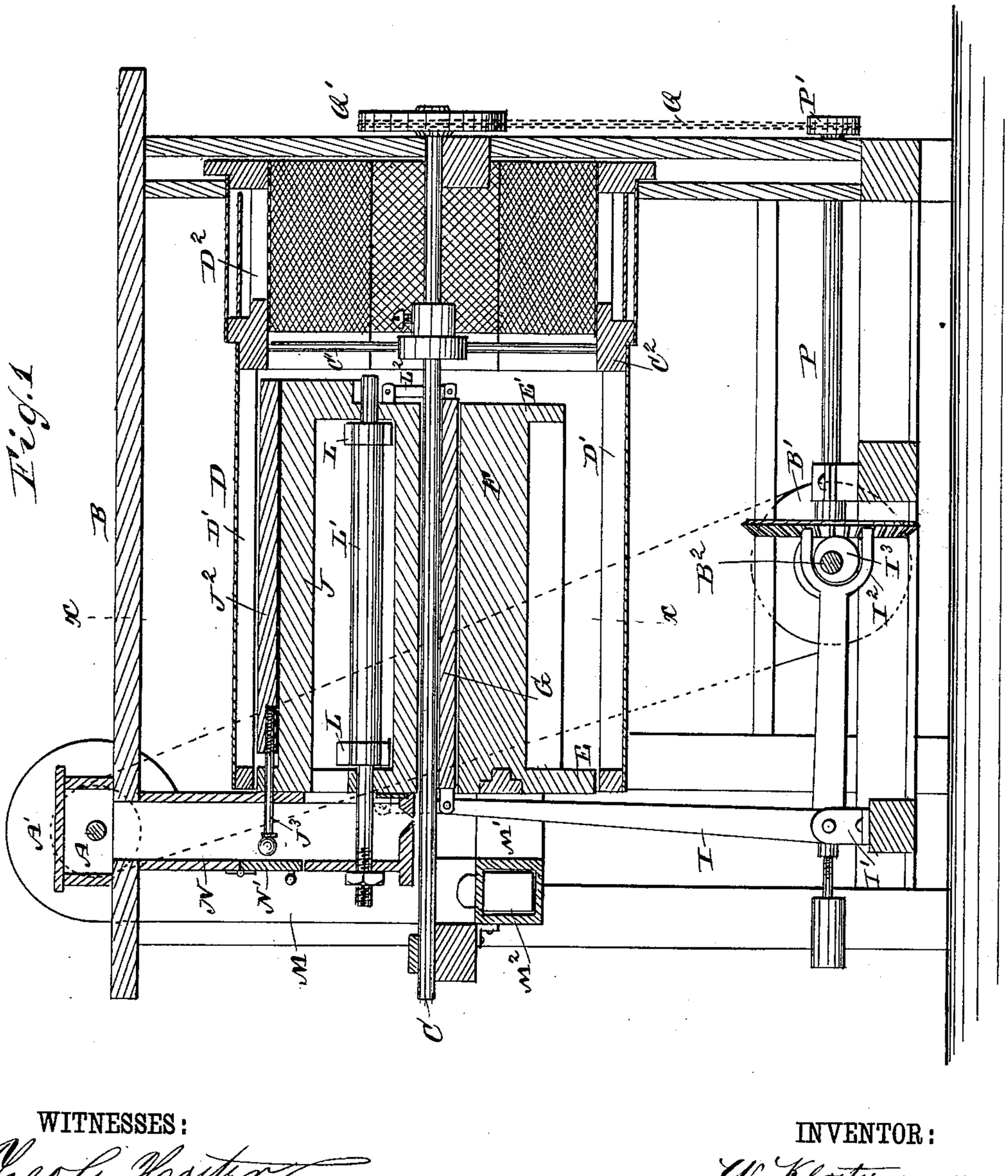
(No Model.) 2 Sheets—Sheet 1.

W. KLOSTERMANN.

MIDDLINGS PURIFIER.

No. 332,615. Patented Dec. 15, 1885.

