

(No Model.)

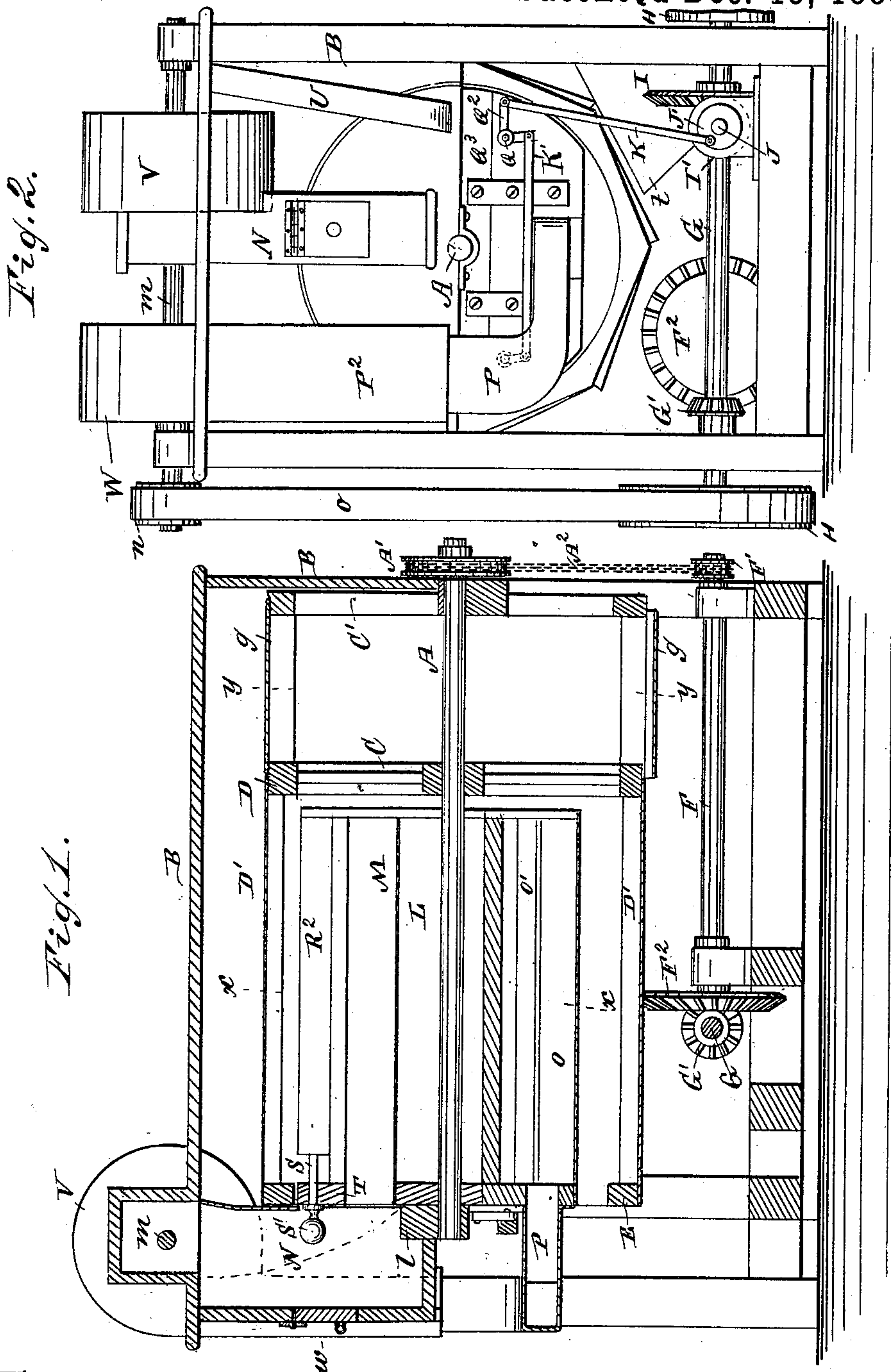
3 Sheets—Sheet 1.

W. KLOSTERMANN.

MIDDLINGS PURIFIER.

No. 332,616.

Patented Dec. 15, 1885.



WITNESSES:

Thos. G. Barker
C. Sedgwick

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INVENTOR:

W. Klostermann

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ATTORNEYS.

