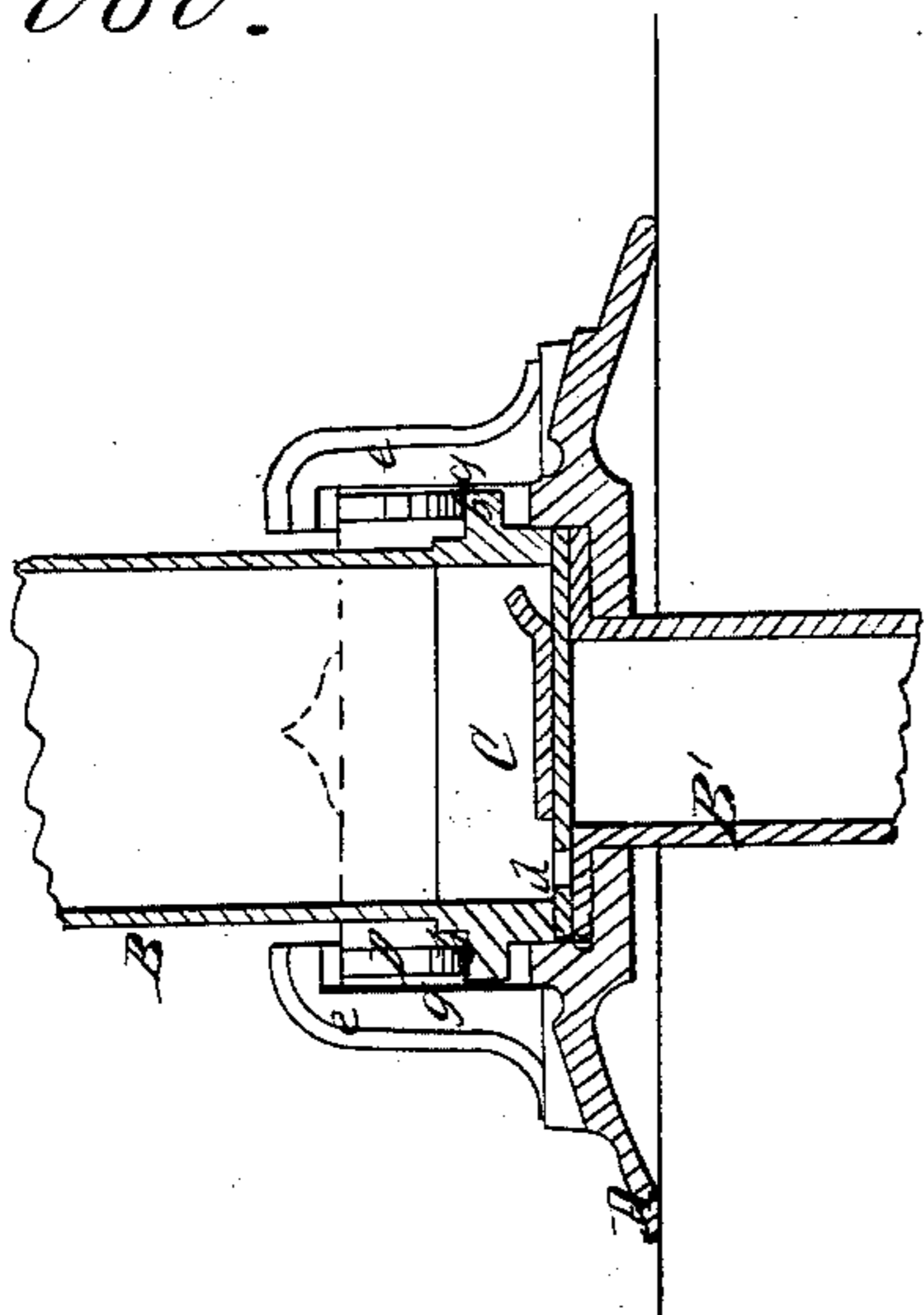
