

(No Model.)

R. G. HEMINGRAY.  
GLASS BATCH MIXER.

No. 290,771.

Patented Dec. 25, 1883.

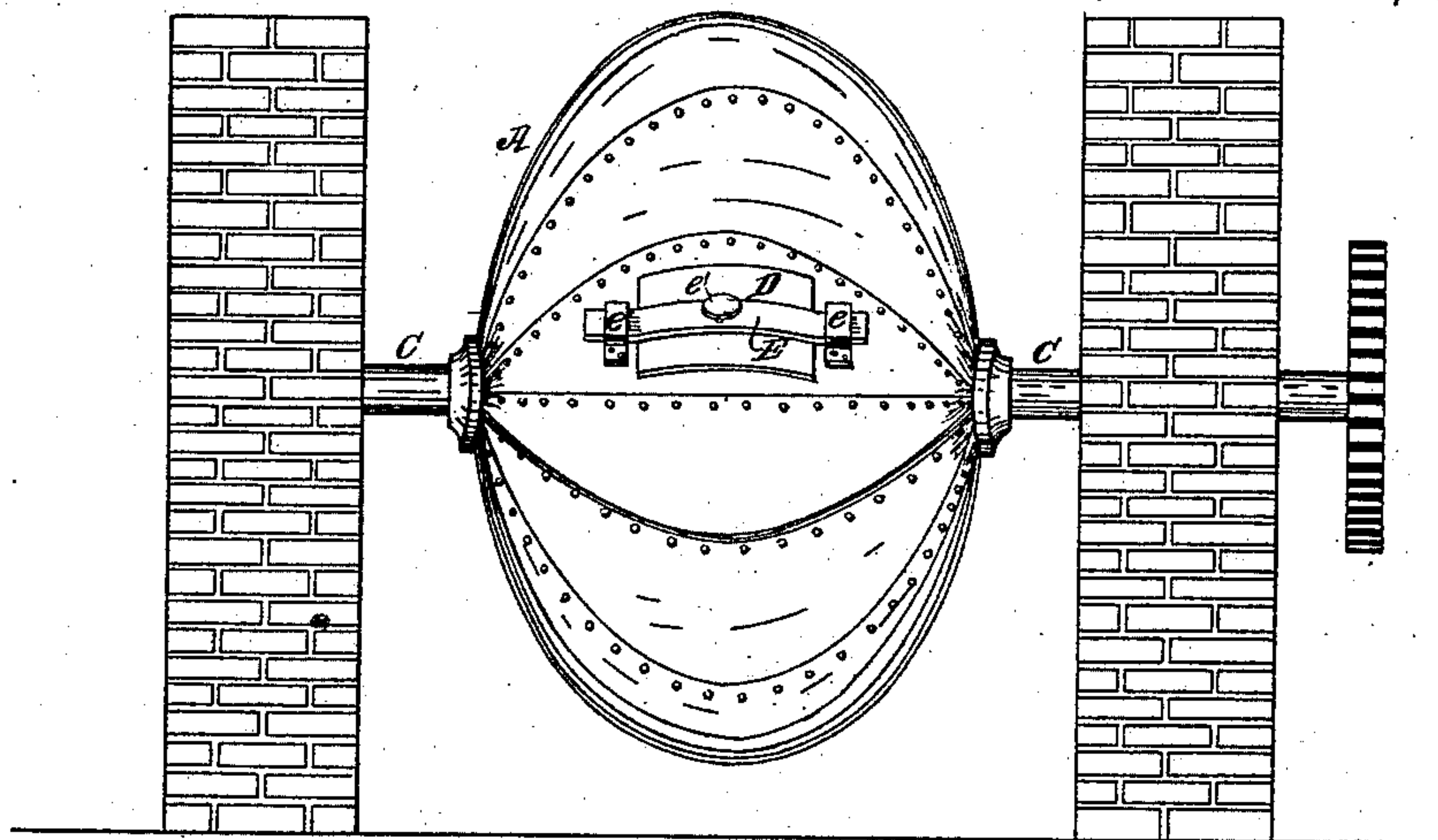


Fig. 1.

