

W. J. HASKILL.
 THROTTLE VALVE.
 APPLICATION FILED FEB. 25, 1908.

910,195.

Patented Jan. 19, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

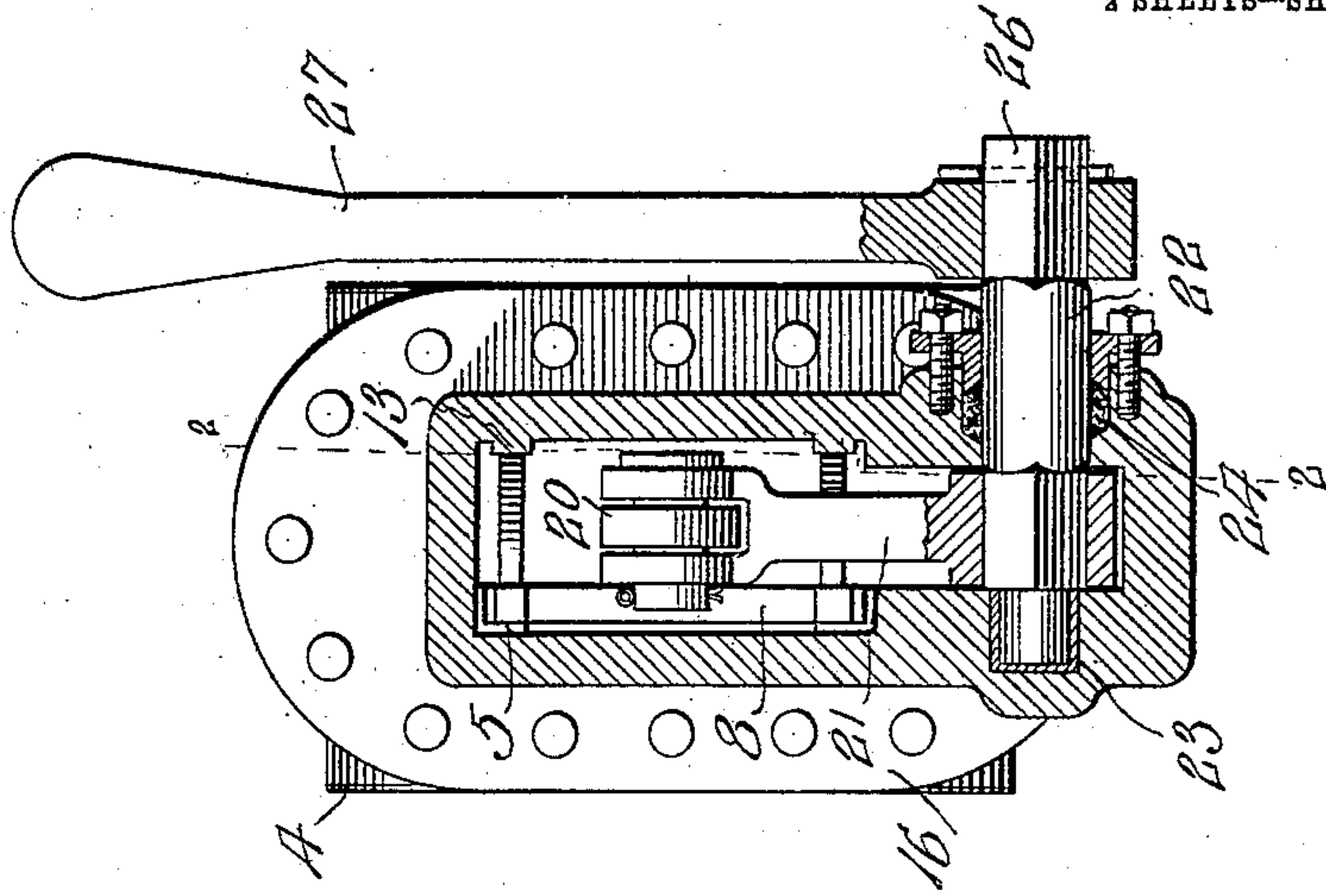
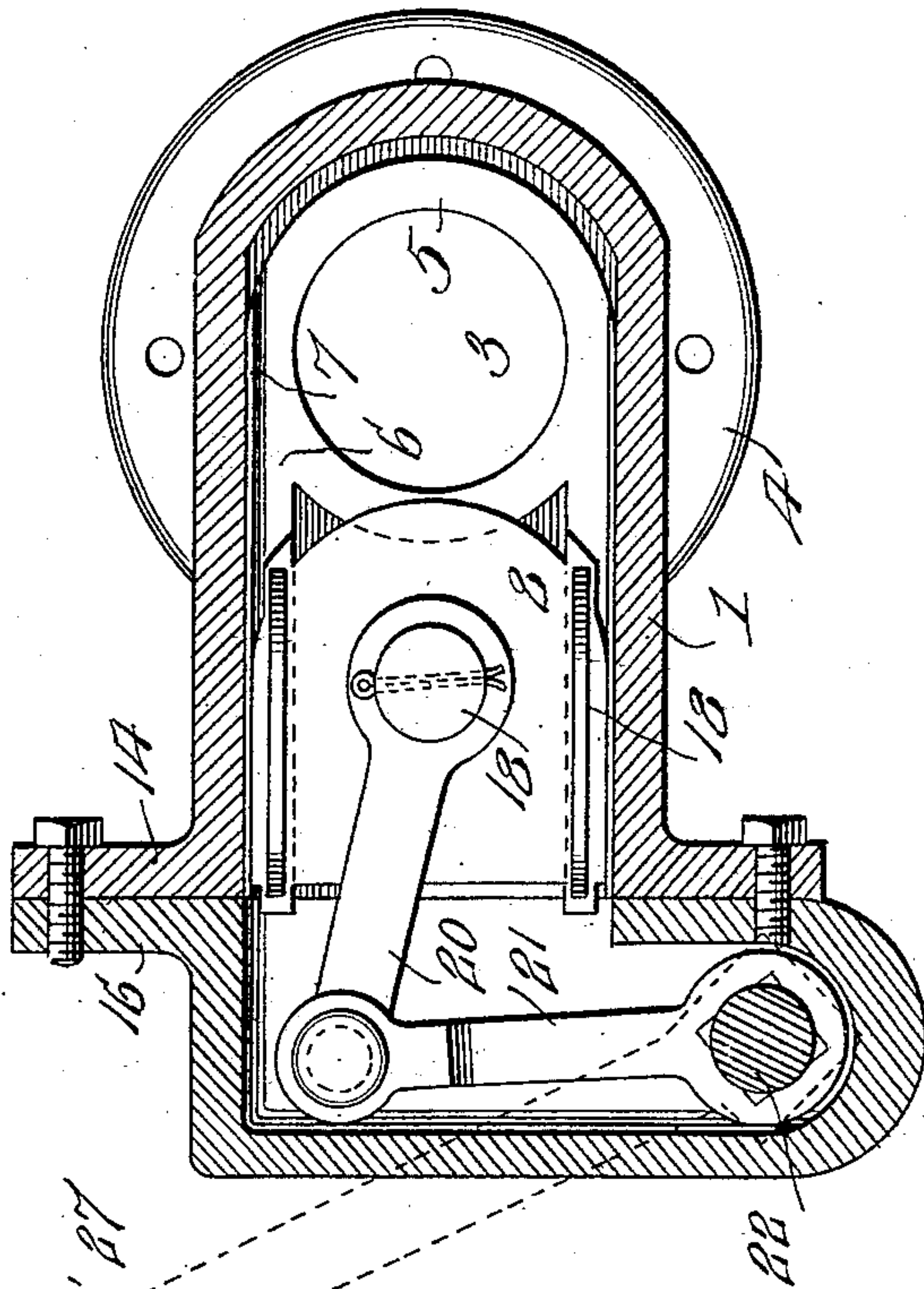