Fig. 1.



WITNESSES:

Theo. G. Hoster.

C. Sedgwick

INVENTOR:

W. Klostermann

BY Munn & Co

ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

W. KLOSTERMANN.

MIDDLINGS PURIFIER.

No. 332,615. Patented Dec. 15, 1885.

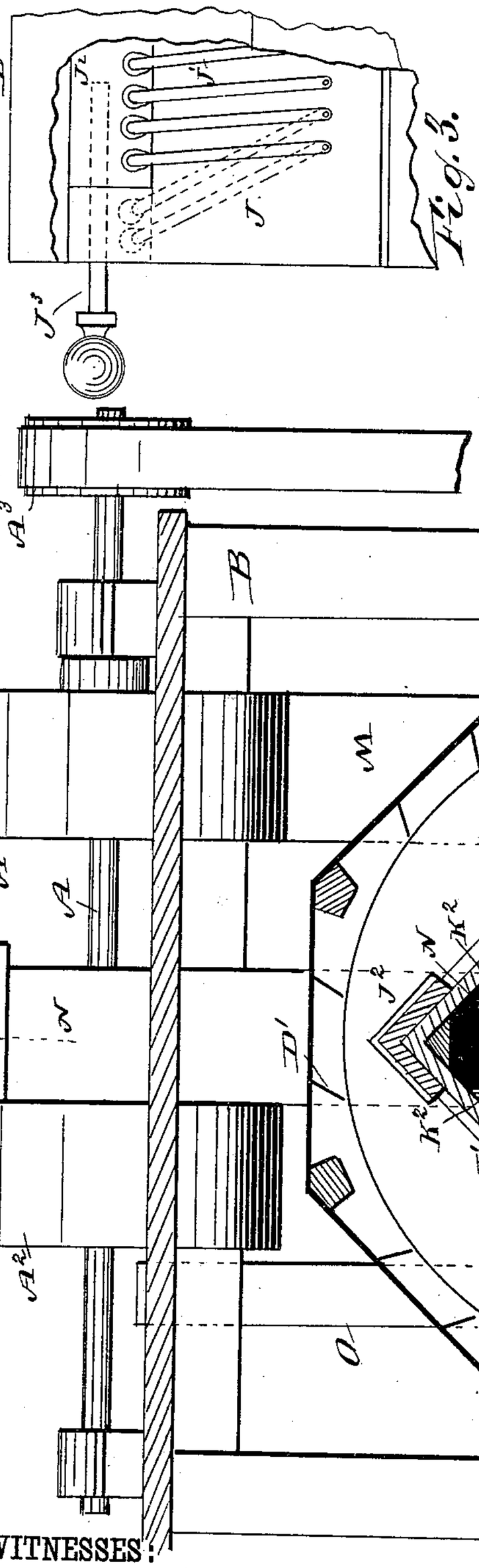


Fig. 4.

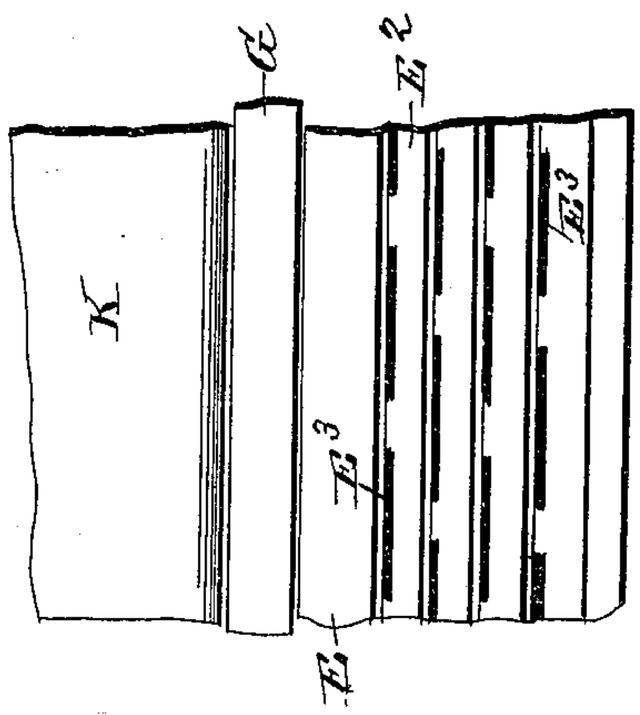


Fig. 3.

