

N<sup>o</sup> 15,743



A.D. 1893

*Date of Application, 19th Aug., 1893*

*Complete Specification Left, 18th May, 1894—Accepted, 23rd June, 1894*

PROVISIONAL SPECIFICATION.

Improvements in Washing and Wringing Machines.

I, THOMAS BRADFORD of Sandymount Pendleton in the County of Lancaster Engineer, do hereby declare the nature of this invention to be as follows:—

The washing compartment consists of a hooked barrel made of oak or other suitable timber and suspended vertically upon two axles in a suitable frame work of wood or iron or other material.

I divide the washing compartment vertically by a double washing board—that is a board with projections on each side. These projections I propose to make similar to the woodendway plugs adopted in the washing machine patented by me in the year 1887 Nos. 3618 and 14562 and in 1890 numbered 3106 and 14072.

The object of this central board—which is fixed vertically—is so that all smaller articles of the domestic household may be placed on each side of it and so that when the whole compartment is revolving the linen will be rubbed over the woodendway projections alternately.

Intervening between the woodendway projections I propose to introduce holes of suitable diameter the special objects of which are that at each rotation of the whole compartment the water or suds after lubricating the linen over the woodendway, can pass through from the upper side of the same to and upon the linen at the underside of the division.

I also propose to fix upon the bottom of the barrel in the inside two elliptic ribs for the purpose of kneading or dollying the linen; and I also propose to fix similar elliptic ribs upon the lid of the machine corresponding to the ribs on the bottom of the washing compartment for the double purpose of kneading or dollying the linen and also for raising up linen from the flat surface of the bottom and also the flat surface of the lid so that the washing ley or suds may permeate and run away more freely.

I also propose to fix two or more elliptic ribs upon each side of the washing compartment for the purpose of turning over and changing the position of the linen during rotation.

This washing compartment can be actuated by a winch handle and fly wheel only in the smaller sizes but in all the larger sizes I propose to actuate it by gearing so that I may obtain the requisite power whether by hand or steam to turn the larger sizes. And in these larger sizes when large quantities of linen have to be dealt with as in public institutions I propose that this vertical division shall be loosed and so made that upon the washing compartment itself being secured horizontally instead of vertically one half of the articles washed may be removed bodily upon it either on to the wagon or to the boiling or rinsing copper. The division then to be replaced in the washing compartment and then by again securing it in a horizontal position in the opposite direction, the other half of the linen may be removed from either the back or front by a similar bodily removal of the division and the linen resting upon it. When such washing machine as I describe is intended for domestic washing I propose to fix it upon a suitable frame made of wood or metal with suitable journals for the trunnions or pivots to work in and upon the top of this framework I propose to fix two or more parallel wringing or mangling rollers either fixed vertically to each other or obliquely or by preference horizontally as adopted by me in my Patent No. 4678 A.D. 1886.

The lid or cover of this washing compartment I propose to construct upon the same lines as, but of much greater proportionate strength than the churn lid patented by me A.D. 1887 and numbered 16260.

[Price 8d.]

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The wire inserted in the periphery of the lid imparting to it great strength also protecting it from splitting and from injurious wear and tear in use; and the thick layers of vulcanised india rubber inserted immediately under the periphery so protected, ensures water tightness in a very simple but substantial manner.

And with a view to relieve the washing compartment from undue pressure when partially filled with hot or boiling water I propose to secure an automatic ventilator or valve that will allow the steam to escape when the compartment is in a suitable position and without any escape therefrom of the washing ley or suds.

Dated this 18th day of August 1893.

GEO. DAVIES & SON,  
4, St. Ann's Square, Manchester, Agents for the Applicant.

## COMPLETE SPECIFICATION.

## Improvements in Washing and Wringing Machines.

I THOMAS BRADFORD of Sandymount, Pendleton, in the County of Lancaster, 15  
Engineer, do hereby declare the nature of this invention and in what manner the  
same is to be performed to be particularly described and ascertained in and by the  
following statement:—

The washing compartment consists of a hooped barrel *a* (or a rectangular box) 20  
made of oak or other suitable wood as seen on the illustration of the two  
machines shewn on the two sheets of drawings hereto annexed.

