

E. C. COLSON.
STEAM PIPE JOINT CONNECTION.
APPLICATION FILED JULY 23, 1909.

956,290.

Patented Apr. 26, 1910.

3 SHEETS—SHEET 1.

Fig. 2.

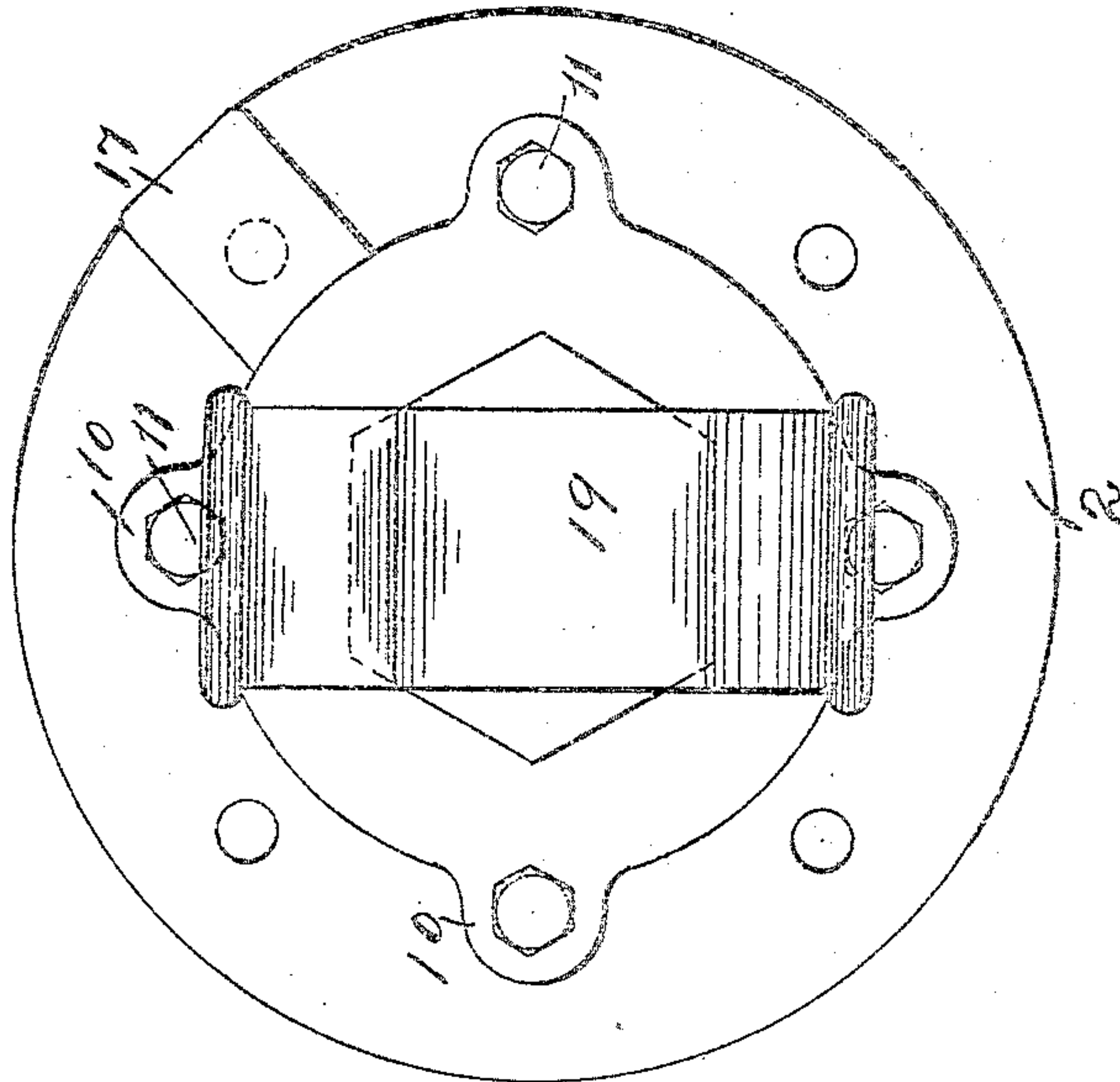
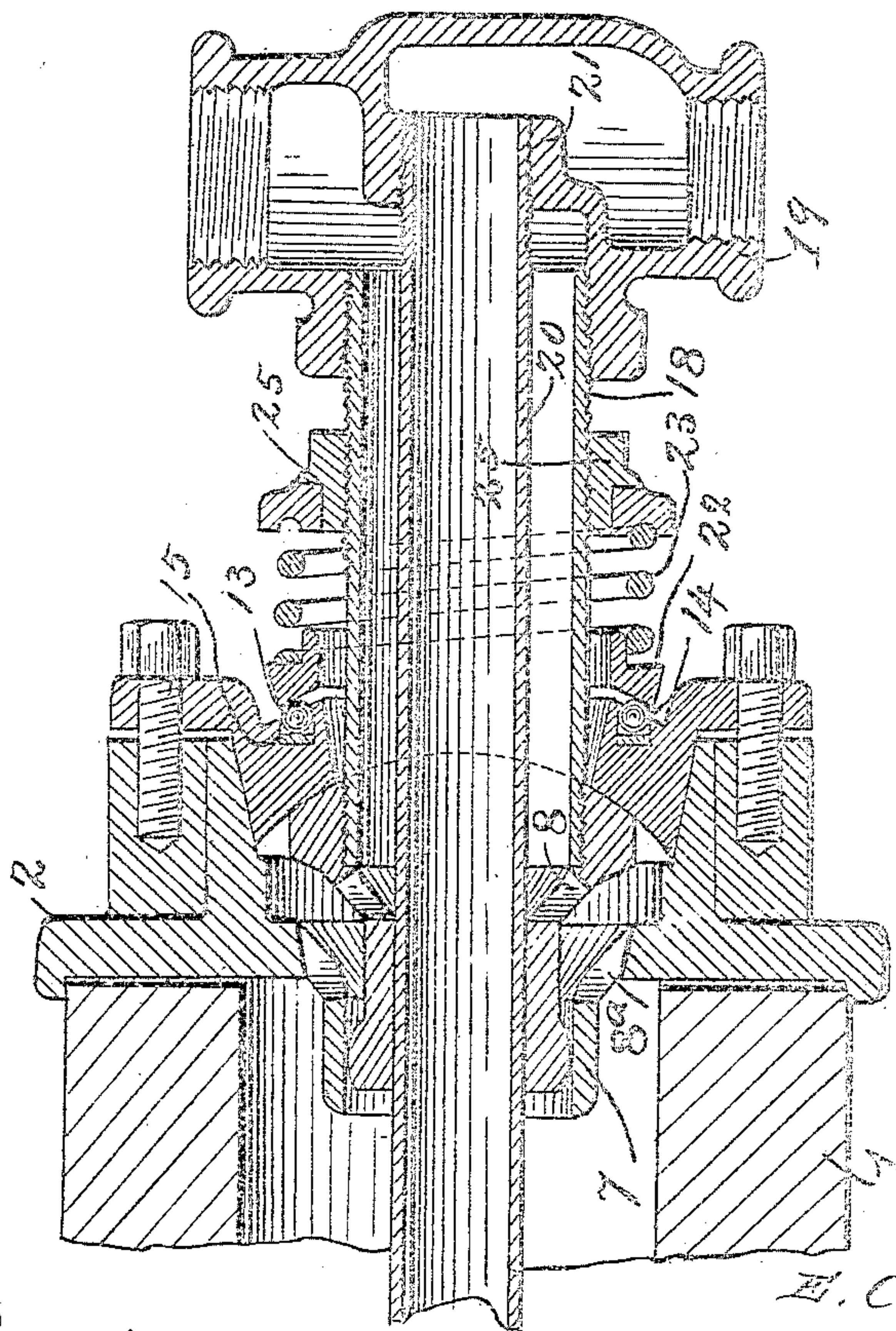


Fig. 1.



