

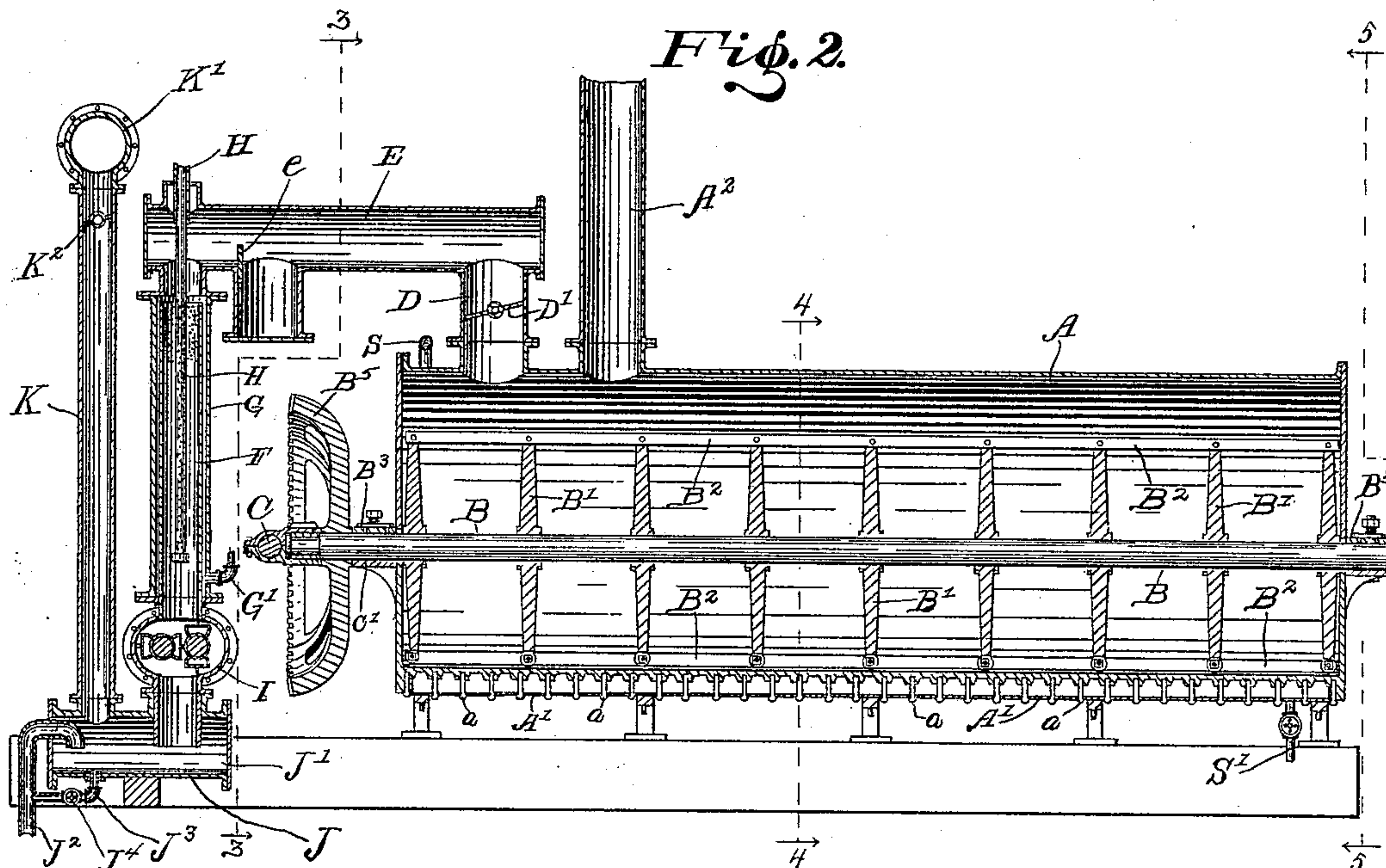
