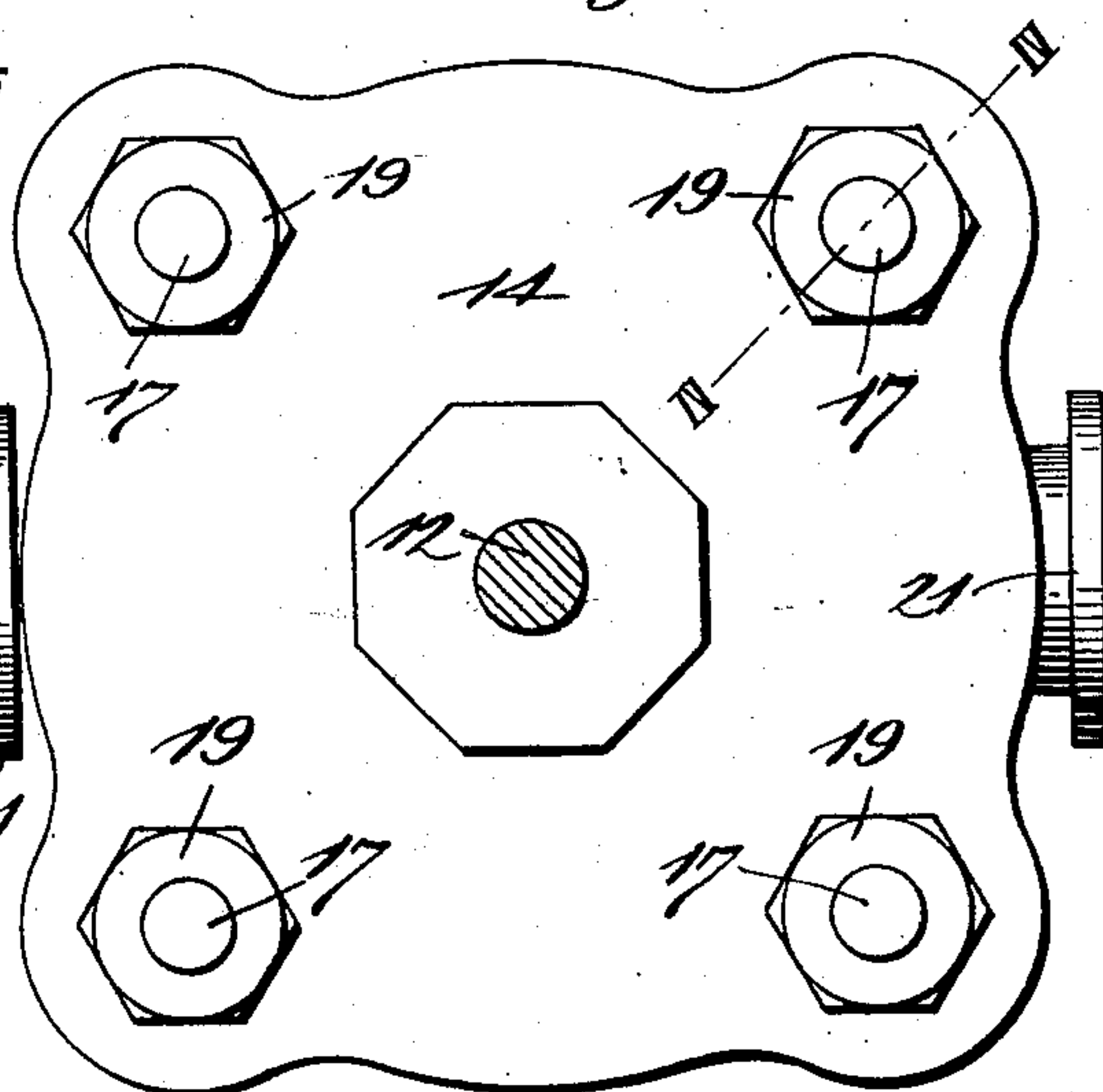