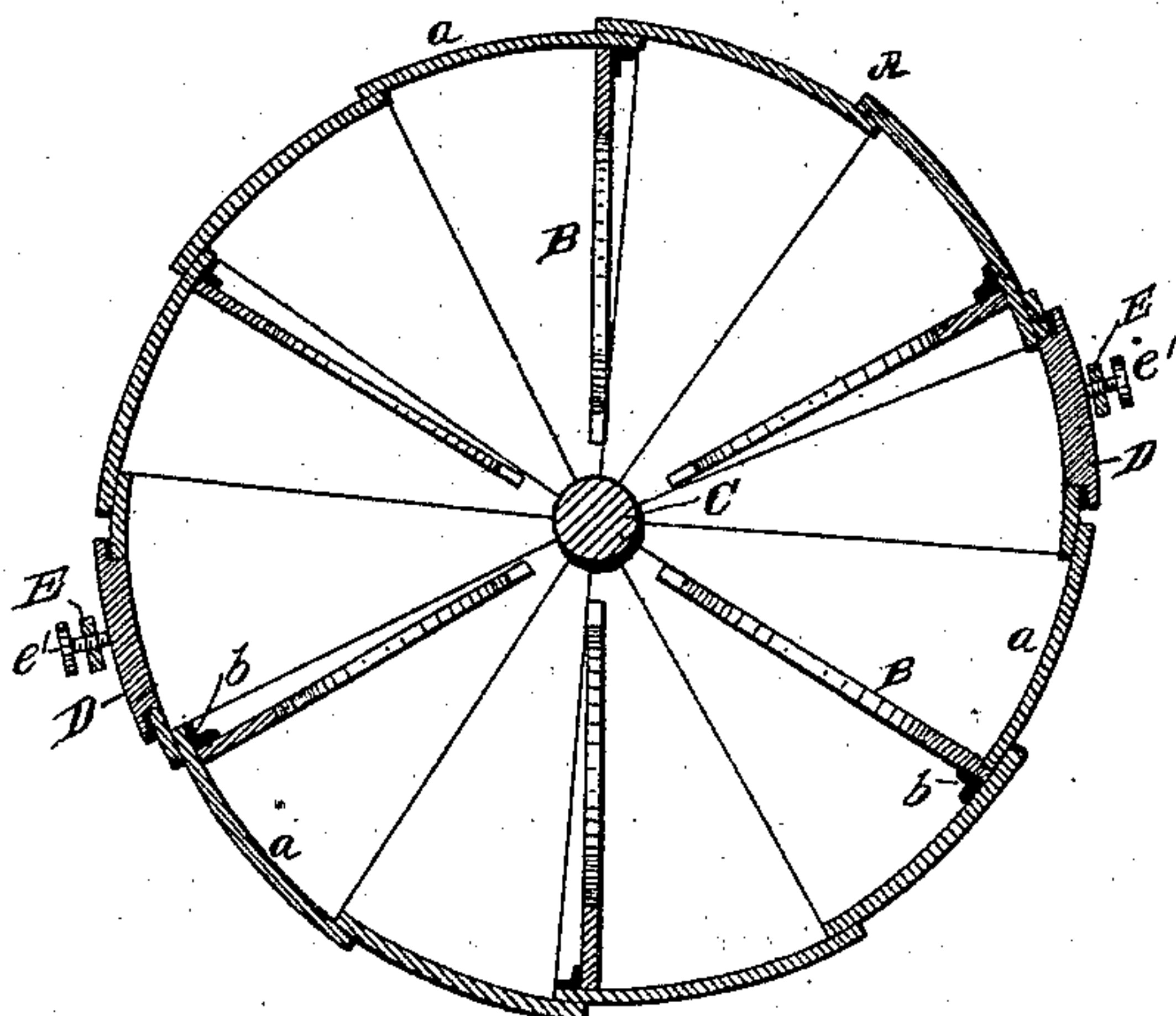


Fig. 2.

