A. RUSSELL.

INTERMEDIATE HEAD FOR ENGINE FRAMES AND PUMP CYLINDERS.

APPLICATION FILED DEC. 28, 1905.

901,837. Patented Oct. 20, 1908.

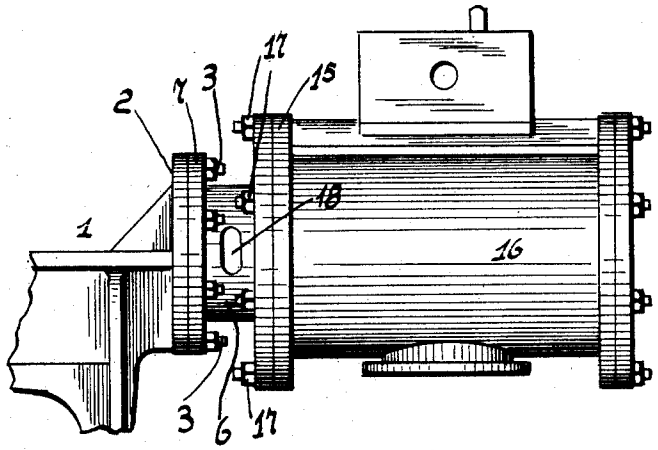


Fig. 1.

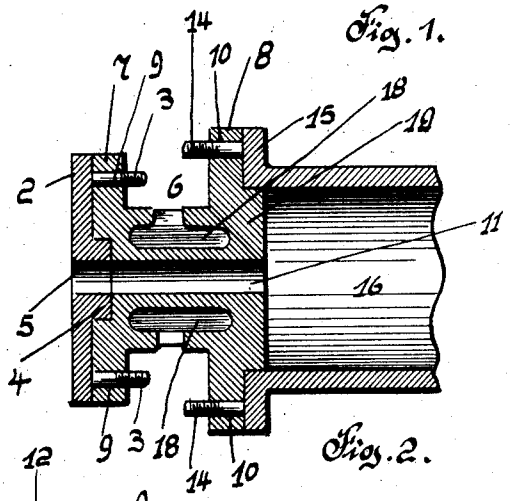


Fig. 2.

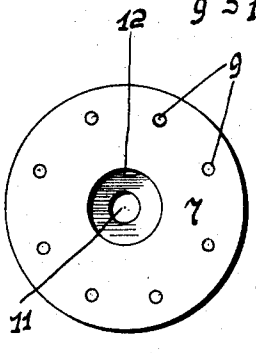


Fig. 3.

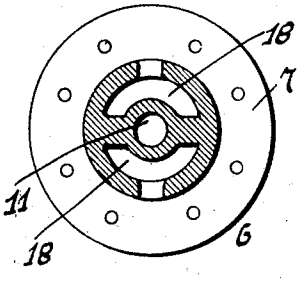


Fig. 4.

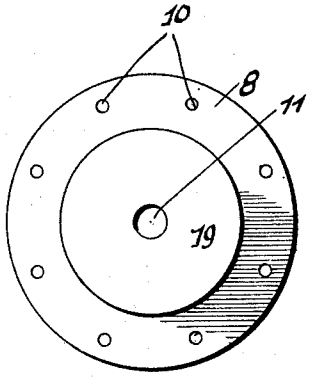


Fig. 5.

Witnesses:
C. Klostermann
R. N. Butler

Inventor.
Alexander Russell.
By A. C. Ewart & Co
Attorneys.

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

UNITED STATES PATENT OFFICE.

ALEXANDER RUSSELL, OF ST. MARYS, WEST VIRGINIA.

INTERMEDIATE HEAD FOR ENGINE-FRAMES AND PUMP-CYLINDERS.

No. 901,837. Specification of Letters Patent. Patented Oct. 20, 1908.

Application filed December 28, 1905. Serial No. 293,647.

To all whom it may concern:

Be it known that I, ALEXANDER RUSSELL, 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 Intermediate Heads for Engine-Frames and Pump-Cylinders, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to certain new and useful improvements in vacuum pumps, such as used in the oil fields and the invention relates more particularly to an intermediate head by which a pump cylinder may be secured to an engine body or frame.

The primary object of my invention is to provide an intermediate head by which various sizes of cylinders can be easily and quickly connected to an engine body or frame.

My improved intermediate head can be constructed of various sizes, whereby various sizes of cylinders can be connected to an engine body or frame. The heads are manufactured in various sizes and weights, and the simplicity of construction used in connection with the head permits of it being manufactured at a comparatively small cost.

Briefly described, my improved head comprises a central portion having peripheral flanges at each end, said flanges being of various sizes to correspond to the end of a cylinder and the end of an engine body or frame. The flanges are provided with a plurality of apertures whereby they may be secured to an engine and cylinder, and the central portion of the head is provided with a longitudinal bore through which a piston rod is adapted to extend, the central portion of the head being cut away to reduce the weight of the same.

The detail construction of my improved intermediate head will be hereinafter more fully described and claimed, and referring to the drawing accompanying this application, like numerals of reference designate corresponding parts throughout the several views, in which:—

Figure 1 is a side elevation of my improved intermediate head, illustrating a vacuum pump cylinder supported from one end of an engine body or frame. Fig. 2 is a fragmentary longitudinal sectional view of the same, Fig. 3 is a view of the engine end of my improved intermediate head, Fig. 4 is a central cross sectional view of the head, and Fig. 5 is a view of the cylinder end of the head.

