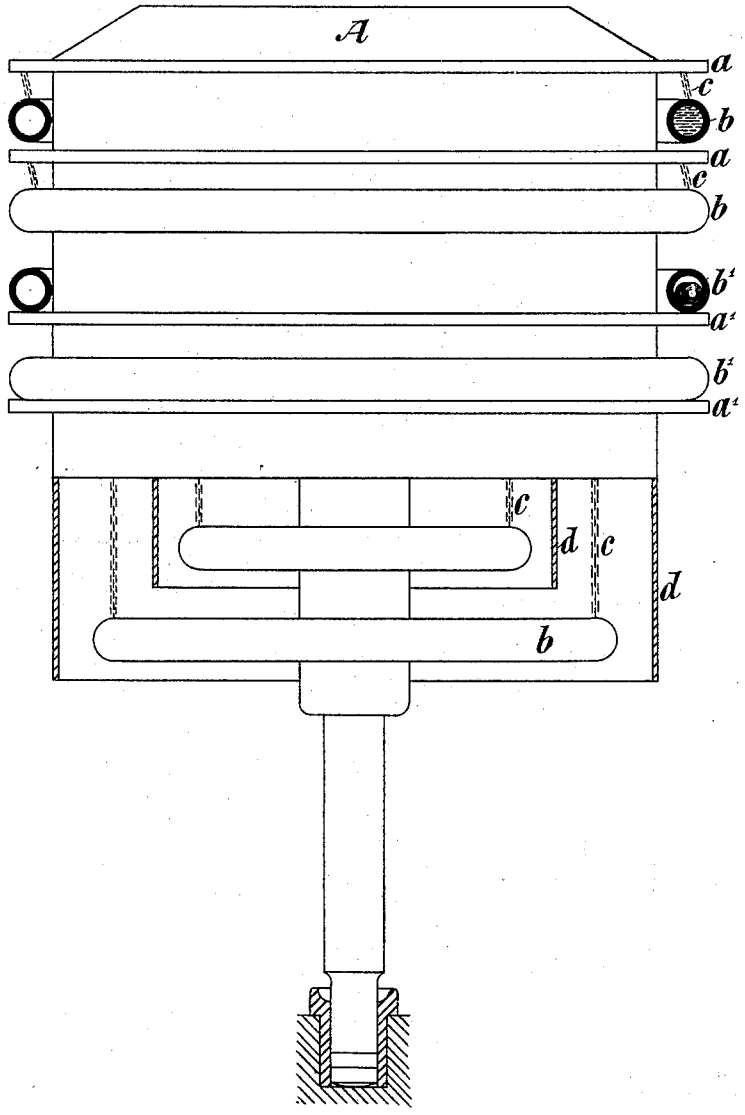
(No Model.) 2 Sheets—Sheet 1

E. ROTHE.

CENTRIFUGAL MACHINE.

No. 331,450. Patented Dec. 1, 1885.

Fig. 1.



Witnesses:
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Wm. A. Lowe

Inventor:
Emil Rothe
by his attorneys
Roeder & Briesen

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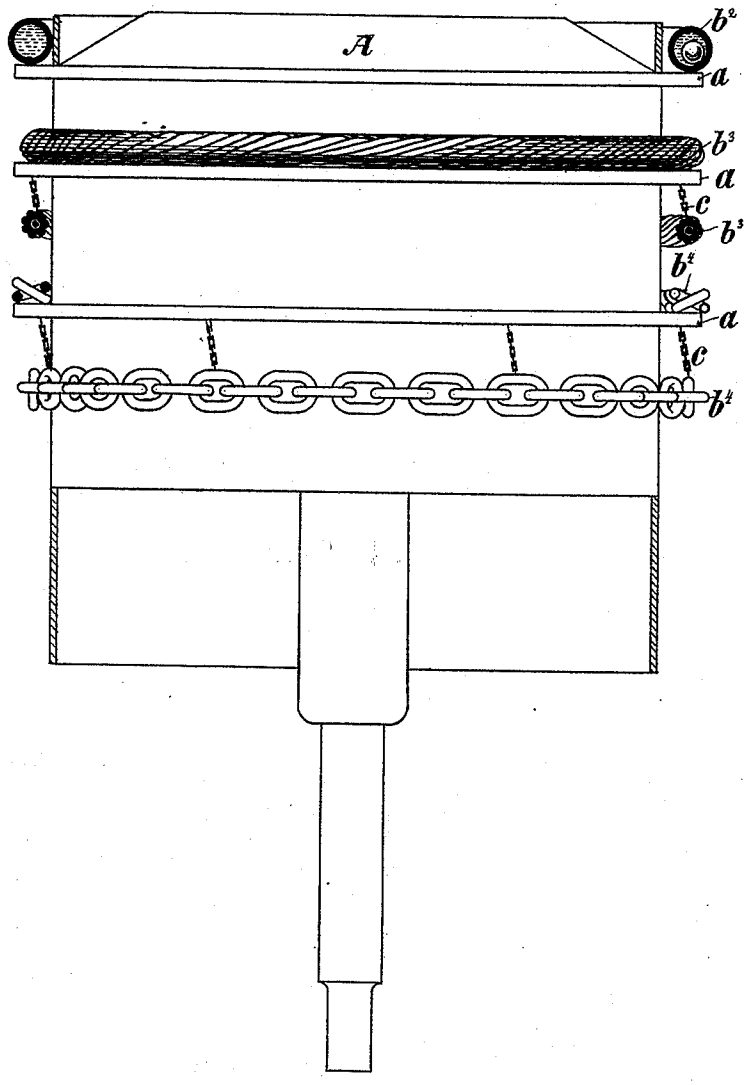
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CENTRIFUGAL MACHINE.

