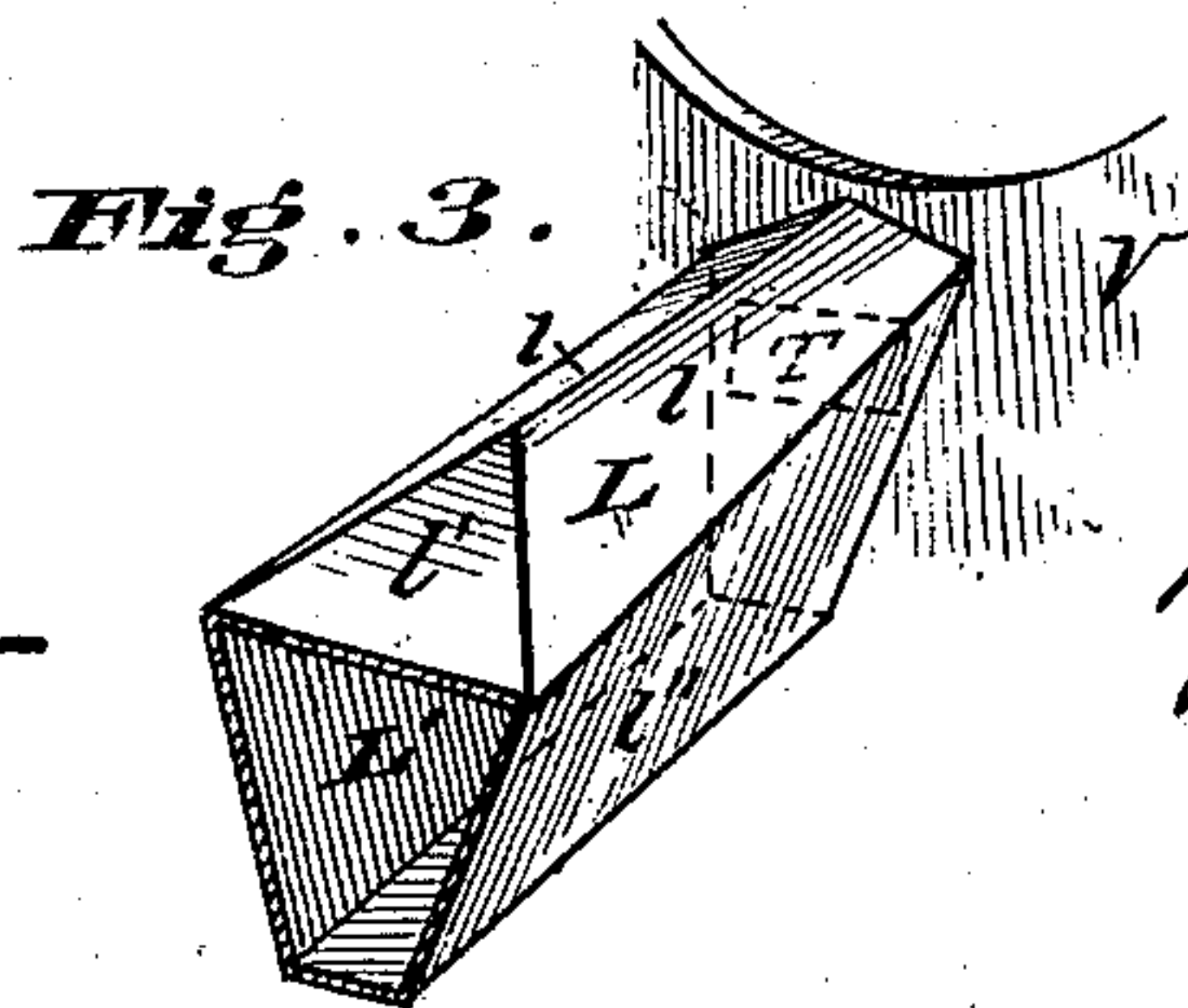
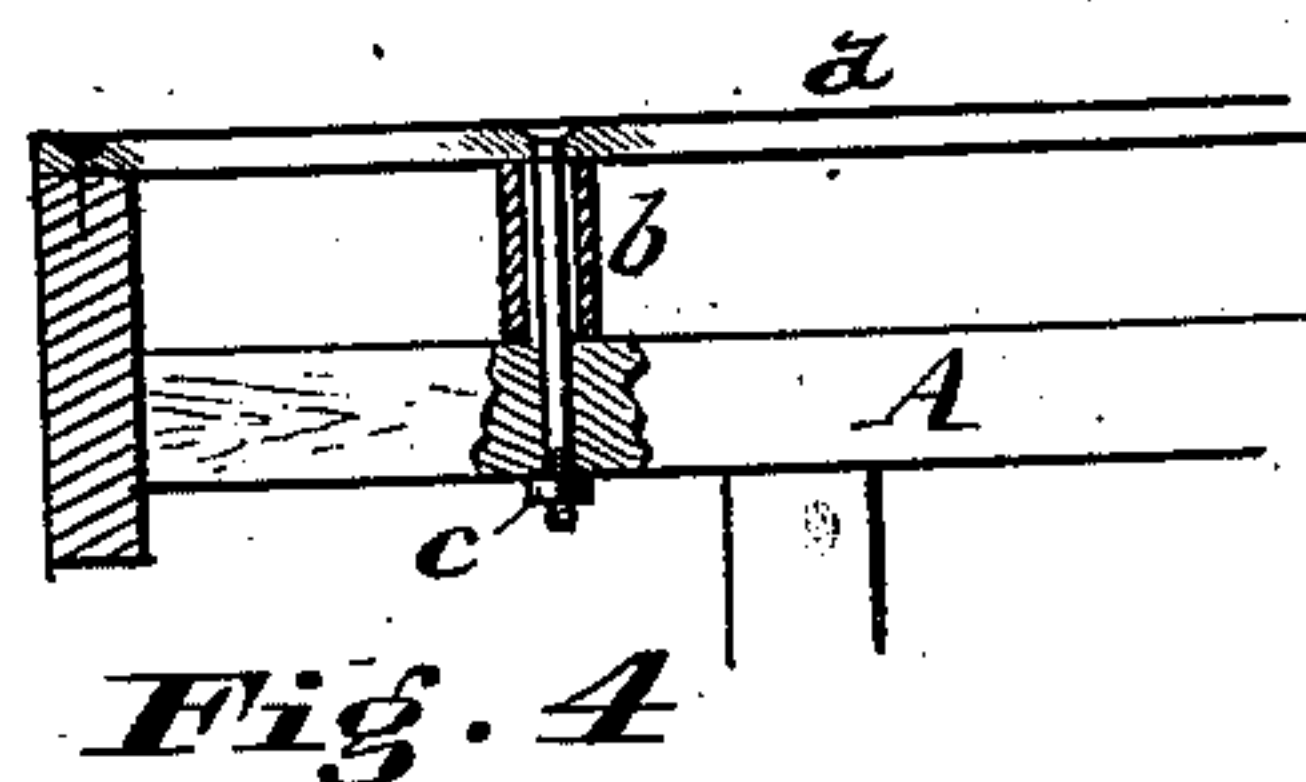