On Sheet 1 Fig. 1 is a side view in section of a washing machine constructed 25  
according to my present invention and arranged to be worked by hand. Fig. 2 is  
an end elevation partly in section thereof, and Fig. 3 a transverse section of the  
washing compartment—taken through about the line A—B on Fig. 1.

On Sheet 2 Figs. 4 and 5 are sectional elevations of a similar machine arranged 30  
to be worked by steam power or similar motion.

This washing compartment *a* is suspended vertically i.e. end over end upon two 35  
axles *a*<sup>1</sup> *a*<sup>11</sup> (see Figs. 1, 2, and 4) in a suitable framework of iron wood or other  
suitable material by preference the framework shewn on the accompanying  
illustrations in consequence of their special adaptability both with regard to those  
machines that are intended for being worked by hand power, and also those  
intended to be worked by steam or similar motive power, and also in consequence  
of the convenient working details, (which are entirely novel) which the designs  
admit of, and more especially with regard to such machines as are intended to be 40  
worked by steam, gas, or water power.

It will be seen by my drawings that I divide the washing compartment *a* 45  
vertically by a double washing board *b* that is a board with projections *b*<sup>1</sup> or  
corrugations made of suitable material, on one or both sides, but by preference, the  
projections I propose to adopt, are similar to the "woodendway" plugs used by me  
in the washing machine patented by me in the year 1887 No. 3618 and also in 50  
1890 numbered No. 3106.

The object of this central board *b* which I slide vertically into and entirely down 55  
the middle of the washing compartment (as seen on Figs. 2, 3, and 5,) is that all  
small or large articles of domestic linen can be placed on each side, or on one side  
only of it, so that when the compartment is revolving end over end the linen that  
is in or upon the upper side of the division board will be rubbed over the  
"woodendway" projections *b*<sup>1</sup> alternately and once for every revolution in each  
compartment. Intervening between these "woodendway" projections, I bore  
holes *b*<sup>2</sup> of suitable diameter the special object of which is, that at each rotation of 60  
the washing compartment *a* the water or suds after lubricating the linen over the  
"woodendway" division *b* can pass through such holes *b*<sup>2</sup> from the upper side of

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the same, to and upon the linen, that may be on the underside of the "woodendway" board or division *b*.

I also fix upon the bottom *c* of the washing compartment and also upon the underside of the lid *d* of the same, two or more elliptic or other suitably shaped ribs *e* upon which the linen during rotation falls, and according to its specific gravity is kneaded or dollyed, with effective but non-injurious force, and which elliptic or other ribs *e* permit of freer permeating action of the soap solution or suds during rotation, and I also fix two or more of such elliptic or other ribs *e* upon each side of the washing compartment *a* for a similar purpose, and also for the further purpose of tipping or turning over, and changing the position of the linen during rotation.

I actuate this washing compartment when for domestic or family washing by fly-wheel *f* with pinion *g* and spur wheel *h* (see Sheet 1) and in those for steam or other power by fast and loose pulleys *i* and suitable gearing as seen on Sheet 2.

I accomplish in the larger sizes of these machines (which have to deal with the linen of large establishments, and public institutions, such as asylums, hospitals, and such like) a further desirable advantage which effects an important economy in labour, and time, in the removal of the linen from the washing compartment after cleansing, en-masse, by providing metal or wood slides or grooves *k* so that the division *b* can be withdrawn horizontally when the washing vessel is secured, in a horizontal position (as seen on Fig. 5,) and when say one half the linen is upon it, upon a trolley of suitable height to correspond with the height of the division *b* resting in and upon the grooves *k* and thereby allowing of the linen being conveyed en-masse by the said trolley to the boiling copper, or the hydro extractor, for any further finishing process.

The compartment *a* is or may be locked in this position by means of a pin *l* passing into a suitable hole made in the wheel *m* (see Fig. 4).

The division *b* is then replaced in the washing compartment *a* and by turning it half over and again securing it in a horizontal position in the opposite direction the other half of the linen may be removed from either the back or front as the case may be by a similar bodily removal of the division and the linen resting upon it.