(No Model.)

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Fig. 4.

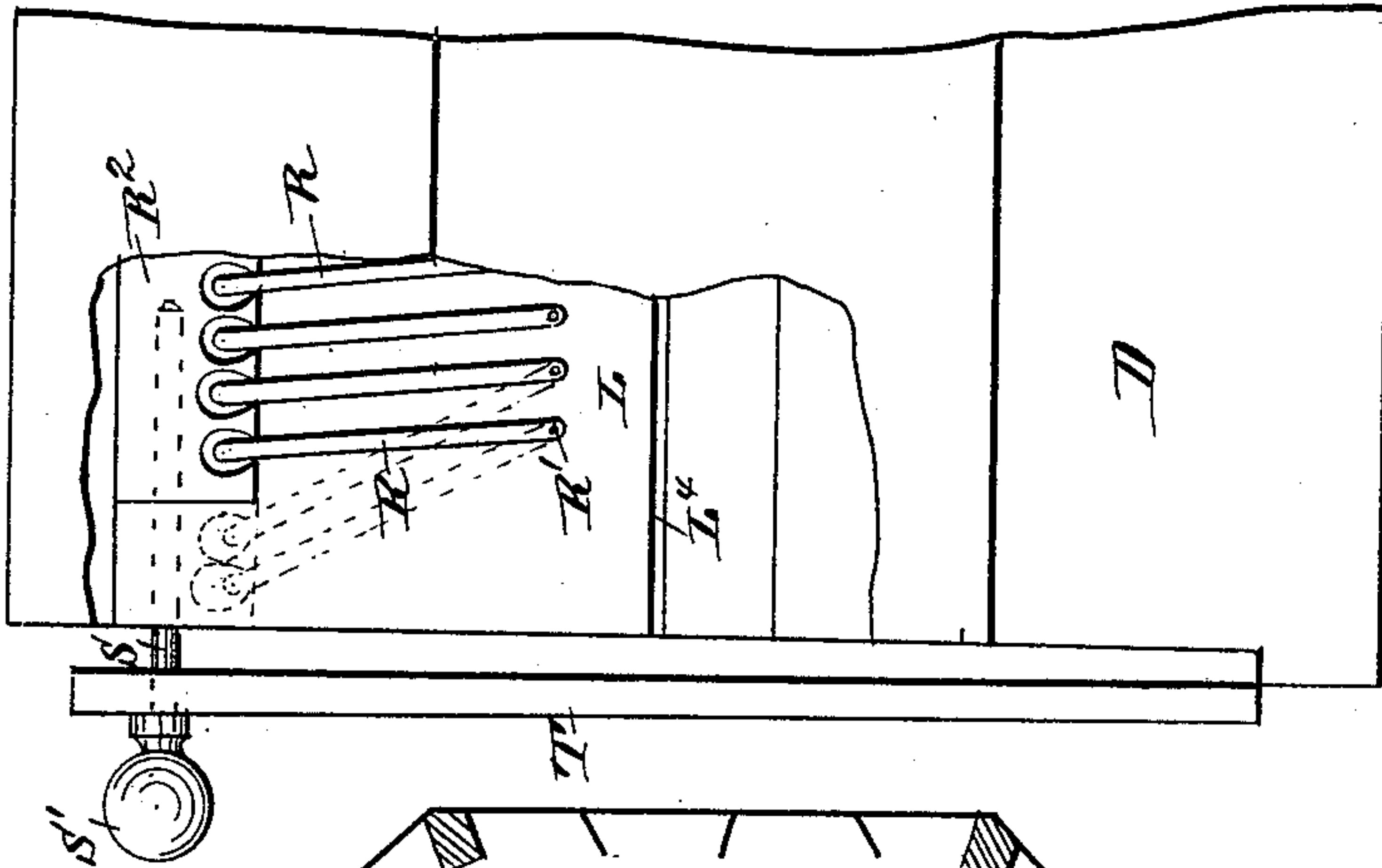
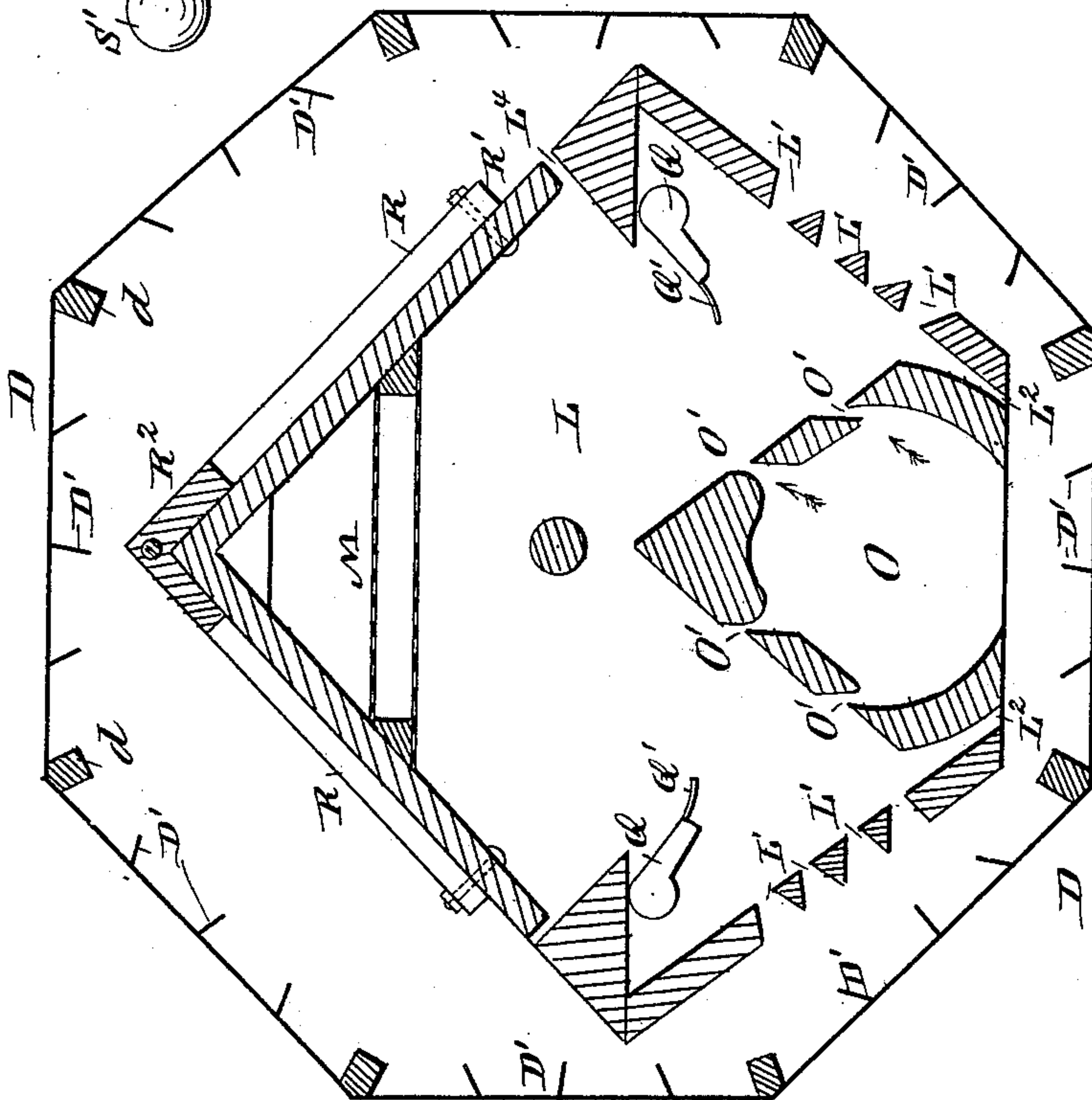


