(Specimens.)

E. MEURER.

DIGESTER.

No. 514,197. Patented Feb. 6, 1894.

Fig. 1

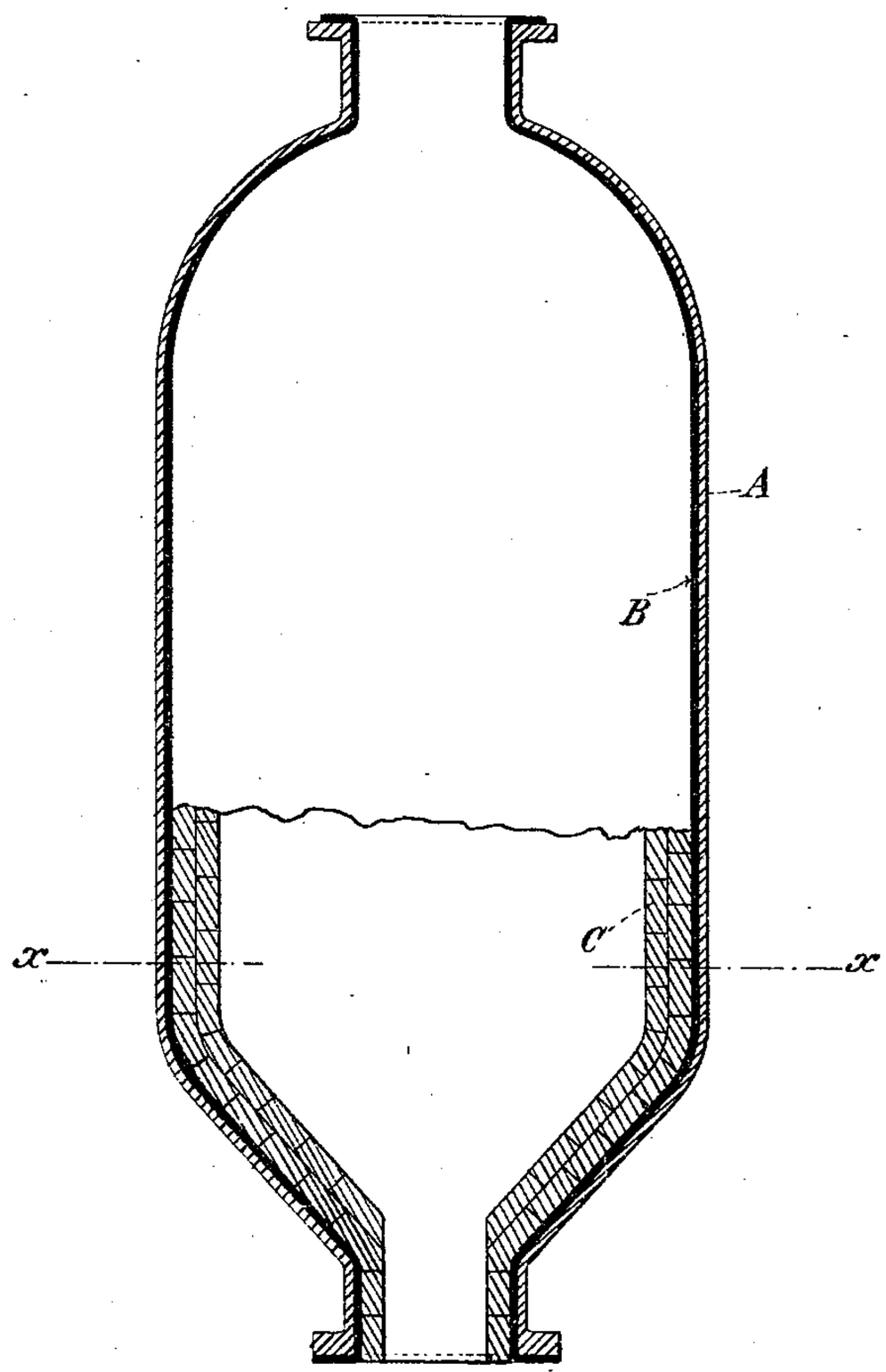
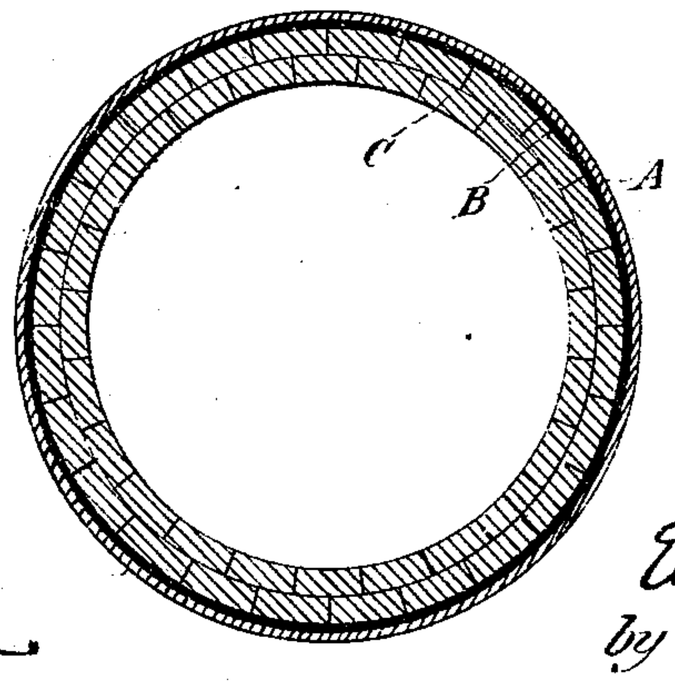