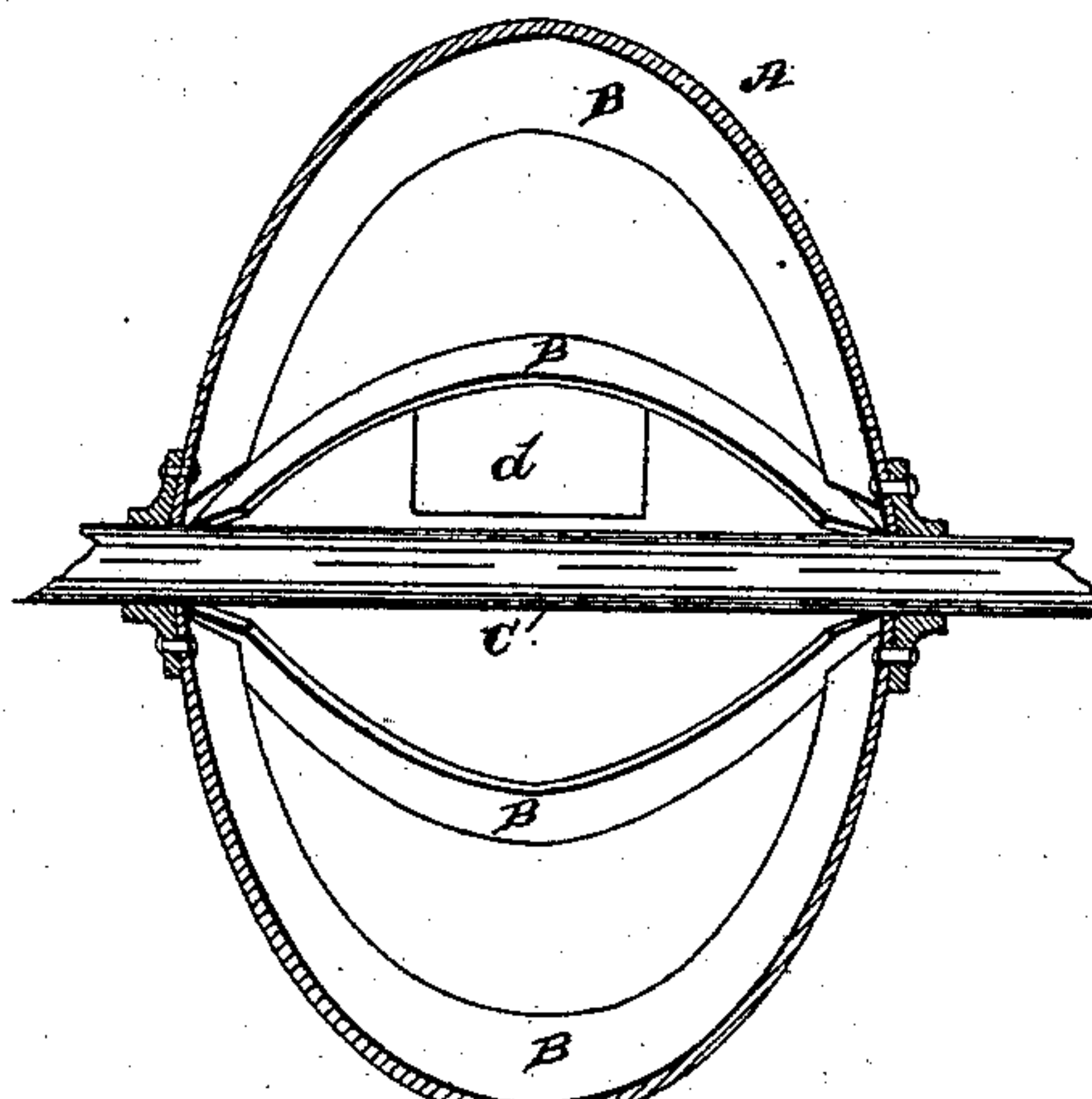


Fig. 3.

