

No. 742,228.

PATENTED OCT. 27, 1903.

E. S. PECK.

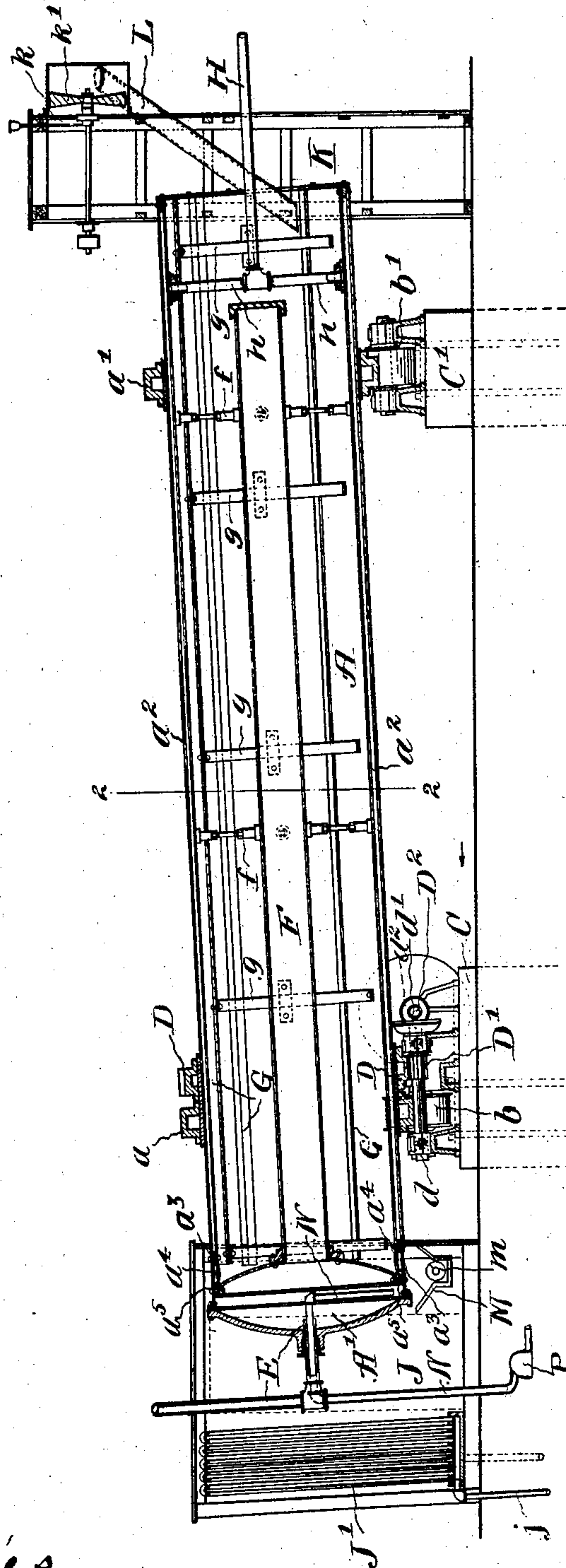
DRIER.

APPLICATION FILED DEC. 5, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. I.



WITNESSES:

S. I. Davies
W. Merkel

INVENTOR:

E. S. Peck

by his attorney.

J. D. Gay

No. 742,228.