Fig. 2.



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2 SHEETS—SHEET 2.

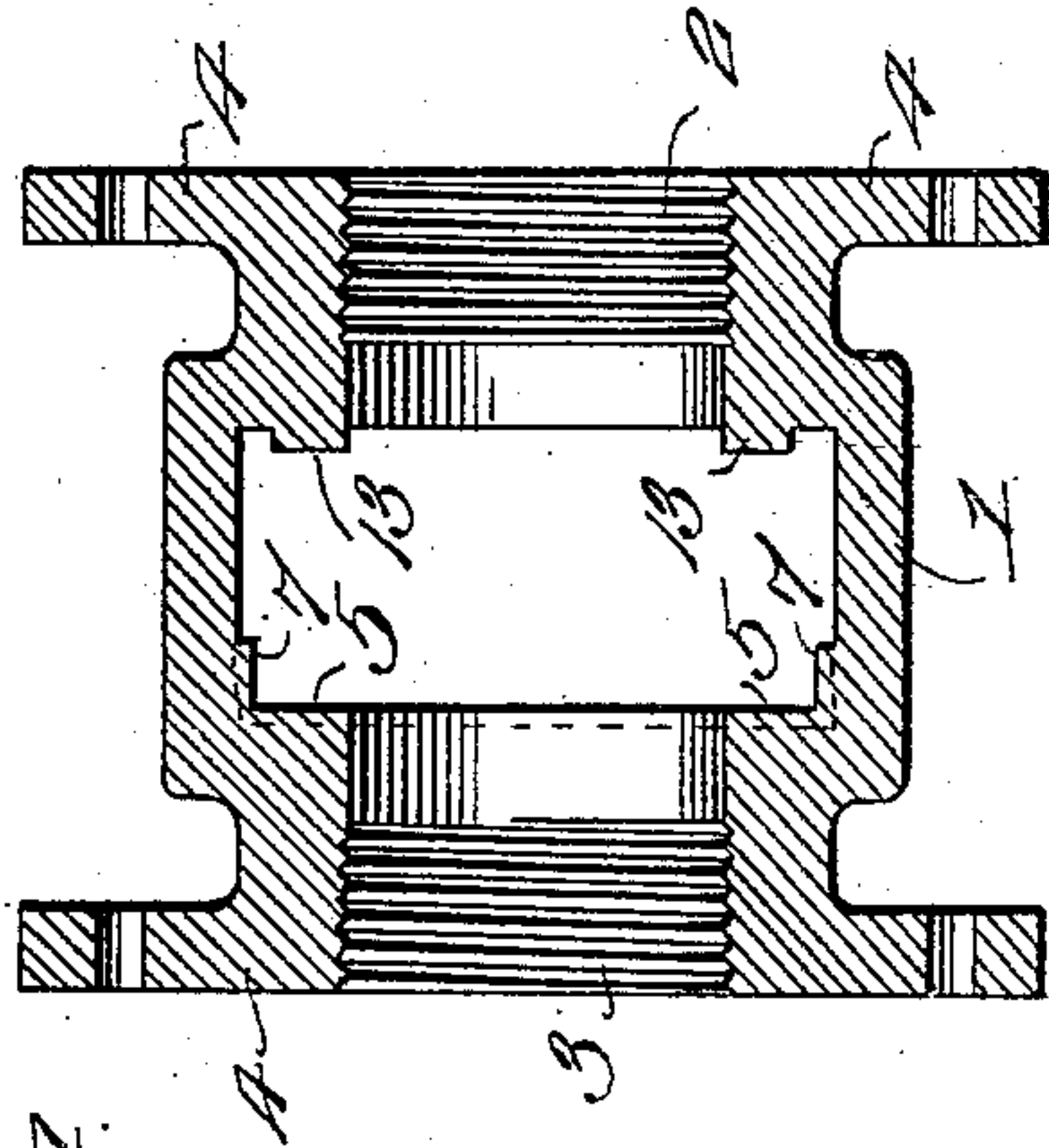


Fig. 4.