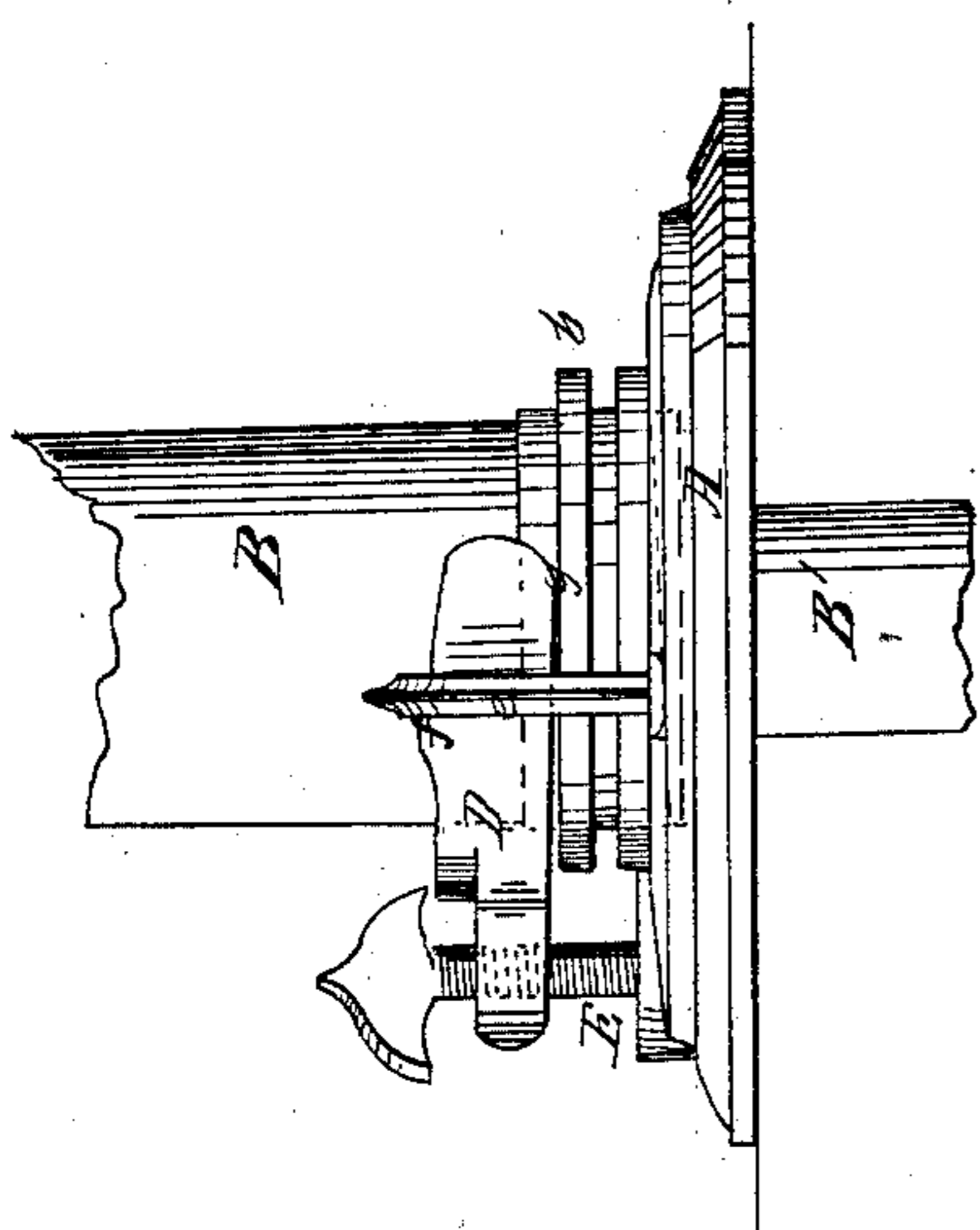