Fig. 3.



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Fig. 6.

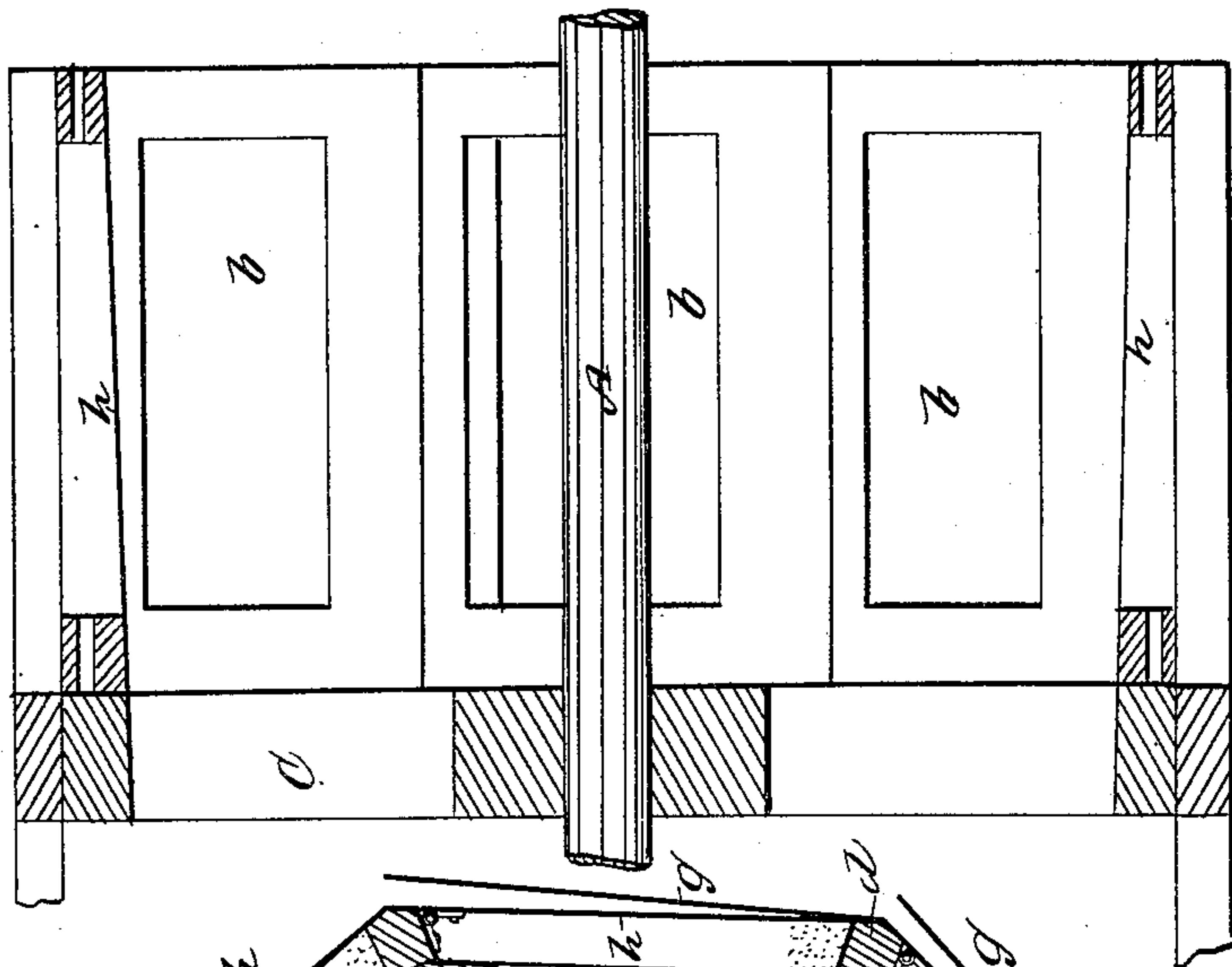
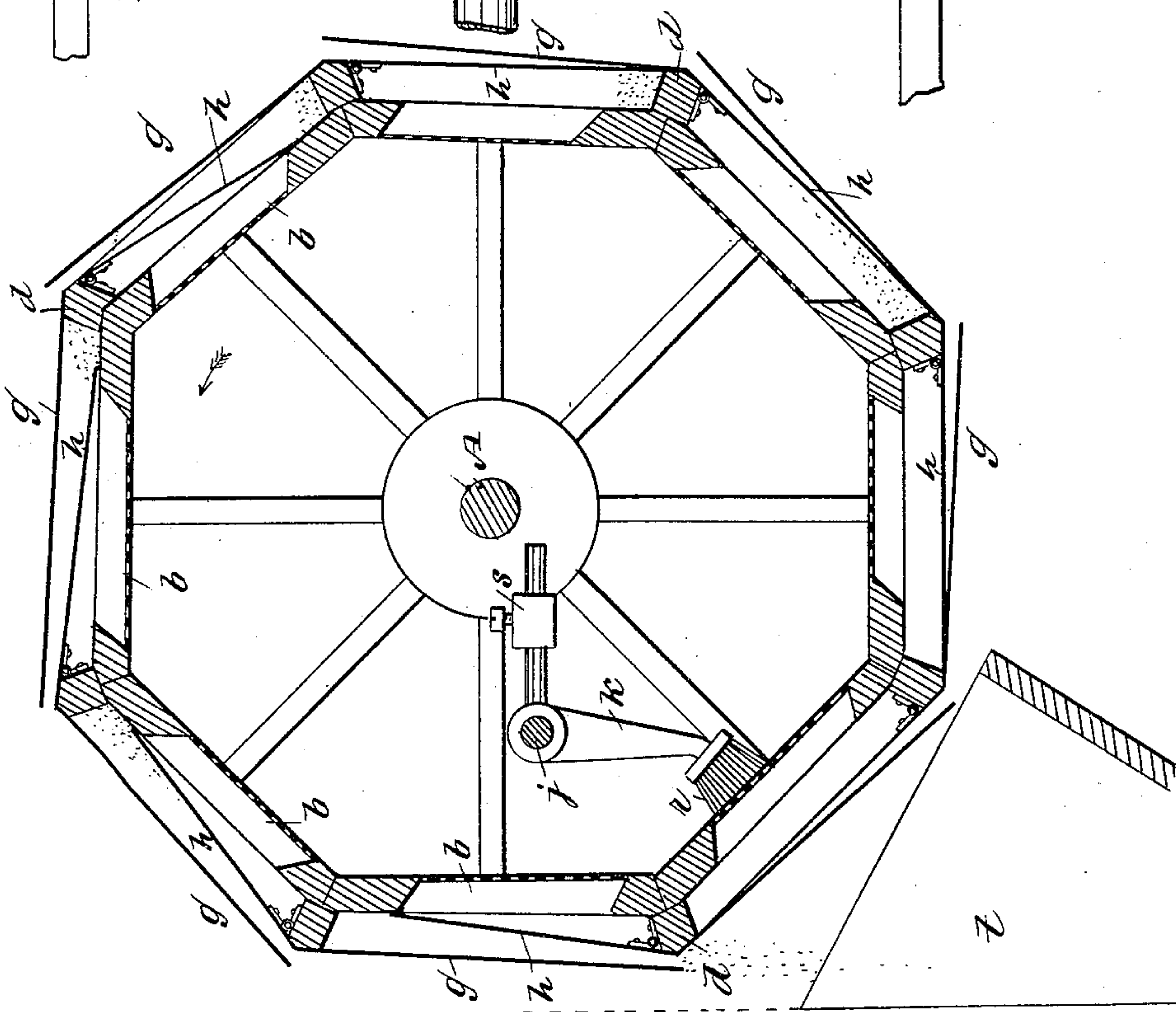