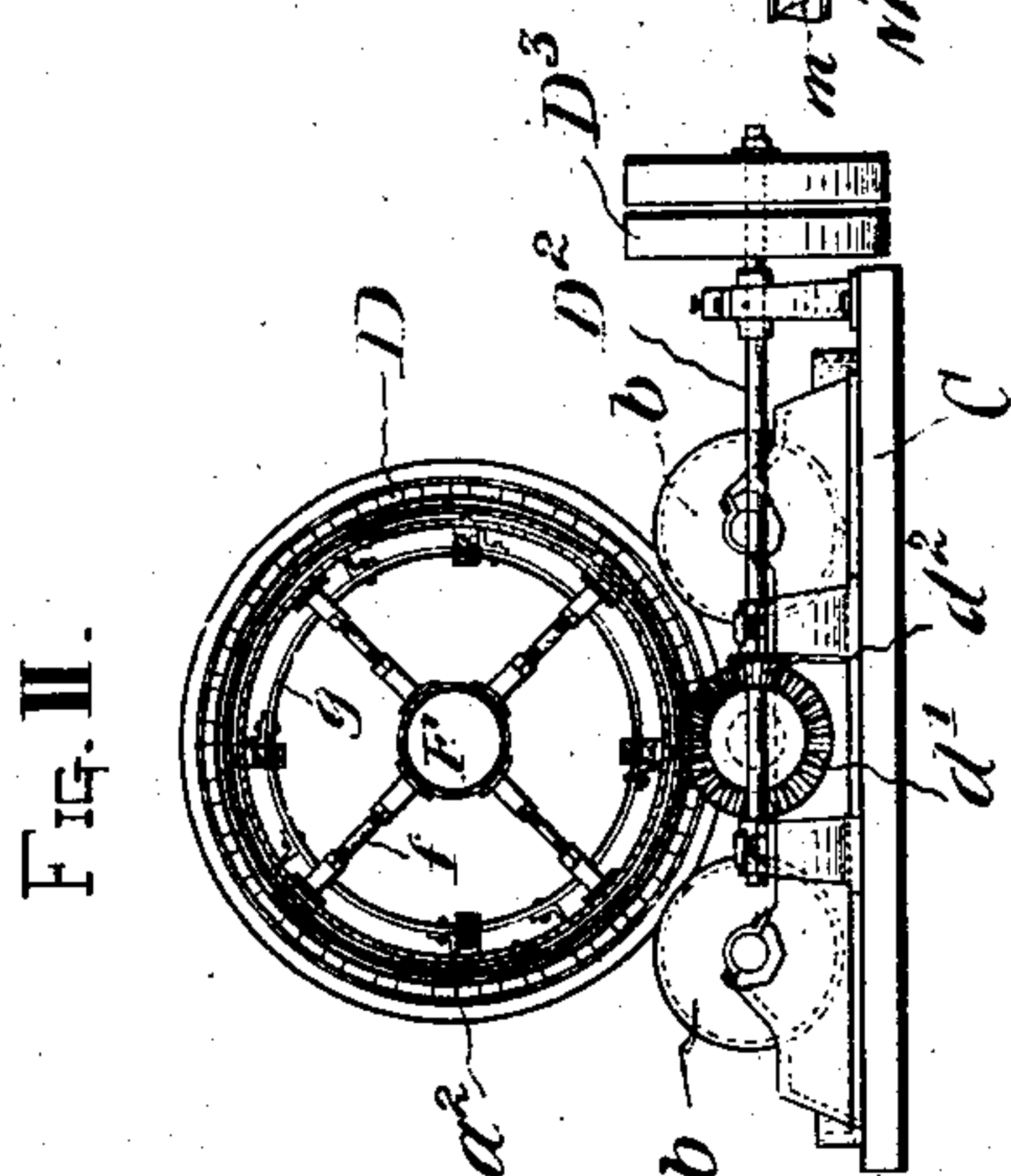
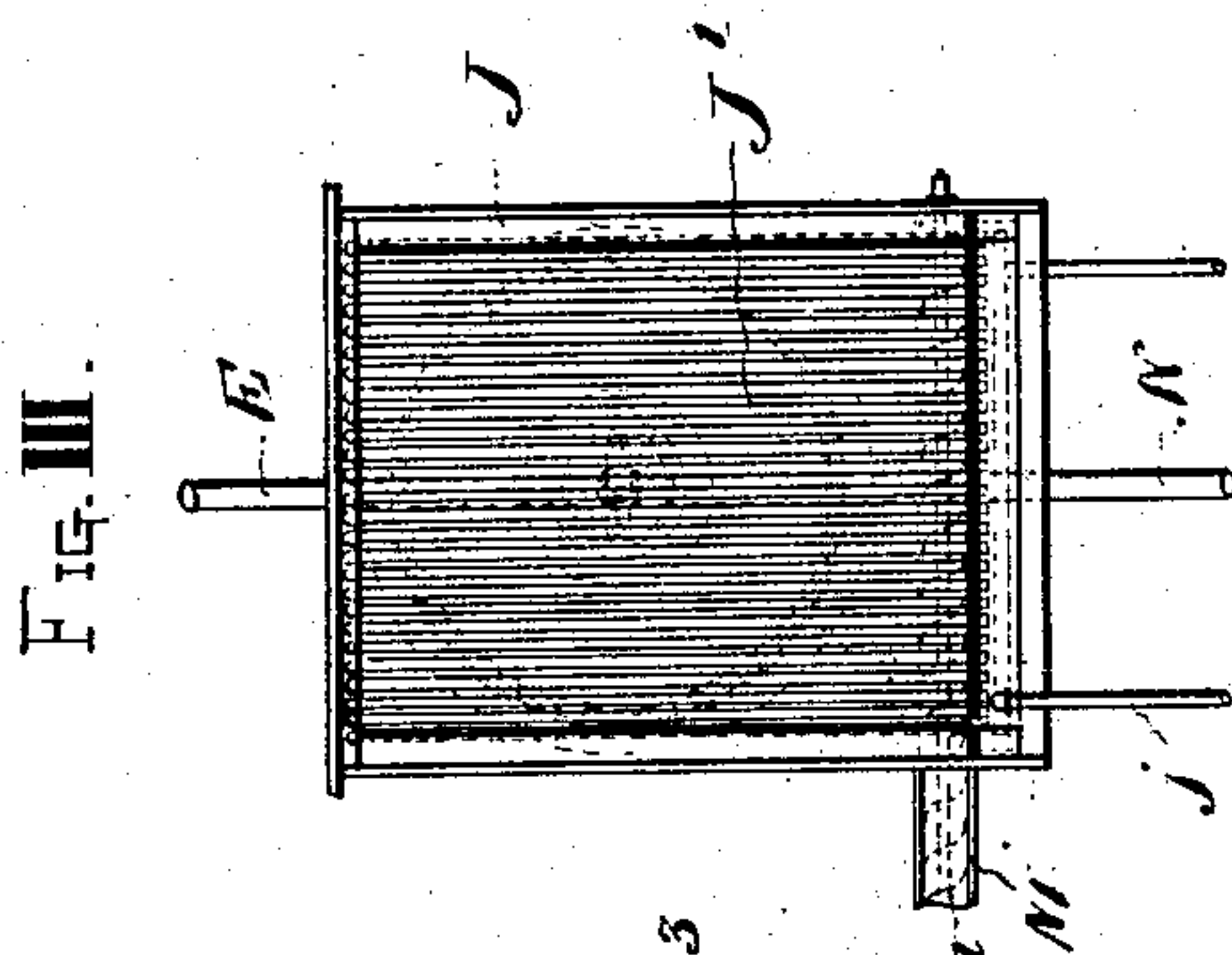