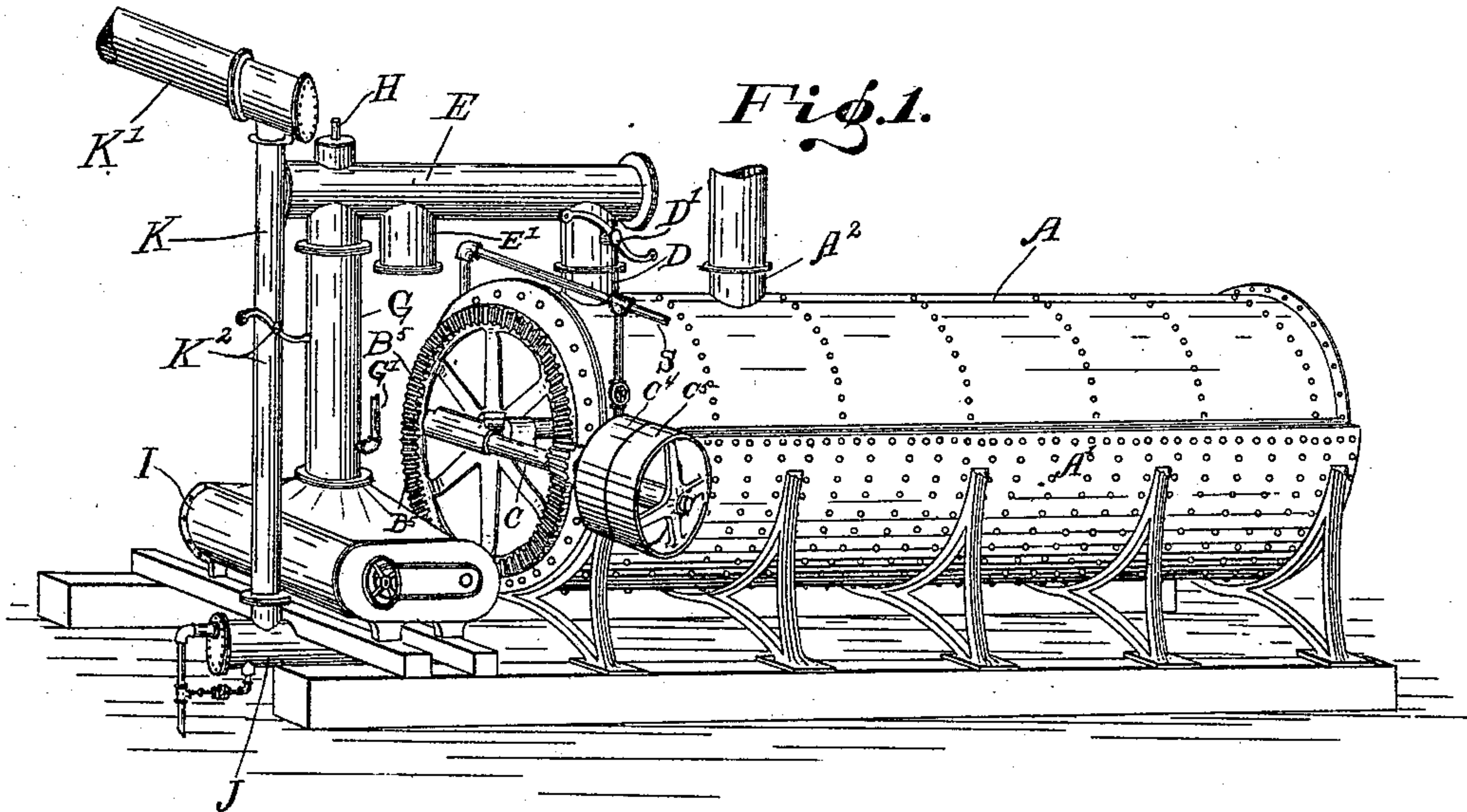
(No Model.)