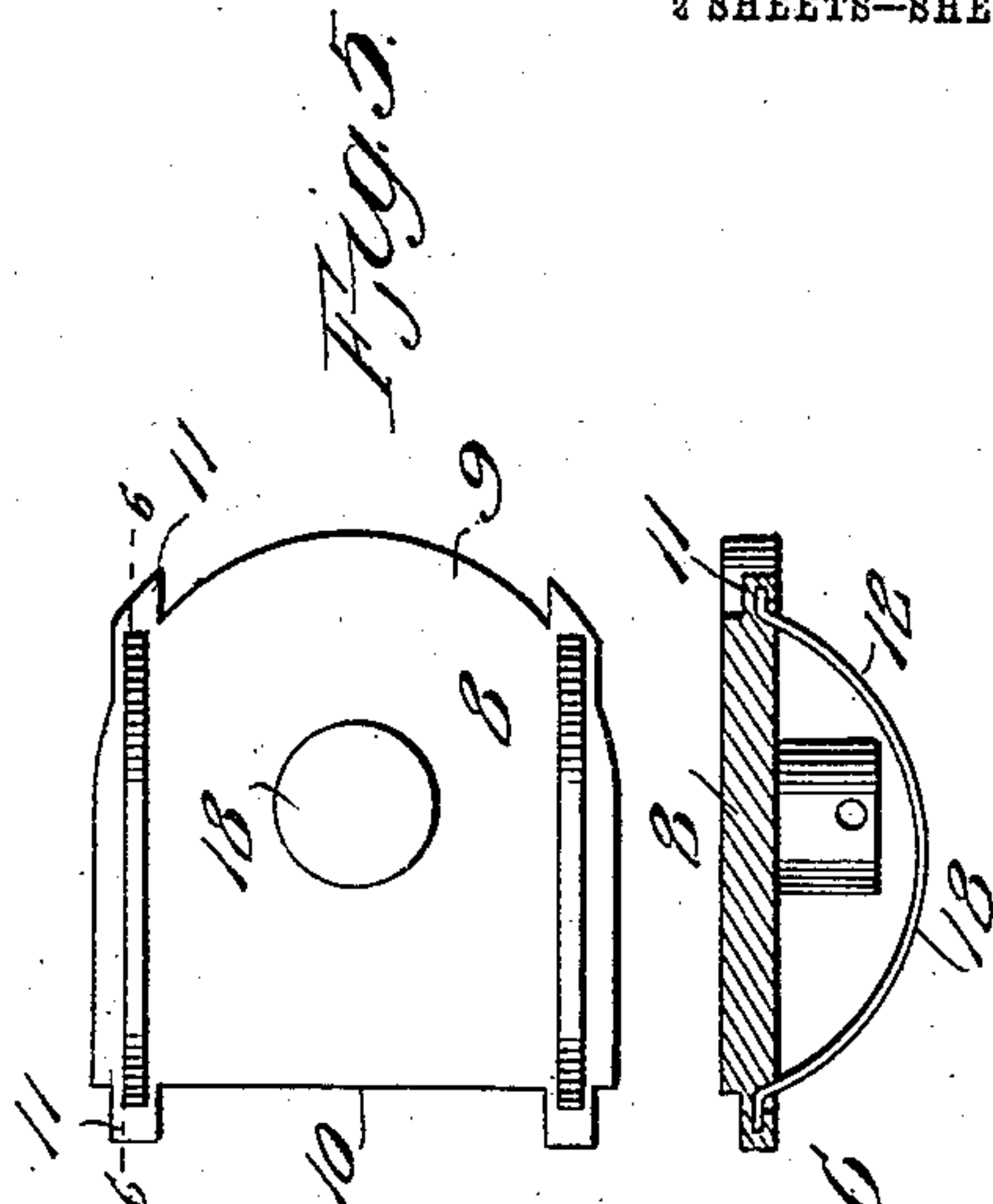


Fig. 5.

Fig. 6.