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM KLOSTERMANN, OF YOUNG AMERICA, MINNESOTA.

MIDDLINGS-PURIFIER.

SPECIFICATION forming part of Letters Patent No. 332,616, dated December 15, 1885.

Application filed April 10, 1884. Renewed September 15, 1885. Serial No. 177,202. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KLOSTERMANN, of Young America, in the county of Carver and State of Minnesota, have invented a new and Improved Middlings-Purifier, of which the following is a full, clear, and exact description.

This invention relates to certain new and useful improvements in middlings-purifiers; and it consists in improvements in the middlings-purifier for which Letters Patent No. 267,226 were issued to me on the 7th day of November, 1882.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of my improved middlings-purifier. Fig. 2 is a rear end view of the same. Fig. 3 is an enlarged cross-sectional elevation of the same on the line *xx*, Fig. 1. Fig. 4 is a partial side view of the revolving drum, parts being broken out. Fig. 5 is a cross-sectional elevation on the line *yy*, Fig. 1. Fig. 6 is a longitudinal sectional elevation of the front end of the same.

The shaft A is journaled horizontally in a frame, B, to which side and end boards are secured to form a casing, and on the shaft are mounted two wheels, C C', on which a polygonal drum, D, is secured, which has an open end, E, the drum being supported clear from the shaft from the end E to the wheel or frame C. On the end of the shaft A is mounted a sprocket-wheel, A', over which a chain, A², passes, which also passes over a sprocket-wheel, F', mounted on a horizontal shaft, F, arranged below the drum and parallel with the shaft A, which shaft is provided at the opposite end with a beveled cog-wheel, F², engaging with a cog-wheel, G', mounted on a transverse horizontal shaft, G, provided at the ends with belt-pulleys H and H'. A bevel cog-wheel, I, mounted on the shaft G, engages with the bevel-pinion I', mounted on a shaft, J, on the end of which a wheel, J', or a crank, is formed, to which a connecting-rod, K, is pivoted. The polygonal drum D consists of an outer shell secured on a series of longitudinal flat strips, d, and between the strips a

series of longitudinal ribs, D', made of sheet metal, project from the inner surface of the sides, the said strips D' being inclined in different directions. A middlings-distributing box, L, is secured in the drum D, and is secured at one end to a cross-piece, l, secured to the frame B. The said middlings-distributing box extends from the end E of the drum to within a short distance of the wheel or frame C. The middlings-distributing box L has a pentagonal cross-section, the top being peaked, as shown, the sides being inclined toward each other and the bottom being horizontal. One or two screens, M, are arranged horizontally in the box a short distance from the top, and extend from front to rear. Below the screens a channel, O, is formed, which has a peaked top, and has a series of longitudinal slots, O', in its inclined sides. At the rear end of the machine an air-conducting pipe or channel, P, leads into the channel O. The sides of the middlings-distributing box L are provided with a series of longitudinal slots, L'. Two longitudinal shafts, Q, are journaled in the middlings-distributing box—one at each side—and to the said shafts wings Q' are fastened. On the rear end of the machine an elbow-lever, Q², is mounted on one shaft Q, which elbow-lever is connected by the bar K with the disk or crank J' on the shaft J, and by the bar K' with a crank on the other shaft Q, so that by the revolution of the shaft J the shafts Q and the wings Q' on the same will be rocked vertically. At the sides of the channel O slots or openings L² are formed in the bottom of the middlings-distributing box. Longitudinal slots L⁴ are formed near the lower edges of the inclined sides of the top of the middlings-distributing box, through which slots the middlings can pass into the box. On the upper surface of the inclined sides of the top of the middlings-distributing box a series of riffles or ribs, R, are held, their lower ends being pivoted at R' to the outer surface of the inclined sides of the top of the distributing-box, and their upper ends being pivoted to a bar, R², which is peaked and fits on the top edge of the peaked top of the middlings-distributing box, and is adapted to slide on the same. A rod, S, provided with a handle-knob, S', projects from the sliding bar R² through the rear end plate,

T, of the middlings-distributing box L into the chamber N, which end piece, T, fits in the circular aperture in the end of the drum D. A blower-fan, W, arranged on the top of the frame, forces the air through the channels P² and P into the middlings-distributing box. A suction-fan, V, is connected by the chamber N with the upper part of the middlings-distributing box. U is a chute for feeding the middlings to the purifier.

The fans are operated by a shaft, *m*, provided with a belt-pulley, *n*, over which a belt, *o*, passes, which also passes over the pulley H on the shaft G. That part of the drum between the wheels or frame C and C' is provided with a series of openings, over each of which bolting-cloth *b* is secured, and to the outer sides of the longitudinal ribs *d* of the polygonal drum metal plates *g* are fastened, the said plates being fastened at one longitudinal edge of the rib *d*, but the opposite longitudinal edge being held a short distance from the opposite rib *d*, so as to form a longitudinal opening or slot. Between the sides provided with the apertures and the plates *g* swinging plates *h* are held, which are secured to those ribs *d* above which the free ends of the plates *g* are held, as is shown in Fig. 5. A shaft, *j*, projects inward from the cross-piece of the frame, and on the same an angle-lever, *k*, is pivoted, to the downwardly-projecting arm of which a brush, *r*, is secured, and to the horizontal arm an adjustable weight, *s*, is secured, which presses the brush *r* against the bolting-cloth.