2 Sheets—Sheet 1.

F. G. WISELOGEL.
DRIER.

No. 536,677.

Patented Apr. 2, 1895.



WITNESSES:

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Attorneys.

INVENTOR

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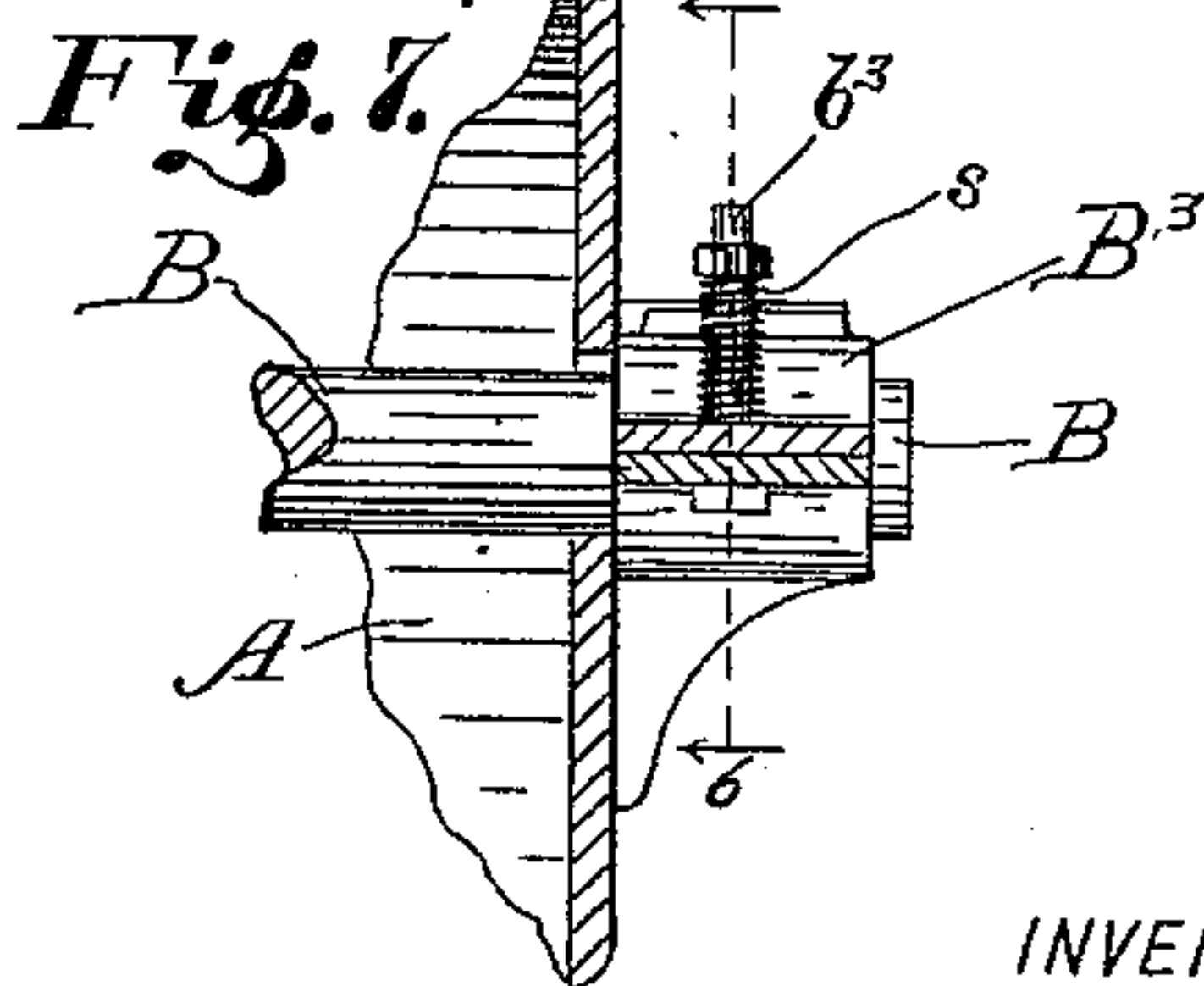
