No. 705,091. Patented July 22, 1902.

J. JOULE.

VALVE FOR WOOD PULP DIGESTERS.

(Application filed May 23, 1902.)

(No Model.)

Fig. 2.

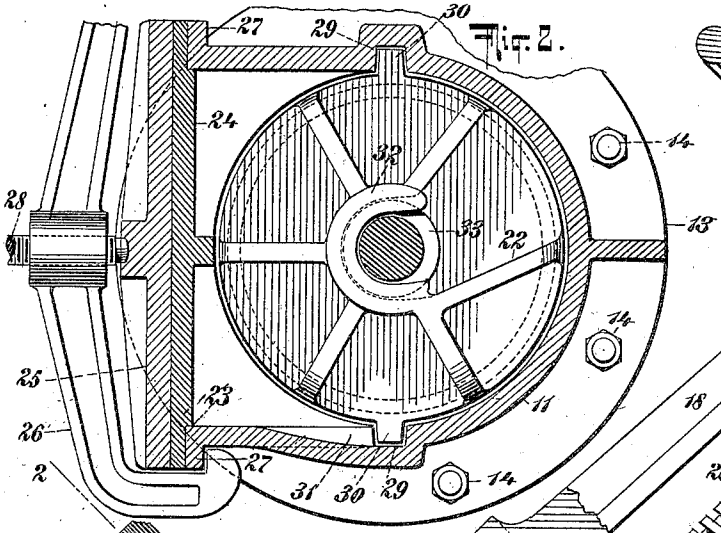
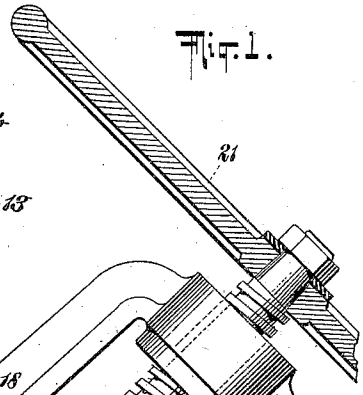


Fig. 1.



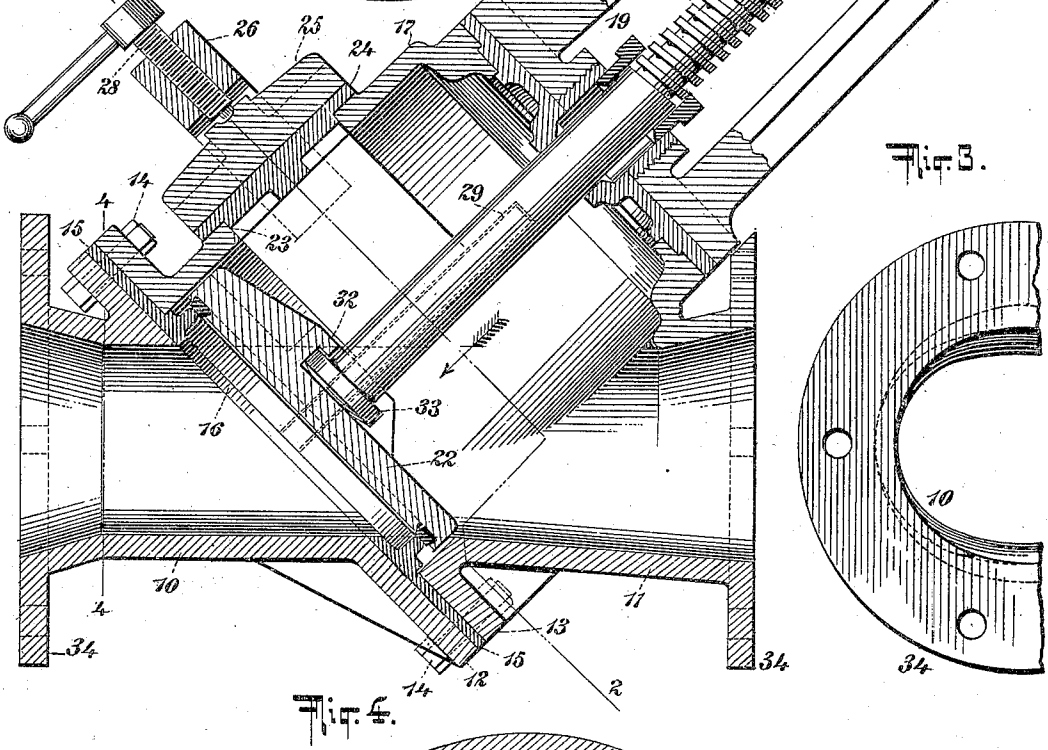
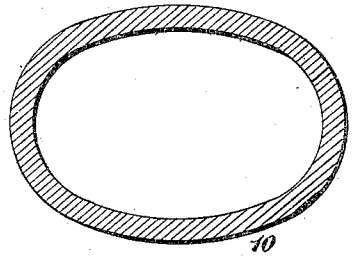