*S. H. Gray,*  
*Pump Lift,*  
*N<sup>o</sup> 20,060. Patented Apr. 27, 1858.*

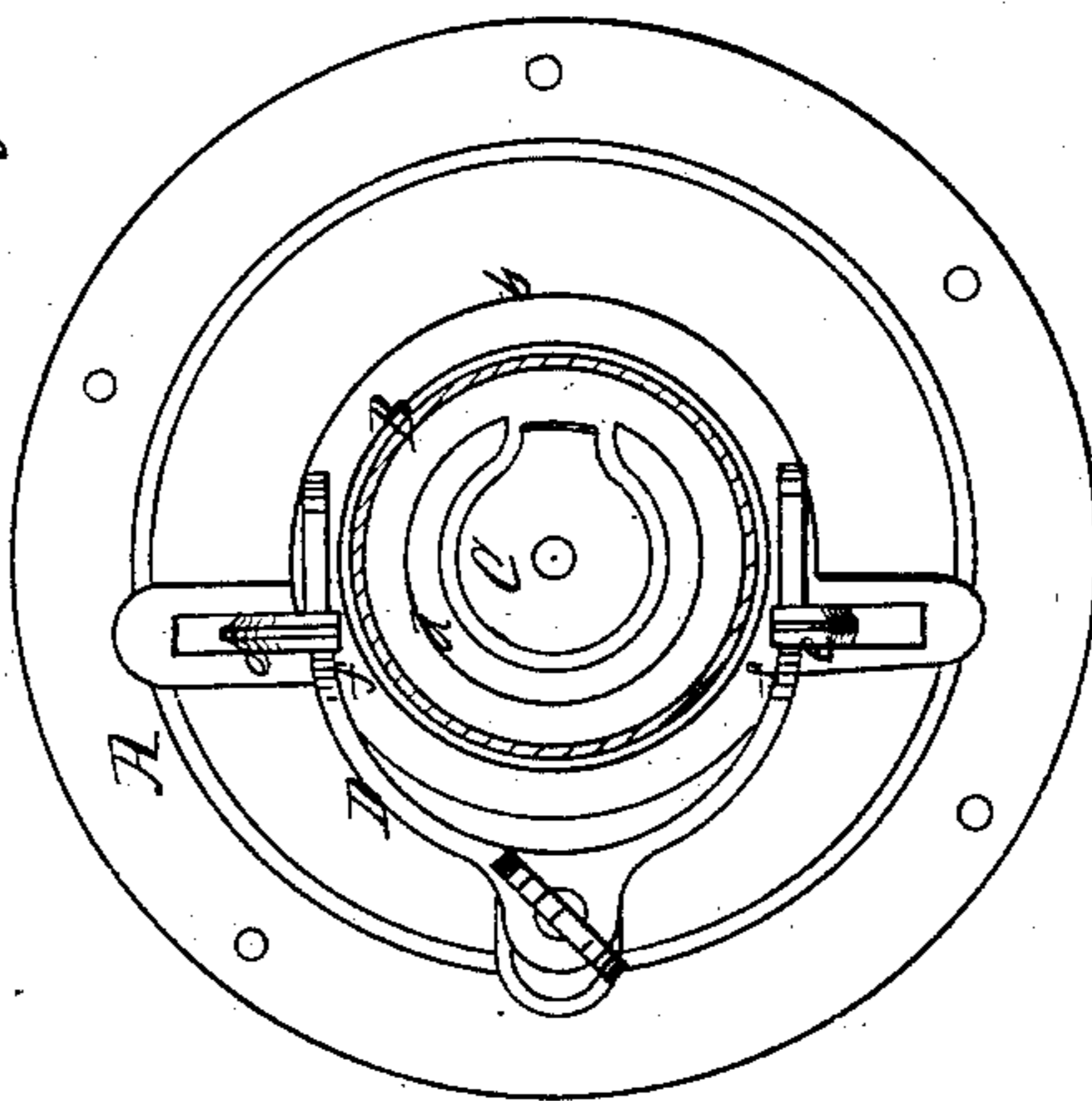
*Fig: 2*



*Fig: 1*



*Fig: 3.*



# UNITED STATES PATENT OFFICE.

S. H. GRAY, OF BRIDGEPORT, CONNECTICUT.

## PUMP-COUPLING.

Specification of Letters Patent No. 20,060, dated April 27, 1858.

*To all whom it may concern:*

Be it known that I, S. H. GRAY, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and improved coupling to be applied to pumps for the purpose of connecting the pump-cylinders to their bases, and also for connecting other parts pertaining or belonging to pumps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a side view of my improvement applied to a pump and shown as connecting the cylinder with the base. Fig. 2, is a vertical section of the cylinder and base showing an end view of my improvement. Fig. 3, is a plan or top view of the cylinder and base, and also of my improvement which is applied to them.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the employment or use of a curved or bow-shaped bar fitted underneath lugs or projections attached to one of the parts to be connected, the ends of the bow resting on the other part or on a flanch connected therewith and in line with its center. The bar being adjusted or set by means of a screw or equivalent device so that the two parts will be firmly secured together and allowed while the bar is being set to adjust themselves so as to fit snugly and water tight.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents the base of a pump, and B, is the cylinder, and B', is the induction pipe. These parts are constructed in the usual way, being precisely similar so far as form and shape are concerned to all cast iron pumps now in general use.