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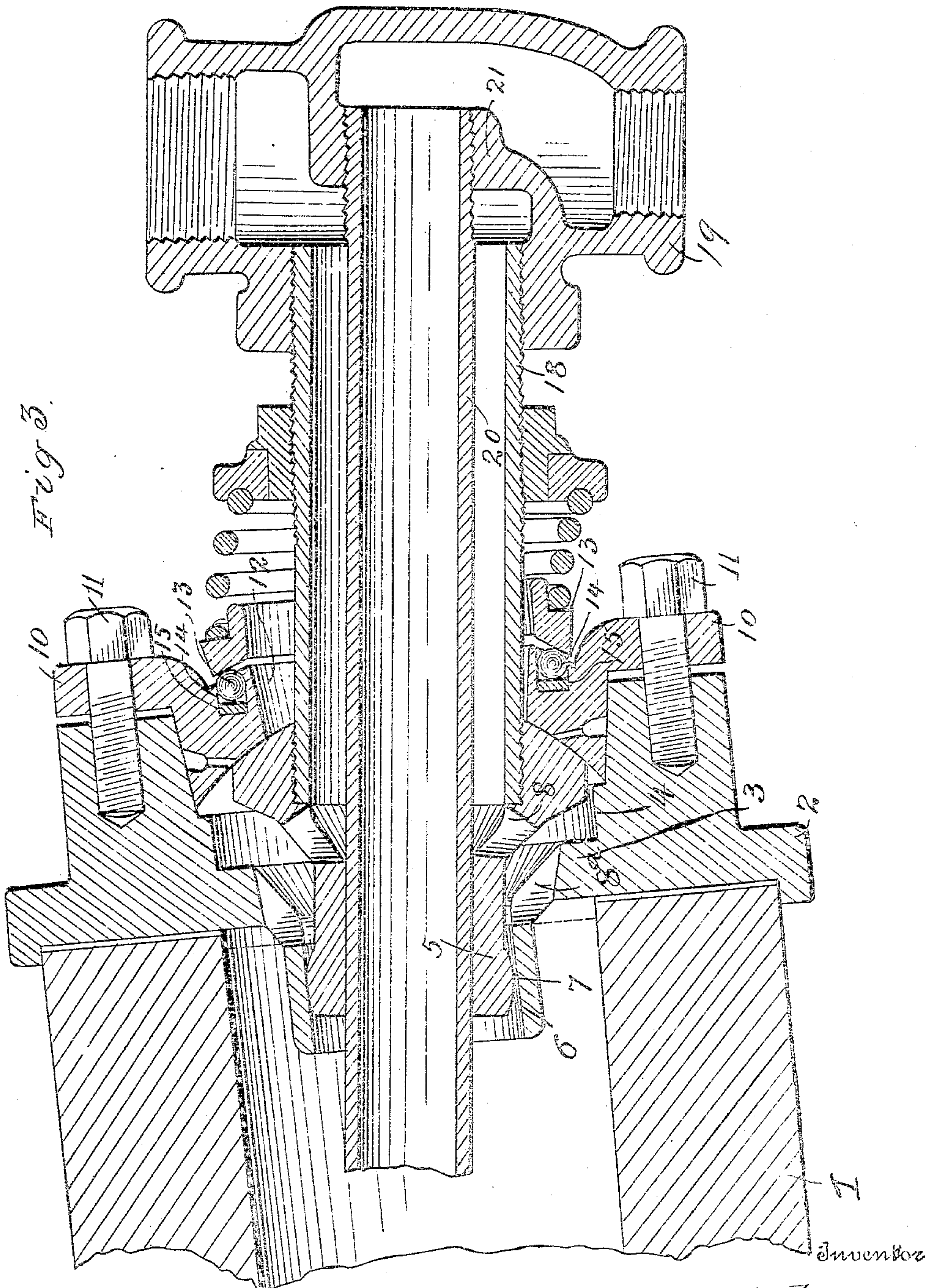
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