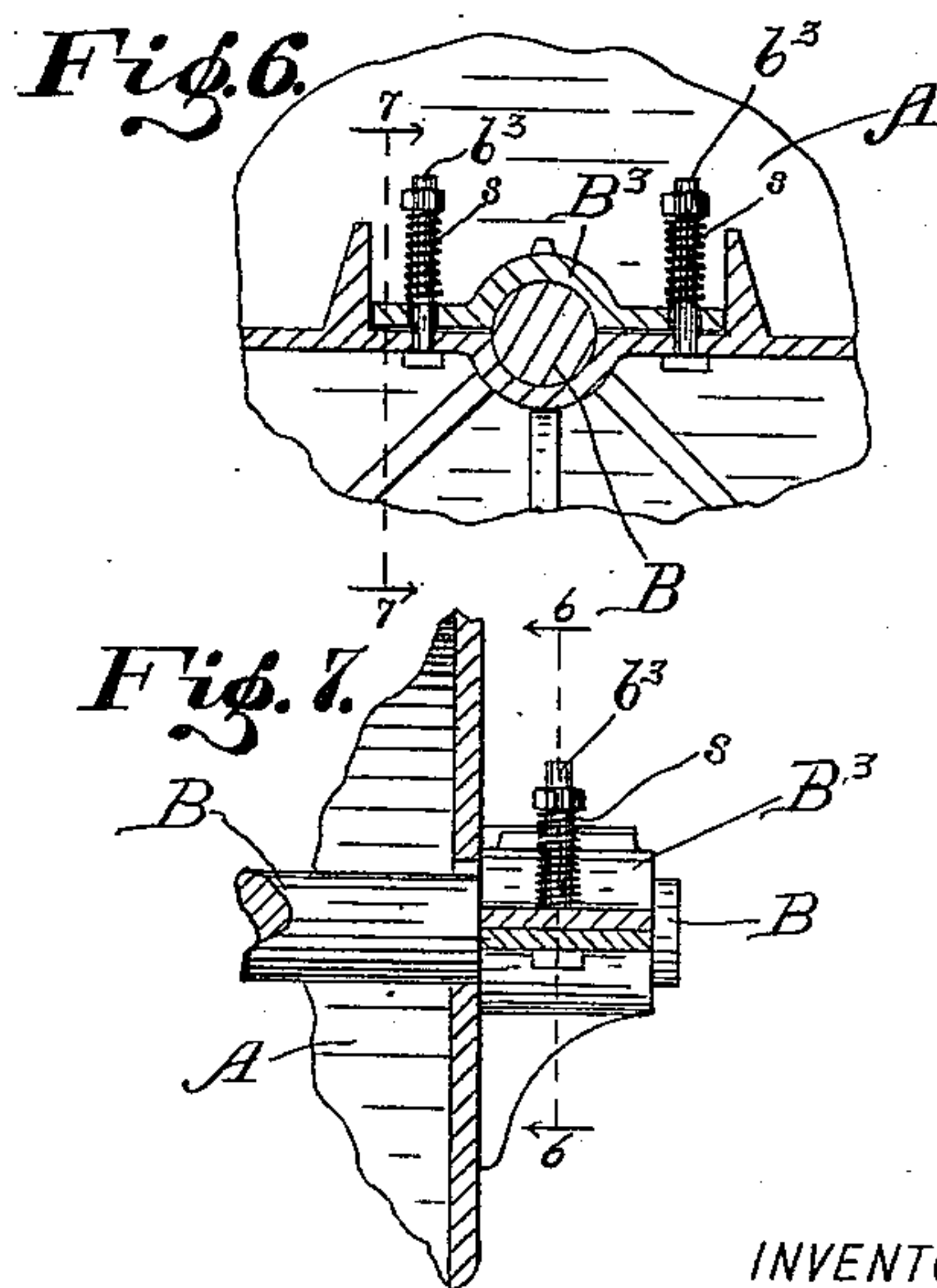
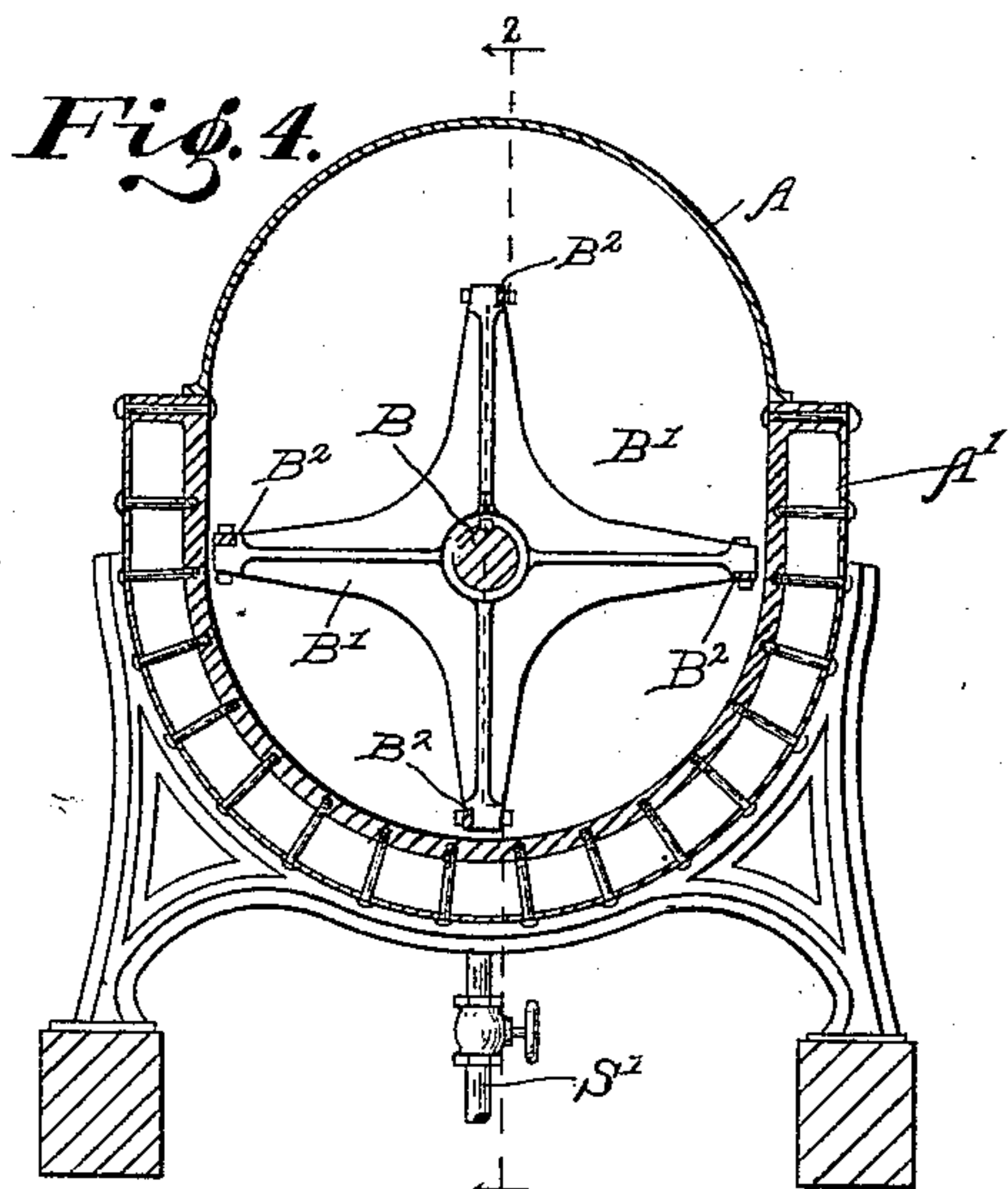
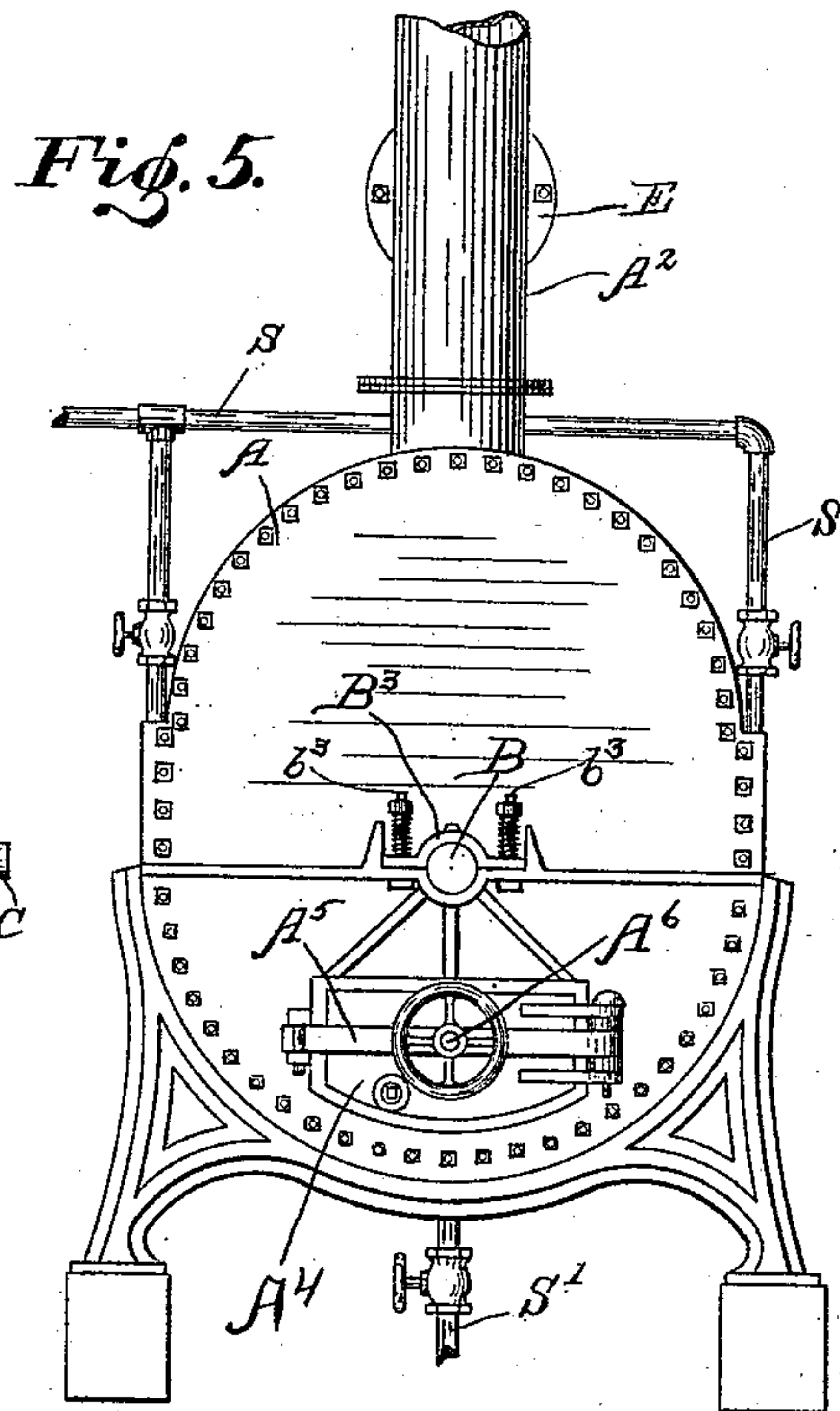