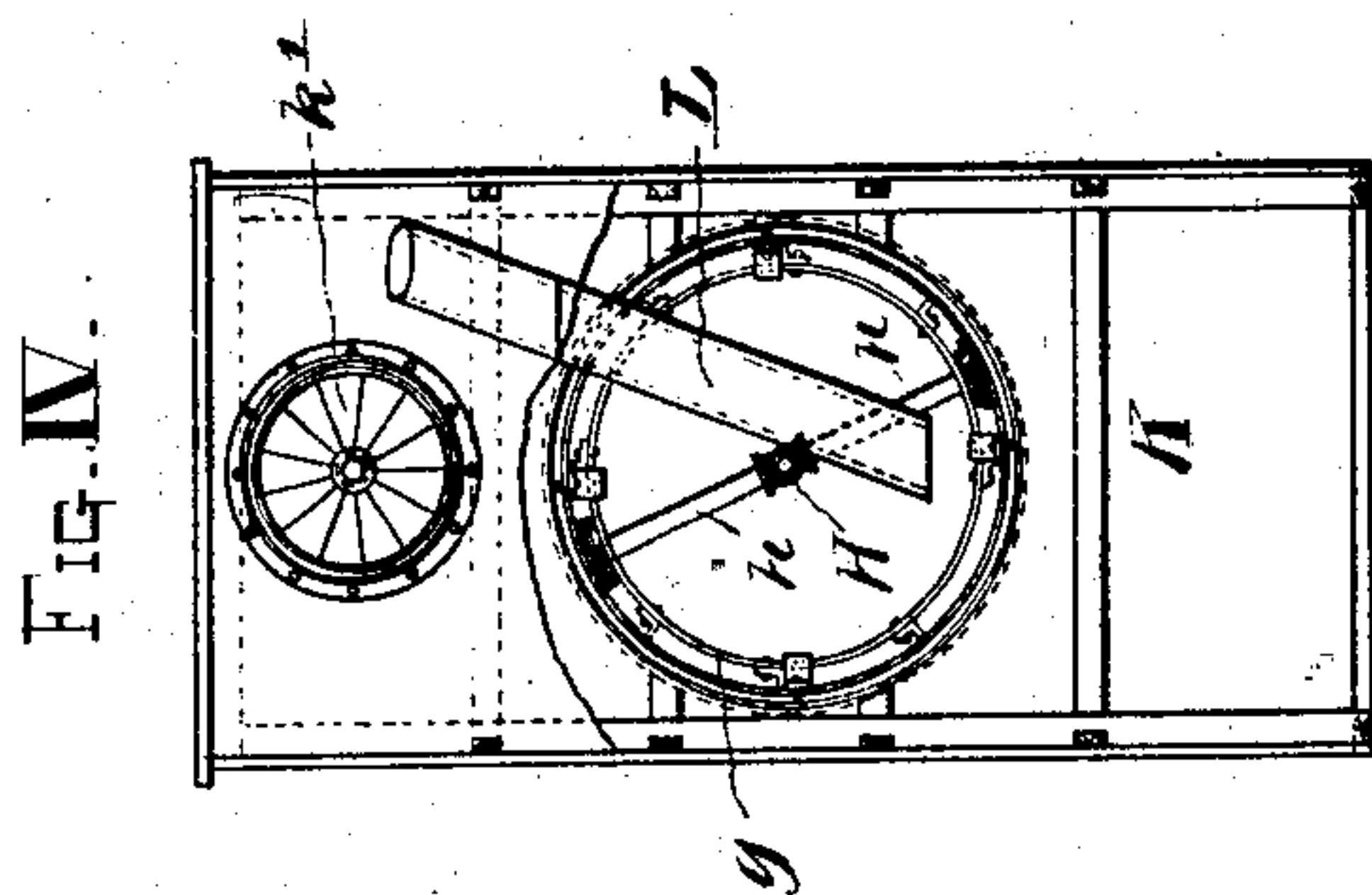
PATENTED OCT. 27, 1903.