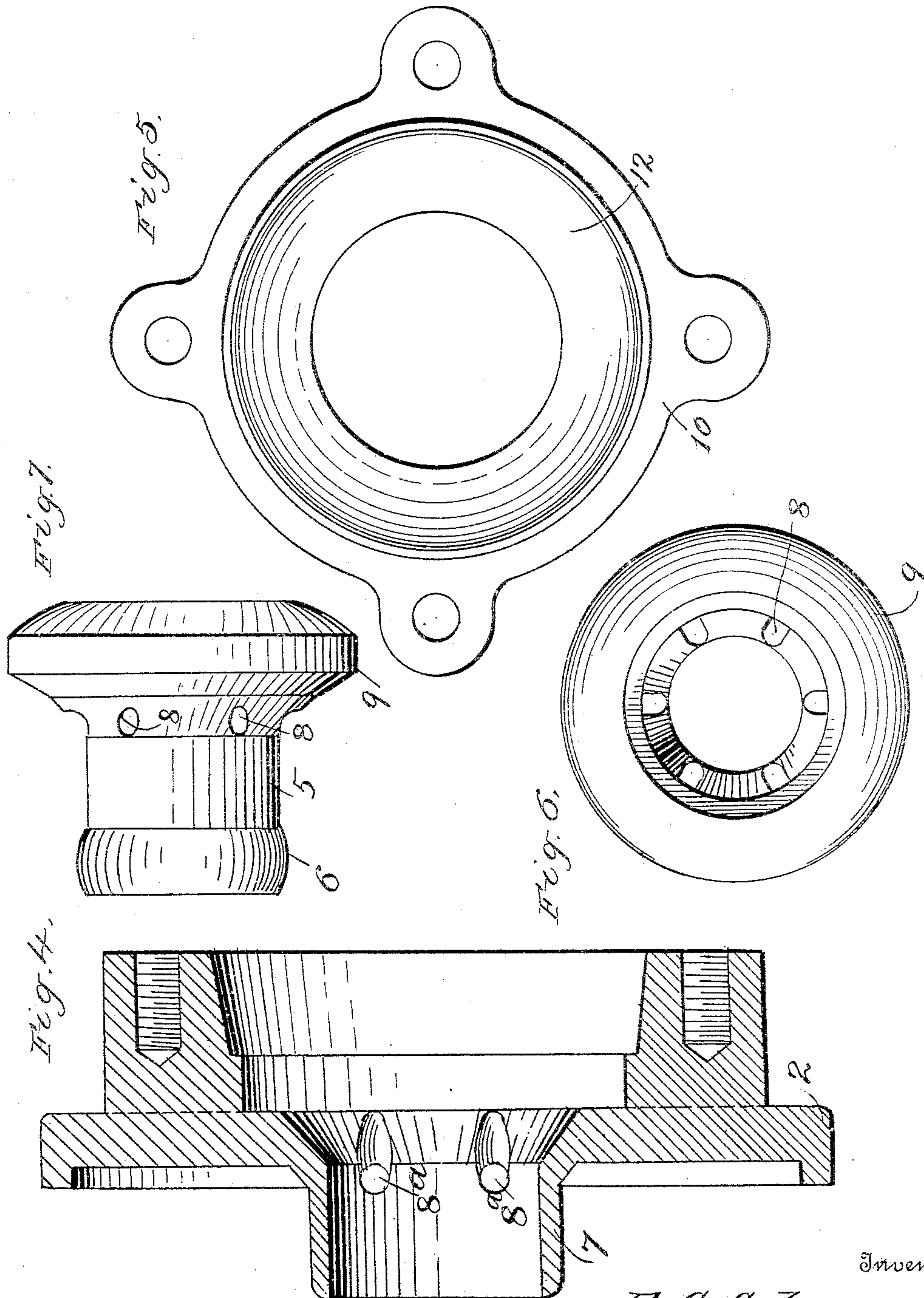
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

