D. F. LEPLEY & C. L. BAER.

LINED ELBOW.

APPLICATION FILED MAY 18, 1915.

1,183,308. Patented May 16, 1916.

Fig. 1.

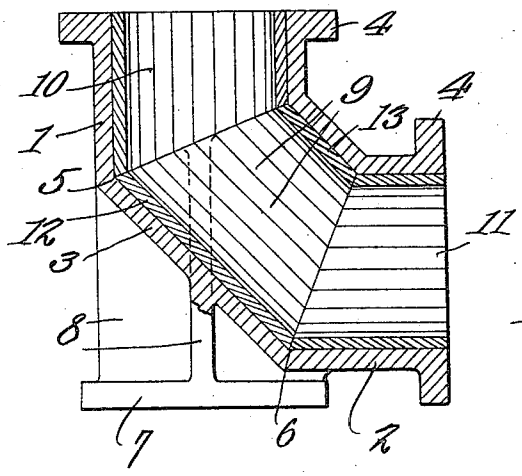
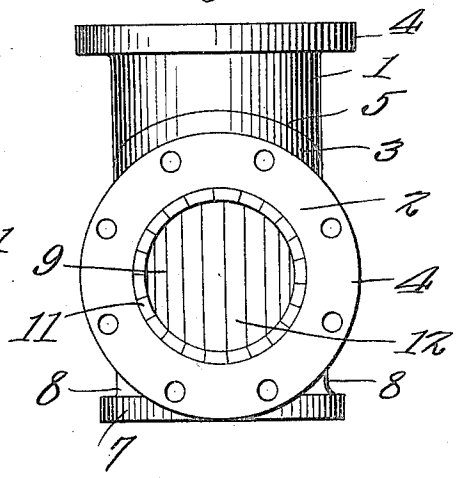


Fig. 2.



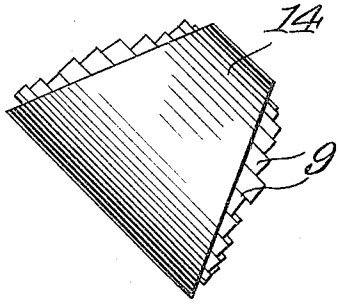


Fig. 3.

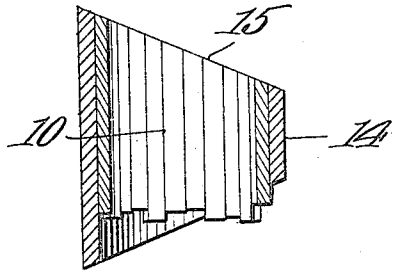


Fig. 4.

Witnesses

J. R. Lewis

Monroe E. Miller

D. F. Lepley and C. L. Baer Inventors,

by Crosby & Co.

Attorneys.

UNITED STATES PATENT OFFICE.

DANIEL F. LEPLEY AND CHARLES L. BAER, OF CONNELLSVILLE, PENNSYLVANIA.

LINED ELBOW.

1,183,308. Specification of Letters Patent. Patented May 16, 1916.

Application filed May 18, 1915. Serial No. 28,996.

To all whom it may concern:

Be it known that we, DANIEL F. LEPLEY and CHARLES L. BAER, citizens of the United States, residing at Connellsville, in the county of Fayette and State of Pennsylvania, have invented a new and useful Lined Elbow, of which the following is a specification.

The present invention appertains to elbows for pipes or conduits, and aims to provide a satisfactory elbow lined with wood or equivalent material, and adapted especially for use in pipes or conduits employed in mines for pumping acidulous water therethrough.

It is necessary to line the pipes and connections employed in mines for pumping the acidulous water, to protect the metal, and considerable difficulty has been experienced heretofore in providing a satisfactory lined elbow. Although a square elbow can be simply and inexpensively lined with straight staves or pieces of wood, yet such an elbow is inefficient and unsatisfactory since it retards or impedes the flow of liquid therethrough, especially when the flow of liquid is fast. It is practically impossible, if not extremely costly to line a curved elbow with wood or equivalent material.

This invention contemplates the provision of a lined elbow approaching as near as possible to a curved elbow, and which at the same time, will not entail prohibitive expense or trouble in the manufacture thereof.

The salient features of the invention reside in the fact that the present elbow may be readily and inexpensively constructed, will enable the water or liquid to flow therethrough at a considerable velocity and with comparatively small friction, and will serve its office in a thoroughly efficient, practical and serviceable manner.