Fig. 3.

Fig. 4.



WITNESSES:

Gustave Dieterich.

Edwin N. Dieterich.

INVENTOR

Joseph Joule

BY

Chas. C. Gill

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH JOULE, OF BELLEVILLE, NEW JERSEY, ASSIGNOR TO EASTWOOD WIRE MANUFACTURING COMPANY, OF BELLEVILLE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

VALVE FOR WOOD-PULP DIGESTERS.

SPECIFICATION forming part of Letters Patent No. 705,091, dated July 22, 1902.

Application filed May 23, 1902. Serial No. 108,615. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH JOULE, a citizen of the United States, and a resident of Belleville, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Valves for Wood-Pulp Digesters and Similar Apparatus, of which the following is a specification.

The invention relates to improvements in valves for digesters and other apparatus employed in connection with the manufacture or preparation of wood-pulp for paper-making; and it consists in the novel features hereinafter described and claimed.

One object of the invention is to produce a Y-valve, through the casing of which the pulp may pass with the minimum amount of friction and which shall form a substantially straight passage for said pulp, the disk and its valve-seat being so arranged as to form no obstruction to the pulp; and a further object of the invention is to produce a structure in which a valve ring or seat of appropriate shape and dimensions may be employed and properly disposed and conveniently renewed from time to time, as may be required.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section, partly broken away, through a valve constructed in accordance with and embodying the invention. Fig. 2 is a sectional view of same on the dotted line 2 2 of Fig. 1. Fig. 3 is a detached end view, partly broken away, of same, this view being taken from the left-hand end of Fig. 1; and Fig. 4 is a vertical section of same on the dotted line 4 4 of Fig. 1.

In the drawings, 10 designates one section of the valve-casing, and 11 the other section thereof, said sections at their facing ends being formed with the flanges 12 13, adapted to receive securing-bolts 14 and to bind between themselves the encircling flange 15 of the valve seat or ring 16.

The section 11 of the valve-casing is formed with the upper section 17, upon one side of which are mounted the frame 18 and gland 19 for the customary operating stem or screw 20, whose outer end is supplied with a suitable hand-wheel 21 and whose inner end is detachably connected with the valve-disk 22 for moving the latter toward and from the valve ring or seat 16. The section 17 at its side running parallel with the valve stem or screw 20 is formed with an opening 23, through which the valve-disk 22 may be introduced within the valve-casing, and which opening is kept normally closed by means of the bronze metal plate 24, covering-plate 25, and clamping-frame 26, the latter having hooked ends engaging flanges 27 on the valve-casing and carrying a binding-screw 28, by which the plates 25 and 24 may be detachably secured. The section 17 of the valve-casing is formed with longitudinal grooves 29, which receive guiding-lugs 30, formed on opposite edges of the valve-disk 22, and at one side the said casing 17 is formed with a groove 31, extending at right angles to and leading into one of the grooves 30 to facilitate the introduction of the valve-disk 22 through the opening 23. The valve-disk 22 is provided with a segmental flange 32, which passes upon the edges of the annular flange 33, formed on the inner end of the valve-stem 20, and thereby detachably connects the valve-disk 22 with said valve-stem.