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Fig. 2.



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UNITED STATES PATENT OFFICE.

EMIL ROTHE, OF BREITENAU, NEAR OEDERAN, GERMANY.

CENTRIFUGAL MACHINE.

SPECIFICATION forming part of Letters Patent No. 331,450, dated December 1, 1885.

Application filed September 28, 1885. Serial No. 178,422. (No model.)

To all whom it may concern:

Be it known that I, EMIL ROTHE, a subject of the Emperor of Germany, residing in Breitenau, near Oederan, Empire of Germany, have invented certain new and useful Improvements in Centrifugal Machines, of which the following is a specification.

The object of my invention is a device for regulating the rotation of centrifugal machines, and the two figures of the here-annexed two sheets of drawings are in illustration of my invention, showing the same in connection with that part of a centrifugal machine which comes in the present case in consideration. Both figures are side views of the respective parts of the centrifugal machine, showing only different modifications to which my regulating device may be subjected without departing from the essential feature of my invention.

Round the rotary drum or vessel *t* of the centrifugal machines are secured the strong iron hoops *a*, which protect the vessel *t* from exploding, and serve at the same time for holding in place the regulating rings *b b' b²* *b³ b⁴*. These rings are preferably at their interior circumference somewhat distant from the outside of the vessel *t*, and may either be freely carried by the hoops *a* or suspended from the latter by means of the small chains *c;* also to the bottom of the rotary vessel *t* regulating-rings may be suspended, as shown in Fig. 1, by means of the chains *c*, and prevented from excessive dislocation by means of the rings *d*, attached to the bottom of the vessel *t*.

If the objects which are to be subjected to the action of the centrifugal machine are unequally distributed in the vessel *t*, which is practically unavoidable, and the latter therefore makes irregular revolutions, the rings *b b' b² b³ b⁴* will occupy such position that they re-establish the equilibrium, and at the same time lean against the overcharged side of the vessel, by so doing increasing the security from explosion.

I make the regulating rings either hollow and fill them partially with water or any other liquid, as shown at *b;* or I fill them with some balls, the diameter of which surpasses the inner radius of the hollow ring, as shown at *b';* or I fill them entirely with a liquid containing only some balls, as shown at *b²*, Fig. 2. In all cases the liquid or the balls, respectively, will go to the side which is diametrically opposite to the overcharged side of the vessel and increase in this way the regulating action of the rings *b b' b²*.

Instead of the hollow rings, I employ sometimes flexible rings formed by endless ropes, as at *b³*, or endless chains, as at *b⁴*, or endless india-rubber pipes, &c. The regulating-rings, as shown at *b b'*, and *b²*, will also regulate, in case they are rigidly secured to the vessel *t*.

What I claim is—

1. In combination with the vessel or drum *t* of a centrifugal machine, the hollow rings *b b' b²*, filled either partially with a liquid, as at *b*, or partially with balls, as at *b'*, or entirely with a liquid containing some balls, as at *b²*, which rings at some distance from the drum *t* surround the latter and may move horizontally as described, and for the purpose specified.

2. In combination with the drum *t*, the flexible rings *b³ b⁴*, formed by endless chains or ropes and supported by the hoops *a* or suspended to the chains *c*, as and for the purpose set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EMIL ROTHE.

Witnesses:

OTTO REICHOLD,

WILHELM BINDEWALD.