The lower end of the cylinder B, that enters a circular recess (a) in the base has not a screw thread formed on its as usual. It is perfectly smooth and the side of the recess is also smooth, the cylinder fitting snugly within it, see Fig. 2. The cylinder has a flanch (b) formed on it, which flanch projects over or beyond the sides of the recess. In the bottom of the recess (a) a valve C, is placed. This valve opens upward and is formed as usual by having a circular metal plate attached to a circular piece of

leather (d) which is cut nearly all around the plate so as to allow the leather to rise and fall. The leather (d) extends underneath the lower end of the cylinder B, and forms a packing for the same as usual.

On the base A there are two vertical projections or lugs (e), (e), a lug or projection being at each side of the cylinder. The upper ends of these projections or lugs extend a short distance horizontally inward toward the cylinder and form bearings for a bow-shaped bar D, the ends of which pass underneath them and rest on the flanch (b) of the cylinder B, as shown clearly in Fig. 1. The bar D, has a projection at its outer part through which a thumb screw E, passes, the lower end of said screw bearing on the base A. The bar D, has a ledge (f) formed on its upper edge, one at each side or near each end in order to determine the distance the ends shall be thrust underneath the upper parts of the lugs or projections (e), (e). This is important for the bearing points (g) of the bar D, should be directly on a line which passes through the center of the cylinder B, see Fig. 1.

From the above description it will be seen that by passing the ends of the bow-shaped bar D, underneath the lugs or projections (e), (e), until the ledges (f) strike against them, and then by turning the thumb screw E, so as to raise the outer part of bar D, the inner part will be depressed and will bear against the flanch (b) at the points (g), which are in line with the center of the cylinder, and the cylinder and base will be firmly coupled together, the bar D, having five bearings viz., at the points (g), (g), at the upper parts of the lugs or projections (e), (e), and at the lower end of the screw E.

By this improvement the cylinder and base may be readily connected together and detached, so that the valve C, is rendered very accessible for repairs. This is not the case with the ordinary screw connection for the parts are generally made tight by rust so that the cylinder cannot be unscrewed without great difficulty. Another advantage of my improvement is, that the end of the cylinder and the base may adjust themselves so as to press tightly against the leather (d), if the latter is of unequal thickness. The adjustment of the cylinder and base is due to the bearing of the bar D, at the points (g) which, as previously explained, are in line with the center of the cylinder, thereby

allowing the cylinder to be more or less out of a vertical line corresponding of course with the inequality of the leather. By the ordinary screw connection the parts cannot  
5 adjust themselves, and the leather if of unequal thickness requires to be compressed at its thick part by screwing down the cylinder in order to form a tight joint. This is attended with considerable difficulty and in  
10 many cases where the leather is of unequal thicknesses it is necessary to shave the leather and make it of equal thickness before fitting it in the base, in order to form a tight connection.

15 I would remark that this coupling will answer equally well for connecting air vessels to force pumps and also for connecting the tops or caps to the cylinders and I would also remark that the packing or pieces of  
20 leather (*d*) used in pumps are often thicker at one side than another, leather generally being quite uneven, but having a gradual

variation so that the packing will be in the form of an inclined plane, that is, thicker at one side of its center than at the other. 25 Hence the value of the adjustable features of the parts above described.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is, 30

The curved or bow-shaped bar D, fitted underneath the lugs or projections (*e*), (*e*), on the base A, and bearing on the flanch (*b*) of the cylinder B, the bar D, being adjusted by a thumb screw E, or its equivalent, it 35 being understood that I do not claim any of the above named parts separately or in themselves considered, but the whole when arranged and applied to a pump for the specific purpose herein set forth.

S. H. GRAY.

Witnesses:

J. E. HICK,  
JOSHUA LORD.