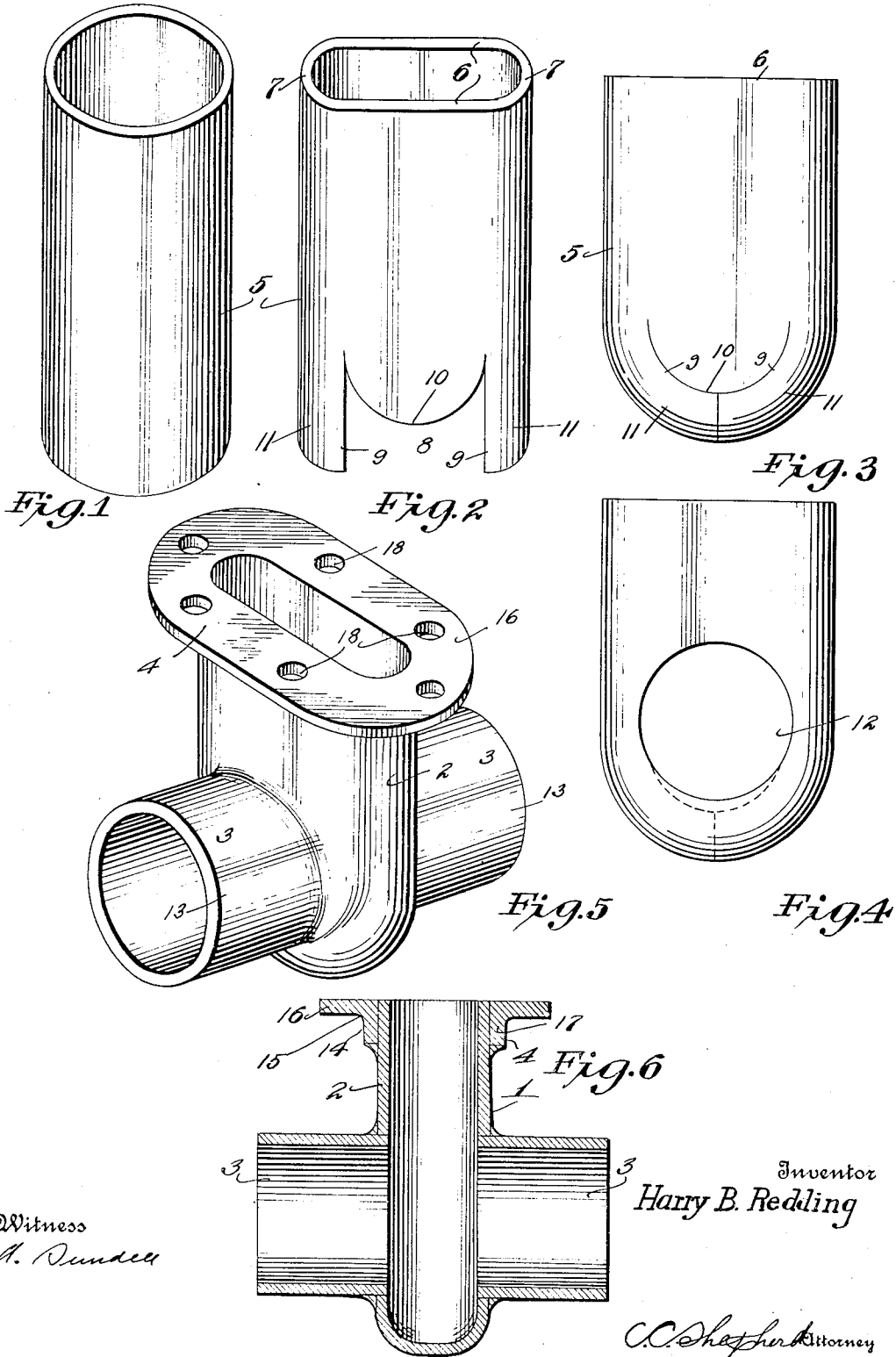


H. B. REDDING.
VALVE.

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1,370,224.