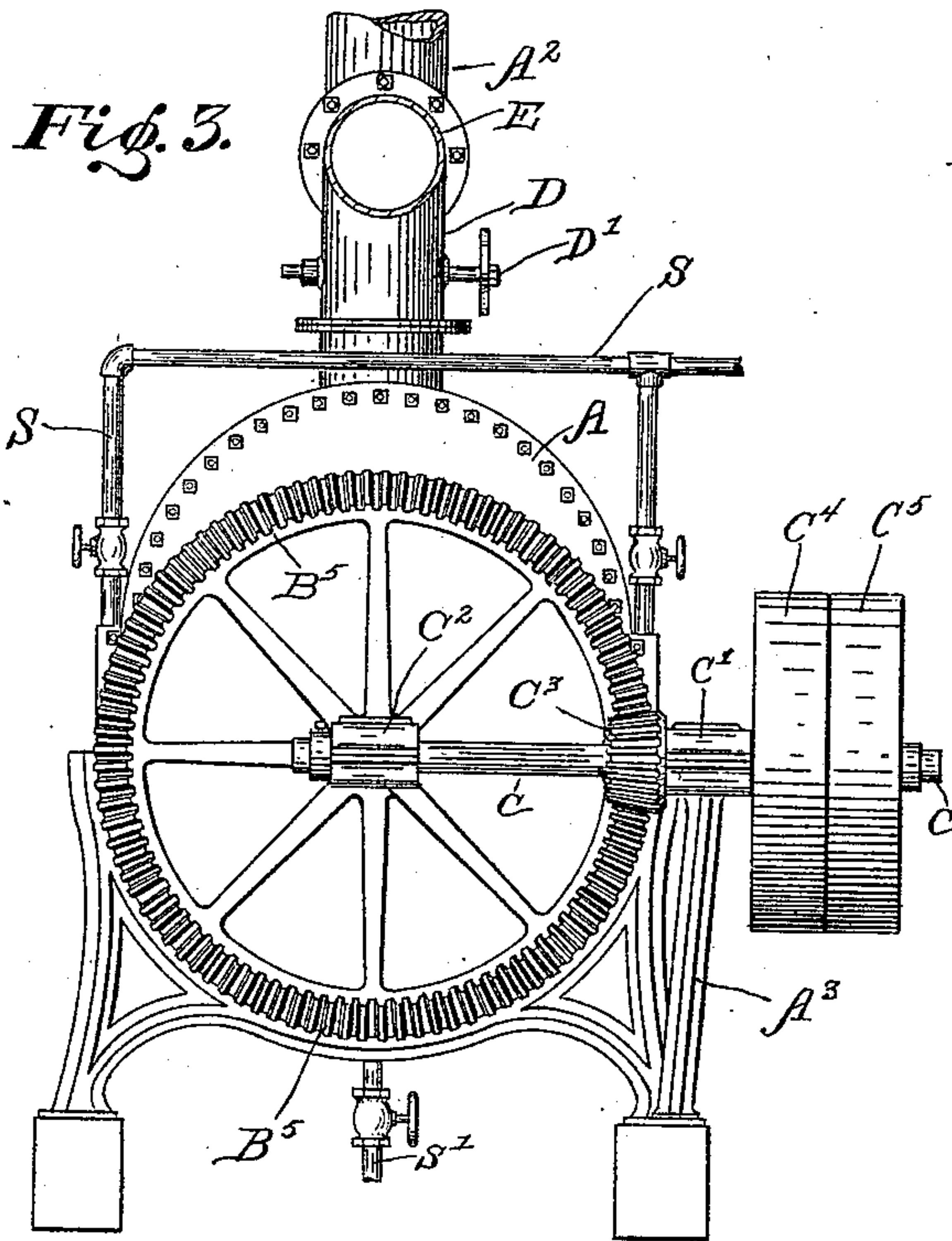
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2 Sheets—Sheet 2.