Fig. 2



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DIGESTER.

SPECIFICATION forming part of Letters Patent No. 514,197, dated February 6, 1894.

Application filed June 1, 1893. Serial No. 476,286. (Specimens.)

To all whom it may concern:

Be it known that I, EUGENE MEURER, a subject of the Emperor of Germany, residing at Palmer Falls, in the county of Saratoga and State of New York, have invented a certain new and useful Improvement in Digesters, of which the following is a full, clear, and exact description.

Various methods have heretofore been employed to protect the metal shell of wood-pulp digesters from the corrosive action of the acids used in the "cooking" of the material under treatment. The more usual way has been to line the interior of the shell with lead, and then build up a brick wall against the inner face of this lining. This is necessarily an expensive construction, and is not always reliable. Another mode of protecting the shell, sometimes attempted, has been to cover the inner surface with a coating of cement, Portland cement being the article usually adopted for such purpose. In this plan, the practice has obtained, to some extent, of building up a brick wall within the shell and substantially concentric with it, but at some little distance from it, and ramming in a thick mass of cement between the wall and the shell. This, by reason of the greater mass of material, endures better than would a thin coating of the cement laid upon the inner face of the shell and left unprotected by an inner wall; but the construction is a very expensive one, and it also occupies much of the valuable space within the digester.

What I propose to do is this: I make a mixture of litharge and glycerine, and apply the composition in a thin layer—say, about one-eighth of an inch in thickness—to the whole interior of the shell. If mixed in proper proportions, this will form a very adherent coating and one that will last for a long time, even in the largest digesters—some of which, as is well known, being from twelve to fourteen feet in diameter and more than thirty feet in height.

The materials used may be the ordinary litharge of commerce and pure glycerine. The preferred proportions are one hundred parts of litharge and twelve parts of glycerine. This will give a mixture having approximately the consistency and plastic property of ordinary putty, and it has the property of drying very quickly when spread out in a thin layer. The addition of a larger percentage of glycerine makes it more plastic but delays the hardening.

In preparing the mixture, the litharge should be thoroughly dried, in any convenient way, as in a drying oven, for the purpose of discharging all moisture from it, after which the glycerine is thoroughly incorporated with it by mechanical admixture. It should be applied quickly to the surface to be protected, where it hardens and becomes as solid as stone and strongly adherent. If it be thought desirable to supplement such a lining with an inner protective wall of brick or stone, the same cement may with advantage be used in laying up such wall, its cohesion being such as to make the joints between the bricks almost, if not quite, as strong as the bricks themselves. Of course it will also be understood that sheets of lead may, if desired, be interposed between such protective wall and the cement lining. It will be found that this new cement is applicable alike to digesters made of iron, of steel and of bronze.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of a digester provided with my improved lining, and Fig. 2 is a horizontal section of Fig. 1 on the line *x*—*x*.

A represents the metal shell of a digester.

B is the cement lining formed of litharge and glycerine, as hereinbefore described, and C is an interior protective wall of brick.

What I claim as new is—

1. A digester coated upon its inner surface with a cement composed of litharge and glycerine, substantially as described.

2. The combination, in a pulp digester, of a cement lining, composed of litharge and glycerine and an inner protective wall built up of brick or stone laid in a cement of the same material, substantially as described.

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