod 24, that extends through the opening or bore 15 of the head 8 and the opening 6 of the rear wall 3. This piston-rod is adapted to connect with cross-head in the usual manner, all with a suitable form of piston-head contained within the operating-cylinder of a vacuum-pump or compressor.

Heretofore in this type of pump or compressor, as shown in Fig. 3, a skeleton head or framework has been interposed between the operating-cylinder and the pump or compressing-cylinder, this frame requiring considerable space and increasing the cost of manufacturing the pump and compressors. I have devised my improved intermediate head to take the place of this skeleton frame, which necessitates the moving of the pump or compressor cylinder into closer proximity to the operating-cylinder, consequently providing a more compact pump or compressor and insuring a more perfect and positive cooperation of the two cylinders.

In the accompanying illustration I have shown and have herein described the intermediate head as attached to the end wall of a bed-plate; but, as hereinbefore stated, the

wall 3 shown may be the end wall of an operating-cylinder of the pump or compressor. This end wall 3, as herein shown, is the full equivalent of the end or head (similarly constructed) of a cylinder.

It is thought from the foregoing that the construction, operation, and advantages of the herein-described pump or compressor will be apparent without further description, and various changes in the form, proportion, and advantages of the same may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

What I claim, and desire to secure by Letters Patent, is—

The combination with a bed-plate provided with a vertical wall, an annular enlargement carried on the outer face of said vertical wall, and a stuffing-box on the inner face thereof, the said wall having a central opening and a plurality of circumferentially-arranged bolt-openings, of a cylinder having a flanged inner end, and a head for the end of said cylinder, said head having a peripheral flange abutting and secured to the flange of the cylinder, said head having a central recess securing the annular enlargement of the vertical wall and bolts carried by said head and engaging in the bolt-openings in the vertical wall.

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

ALEXANDER RUSSELL.

Witnesses:
CHARLIE CARROLL,
F. C. PERCIVAL.