When such washing machine as I describe is intended for domestic washing I propose to fix it upon a suitable frame made of wood or metal with suitable journals for the trunnions or pivots to work in (see Sheet 1 of the drawings) and upon the top of this frame work I propose to fix two or more parallel wringing or mangling rollers *n* either fixed vertically to each other or obliquely or by preference horizontally as adopted by me in my Patent No. 4678 A.D. 1886 (see Fig. 2).

The lid or cover *d* of my improved washing compartment I propose to construct upon the same lines as, but of much greater proportionate strength than the churn lid patented by me A.D. 1892 and numbered 7697.

The wire *d*<sup>1</sup> inserted in the periphery of the lid imparting to it great strength, also protects it from splitting and from injurious wear and tear in use; and the thick layer *d*<sup>2</sup> of vulcanized india rubber inserted immediately under the periphery so protected, ensures water tightness, in a very simple but substantial manner; and with a view to relieve the washing compartment from undue pressure when partially filled with hot or boiling water I may secure to the lid a suitable automatic ventilator or valve (not shewn on the drawings) that will allow the steam to escape when the compartment is in a suitable position and without any escape therefrom of the washing ley or suds.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. The improved domestic washing and wringing machine constructed and arranged to be driven by hand substantially as hereinbefore described and illustrated by the annexed drawings.

2. The improved washing machine constructed and arranged to be driven by

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steam or similar power substantially as hereinbefore described and illustrated by the annexed drawings.

3. The improved construction of divided washing compartment substantially as hereinbefore described and illustrated by the drawings annexed.

4. The combination with the washing compartment of the removable division substantially as and for the purposes hereinbefore described. 5.

5. The combination of washing compartment, removable division, and means for fixing the said washing compartment in a horizontal position substantially as hereinbefore described and illustrated by the annexed drawings.

6. The improved lid for washing machines constructed as above described and having elliptic or other projecting pieces thereon substantially as described and illustrated by the annexed drawings. 10.

Dated this 17th day of May 1894.

GEO. DAVIES & SON,  
4, St. Ann's Square, Manchester, Agents for the Applicant. 15

FIG: 1.

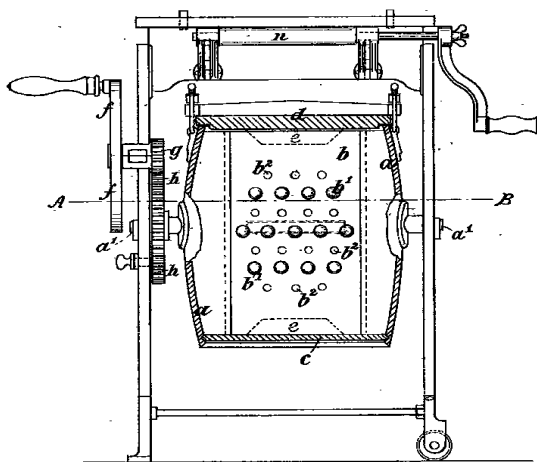


FIG: 2.

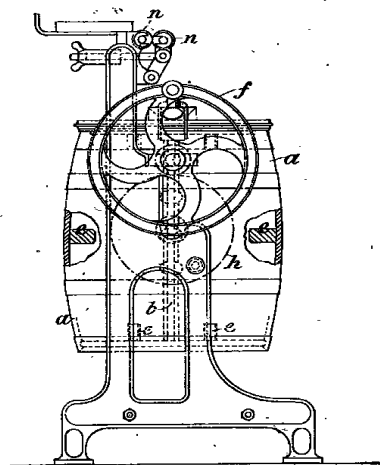
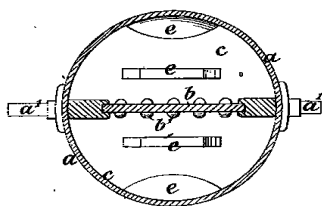


FIG: 3.



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FIG: 1.