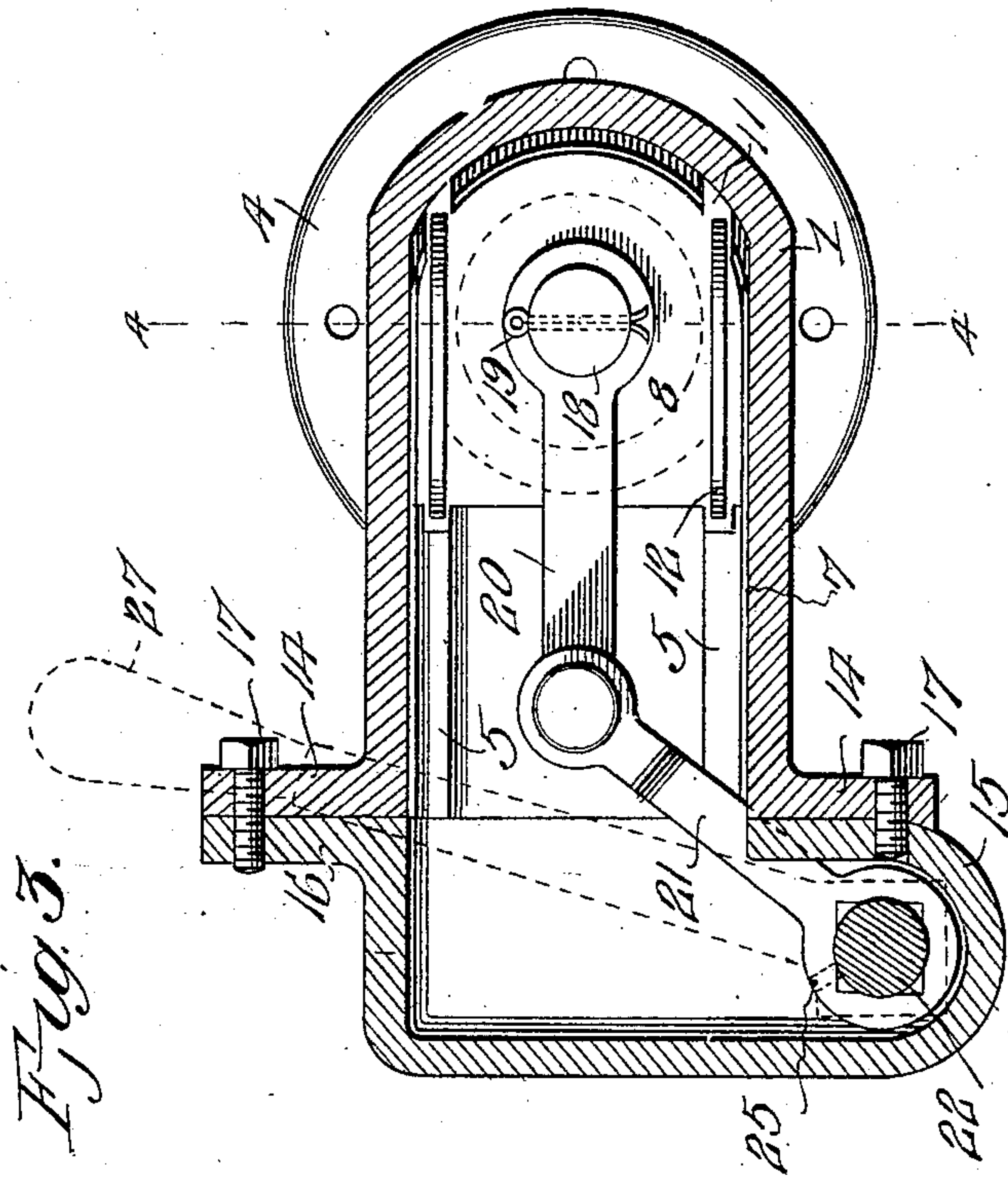


Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM J. HASKILL, OF FARGO, NORTH DAKOTA, ASSIGNOR OF ONE-HALF TO HERMAN SCHUTEN, OF MINNEAPOLIS, MINNESOTA.

THROTTLE-VALVE.

No. 910,195.

Specification of Letters Patent.

Patented Jan. 19, 1909.

Application filed February 25, 1908. Serial No. 417,665.

To all whom it may concern:

Be it known that I, WILLIAM J. HASKILL, a citizen of the United States, residing at Fargo, in the county of Cass and State of North Dakota, have invented new and useful Improvements in Throttle-Valves, of which the following is a specification.

The invention relates to an improvement in throttle valves adapted particularly for use in those situations in which quick opening and closing valves are desired.

The main object of the present invention is the provision of a throttle valve which may be readily connected in place and in which there is an entire lack of wedging the valve to its seat in closing, whereby liability of cutting the seat and the resultant leaky condition of the valve is avoided.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is an end elevation of the valve, one end of the valve casing being shown in section. Fig. 2 is a longitudinal sectional view on the line 2—2 of Fig. 1, the valve slide being shown in open or restricted position. Fig. 3 is a similar view with the slide shown in closed or throttling position. Fig. 4 is a section through the valve casing on line 4—4 of Fig. 3. Fig. 5 is an elevation of the valve slide. Fig. 6 is a sectional view on the line 6—6 of Fig. 5.

Referring particularly to the accompanying drawings, my improved throttle valve comprises an approximately rectangular shell 1, formed in the upper end with an inlet 2 and an outlet 3. Beyond the inlet and outlet the shell is formed for connection in the steam line, having in the instance shown flanges 4, for a flange union connection, though it is to be understood that the shell may be arranged in an appropriate manner for any desired connection. The wall of the shell, adjacent the outlet opening 3, is formed with an inwardly extending rib 5 surrounding said opening and properly ground to provide a valve seat, said wall being also formed with ribs 6 extending from the valve seat 5 in alinement with said valve seat and in parallel relation to the side walls of the shell. The side walls adjacent the ribs 5 and 6 are also thickened as at 7, forming a continuation of the ribs 5 and 6, said ribs 7 serving

to guide the valve. It is, of course, to be understood that the ribs 5 and 6 constitute the valve seat, the circular rib 5 serving as a seat for the valve when the latter is in closing position, while the ribs 6 provide a seat for the valve when the latter is open. The interior of the shell may be treated in any desired manner for the formation of these ribs, being preferably, however, cast as an integral body and the valve receiving surfaces of the ribs properly dressed and ground for the reception of the valve.

