

J. R. WORSWICK.
Flange-Unions.

No. 151,186.

Patented May 19, 1874.

Fig. 1.

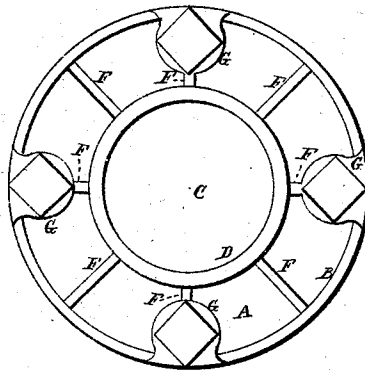


Fig. 2.

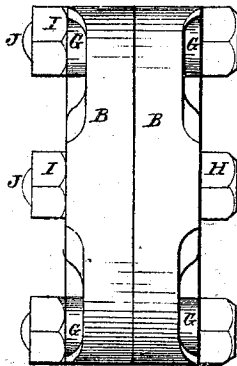
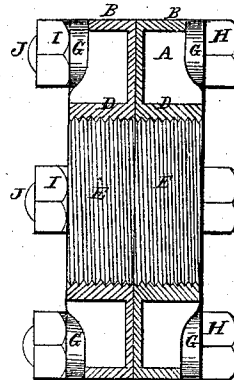


Fig. 3.



Witnesses.

A. J. Hornell
Jno. Balchum Jr.

Inventor.

J. R. Worswick.
Per Burridge & Co.
Atty.

UNITED STATES PATENT OFFICE.

JAMES R. WORSWICK, OF CLEVELAND, OHIO.

IMPROVEMENT IN FLANGE-UNIONS.

Specification forming part of Letters Patent No. **151,186**, dated May 19, 1874; application filed April 8, 1874.

To all whom it may concern:

Be it known that I, JAMES R. WORSWICK, of Cleveland, in the county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Flange-Unions, of which the following is a description, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a side view of the flange-union. Fig. 2 is an edge view. Fig. 3 is a transverse section.

Like letters of reference refer to like parts in the several views.

The nature of this invention relates to the construction of flange-unions for uniting steam or gas pipes. The object of said invention is to produce such flanges of a stronger and lighter character, and of different material than those in ordinary use, the material used being malleable iron, and of such configuration as to combine lightness of metal with strength and cheapness in the first cost of the article.

Flange-unions, as usually made, consist of two circular cast-iron plates or flanges, varying from a half-inch to one inch in thickness, according to the diameter of the flange. On each of the four sides is a heavy boss, through which a bolt-hole is made for the insertion of the bolt, whereby the two flanges are secured to each other. The opening in the center of each flange is threaded, and into which the ends of the pipes to be coupled together are screwed. The objection to these flange-unions is that they are very heavy without corresponding strength, and necessarily so, for the reason that the great strain to which they are subjected makes it necessary that the plates should be of considerable thickness, and therefore heavy, in order to resist such strain exerted upon them. To avoid this excessive weight of the flanges, and to economise the metal used, and at the same time obtain sufficient strength for the flanges to serve the pur-

pose intended, I make the flange-unions of malleable iron, and of the shape shown in the drawings, in which it will be seen that each flange consists of a thin circular plate, A, around the edges of which projects a deep flange or rim, B. Around the opening or hole C is a flange, D, in which is cut a thread, E, into which the ends of the pipes are screwed. F are radial webs extending across from the flange D to the rim B for giving additional strength to the flange. G are the faces in which bolt-holes are made, and on which the heads and nuts H I of the bolts J rest, and whereby the flanges are bolted together, as shown in Fig. 2.

Flange-unions made as above described are much lighter than those made in the ordinary way, the peculiar arrangement of the metal being such as to give the greatest strength in proportion to the amount of metal employed. The strain to which they are subjected is exerted, mainly, upon the edges of the webs, flanges, and rim, thereby making the flange-unions much stronger than those in common use, and much lighter, hence, saving by this means a large per cent. of iron. The ordinary flange-union is made of common cast-iron, which is liable to break in consequence of the strain to which it is subjected. Instead of common cast-iron I make my flanges of malleable iron, in consequence of which, and of their peculiar construction, is produced a strong and durable flange-union.

What I claim as my invention, and desire to secure by Letters Patent, is—

The herein described flange-union, consisting of the plate or bottom A, rim B, central flange D, and radial webs F, substantially in the manner as described, and for the purpose set forth.

JAMES R. WORSWICK.

Witnesses:

W. H. BURRIDGE,
J. A. BRIGGS.