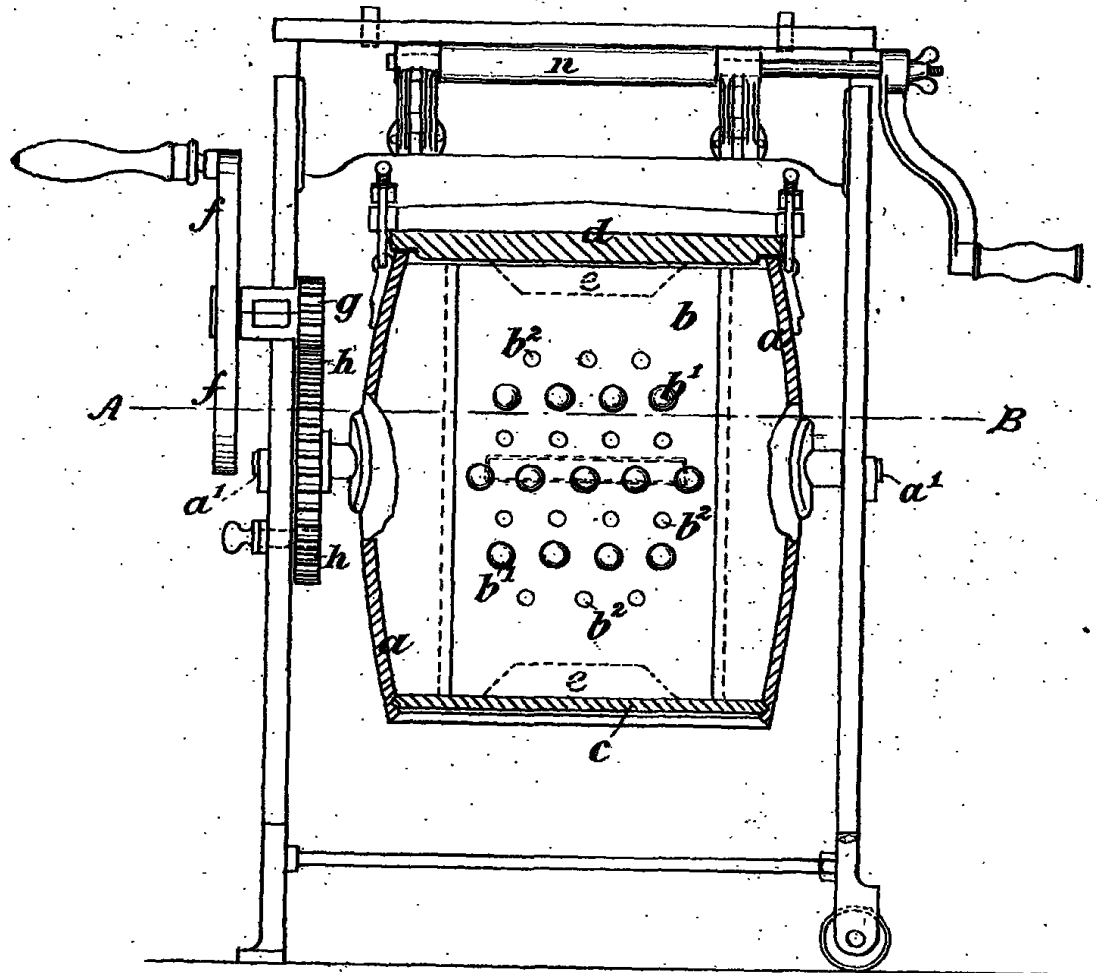


FIG: 5.