Patented Mar. 1, 1921.



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HARRY B. REDDING, OF COLUMBUS, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO I. S. FINK, OF COLUMBUS, OHIO.

VALVE.

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To all whom it may concern:

Be it known that I, HARRY B. REDDING, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Valves, of which the following is a specification.

This invention relates to improvements in valves, and has for its primary object to provide a valve capable of withstanding high pressure and yet to be of light weight and simple construction. The invention essentially consists in the provision of a valve wherein is embodied a casing which is formed from standard parts, and wherein said parts may be shaped and welded together to constitute a casing of homogeneous and substantial construction. The casing constructed in accordance with this invention eliminates castings and other heavy formations, and at the same time provides a valve which is exceptionally light in weight, when its capacity is taken into consideration, and furthermore one which may be economically manufactured, in that the parts going into the formation of the casing are of standard construction and may be cheaply procured.

For a further understanding of the invention, reference is to be had to the following description and to the accompanying drawing, in which:

Figure 1 is a perspective view of one of the pipe sections entering into the formation of the valve casing comprising the present invention.

Fig. 2 is a similar view disclosing the method of cutting the lower portion of the section shown in Fig. 1 prior to the closing of one end of the section.

Fig. 3 is a similar view showing the end of the section bent and welded together for the purpose of closing one extremity of the section.

Fig. 4 is a side elevation disclosing the location of the conduit receiving openings with respect to the welded portions of the section.

Fig. 5 is a perspective view of the completed casing, and,

Fig. 6 is a vertical sectional view taken therethrough.

As heretofore stated, it is the purpose of the present invention to provide a valve cas-

ing which will be formed of assembled sections made up of standard pipe lengths, and by doing so to eliminate the necessity hitherto present of casting such casings. By accomplishing these objects a casing is produced which is very economical to manufacture, impervious to fluid seepage, and one which will be exceptionally light in weight when its size and capacity are considered. As shown in Fig. 6, the casing 1 comprising the present invention consists essentially of but three parts, namely a body member 2, pipe connections 3 and a reinforcing collar 4. All of these parts, when the casing is completed, are welded or otherwise similarly joined together to constitute what for all practical purposes is substantially a one piece structure.

To attain this end, the body member is, as shown in Fig. 1, formed from a suitable length section of wrought iron pipe or tube 5. It will be obvious that the length of the pipe 5 will be governed by the size and capacity of the completed valve and furthermore said pipe is formed ordinarily by cutting the same at suitable intervals from a standard length of tubing. After the tube 5 of suitable length has been provided, the circular cross sectional area is altered by subjecting the same to suitable pressures which will cause said tube to expand into the oval formation shown in Fig. 2. By being thus formed, said tube or pipe section will be provided with substantially parallel sides 6 and with curved end portions 7 which will extend the full length of the tubular section 5. After this process of flattening the section 5 has been completed, one end of the latter is cut or otherwise formed to produce registering recesses 8 in one end of the section, said recesses being formed in the flattened sides 6. The side walls 9 of said recesses are substantially perpendicular while the end walls 10 thereof are curved on substantially the radius shown. The presence of the recesses 8 results in the formation of semicircular depending legs 11 upon one end of the section 5, which are situated in the manner shown in Fig. 2.

After the formation of the legs 11 by the provision of the recesses 8, said legs are bent in the manner shown in Fig. 3, that is, the legs after being bent will have their side walls 9 disposed in contact with the curved

walls 10, and the end walls 12 of said legs will be forced into contiguous and coinciding relationship. By thus bending the legs 11, it will be manifest that the lower end of the casing or the section 5 will be completely closed, and that snug joints will exist between the various surfaces of the legs 11 and which joints will all be located in registering positions. Then, to merge the legs into the body portion of the section 5, and to effectively seal the joints thereof, I preferably weld the leg joints together so that the same will form a homogeneous part of the section body. When this welding operation has been properly performed, the strength of the welded portions of the section 5 will be equivalent to any of the remaining portions thereof and will be equally capable of resisting high internal pressures.