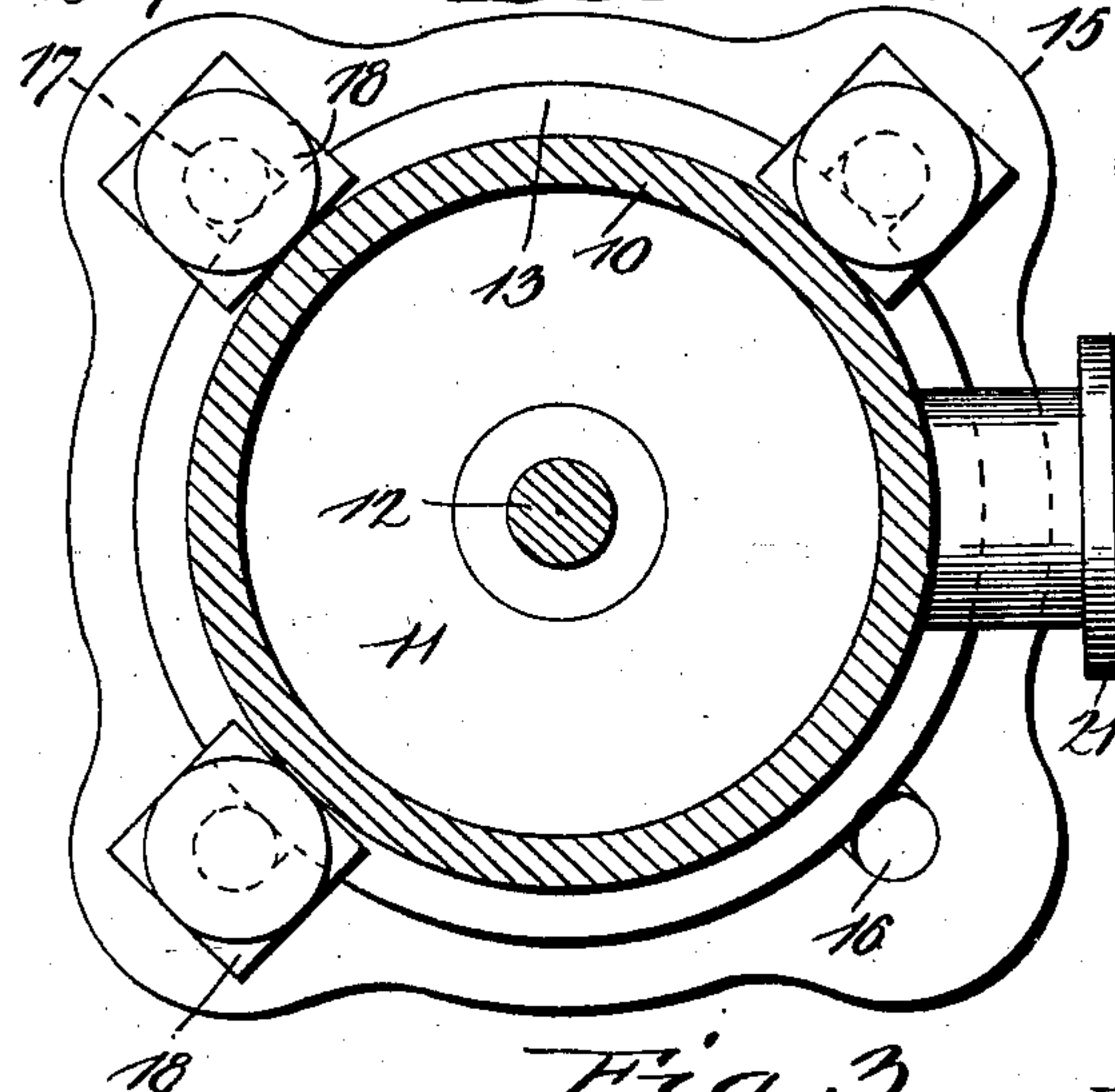
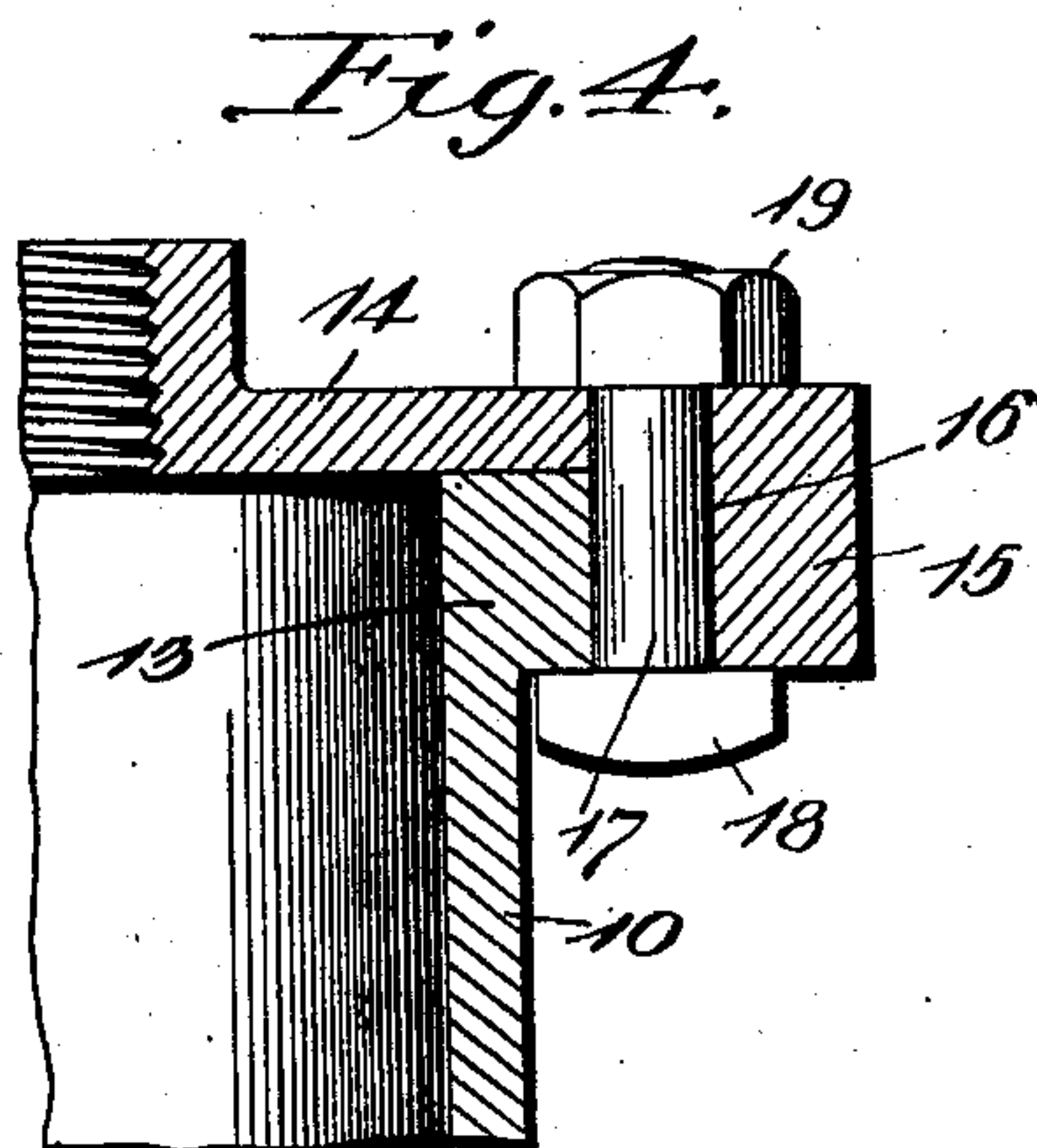