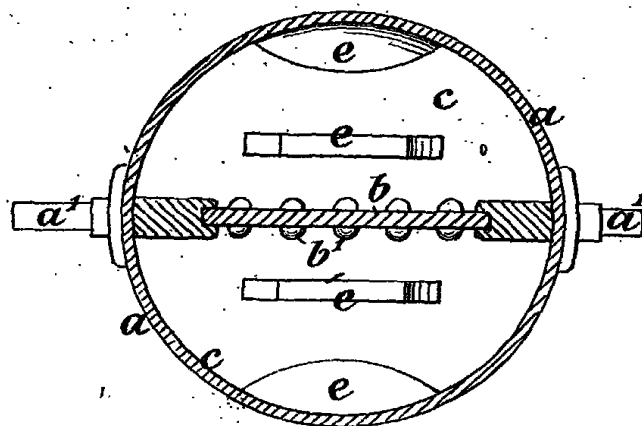
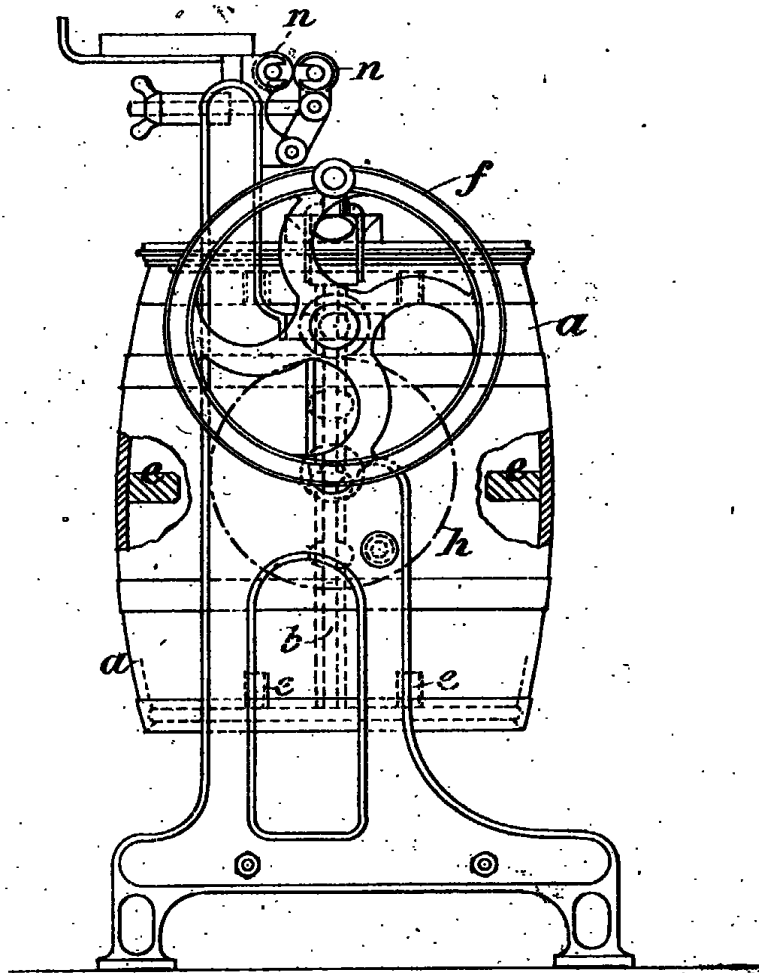


FIG: 2.



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FIG: 4.

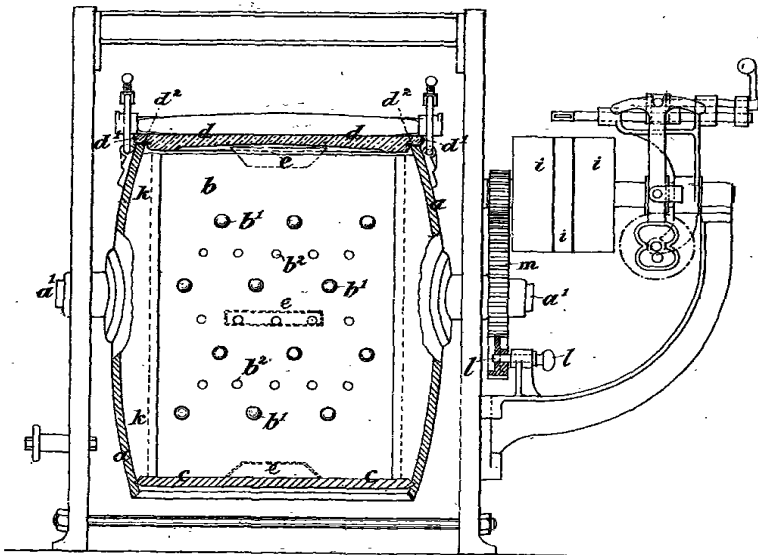
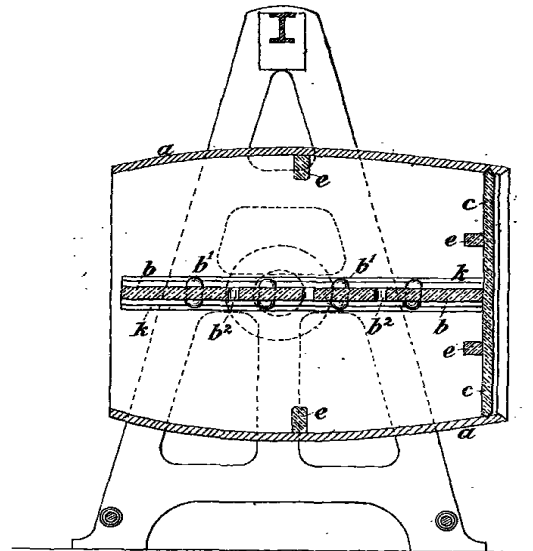