F. G. WISELOGEL.
DRIER.

No. 536,677.

Patented Apr. 2, 1895.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FREDERICK G. WISELOGEL, OF INDIANAPOLIS, INDIANA.

DRIER.

SPECIFICATION forming part of Letters Patent No. 536,677, dated April 2, 1895.

Application filed September 17, 1894. Serial No. 523,276. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK G. WISELOGEL, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Driers, of which the following is a specification.

The object of my said invention is to produce an apparatus by which garbage, offal and such like matter may be thoroughly mixed and dried, and whereby the moisture may be condensed and carried away to a sewer or drain, while the gas may be separated and carried away, preferably to the furnace, where it may be consumed.

An apparatus embodying my said invention will be first fully described and the novel features thereof then pointed out in the claims.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a perspective view of an apparatus embodying my said invention; Fig. 2, a longitudinal sectional view of the same; Fig. 3, a transverse sectional view, as seen from the dotted line 3 3 in Fig. 2; Fig. 4, a similar view on the dotted line 4 4; Fig. 5, an end elevation as seen from the dotted line 5 5, and Figs. 6 and 7 detail sectional views, on an enlarged scale, of the yielding boxes in which the main shaft is mounted.

In said drawings the portions marked A represent the receiving cylinder or tank in which the matter to be treated is placed; B, the shaft of the stirrer therein; C, the driving shaft; D E and F, three sections of vapor pipe; G, a water column surrounding the pipe section F; H, a water pipe extending within the section F; I, an exhaust fan; J, a trap, and K a gas pipe.

The receptacle or tank A is in its general form much like a large steam boiler, except that it should have flattened sides. Its lower half has an outside or second wall A', and numerous stay bolts *a* connect said two walls. The space thus formed is utilized for heating the drier, by the introduction of steam therein, and, as will be readily understood, such a heating is very effectual, as thereby more than half the exterior surface of the receptacle is exposed to the direct action of live steam. The steam may be generated and introduced in any desired manner.

The steam-generating plant being no part of my present invention, is not shown, and will not be further described herein. The introduction is generally by means of the steam pipe S, and the condensed steam is drawn off, when necessary, by means of the drip-pipe S'. The matter to be dried is introduced into this tank A by means of the feed pipe A², and is thoroughly distributed and stirred by the stirrer, as will be presently described.

The stirrer is composed of the main shaft B, spiders B', and longitudinal bars B² secured to the outer ends of the arms of said spiders. The construction of these various devices is simple, and will be readily understood upon an inspection of the drawings. The shaft B is mounted in boxes at the ends of the receptacle A, having caps B³, and said caps are held onto their seats by bolts b³ surrounded by springs *s* as shown. This is to enable the stirrer to raise, in operation, when, as is frequently the case, some hard substance will get under the spider-arms or bars of said stirrer, and which might otherwise cause a breakage of the apparatus, and thus stones, old iron and other articles which cannot be crushed or broken, but which will frequently get mixed with garbage, are enabled to pass through the machine.

The driving shaft C is mounted in the boxes C' and C², the former of which is so mounted on the standard A⁵ that it will rock in a seat therein, and the other of which is mounted upon the end of the shaft B which extends out for that purpose, and said shaft is turned down, as shown particularly in Fig. 2, so that said box may be held thereon, and at the same time permit said shaft B to revolve. The shaft C is further provided with the pinion C³ which engages with the large bevel gear wheel B⁵ on the shaft B, and the stirrer is thus driven. Upon the outer end it has tight and loose pulleys C⁴ and C⁵ upon which the driving belt (not shown) runs. It is necessary that the shaft C should be mounted, at one point, upon the shaft B, because of the necessary raising and lowering of said shaft as the stirrer comes in contact with hard articles, as previously described. Otherwise the relations of the gears would be changed in operation, with disastrous results.