E. S. PECK.
DRIER.

APPLICATION FILED DEC. 5, 1902.

NO MODEL.

2 SHEETS--SHEET 2.



WITNESSES:

S. S. Davis
A. E. Merkel

INVENTOR:

E. S. Peck

by his attorney *J. D. Fay*

UNITED STATES PATENT OFFICE.

ERNEST S. PECK, OF NEWBURG, OHIO.

DRIER.

SPECIFICATION forming part of Letters Patent No. 742,228, dated October 27, 1903.

Application filed December 5, 1902. Serial No. 133,957. (No model.)

To all whom it may concern:

Be it known that I, ERNEST S. PECK, a citizen of the United States, and a resident of Newburg, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Driers, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to devices for removing moisture by drying from any of the substances from which it is desired to remove moisture, such as garbage, tankage, distillery products, salt, &c.,

The object of the invention is to effect such drying process in an economical and efficient manner. Said invention consists of means hereinafter fully described, and specifically set forth in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a longitudinal axial section of a drier embodying my invention. Fig. II represents a vertical cross-section taken upon the plane indicated by line 2 2, Fig. I. Fig. III represents an elevation of the left-hand end as viewed in Fig. I. Fig. IV represents an elevation of the right-hand end as viewed in said figure, with parts broken away.

An inclined drum A is provided with two bearing-rings a and a' , Fig. I, which bear upon two sets of rollers b and b' . These rollers are mounted in suitable bearings supported upon foundations C C', whereby it is seen the drum is rendered rotatable. A gear-ring D is secured upon the outside of the drum and meshes with a pinion D'. This pinion is mounted upon a shaft d , which is itself mounted in suitable bearings. At the end of the shaft is secured a bevel-gear d' , which meshes with a bevel-pinion d^2 , mounted upon a driving-shaft D², mounted in suitable bearings. Upon the end of the driving-shaft is secured a driving-pulley D³. It is thus seen that by

driving shaft D² the drum may be rotated. The lower or left-hand end of said drum is provided with a steam-chamber A', into which projects a steam-pipe E. From the center of chamber A' and located coaxially within the drum is a pipe F, which is closed at its opposite end, as shown in Fig. I. This pipe forms an interior steam-chamber communicating with chamber A' and is supported by braces ff . Upon the inner surface of the drum are secured in any suitable manner a number of longitudinally-placed blades G. As shown, these blades are formed of angle-iron riveted to rings g .