FIG: 5.



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FIG: 4.

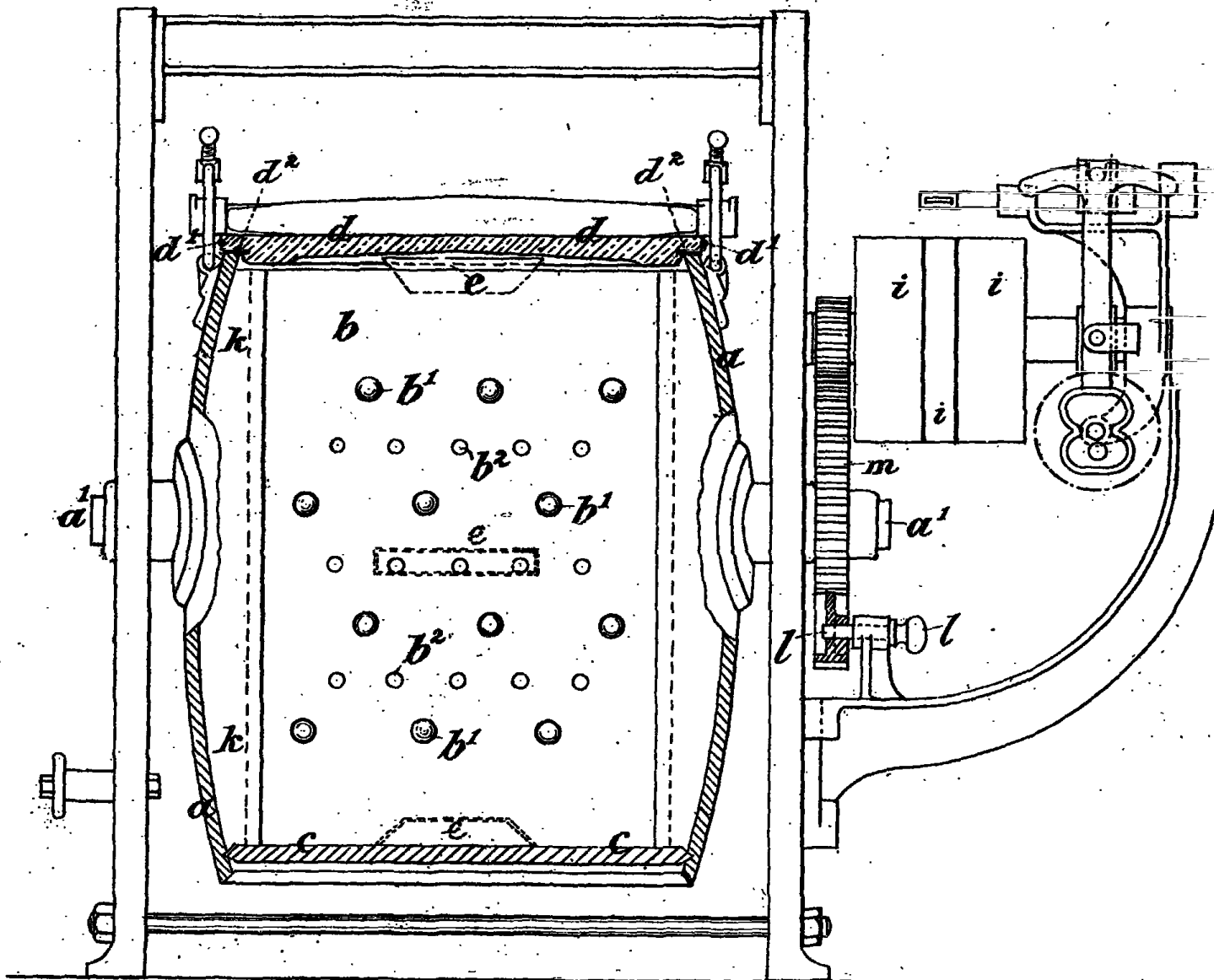