The main features of the present invention pertain to the formation of the valve-casing whereby the straight passage through the same is secured and whereby the valve ring or seat 16 of suitable dimensions may be readily secured in place and renewed as frequently as may be desired. In carrying out this feature of the invention I form the casing in the two sections 10 11 and construct said sections, (more especially the section 10,) except where the valve-disk 22 performs its movement, in an oval outline, as shown in Figs. 3 and 4, the inner end of the section 10 being on an angle of forty-five degrees to the longitudinal center of the passage through the valve-casing, whereby a substantially circular opening is formed at said inner end of said section 10 and the employment of a substantially circular valve-ring 16 permitted and

whereby also I am enabled to seat said ring so that it will not project into the passage through the valve-casing, this being very desirable, and it being one of the purposes of the present construction that said passage shall be unobstructed. The section 10 of the valve-casing from end to end possesses the oval bore, whose longer axis is horizontal, and at the entrance to said section 10 I preferably taper the upper and lower inner surfaces of said section, as shown. The important features of the section 10 are that it defines a horizontal oval in cross-section and that its inner flanged end is on an angle of forty-five degrees to the longitudinal line of said section. The section 11 at its inner flanged end is also at an angle of forty-five degrees, corresponding with the inner end of the section 10, and at the lower side of its inner portion said section is rounded, as shown in Fig. 2, while the upper side of said inner portion merges into the chamber formed within the section 17 for the valve-disk 22. The inner surfaces of the section 11 as they approach the outer end of the latter merge on diverging lines into a circular opening.

The sections 10 and 11 are formed with suitable flanges 34, by which the valve-casing may be secured to the usual sections of the piping in which the valve may be interposed.

The method of employing the valve will be readily understood, and it will be seen that by the construction presented the valve ring or seat 16 is disposed entirely without the passage through the sections 10 and 11 and that said ring may be renewed from time to time, as required, by separating said sections.

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

1. The valve-casing comprising the sections 10 and 11 flanged at their meeting ends and forming the passage for the pulp, and the valve ring or seat 16 held between said flanges, said section 10 forming a horizontal oval in cross-section and at its inner end extending at an angle of about forty-five degrees to the longitudinal plane of said section, combined with the valve-disk and its operating-stem; substantially as and for the purposes set forth.

2. The valve-casing comprising the sections 10 and 11 flanged at their meeting ends and forming the passage for the pulp, and the valve ring or seat 16 held between said flanges, said section 10 forming a horizontal oval in cross-section and at its inner end extending at an angle of about forty-five degrees to the longitudinal plane of said section, and the said section 11 being formed with the section 17 constituting a chamber for the valve-disk and having the opening for the admission of said disk, combined with the valve-disk and its operating-stem; substantially as set forth.

3. The valve-casing comprising the sections 10 and 11 flanged at their meeting ends and forming the passage for the pulp, and the valve ring or seat 16 held between said flanges, said section 10 forming a horizontal oval in cross-section and at its inner end extending at an angle of about forty-five degrees to the longitudinal plane of said section, and the said section 11 being formed with the section 17 constituting a chamber for the valve-disk and having the opening 23 and flanges 27, combined with the plates 24, 25, for said opening, the hooked clamping-frame 26 to pass over said plates and engage said flanges, the binding-screw 28 carried by said frame, and the valve-disk and operating-screw; substantially as set forth.

4. The valve-casing comprising the sections 10 and 11 flanged at their meeting ends and forming the passage for the pulp, and the valve ring or seat 16 held between said flanges, said section 10 forming a horizontal oval in cross-section and at its inner end extending at an angle of about forty-five degrees to the longitudinal plane of said section, and said section 11 having the section 17 for the valve-disk and a circular outer end into which the inner surfaces of said section merge on diverging lines, combined with the valve-disk and its operating-screw; substantially as set forth.

5. The valve-casing comprising the sections 10 and 11 flanged at their meeting ends and forming the passage for the pulp, and the valve ring or seat 16 held between said flanges and being without said passage so as not to obstruct the same, the said section 11 being formed with the section 17 constituting a chamber for the valve-disk and having the opening 23 and closure therefor, combined with the valve-disk, the operating-screw therefor, and the frame mounted on said section 17 for said screw; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 21st day of May, A. D. 1902.

JOSEPH JOULE.

Witnesses:
CHAS. C. GILL,
ARTHUR MARION.