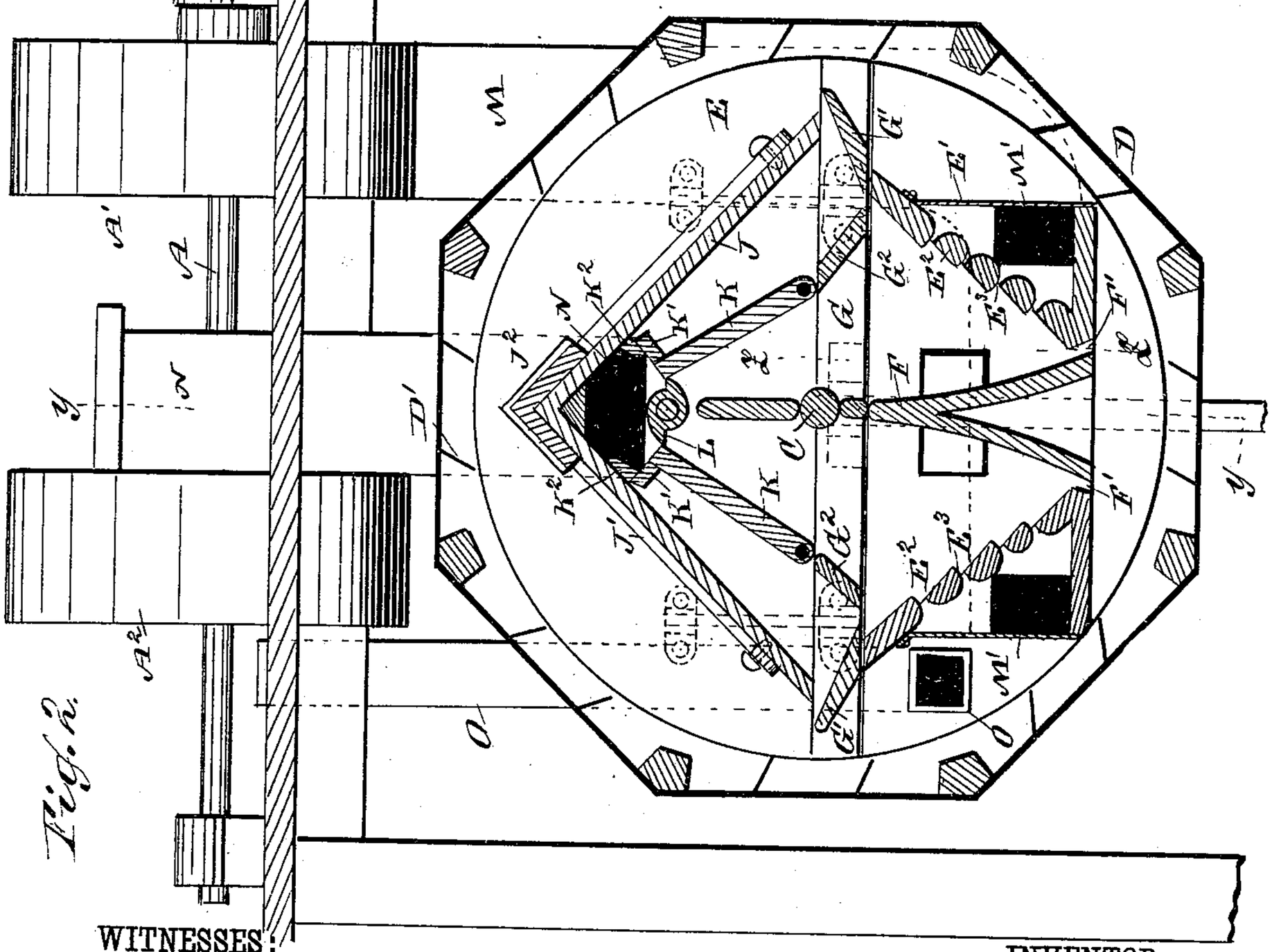


Fig. 2.