EDWARD CHARLES COLSON, OF CHICAGO, ILLINOIS.

STEAM-PIPE-JOINT CONNECTION.

956,290.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed July 23, 1908. Serial No. 509,118.

To all whom it may concern:

Be it known that I, EDWARD CHARLES COLSON, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Steam-Pipe-Joint Connections, of which the following is a specification.

This invention relates to improvements in steam pipe joint connections and is especially designed for use in connection with steam heated rolls, such as paper calendering rolls, ironing or mandrel rolls and finishing rolls for finishing cloth.

One of the objects of the invention is the construction of an improved steam joint adapted to allow for an irregular movement of the heating rolls with which it is adapted to hold the joint steam tight connection with the rolls.

Another object of the invention is to provide a steam pipe joint adapted for use in connection with heating rolls with means arranged therein adapted to hold the joint steam tight under all conditions and to allow for the vertical and lateral movement of the roll which is connected to it.

With the above and other objects in view the invention embraces certain combinations, constructions and arrangements of parts, clearly described in the following specification and clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a central longitudinal sectional view of the improved steam joint showing the same in normal position, Fig. 2 is an end view thereof, Fig. 3 is a central longitudinal sectional view showing the steam joint in the position it would occupy if the roll to which the joint is attached should settle or be moved, Fig. 4 is a detail sectional view, on an enlarged scale, of a casing, Fig. 5 is a detail plan view of a gland member, Fig. 6 is a detail end view of a movable float member adapted to hold the joint steam tight under all conditions, and Fig. 7 is a detail side elevation of the float.

Referring to the accompanying drawings, which are merely illustrative of one form of the invention, 1 denotes a hollow steam ironing or polishing roll, on the outer end of which a casing 2 is suitably connected by means of screws or other fastening means, not shown. The casing 2 is formed with internally projecting spaced annular flanges or shoulders 3 and 4. The flange or shoulder

3 is formed with a beveled inner surface while the flange 4 is formed with a surface adapted to occupy a position normally parallel with the axis of the roll 1.

A float member 5 projects into the bore of the roll 1, said member being formed with a rounded enlarged head 6, engaging with an annular or tubular projection 7 on the inner end of the casing 2, which tubular projection surrounds the rounded head 6 and is formed with inclined ports 8, spaced apart thereon. The outer end of the float member 5 is formed with a head 9, very much larger than the head 6, and said head 9 is adapted to engage with a holding gland 10, which is secured by means of screws 11 to the casing 2. The head 9 is formed with a convex outer surface and the gland 10 is formed with a concave inner surface, whereby the head can have close movement against said gland and be in positive contact with the same at all times. The gland 10 is formed with an opening 12, which has an inclined wall, and is provided with balls 13, located in a ball race 14, having a hardened bottom washer 15 therein. The gland 10 is also formed with laterally extending oil ports 16, whereby the convex surface of the float head 9 may be kept constantly lubricated, oil being supplied through said openings by means of an oil cup 17, located on the gland 10.

A steam inlet pipe 18 is threaded on to the head 9 of the float 5, and on its outer end carries a tee fitting 19, threaded thereon. Within the bore of the pipe 18 an exhaust pipe 20 projects, said pipe passing into the bore of roll 1 beyond the inner end of the tubular extension 7, of the casing 1. The outer end of the exhaust pipe 20 is threaded to the tee fitting 19, which is provided with an internal partition 21.