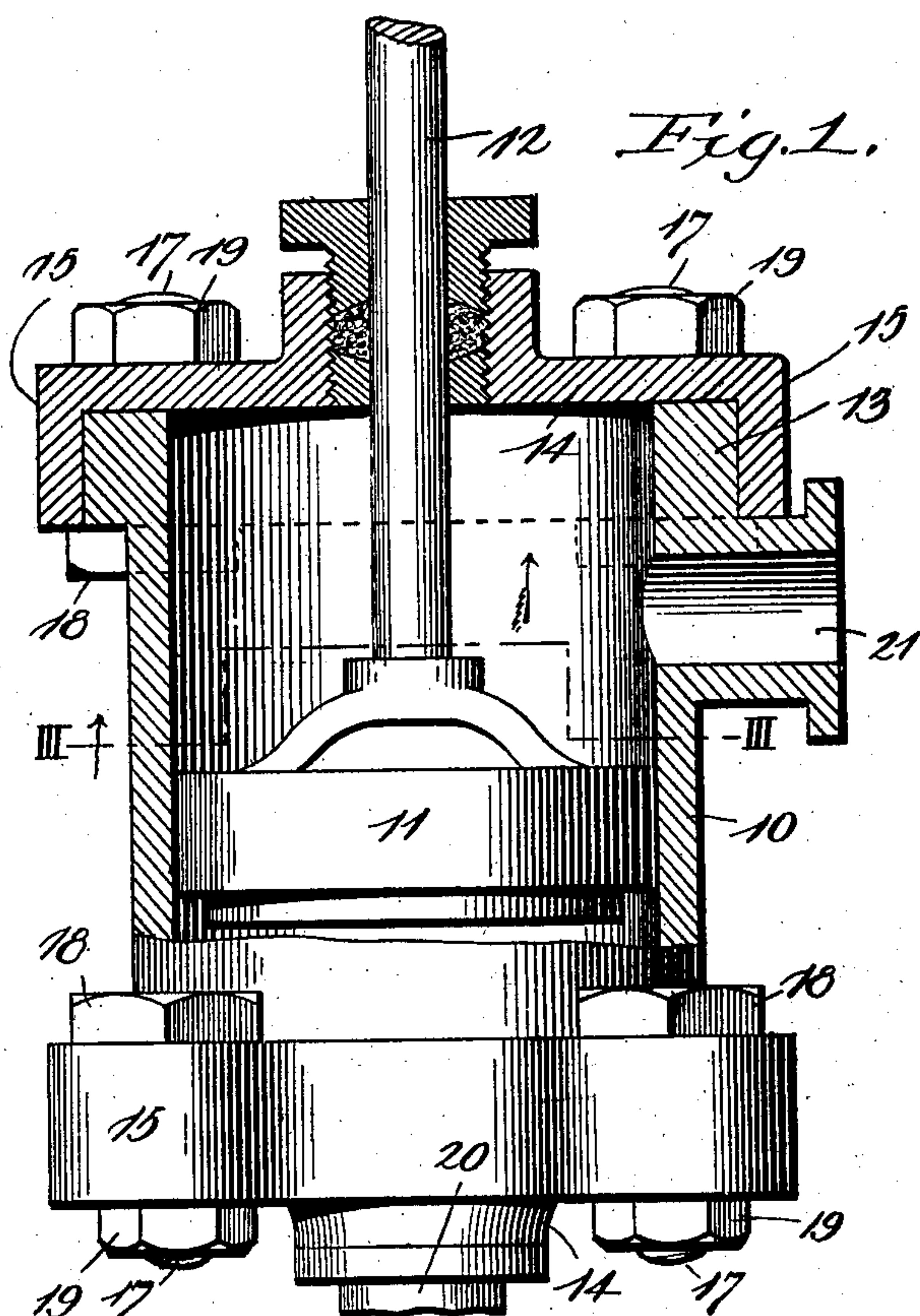