WITNESSES:

Rhod. G. Foster.

C. Sedgwick

INVENTOR:

W. Klostermann

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM KLOSTERMANN, OF YOUNG AMERICA, MINNESOTA.

MIDDLINGS-PURIFIER.

SPECIFICATION forming part of Letters Patent No. 332,615, dated December 15, 1885.

Application filed June 11, 1885. Serial No. 168,412. (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.

The object of my invention is to provide certain new and useful Improvements in the middlings-purifier for which United States Letters Patent No. 267,226 were issued to me November 7, 1882.

The invention consists of the combinations of parts, including their constructions, substantially as hereinafter fully set forth and claimed.

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 on the line *y y*, Fig. 2. Fig. 2 is a cross-sectional elevation of the same on the line *x x*, Fig. 1. Fig. 3 is a detail section on the line *z z*, Fig. 2. Fig. 4 is a view showing in particular the pivoted riffles.

On the top of the box or casing B are mounted two blower-casings, A′ and A², in which blowers are provided, which are mounted on a shaft, A, provided with a belt-pulley, A³, over which a driving-belt passes, which also passes over a pulley, B′, on the shaft B², at the bottom of the machine. In the casing B a shaft, C, is journaled, which extends from end to end, and is provided with a hub having spokes C′, carrying a ring, C², supporting an octagonal drum, D, from the inner surface of which elevator-strips D′ project. At one end of the drum screens D² are arranged for the purpose of screening the middlings. An end piece, E, fits loosely in that end of the elevator-drum D opposite the one in which the screens D² are provided, in such a manner that the rim of the drum can revolve around the said end piece, and from the said end piece a box, E′, projects inward, and is provided with two downwardly and inwardly inclined partitions, E², formed of slats, between which slots E³ are formed. The box E′ is provided with a longitudinal upright partition, F, which increases in width from its top to its bottom, which partition, with the inclined sides E², forms two slots, F′, at the bottom of the box.

Above the box E′ a vibrating section, G, is arranged, which is provided with outwardly-inclined side pieces or flanges G′, and inwardly-inclined side pieces or partitions G², between which a slot is formed, which is at the upper ends of the sides E² of the box E′. The vibrating section G is connected at its rear end with the upper end of an angle-lever, I, pivoted in jaws I′ on the frame of the purifier, and provided at its lower end with a fork, I², between the prongs of which an eccentric, I³, is arranged, which is mounted on the shaft B².

Above the section G a peaked top, J, is arranged, which is held on the end piece, E, and is provided with a series of riffles, J′, pivoted to the sides of the top J at their lower ends, and having their upper ends connected with a sliding piece, J², provided with a handle-rod, J³, at the rear end of the machine, the said handle-rod passing through the end piece, E. Wings or partitions K are hinged at their lower corners to the ends of the top J, directly above the upper edges of the partitions G² of the vibrating section G, and the upper edges of the said wings have flanges K′, which rest against strips K² on the inner sides of the peaked top J. The upper edges of the wings K rest against cams L on a shaft, L′, passing longitudinally through the top and projecting through the plate or end piece, E. Links L² connect the top J and the section G at the front and rear ends of the same.

From the blower A′ an air-conducting tube, M, extends downward, and is provided with two branch tubes, M′, which lead into the rear end of the box E′, as shown in Fig. 2, below the slotted partition E². The blower A² is connected by an air-conducting tube, N, the lower end of which is shown in Fig. 2 with an opening in the end part of the top J and above the wings K. The tube M is provided with a slide, M², for regulating the draft. The air-conducting tube N has a door, N′, which can be raised to permit of reaching the rod J³ for moving the sliding piece J².