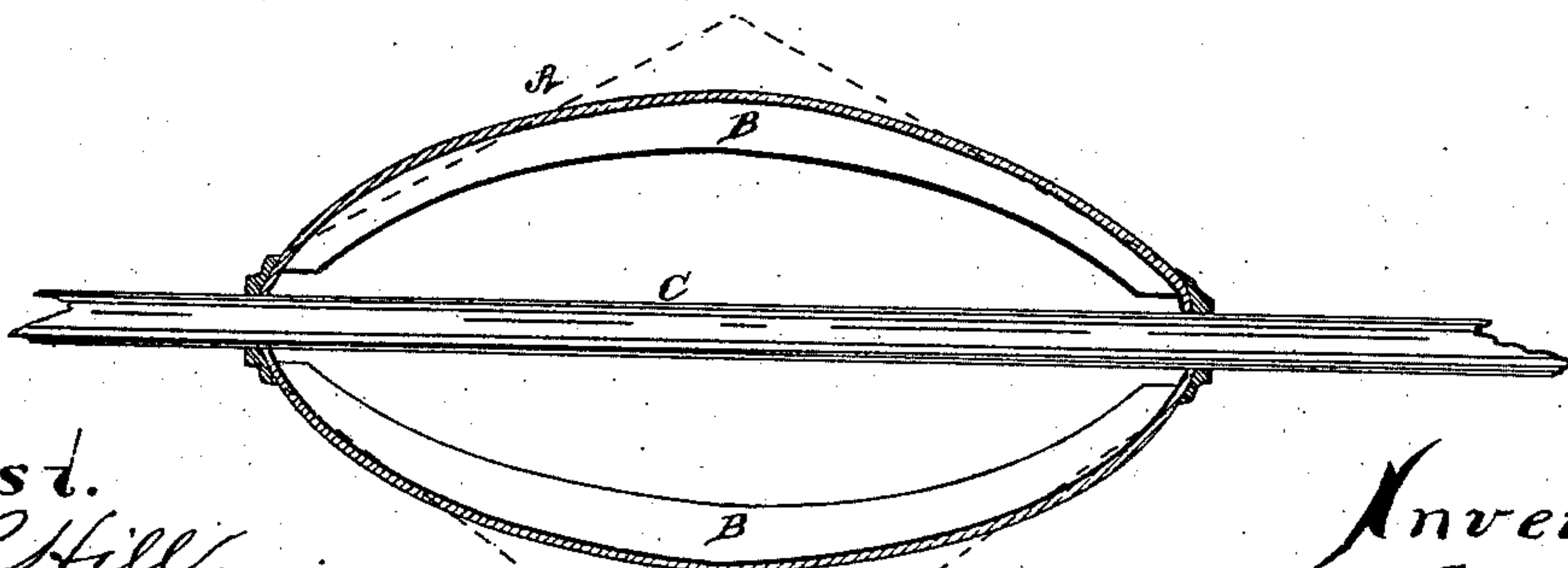


Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## GLASS-BATCH MIXER.

SPECIFICATION forming part of Letters Patent No. 290,771, dated December 25, 1883.

Application filed April 26, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, RALPH G. HEMINGRAY, of the city of Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Glass-Batch Mixers, of which the following is a specification.

The object of my invention is to provide a machine for thoroughly and evenly mixing the various ingredients from which glass is made in a short time and in such a manner that no dust shall arise to injure or discommode the operator. Ordinarily the sand, lime, and soda, and any other ingredients entering into the composition of glass are measured and spread in successive layers one upon another in a bin, and these substances are then turned over and over with shovels for the purpose of mixing them together. In this operation a great deal of dust arises, which, owing to the character of the substances, is very injurious to the persons performing the operation. Other objections to this manner of mixing the batch are that it consumes a great deal of time and that it is very difficult to effect a thorough and even mixing of the ingredients, and consequently the glass is not uniform.

I am aware that a revolving cylinder having parallel sides and having an interior revolving mixer has been employed for the purpose of thus mixing the batch for the glass; but this form of mixer does not effect a perfect mixing of the batch, for the reason that the ingredients which are placed in any particular portion of the cylinder do not move longitudinally in said cylinder as it is revolved, and therefore the ingredient placed at one end of the cylinder does not become mixed with the ingredient at the other end, and consequently the glass formed from a batch thus mixed is not uniform. My invention overcomes all of these objections, as the operation of mixing the batch is very quickly performed, not more than five minutes being required to thoroughly and evenly mix the various ingredients of the batch, the reason for which will be fully apparent from the following description.

Referring to the drawings forming part of this specification, Figure 1 represents an elevation of my machine. Fig. 2 represents a

central section of the same, taken at right angles to its axis. Fig. 3 represents a section taken in a line parallel to the axis of the machine. Fig. 4 represents a somewhat different form of mixer, but operating in a manner similar to the one shown in the remaining figures.