The valve proper comprises a plate 8 of the form shown in Fig. 5, having a round upper edge 9 conforming in curvature to the curvature of the rib 5. The lower edge of the valve plate is square, as at 10, and from said upper and lower edges, adjacent the side edges extend projections 11, which are designed to engage the walls of the shell in the limits of movement of the valve plate, and, by virtue of the comparatively small surface thus engaging said walls, prevent any possibility of the valve plate sticking in operation. Secured on the surface of the valve plate next the inlet 2 are springs 12, terminally secured respectively adjacent the upper and lower edges of the plate and close to the side edges thereof. These springs are of approximately semicylindrical form and are designed, when the valve plate is in position, to bear against ribs 13 formed on the wall of the shell adjacent the inlet 2.

The lower end of the shell is formed with laterally projecting flanges 14 and to these flanges are secured a casing or housing 15, designed to receive and support the valve operating parts. The housing is preferably in the form of a hollow body having a flange 16 coextensive with one of the flanges 14, and being rounded at the end opposed to the flange 16 to underlie the opposing flange 14, lag screws 17 being used to secure the housing to the shell. The valve plate 8 is provided with a centrally disposed laterally projecting stem 18, to which is removably secured, through the medium of a cotter pin 19, an arm 20. To the lower end of the arm is secured a link 21, which is of a length to extend from said arm to a point within the rounded end of the housing when the valve 8 is in elevated or closing position. Mounted in the opposing side walls of the housing is a shaft 22, one end of which is

mounted at 23 in a blind bearing in one housing wall, while the opposing end extends through and beyond the opposing housing wall, preferably projecting through a stuffing box 24 mounted in the usual manner for coöperation with the opening in the wall. The link 21 is secured upon the shaft 22 between the walls of the housing, the link and shaft being appropriately squared or of other angular contour to provide the desired connection, said screw 25 being utilized if desired to further secure the link and shaft against independent movement. Beyond the housing the end of the shaft 22 is squared, as at 26, and an operating lever 27 is formed with an opening to fit the squared end of the shaft, said lever being disposed entirely beyond the valve structure and forming a convenient means for the manual operation of the valve.

In connection with the housing 15 it is to be particularly noted that its construction adapts it for reversal with relation to the shell, that is the rounded end of the housing may be disposed at either side of the shell, thereby adapting the valve proper for operation from either one side or the other, as the particular use of the valve and the demands of the situation in which it is used may necessitate.

When the valve is in closed position, the springs 12 and also the pressure of steam operate to hold it closely against its seat, whereby a most effective result is secured. Owing to the peculiar shape of the valve and valve seat it will be evident that a slight opening movement of the valve will tend to admit steam behind the valve and thereby lessen the steam pressure against the valve when the latter is fully or partly opened. In addition to facilitating the opening of the valve this admission of steam between the valve and seat tends to materially reduce the friction on the seat and thereby saves the wear on the seat which would be otherwise existent.

It is, of course, apparent that by the removal of the housing 15 from the shell 1, the valve and operating parts may be readily separated from the shell and free access provided to the latter for the correction of

irregularities or the regrinding of the valve seat.

Having thus described the invention what is claimed as new, is:—

1. A throttle valve including a shell formed with an inlet and with an outlet, the wall of the shell having the outlet being formed with a rib surrounding the outlet and with spaced ribs extending in parallel relation from the annular rib, and a valve coöperating with said ribs in operation.

2. A throttle valve including a shell having one wall formed with an inlet and the opposing wall formed with an outlet, a valve seat surrounding the outlet, a valve arranged to coöperate with said seat, and yieldable means carried by the valve and engaging the wall having the inlet.

3. A throttle valve including a shell having one wall formed with an inlet and the opposing wall formed with an outlet, a valve seat surrounding the outlet, a valve arranged to coöperate with said seat, and yieldable means arranged between the valve and inlet wall and exerting pressure upon the valve in all positions of the latter.

4. A throttle valve including a shell having one wall formed with an inlet and the opposing wall formed with an outlet, a valve seat surrounding the outlet, a valve arranged to coöperate with said seat, and springs carried by the valve and arranged to bear on the inlet wall.

5. A throttle valve including a shell formed with an inlet and outlet, a valve mounted for movement within the shell, a housing removably secured to and in open communication with the shell, an arm removably connected to the valve, a link connected with the arm and projecting within the housing, a shaft mounted in the housing and operatively connected to the link, said shaft extending beyond one wall of the housing, a handle carried by the extended end of the shaft.

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

WILLIAM J. HASKILL.

Witnesses:

H. SCHUTEN,

AUGUSTUS ROBERTS.