The middlings are fed into the elevator-drum D through a chute or conductor, O, the end of which passes through a suitable opening in the plate E. By means of bevel-gearing (shown in Fig. 1) a shaft, P, is revolved from the shaft B^2, and is provided at its end with a sprocket-wheel, P′, over which an endless chain, Q, passes, which also passes over a sprocket-wheel, Q′, on the end of the shaft C. The main shaft B^2 is revolved by means of a belt from some suitable motor.

The operation is as follows: The middlings are fed through the chute O, the lower end of which passes through the plate E, and drop upon the elevator-drum D. As the drum revolves, the middlings are raised and drop upon the peaked top J, and slide down the riffles of the same upon the flange or wing G′ of the vibrating section G, which section G is reciprocated by the lever I and makes very rapid and short strokes. The middlings then slide down the flanges G′ and slide over the ribs forming the partitions or sides E^2 in the box E′, which ribs are arranged something like steps, as shown in Fig. 2, so that the middlings may drop vertically at each slot a very short distance. Air is forced into the box E′ through the pipes M′ below the slotted partitions E^2, and the air is forced through the slots in said partitions and carries the light particles upward, the heavier particles dropping through the slots F′ in the bottom of the box E′ upon the elevator-drum D, to be again raised, and so on. A strong suction is maintained in the pipe N, whereby the light particles are drawn upward in the said pipe and conducted by means of a suitable chute to a receptacle for receiving them. The lighter particles pass upward between the hinged partitions K, and by means of the cams L on the shaft L′ the upper ends of the said partitions K may be adjusted a greater or less distance from each other, and thus the space through which the said light particles pass to the tube N can be regulated. The pivoted riffles or ribs J′ on the sides of the peaked top J are connected with the top sliding part, J^2, which is connected with the rod J^3, and thus the desired inclination can be given to the riffles or ribs, according to the desired speed with which the middlings are to slide down the same, by shifting the said top piece, J^2, by means of the rod J^3. The coarser particles accumulate in the elevator, and finally pass from the same into the part in which the screens D^2 are held, where they are screened, and then carried off through a suitable chute.

In this application it will be understood that I make no claim to the pivoted riffles or ribs connected at their upper ends to a sliding piece adapted to be shifted for adjusting the inclination of said riffles or ribs, the same being covered by my cross-application, of which the serial number is 177,202.

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

1. In a middlings-purifier, the combination, with a rotary drum provided with elevator-strips on its inner surface, of the box E′, the vibrating section G above it, and the peaked top J above the vibrating section, the box E′, the section G, and the top J being within the drum, substantially as herein shown and described.

2. In a middlings-purifier, the combination, with the rotary drum D, having elevator-strips on its inner surface, of the box E′, the peaked top J, the pivoted partitions K in the same, and the rod L, provided with the cams L′, for adjusting the upper ends of the partitions K a greater or less distance from each other, substantially as herein shown and described.

3. In a middlings-purifier, the combination, with a rotary drum having elevator-strips on its inner surface, of the box E′, the vibrating section G, having outwardly and upwardly inclined flanges, G′, the peaked top J, the pivoted partitions K, and the shaft L′, carrying the cams L, substantially as herein shown and described.

4. In a middlings-purifier, the combination, with a rotary drum having elevator-strips on its inner surface, of the box E′, having slotted partitions E^2, the vibrating section G, the peaked top J, having adjustable partitions K, the air-conducting tube N, connected with the peaked top, the air-conducting tube M, connected with the box E′, and means for providing an air-current, substantially as herein shown and described.

5. In a middlings-purifier, the combination, with a rotary drum having elevator-strips on its inner surface, of the box E′, the vibrating section G, the peaked top J, the links L^2, connecting the vibrating section with the ends of the peaked top, and the angle-lever I for vibrating the section G, substantially as herein shown and described.

WILLIAM KLOSTERMANN.

Witnesses:
JULIUS H. ACKERMAN,
A. O. MALMGREN.