My improvement consists, in general, of a globular or ovoid receptacle, A, having a number of interior shelves or wings, B, and secured to an axis, C, connected to the side of, or passing through, the receptacle A and journaled in appropriate supports. This receptacle A is preferably made of boiler-iron, and in the present instance is composed of sections or sheets *a*, riveted together to form a globular or ovoid box or receptacle, the diameter of which, in a line at right angles to the axis C, is greater at the center than near the ends of said axis, the sides gradually approaching each other toward their point of connection to the axis, the preferred form of receptacle being that shown in Figs. 1, 2, and 3, being flattened in a line indicated by the axial center, the central diameter in a line at right angles to the axis being greater than the diameter at the axial center; but it may, if desired, be made in the form shown in Fig. 4, the axial diameter being the longest. The sides are preferably curved, as shown, but may, if desired, be straight, as indicated by dotted lines in Fig. 4, the diameter gradually increasing toward the transverse center of the receptacle. The wings B are secured to the interior of the receptacle by appropriate angle-irons *b* and bolts or rivets, and are in the form of narrow ledges extending around the interior of the receptacle from a point near the axis at one side to a corresponding point at the opposite side, the ends of the wings preferably not coming quite to the axial center of the receptacle at either side, leaving slight spaces between the ends of the various wings. Any number of these wings may be employed, six being shown in the present instance. The receptacle A is provided with one or more openings, *d*, a lid, D, being provided for each opening. In the present instance two of these doors are employed, and located at opposite sides of the receptacle, this being the preferred number and location



of the doors. Any desired means may be employed for holding these doors securely in contact with the receptacle when it is desired to close the openings *d*, a very convenient arrangement being that shown in the drawings.

At each side of the opening *d* is a stirrup, *e*, riveted or bolted to the wall of the receptacle. A yoke or bar, *E*, passes over the door *D*, the ends of said bar being adapted to rest in the stirrup *e*, and a screw, *e'*, screwed through this bar and pressing against the door *D*, holds it tightly in contact with the receptacle *A*, and, if desired, an elastic gasket may be placed between the door and the outer face of the receptacle around the opening *d*, making a perfectly tight joint.

The axis *C* may extend entirely through the receptacle, as shown in the drawings; or, if preferred, it need not pass through but be secured to the sides of the receptacle; but it is preferable, however, to extend it through the receptacle, as greater strength is thereby gained. One end of the axis *C* is provided with a pulley or appropriate gearing for causing the receptacle to revolve at the proper rate of speed, and experience has taught me that six revolutions per minute is the speed best adapted for the purposes of my invention, and at this rate of speed but five minutes are required to thoroughly mix the batch. When the receptacle is to be charged, one of the doors *D* is removed, and the various ingredients, after being measured, are thrown into the receptacle by any desired form of mechanism without regard to any particular order until the required quantity has thus been introduced, when the door is again secured over the opening *d* and the receptacle caused to revolve, and each of the wings *B* lifts a portion of the material until said wing passes above the horizontal center of the receptacle, when the material will fall from said wing, and, owing to the globular or ovoid shape of the receptacle, this material as it falls from the wings *B* will fall toward the center of the receptacle, and thus the various ingredients are thoroughly intermingled with each other, and glass made from this batch will be perfectly uniform throughout. When the batch has been thoroughly mixed, the receptacle is

stopped and one or both of the doors *D* removed and the receptacle again caused to revolve, and the batch will soon pass out of the openings, and is received into an appropriate bin.

As before stated, a great deal of time and labor are saved by this machine, a more thorough mixing of the batch than has been heretofore accomplished, and none of the injurious dust is permitted to escape.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

1. A machine for mixing batch for making glass, consisting of a globular or ovoid receptacle provided with interior mechanism for agitating the batch, and connected to an axis provided with appropriate mechanism for causing said receptacle to revolve, substantially as and for the purpose described.

2. In a machine for mixing batch for glass, the revolving receptacle *A*, the diameter of which, in a line at right angles to its axial center, is greater at its center than at either end, substantially as and for the purposes specified.

3. The receptacle *A*, formed substantially as described, and provided with the interior wings, *B*, said wings being connected to the inner face of said receptacle, substantially as and for the purposes described.

4. A machine for mixing batch for glass, consisting of a receptacle, *A*, the diameter of which, in a line at right angles to its axial center, is greater at its center than at its ends, said receptacle being provided with the wings *B*, secured to the interior thereof, and means for causing said receptacle to revolve, substantially as and for the purposes specified.

5. The globular or ovoid receptacle *A*, constructed substantially as described, and provided with one or more doors or lids, *D*, and means for holding said door or doors in contact with the receptacle, substantially as and for the purposes specified.

RALPH G. HEMINGRAY.

Witnesses:

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W. W. CHAMBERLIN.