No. 763,028.

PATENTED JUNE 21, 1904.

R. STONE.  
PUMP CYLINDER.  
APPLICATION FILED SEPT. 19, 1902.

NO MODEL.



Witnesses

E. F. Stewart,  
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Attorneys



# UNITED STATES PATENT OFFICE.

RUDOLPH STONE, OF CATAWBA, WISCONSIN.

## PUMP-CYLINDER.

SPECIFICATION forming part of Letters Patent No. 763,028, dated June 21, 1904.

Application filed September 19, 1902. Serial No. 124,068. (No model.)

*To all whom it may concern:*

Be it known that I, RUDOLPH STONE, a citizen of the United States, residing at Catawba, in the county of Price and State of Wisconsin, have invented a new and useful Pump-Cylinder, of which the following is a specification.

This invention relates to the cylinders of pumps and similar structures, and has for its object the production of detachable ends for the cylinder which may be readily attached to and detached from the cylinder and rotatively adjusted thereon independently of the cylinder and of the plunger or piston-head.

To this end the invention consists in the details of construction, as hereinafter shown and described, and specified in the claims.

In the drawings illustrative of the invention, Figure 1 is a side elevation, partially in section, of a pump-cylinder embodying the improvements; and Fig. 2 is a plan view of the same. Fig. 3 is a transverse section on the line III III of Fig. 1 looking in the direction of the arrow. Fig. 4 is a sectional detail on the line IV IV of Fig. 2.

This invention may be applied to any of the various forms of pump-cylinders and may be applied to some forms of steam-engines and similar structures, and I do not, therefore, wish to be limited in any manner to the form of structure to which the invention may be applied.

The improved device is more particularly applicable to pumps and other similar structures which are exposed to moisture, whereby rust gathers around the holding-bolts and renders the detachment of the parts a matter of extreme difficulty.