The invention is carried out by the provision of an elbow cast or formed in a unique manner, and having the staves or boards assembled therein in a peculiar manner.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in its preferred embodiment in the accompanying drawing, wherein:

Figure 1 is a vertical section of the improved elbow. Fig. 2 is an elevation thereof. Fig. 3 is a plan view illustrating a device employed for trimming the staves. Fig. 4 is a sectional view of the device illustrated in Fig. 3.

In carrying out the invention, the elbow is cast from suitable metal or is otherwise formed, and comprises the end portions 1 and 2 arranged at right angles relative to one another, and an intermediate or central portion 3 arranged at obtuse angles with respect to the portions 1 and 2. The portions 1, 2 and 3 are each of circular cross section, and are preferably of like diameter, although slight details in the proportions of the parts may be made. The ends of the elbow are provided, as usual, with the outturned annular flanges 4 for attaching the ends of the pipe sections (not shown) to the ends of the elbow. The elbow has a sharp angle 5 between the portions 1 and 3, and a sharp angle 6 between the portions 2 and 3.

As illustrated, the elbow is constructed for use as a "foot" elbow, to seat upon a suitable base or support, for supporting an upright pipe connected to its upper or vertical end portion, although it is to be understood that the elbow is not limited to this use. When the elbow is employed as a "foot" elbow, the casting is preferably provided with a base 7 connected to the intermediate portion of the elbow by means of webs 8, whereby the base 7 will support the elbow in an efficient and rigid manner.

The wood or similar lining for the elbow embodies an annular series of straight staves or boards 9 of wood or equivalent material, fitted tightly within the intermediate portion 3 of the elbow, and having their ends cut to lie in the planes in which the corners 5 and 6 of the elbow lie. The lining includes a second annular series of wooden staves or boards 10 fitted tightly within the end portion 1 and having their inner ends cut to lie in the plane in which the corner 5 of the elbow lies, so as to abut against the respective ends of the staves 9. The end portion 2 is also equipped with an annular series of wooden staves or boards 11 fitting tightly

therein, and having their inner ends cut to lie in the plane in which the corner 6 lies, and to abut snugly against the respective ends of the intermediate staves 9. The outer ends of the staves 10 and 11 are trimmed or cut off flush with the ends of the elbow.

In applying the staves to the elbow, the staves 9 are first applied within the portion 3. The staves 9 are properly trimmed or cut by placing them within an annular form 14 resembling the intermediate portion 3 of the elbow, and the ends of the staves 9 which project beyond the oblique or diagonal ends of the annulus 14 are cut or sawed off flush with the ends of the annulus or form 14. The staves 9 are placed within the portion 3 of the elbow edge to edge, the longest stave 9, which is designated at 12, being first placed in position at the widest point of the portion 3, and the successive staves 9 are then placed edge to edge against the walls of the portion 3, and the shortest stave 9, which is designated 13, is inserted last at the narrowest point of the portion 3. The staves 10 and 11 are then placed within the end portions of the elbow, and prior to being inserted are properly trimmed to abut snugly against the ends of the intermediate staves 9. Thus, the staves 10 are placed within the annulus or form 14 and the staves 10 are cut or sawed off at one end flush with one end of the annulus 14, as at 15, whereby the respective ends of the staves 10 are adapted to abut against the respective ends of the staves 9 when the staves 10 are placed properly within the end portion 1 of the elbow. The staves 11 are similarly treated or trimmed within the annulus or form 14 in order that they will properly fit against the staves 9 when inserted within the end portion 2 of the elbow. The protruding ends of the staves 10 and 11 are then sawed or cut off flush with the ends of the elbow.

From the foregoing, taken in connection with the drawing, it will be obvious to those skilled in the art that the present structure may be manufactured at a comparatively small cost, and in a convenient manner, and the wood staves or boards will protect the metallic shell of the elbow from being attacked by the acid in the water or liquid which is drawn through the elbow. The construction of the elbow is such that the water or liquid may flow therethrough at a considerable velocity. The other advantages and attributes of the present invention are thought to be obvious without further comment being necessary.

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

1. A one part elbow for use in a pumping conduit of a mine having a plurality of portions arranged at obtuse angles relative to one another, and an annular series of staves fitting snugly within each portion of the elbow, the ends of the staves abutting against one another.

2. A one part elbow for use in a pumping conduit of a mine having a plurality of portions arranged at obtuse angles relative to one another, said portions being of circular cross section, and the elbow having sharp corners between said portions, and an annular series of straight staves fitted snugly within each portion of the elbow, the ends of the staves being cut so as to lie in the planes of the said angles, and to abut snugly against one another.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

DANIEL F. LEPLEY.
CHARLES L. BAER.

Witnesses:
W. H. Soisson,
Gustav E. Wagner.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."