The operation is as follows: The drum D is revolved, but the distributing-box remains stationary. The middlings are fed into the drum D through the chute U, and are carried by the ribs D' upward and drop upon the two sides of the inclined or peaked top of the distributing-box as the ribs D' are inclined in different directions, so that some discharge when the corresponding sides descend, and some discharge when the corresponding sides ascend. The middlings slide down the riffles or ribs running on the sides of the peaked top, pass through the slots L⁴ into the box L, are thrown about by the wings Q' on the rocking shafts Q, and finally drop through the slots L² in the bottom of the box on the drum D, are again carried upward, and so on. The air is forced through the slots O' in the air-conductor O, and this air carries the light particles upward and off through the screens M, and they are then carried off by the suction-fan, the wind-forcing fan and the suction-fan operating together. Some of the middlings also pass through the longitudinal slots L' and drop upon the sides of the drum. If the knob S' is pushed inward, the ribs R will stand almost at right angles to the slots L⁴ in the plane of the inclined sides of the top of the middlings-distributing box. The middlings then slide down the said ribs very rapidly. If at any time it is desired that the middlings shall not slide so rapidly, the knob S' is pulled out-

ward more or less, whereby the ribs R are inclined more or less, as shown in dotted lines in Fig. 4—that is, the speed at which the middlings pass through the purifier can easily be regulated. The clean middlings pass from the end of the distributing-box into that part of the drum between the frames C and C' and drop upon the pivoted plates or wings *h*, which are inclined from the frame C' to the frame C, as shown in Fig. 6. The middlings pass through the bolting-cloth *b*, and collect on the plates or gates *h*, as shown in the lower right-hand and bottom part of Fig. 5, and as the drum revolves the middlings slide down the wings *h* into the hopper *t*, which is preferably divided into two or more compartments. The light middlings remain on those parts of the gates or plates *h* near the frame or wheel C; but the heavier particles slide down the inclined gates *h* toward the wheel or frame C', so that the middlings are thus separated automatically, according to the size of the particles.

In the chamber N a sliding gate, *w*, is provided, which can be opened to reach the knob S', and it can also be used to regulate the power of the suction-fan.

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

1. In a middlings-purifier, the combination, with a revolving drum, of a fixed middlings-distributing box within the drum, wings supported within the middlings-distributing box, and means for rocking the said wings, substantially as herein shown and described.

2. In a middlings-purifier, the combination, with a revolving drum, of a fixed middlings-distributing box within the same, and of a series of ribs or riffles on the upper surface of the top of the distributing-box, substantially as herein shown and described.

3. In a middlings-purifier, the combination, with a revolving drum, of a fixed middlings-distributing box within the same, and of a series of adjustable ribs or riffles on the upper surface of the top of the distributing-box, substantially as herein shown and described.

4. In a middlings-purifier, the combination, with a revolving drum, of a fixed middlings-distributing box within the same, of a series of adjustable ribs or riffles on the upper surface of the top of the distributing-box, and of means for adjusting the inclination of said ribs, substantially as herein shown and described.

5. In a middlings-purifier, the combination, with a revolving drum, of a middlings-distributing box in the same, a series of ribs having their lower ends pivoted on the upper surface of the inclined top of the distributing-box, and a sliding bar on the top of the said box pivoted to their upper ends, substantially as herein shown and described.

6. In a middlings-purifier, the combination, with an elevator-drum, of a middlings-distributing box held in the same, an air-channel, O, a suction-fan, and one or more screens,

M, the part of the box above the screen M being connected with the suction-fan, substantially as herein shown and described.

5 7. In a middlings-purifier, the elevator-drum D, provided with openings covered with bolting-cloth *b*, metal plates *g*, secured at one edge to the longitudinal ribs or bars of the drum, and the hinged gates *h* between the apertured sides and the plates *g*, substantially
10 as herein shown and described.

8. In a middlings-purifier, the combination,

with an elevator-drum, of a middlings-distributing box, the rocking shafts Q in the said box, the wings Q' on the same, the elbow-lever Q², connected by a bar, Q³, and a bar 15 connecting one of the elbow-levers with a revolving disk or crank-arm, substantially as herein shown and described.

WILLIAM KLOSTERMANN.

Witnesses:

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JULIUS H. ACKERMANN.