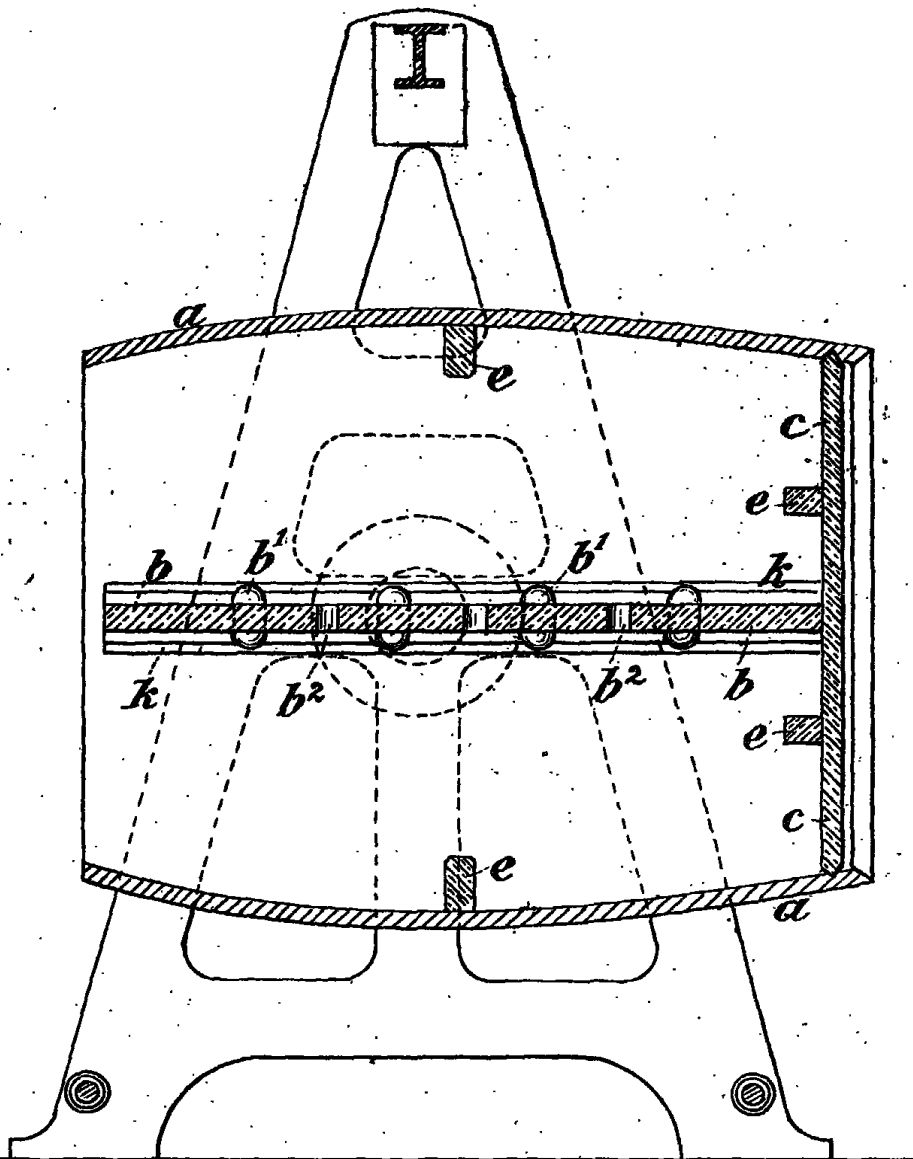


FIG: 5.



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