Upon the completion of the welding process, registering openings 12 are suitably formed in the flat sides 6 at a position spaced from the welded joints, as is clearly shown in Fig. 4. These openings are adapted to receive the inner ends of a pair of pipe receiving conduits 13, and by means of welding the inner ends of said conduits, are firmly and substantially integrally united with the section 5. It will thus be manifest that through the welding operations described, the conduits 13 and section 5 will be homogeneously united, and furthermore, the shape of the casing is produced from standard tubular stock. The outer ends of the conduits may be threaded for connection with communicating pipes, or if desired, said conduits may be provided with apertured rings to which the communicating pipes may be bolted.

To reinforce the upper end of the body member 2, which is produced by the operations upon the section 5 above described, I employ a third pipe section 14 which is shaped to provide an oval reinforcing collar 15, the latter including a continuous horizontally extending flange 16 and a similar depending flange 17, which is arranged to receive the upper end of the body member. By welding the flange 17 to the upper end of the body member, a substantial union between parts is effected, and one which will be fully able to withstand the many twisting stresses to which it is subjected. By the presence of the flange 17, double strength is imparted to the upper end of the pipe member so that a secured connection will exist between the flange 16 and the body member. In ordinary casings, the flange 16 is liable to be very weak at its point of connection with the casing and hence by the construction described, such weakness is entirely precluded. The flange 17 may be formed with the usual bolt receiving openings 18, by means of which a valve superstructure may be connected with the casing.

From the foregoing description taken in connection with the accompanying drawing, it will be apparent that there is provided a valve casing which may be constructed at very low cost and one which will be fully capable of withstanding the stresses incident to general use. By avoiding the use of a cast casing, and by employing the tubular sections set forth, the weight of the valve is materially reduced over standard constructions, and this fact tends to reduce transportation costs. The welding operations as described serve to firmly unite the sections of the casing in their proper relative positions and insure a very substantial and integral construction.

What is claimed is:

1. The herein described method for producing valve casings which consists in the provision of a pipe section, in flattening the sides of said section to render the latter substantially oval in cross section, in providing recesses in one of the ends of said sections, in bending the legs produced by said recesses inwardly into engagement with each other and with the body portion of said section so as to close one end of the latter and in welding the joints produced by the bending of said legs.
2. The herein described method for producing valve casings, which consists in the provision of a pipe section, in flattening the sides of said section to render the latter substantially oval in cross section, in providing recesses in one of the ends of said section, said recesses being bounded by vertical side walls and curved end walls, in bending the legs of said section produced by the formation of said recesses inwardly so that said vertical walls will be positioned contiguous to said curved walls, and the end portions of said legs in registering relation, and in welding the registering joints thus produced into an integral whole.
3. The herein described method for producing valve casings, which consists in the provision of a pipe section, in forming recesses in one end of said pipe section which extend longitudinally of said section so as to define foldable leg portions, in binding said leg portions inwardly upon the end walls of said recesses, in welding the joints thus produced together, and in connecting transversely extending tubular members with said section.
4. The herein described method for producing valve casings, which consists in the provision of a tubular section, in welding together one end of said section, in welding transverse conduits to said section and in welding a reinforcing collar to the upper end of said section.
5. The herein described method for producing valve casings which consists in the provision of a pipe section, in flattening the

sides of said section to render the latter substantially oval in cross formation, in providing recesses in one of the ends of said section, in bending the material defining the
5 sides of said recesses inwardly so that the edges of said recesses may be welded together, in providing conduit receiving open-

ings in said casing at a position spaced from said welded edges and in welding transverse conduits within said openings. 10

In testimony whereof I affix my signature.

HARRY B. REDDING.