A cone washer 22 normally holds the balls 13 in place in the race 14, and said cone washer 22 is normally held against said ball 13 by means of a spiral spring 23, positioned around the pipe 18 and engaging at its outer end a bearing washer 24, movable on a nut 25 adjustable on the pipe 18, which is provided with screw threads for this purpose. Normally the pipes 18 and 20 occupy a position parallel with the axis of the roll 1, but when the roll should be moved the float member 5 and the pipes will be forced to an angular position, the float member by contact closely with the gland 10 takes up

all looseness which normally might occur. This member is held in positive engagement with the gland 10 by the pressure of the steam in the pipe 18, which is exerted against the inner side of the head 9, of said member 5. No matter to what angle the roll 1 may be moved the joint will be held steam tight by means of the float member 5. The float member 5 is adapted, with the assistance of the spring 23, to hold the pipes 18 and 20 normally in a center position, in this way the float 5 acts as a centering device.

Having described my invention I claim:—

1. In combination, a hollow casing connectible to a hollow heating roll, a gland secured to the casing, a float member movable against the gland and the casing, a steam inlet pipe threaded to the float member and a steam exhaust pipe projecting within the inlet pipe.

2. In combination, a hollow casing connectible to a hollow heating roll, a gland having a concave inner surface mounted on the casing, a float member having a head formed with a convex surface engaging with the concave surface of the gland, an inlet steam pipe connected to the gland, and an exhaust steam pipe projecting through the bore of the inlet pipe.

3. In combination, a hollow casing having a tubular extension connectible to a hollow heating roll, a float member formed with a rounded head engaging with said tubular extension, said float member having an enlarged head with a convex surface, a gland secured to the casing having a concave surface engaging with the convex surface of the float member, an inlet pipe threaded to the float member and an exhaust pipe projecting through the bore of said float member.

4. In combination, a hollow casing connectible to a hollow heating roll, a gland secured to the casing, a float member engaging with the gland, a steam inlet pipe connected to the float member, balls located on the gland, a cone washer engaging the balls, a spring engaging the cone washer, an adjusting nut threaded on the inlet pipe engaging the spring, an exhaust pipe within the inlet pipe, and a tee fitting connected to the outer ends of the pipes having a spacing partition therein.

5. In combination, a hollow casing connectible to a hollow heating roll, a gland secured to the casing, a floating center member secured within the gland and casing, an inlet pipe connected to said floating center member, an exhaust pipe within the inlet pipe, and a fitting having an internal spacing partition connecting the pipes.

6. In a steam pipe joint connection, a cyl-

inder, a casing provided with a tubular extension secured to one end of the casing with said extension projecting into the cylinder, a float member having an enlarged inner end bearing with said end within the tubular extension of the casing, a threaded inlet pipe secured to the outer end of the float member, said outer end of the float member being provided with a convex surface, a gland having a cone shaped opening and a concave inner end secured on the casing around the inlet pipe with said concave end bearing against the convex surface of the float member, a spring around the inlet pipe bearing against the gland, a divided fitting on the outer end of the inlet pipe, and an outlet pipe connected to the fitting extending through the inlet pipe and the float member into the cylinder.

7. In combination with a cylinder, inlet and outlet end pipes for the cylinder, and means adapted to center said pipes relative to said cylinder holding said pipes in position thereon.

8. In combination with a cylinder, a tubular member extending within one end of the cylinder, an outlet pipe projecting through the member, means for centering said pipe relative to said cylinder and an inlet pipe held in place by said means.

9. In combination with a cylinder, a tubular member extending within the cylinder, an outlet pipe projecting through said member, an inlet pipe around said outlet pipe, a fitting on the ends of the pipes, float centering means bearing at one end against the tubular member and secured at the other end to the inlet pipe, and a gland bearing against said means.

10. In combination, a cylinder, a casing having a tubular portion projecting into the casing, a float centering member having a bearing against the tubular portion, a gland secured to the casing bearing against the float center member, an inlet pipe secured to the float centering member, means holding the float centering member against the gland, and an outlet pipe having connection with the inlet pipe projecting into the cylinder.

11. In combination, a cylinder, inlet and outlet pipes therefor and means for connecting said pipes to the cylinder adapted to center the same relative to said cylinder.

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

EDWARD CHARLES COLSON.

Witnesses:

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O. A. HERRMANN.