For the purpose of illustration the invention is shown applied to a pump-cylinder (indicated at 10) and provided with a plunger 11 and pump-rod 12 of the usual construction. The cylinder 10 is provided at one or both ends with laterally-extended flanges 13 of comparatively greater length longitudinally of the cylinder than ordinary flanges, as shown. As the structure of both cylinder ends is substantially the same, like designating characters are employed to denote corresponding parts in each. The ends of the cylinder are indicated at 14 and are each provided with a

depending peripheral flange or rim 15, closely engaging and rotative upon the periphery of the flange 13, the length of the depending flange or rim corresponding to the length of the flange, as shown, so that a comparatively extensive contact area is provided between the cylinder and cylinder ends. Longitudinally disposed in the depending rims or flanges 15 at suitable intervals are bolt-apertures 16, the apertures being continued through the cylinder ends, as shown. Any required number of these apertures may be employed, according to the size of the cylinder; but for the purpose of illustration four are shown spaced apart and opening inwardly against the flanges 13. The holding-bolts are indicated at 17, passed between the flanges 13 and 15 and provided with laterally-extended heads 18 upon their inner ends, adapted to project into engagement with the outer surface of the flanges 13, as shown, and with nuts 19 upon their outer ends. By this simple arrangement it will be obvious the cover members 14 will be firmly secured in place upon the cylinder by the coaction of the laterally-extended heads 18 of the bolts and the flanges 13, while at the same time leaving the end members free to be rotatively adjusted upon the cylinder, as the heads 18 of the bolts will engage the lower edges of the flanges at all points of the circumference of the flanges. By this means the end members may be rotatively adjusted upon the cylinder independently of the cylinder, pump-rod or plunger, which is a very desirable advantage under certain circumstances.

If the end members and their bolts after long exposure to moisture become rusted fast, they may be readily loosened by slightly reversing the nuts and applying a rotative force to the cover member to break it loose, which action will not in any manner injuriously affect the pump-rod or plunger or other parts, as will be obvious. By this peculiar and novel structure a sufficient quantity of rust can never gather between the parts to prevent the easy detachment of the ends, as a very slight reverse movement to the nuts 19 will enable the bolts 17 to be moved longitudinally and the nut-heads 18 thereby broken loose from the flanges and end members,



which action leaves the ends free to be moved longitudinally or rotatively, as may be found most convenient in loosening them previous to their removal. By this simple construction a cylinder end is produced which may be very readily connected to and disconnected from the cylinder and adjusted to any required extent and which will never become rusted fast to the cylinder to an extent sufficient to annoy the operator in his efforts to remove them.

The device may be applied to pump-cylinders of any size or capacity or to other similar structures.

It will be noted that by this invention the cylinder ends may be connected to the cylinder at any point in their circumference and no attention need be paid to the relative rotative position of the parts, as the heads of the bolts fit the flanges at one point as well as another.

Another advantage to be noted is that the mechanism of the pump above the cylinder may be turned to any desired point independently of the cylinder or the cylinder adjusted rotatively to any desired extent independently of the mechanism above the cylinder, which will on many occasions be a very desirable and useful advantage, especially when the pump or other structure and its operating mechanism are located in cramped quarters, as frequently occurs.

Another important advantage of the improved device is that the comparatively long bearing-surfaces between the end members and the cylinder firmly support the parts, so that lateral strains are borne entirely by the cylinder and the depending portions of the ends and the bolts relieved from lateral strains.

The intake-pipe is indicated at 20 and the discharge-pipe fitting at 21, of the usual form; but it will be understood that the device may be employed in connection with any form of cylinder-pump or similar structure, and I do not wish to be limited in any manner in the employment of the improved device with any specific arrangement of the intake or outlet piping or their connections.

The usual valves will be arranged in connection with the pump; but as they form no part of the present invention they are not illustrated.

Various changes in the form, proportions, size, and minor details of construction may be resorted to without departing from the principle of the invention or sacrificing any of its advantages.

Having thus described the invention, what is claimed is—

1. A device of the class described comprising a cylinder provided at each end with a laterally-extending flange, cover members each having sides adapted to engage the periphery of the flange at one end and terminating flush with the lower surface of said flange, and separate securing means for said cover members, said securing means comprising bolts provided with squared heads arranged in suitable apertures in said cover members and having the heads engaging the flanges on the cylinder and contacting with the outer surface of the cylinder to prevent rotation of the bolts.

2. A device of the class described comprising a cylinder provided at each end with a laterally-extending flange, cover members for the ends of said cylinder each having sides adapted to engage the periphery of the flange at one end of the cylinder and terminating flush with the margin of the flange remote from the end of the cylinder, and independent means for securing said cover members so that they may be independently rotated on said cylinder or removed therefrom, said means comprising bolts with square heads arranged in suitable apertures in said cover members and having the heads engaging the flanges on the cylinder and lying in contact with the outer surface of the cylinder.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

RUDOLPH STONE.

Witnesses:

J. M. SECREST,  
F. V. COMFORT.