

(No Model.)

C. S. WHEELWRIGHT.

PAPER PULP DIGESTER.

No. 307,608.

Patented Nov. 4, 1884.

Fig. 1.

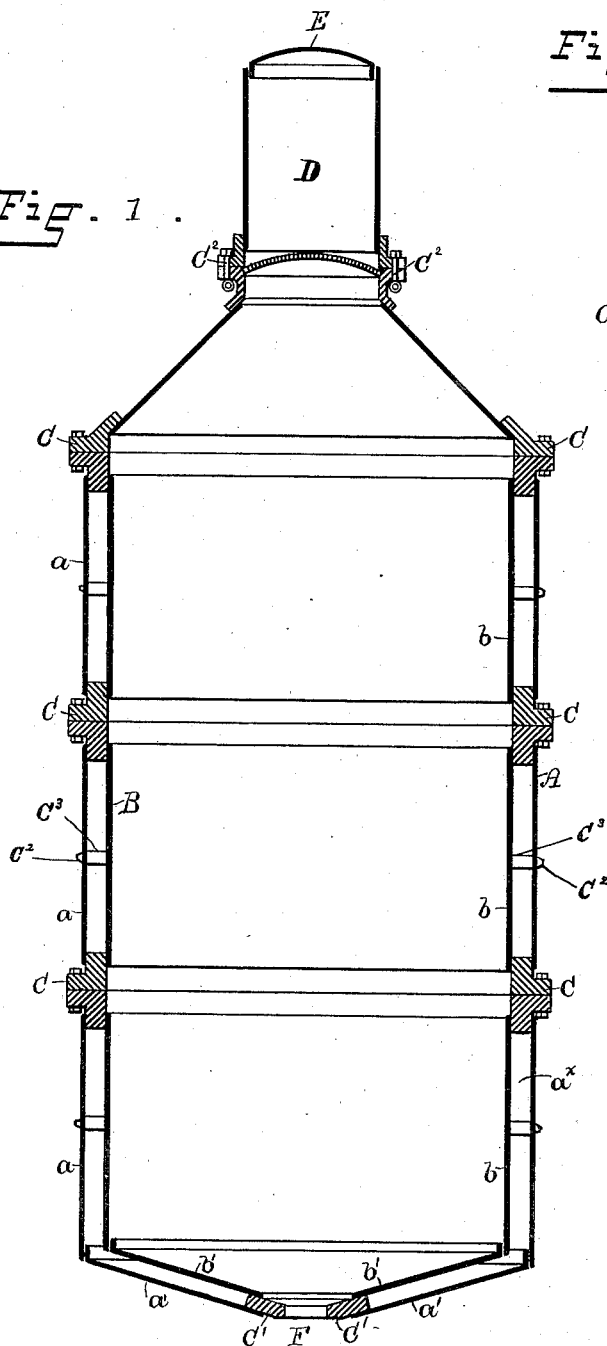


Fig. 2.

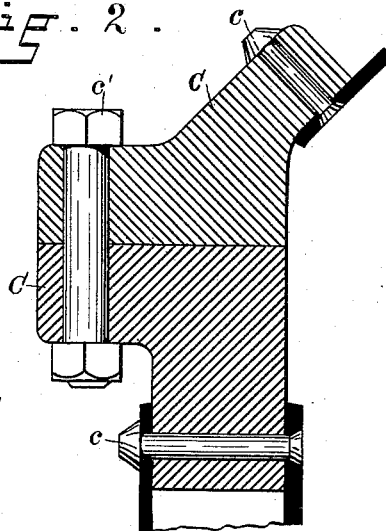
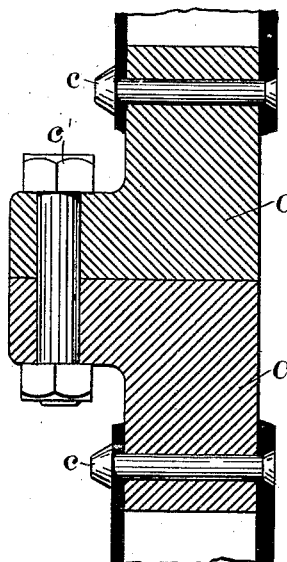


Fig. 3.