In the accompanying drawing, the reference numeral 1 designates the end of an engine body or frame which is provided with a disk-shaped end 2 carrying a plurality of circumferentially arranged screw bolts or pins 3. Centrally of the disk-shaped end is formed an annular boss 4 having a central bore 5.

My improved intermediate head consists of a central body portion 6 carrying a peripheral flange 7 at its one end and a peripheral flange 8 at its opposite end, said flanges being provided with apertures 9 and 10 respectively, the apertures 9 being adapted to receive the screw bolts or pins 3 of the disk-shaped end 2 of the engine.

The body portion 6 of the intermediate head is provided with a longitudinally disposed bore 11 which terminates in an annular recess 12 formed in the end of the head adjacent to the peripheral flange 7, said recess being adapted to receive the boss 4 of the engine body or frame 1.

The apertures 10 of the peripheral flange 8 of the intermediate head are adapted to receive a plurality of screw bolts or pins 14 carried by the flanges 15 of a cylinder 16 and in connection with the screw bolts or pins 14 and 3, I employ nuts or taps 17 for securing the intermediate head together with the cylinder 16 to the engine body or frame 1.

In order to reduce the weight of the intermediate head, I provide the same with recesses 18, 18, these recesses being formed during the operation of manufacturing my improved intermediate head.

The end of the head having the peripheral flange 8 is provided with a boss 19 which fits within the end of the cylinder 16 to close its open end, the flange 8 adjacent its periphery having openings to receive the bolts or pins 14 carried by the cylinder.

As particularly shown in Fig. 2, the end 2 of the body is substantially of the same diameter as the flange 7 of the intermediate head, the body-end having the projecting boss 4 and the head having a corresponding recess to receive the boss, the opening for the piston rod being formed centrally through both the body-end and the intermediate head. By this construction I not only provide an extended support or guide for the piston rod, but in addition, the boss 4 provides a support for the head which will pre-

vent any liability of the latter being displaced, this support, with that afforded by the boss 19 within the cylinder preventing all liability of placing lateral pressure on the bolts or pins which secure the head in position. And the fact that the piston rod is guided by the body-end as well as by the head largely reduces the liability of damage to the intermediate head by the action of the piston.

In practice, I preferably construct the intermediate heads of various sizes corresponding to the cylinder at present used, whereby said cylinders can be easily and quickly attached to an engine body or frame at any desired time, the space between the peripheral flanges 7 and 8 of the head permitting of easy access being had to the ends of the screw bolts or pins to permit of nuts or taps 17 being placed in engagement with the screw bolts or pins to hold the intermediate head and the cylinder upon the engine body or frame.

My intermediate heads are preferably constructed of strong and durable metal, which will withstand the weight of a cylinder when connected to an engine body or frame through the medium of my improved intermediate head.

I do not care to confine myself to the type of cylinder to be clamped or placed in engagement with the engine body or frame, my invention simply residing in the intermediate head, one form of which is described and illustrated in my pending application filed June 24th, 1905, Serial No. 266,878, the present invention being an improvement upon the intermediate head described and claimed in the above mentioned application.

In my before mentioned application I have shown and described a head which is adapted to serve as a head of a cylinder and is also adapted to serve as a connection between the cylinder and a frame or another cylinder. The construction of the head shown in my before mentioned application and the head which constitutes the subject-matter of the present improvement is radically different, as in the previous application the head is provided with a boss on one end that fits into the cylinder and with an annular flange on the other end that fits over a boss on the engine frame or another cylinder and that carries bolts projecting through the end wall of the engine frame or the other cylinder, whereas in the present application each end of the head is formed with a peripheral flange which receives bolts projecting in the one case from a disk-shaped end carried by the frame and in the other case from a flange carried by the cylinder, both these sets of bolts having nuts on their ends.

Such changes in the construction of my improved intermediate head, as are permissible by the appended claims, may be resorted to without departing from the spirit and scope of the invention.

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

The combination of an engine frame provided at one end with a vertically extending disk having a centrally disposed opening and a relatively small outwardly projecting boss surrounding said opening, said disk provided with a plurality of laterally extending screw-threaded bolts formed integral therewith and arranged in close proximity to the periphery thereof, a flanged cylinder, the flange of said cylinder provided with a plurality of laterally extending screw-threaded bolts formed integral therewith and arranged in close proximity to the outer edge of the flange, and a tubular member interposed between said cylinder and disk, said tubular member having a relatively large boss at one end fitting within the cylinder and constituting a head therefor and having its other end provided with a relatively small centrally disposed recess adapted to receive the boss of said disk, said tubular member further provided with a longitudinally extending opening registering with the opening in said disk and communicating with the interior of the cylinder, the wall of said longitudinally extending opening being recessed thereby decreasing the weight of the said tubular member, said tubular member further provided at one end with a pressure flange of greater thickness than the thickness of said disk, said apertured flange abutting against said disk and adapted to have the bolts carried by the disk extend therethrough, the edge of said flange upon said tubular member being flush with the edge of said disk, said tubular member further provided with an apertured flange abutting against the flange of the cylinder and adapted to have extended therethrough the bolts carried by the flange of the cylinder, that flange which abuts against the flange of the cylinder having its edge flush with the edge of the flange of the cylinder, said flange which abuts against the flange of the cylinder being of greater thickness than the flange of the cylinder, and nuts mounted upon the projecting ends of the bolts whereby said member is fixedly secured to the disk and the cylinder.

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

ALEXANDER RUSSELL.

Witnesses:

W. V. Bills,

Clyde B. Johnson