The drum is provided with an outer surrounding steam-jacket a^2 , which is supplied with steam from a pipe H and branches h h , Fig. I. This jacket opens into the steam-chamber A' at the left-hand end of the drier. This end is inclosed in a chamber J, in which is located a steam-coil J', fed by a steam-pipe j . Intermediate of the end of the drier and the end of the jacket is a series of large openings a^4 , surrounded by rings a^5 , which afford communication between the interior of the drum and the chamber J, the rings being located between the inner and outer shell of the jacket and shutting off communication between the interior of the jacket and the openings. The end of the said chamber adjacent to the coil J' is open to the atmosphere.

The upper or right-hand end of the drum is open and projects into and is inclosed in a chamber K, at the top of which is an opening k , having an exhaust-fan k' located therein. A chute L passes through chamber K and permits the material to be dried to be fed into the upper end of the drum.

Suitable bearings and connections (not shown) are provided for permitting the steam-pipe H to be rotated while delivering steam. A bearing for pipe E is formed in the end of chamber A', provided with a suitable gland and packing for maintaining the joint so formed steam-tight. A pipe N passes into chamber A' through pipe E for carrying off water which may collect in the bottom of the chamber through the condensation of steam in the jacket and chamber. A trap P is connected with pipe N, which discharges water

therefrom automatically, the construction of such trap being well understood, and hence needing no further description.

A trough M, transversely placed, is located 5 below the openings a^4 and is provided with a screw m for discharging material falling into the trough laterally therefrom, as will be readily understood.

In operating the above-described device 10 the drum is rotated and steam admitted into the jacket, steam-chambers A' and F, and coil J'. The fan k' is operated and draws air through coil J', which thereby becomes heated. This heated air passes through the 15 drum A, chamber K, and so out into the atmosphere. The material to be dried is fed into the upper end of the drum through chute L. This material is carried upwardly by the blade G and dropped, coming into contact 20 with the hot surface of the steam-jacket and the interior steam-chamber. In so dropping it progresses, owing to the inclination of the drum, and is finally discharged through the openings a^4 . In so passing through the drum 25 it gives up its moisture, which is carried out by the air-current previously described.

The steam-chamber A' forces water of condensation up through the pipe N and down into trap P, from whence it is discharged.

30 Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed provided the means stated by any one of the following 35 claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention—

40 1. The combination of a rotatable drum provided with a steam-jacket, connections for supplying steam to such jacket, a chamber surrounding one end of said drum and air-heating means within such chamber, said drum having openings into its interior com-

45 municating with said chamber; and means for causing heated air from the latter to flow through the interior of the drum.

2. The combination of a rotatable drum provided with a steam-jacket; connections for supplying steam to such jacket, a chamber 50 surrounding one end of such drum, and communicating with the interior of the drum and with the atmosphere, a steam-coil within said chamber, and a fan arranged to draw air from said chamber through said drum. 55

3. The combination of a rotatable drum provided with a steam-jacket, a chamber surrounding one end of said drum, an interior axial steam-chamber closed at one end; connections for supplying steam to said jacket 60 and steam-chamber, an air-chamber inclosing the other end of the drum and communicating with the drum's interior and with the atmosphere, a steam-coil in said air-chamber, and a fan at the opposite end of the drum ar- 65 ranged to draw air through same from said air-chamber.

4. The combination of a rotatable drum provided with a steam-jacket, a chamber surrounding one end of said drum, an interior 70 axial steam-chamber closed at one end; connections for supplying steam to said jacket and steam-chamber, an air-chamber inclosing the other end of the drum and communicating with the drum's interior and with the 75 atmosphere, a steam-coil in said air-chamber, and a fan at the opposite end of the drum arranged to draw air through same from said air-chamber and means for automatically removing the water of condensation formed in 80 the interior of the steam-chamber and jacket.

Signed by me this 1st day of December, 1902.

ERNEST S. PECK.

Attest:

G. W. SAYWELL,
A. E. MERKEL.