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PAPER-PULP DIGESTER.

SPECIFICATION forming part of Letters Patent No. 307,608, dated November 4, 1884.

Application filed May 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. WHEELWRIGHT, of the city and county of Providence, and State of Rhode Island, have invented certain new and useful Improvements in Paper-Pulp Digesters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to the digesters used in the manufacture of wood pulp; and the object of my invention is to so construct the digester as to facilitate and simplify the operation of setting up the same, and also to so construct the digester as to exclude the steam from direct contact with the contents of the digester.

To these ends my invention consists in the peculiar and novel construction and arrangement of the digester, as hereinafter described, and pointed out in the claims.

Digesters used in the manufacture of paper-pulp are necessarily of great size, and as they have to stand high internal pressure they should be built very strongly. As heretofore constructed the building of these digesters has been a very difficult and costly operation, owing to their size and to the fact that they have been built up of as few sections as possible in order to lessen the amount of leakage resulting from high internal pressure. By my improved construction these large digesters may be cheaply and yet strongly built, and this I accomplish in the manner which I will now describe with reference to the accompanying drawings, in which—

Figure 1 is a transverse vertical section of my improved digester. Fig. 2 is a sectional view of one of the upper joints in detached position. Fig. 3 is a similar view of one of the lower joints.

In the said drawings, A designates the outer, and B the inner, shell of the digester, which inclose between them the annular space a^x , constituting the steam-jacket. The outer shell, A, is composed of the annular sections $a a a'$, while the inner section is composed of the sections $b b b'$, similar to and concentric with the outer sections. These sections are of boiler-iron.

C C C designate a number of iron rings ar-

ranged in pairs and each of L shape, the straight sides of each pair of rings being placed in contact. These rings are held together by rivets or bolts c' , passing vertically through the ends of the rings, as shown in Figs. 2 and 3. The plates A and B are secured to the rings C by bolts or rivets c , passing horizontally through the rings and plates, as shown in Figs. 1 and 2. Between the rings C the plates A B are strengthened by rivets c' , passing horizontally through the plates and steam-space a^x , and surrounded each within the steam-space by a sleeve, c^2 , by which means the end of the rivet may be upset without injuring the plates. The lower ring, C', is not L-shaped, but is plain, as shown in Fig. 1, while the upper ring of the upper pair of rings, C, is formed to correspond with the oblique direction of the shoulder or hood of the digester. The rings C', by which the hood is joined to the cap D, are each formed with a series of recesses, d , in which the bolts d' are removably secured, each of said bolts being hinged at its lower end to a ring, d^2 , as shown in Fig. 1, so that the cap may be readily removed. It will thus be seen that the largest-sized digesters may be readily set up in sections, and that when so set up they are perfectly strong. It will also be seen that the steam does not come into direct contact with the contents of the digester, but flows through the steam-space a^x . The sections of the digester are of such size as to admit of ready transportation. The rings may be made of any convenient dimension. A suitable metallic lining (preferably copper) is to be placed on the inside of the inner shell.

Having thus described my invention, I claim—

1. An improved digester having double walls made in sections and united section to section and wall to wall by rings, substantially as described.

2. The combination, with the shell-sections $a b$, of the rings C, to which the said sections are bolted, substantially as described.

3. The combination, with the sections $a a' b b'$, the hood and the cap D, of the rings C C' and the bolts $c c' d'$, substantially as described.

4. The combination, with the digester constructed as described and provided with the

hood and cap, of the rings $C^2 d^2$, and the bolts hinged to said ring d^2 , and arranged to enter recesses in the rings C^2 , substantially as described.

- 5 5. The combination, with the shells A B, composed of the sections $a a' b b'$, the hood and cap, of the rings C C' C², the bolts $c c'$,

and the rivets c^2 , with the sleeves c^3 , constructed and arranged as described.

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