The vapor which arises from the mass of garbage during the operation of drying es-

capacities through the pipes D, E and F. The pipe D is a short vertical pipe extending up from the upper side of the receptacle A, and contains a damper D' by which its orifice may be regulated and the escape of vapor thus controlled. The pipe E extends from the upper end of the pipe D horizontally a short distance, and is connected at the other end by means of a short neck to the pipe G, which surrounds the downwardly extending vertical pipe F. Before reaching said pipe, however, an opening is provided therein to which a pocket E' is secured, and on the side of said pocket farthest from the receptacle A is a baffle-plate e. The purpose of this baffle-plate and pocket is to stop and hold any light particles which may be carried up with the vapor, and which would otherwise pass off into the sewer, but which by means of this provision are effectually caught and retained, and which may from time to time be removed by taking off the lower plate which forms the bottom of the pocket. The pipe F extends vertically downwardly from at or near the end of the pipe E to the exhaust fan or pump, and the vapor during its passage down this pipe is condensed, as will be presently explained, and that portion thereof which becomes liquid is thus enabled to unite with the water and flow off into the sewer or drain.

The cylinder G surrounds the pipe F for the greater part of its length, and is supplied with water from the pipe G', which rises around said pipe F and cools the same, and, said pipe F being perforated at the upper end, the water flows through the perforations in fine streams to the interior of said pipe, and serves to condense the vapor therein.

The water pipe H preferably enters from the top and extends down centrally within the pipe F, within which it is also perforated, so that water flows out therefrom in fine streams, meeting the streams which flow in through the walls of the pipe F from the cylinder G. The commingling streams form a spray, which is very effectual in condensing the vapor.

The exhaust fan or pump I serves to continually draw the vapor and water through from the pipe F and discharge it into the trap J. Being of an ordinary and well known construction, it need not be described in detail.

The trap J consists of a tank down into which a short section of pipe J' connected to the discharge of the exhaust fan or pump extends, and said tank is always filled with water to above the lower end of this pipe, so that should any of the vapor escape condensation during its passage down the pipe F it will be effectually condensed by passing through the water bath in the trap. There is a continual passage of the liquid formed by the commingling of water and condensed vapor out through the trap exhaust J², while the gas escapes up the pipe K. Should the trap become foul, it can be discharged or blown off by opening the valve J⁴ in the draw-off pipe J³, as will be readily understood. The gas which

has thus been freed from liquid or moist vapors escapes up the pipe K, and is connected with any suitable pipe leading to such point as may be desired,—usually to the fire-box of a furnace, where the gas becomes a part of the fuel and is consumed;—the apparatus thus producing a part of its own fuel. A pipe K', suitable to receive the gas from a "battery" of driers, is shown. The pipe K may be provided with a damper K² by which the flow of gas may be controlled.

When a charge of garbage has been thoroughly treated, and dried to the desired consistency, it may be removed through the door A⁴ in the lower side of the rear end of the receptacle or tank. This door, while the treatment is going on, is tightly closed by means of the heavy cross-bar A⁵ and the screw A⁶ which is carried thereby.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a drier, of a receptacle or tank, a stirrer therein, spring-mounted bearings for the stirrer-shaft, a driving shaft, connecting gearing between said two shafts, and boxes for the driving shaft, one of said boxes being mounted to permit a rocking movement and the other being mounted on the end of the stirrer shaft, substantially as set forth.

2. The combination, with a drier, of vapor pipes leading from said drier, one portion, F, of which leads downwardly and is provided with perforations, a surrounding water cylinder extending over said perforations, and a water supply connected with said cylinder, substantially as set forth.

3. The combination, with a drier, of a vapor pipe leading therefrom, one portion, F, of which leads downwardly and is provided with openings for the admission of water, a larger pipe G surrounding the same, and a smaller water pipe H extending within said vertical portion and perforated, whereby water may be discharged in fine streams among the descending vapor, which may thereby be condensed, substantially as set forth.

4. The combination, with a drier, of a vapor escape pipe leading therefrom, a portion of which leads downwardly, a spraying water-supply connected thereto, an exhaust fan or pump connected to the lower end thereof, a trap connected with the discharge of said fan or pump, and a gas pipe connected with said trap, whereby the water and condensed liquid are led off to a sewer or drain, and the gas separated and led off to a suitable predetermined point.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 11th day of September, A. D. 1894.

FREDERICK G. WISELOGEL. [L. S.]

Witnesses:

CHESTER BRADFORD,
JAMES A. WALSH.