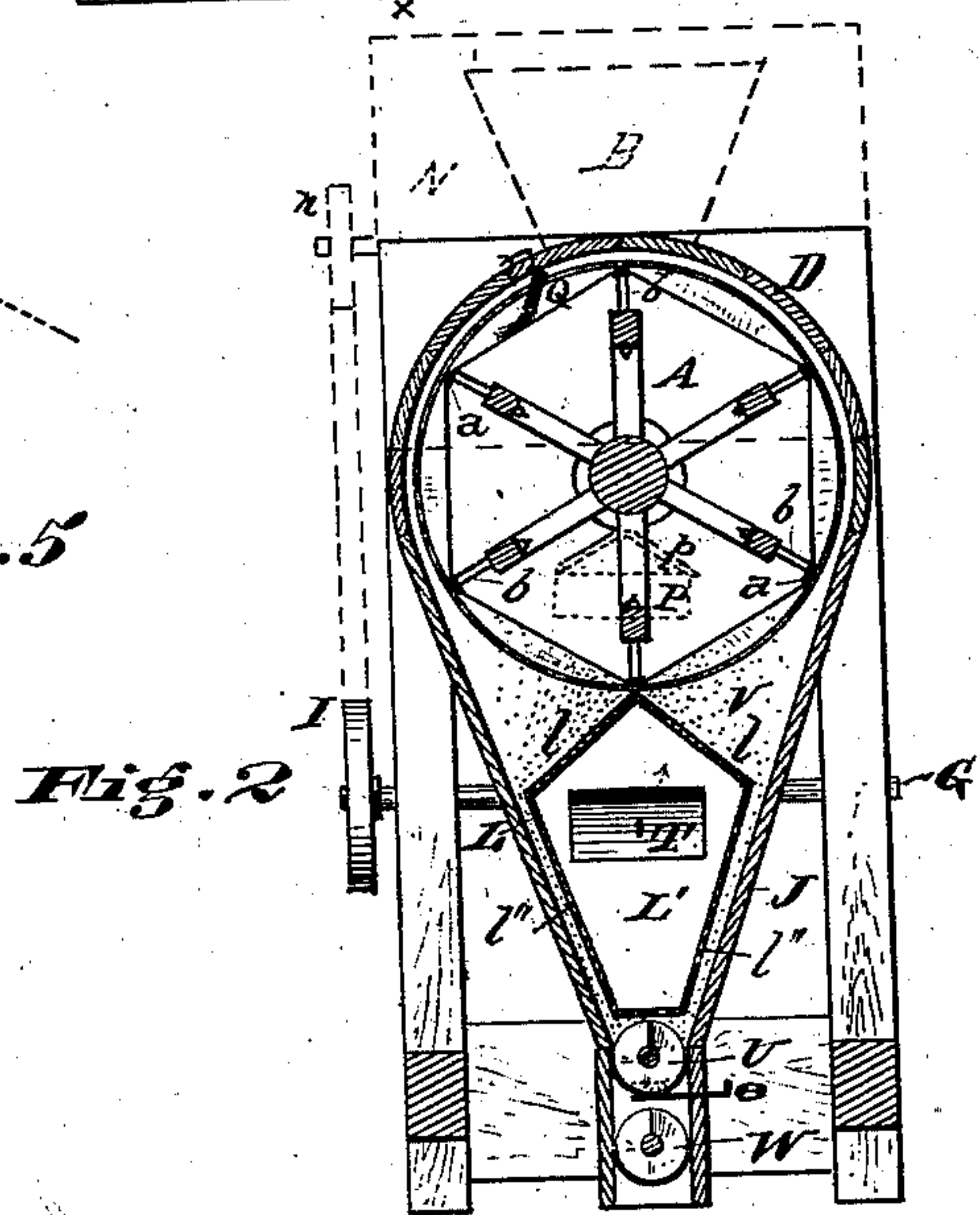
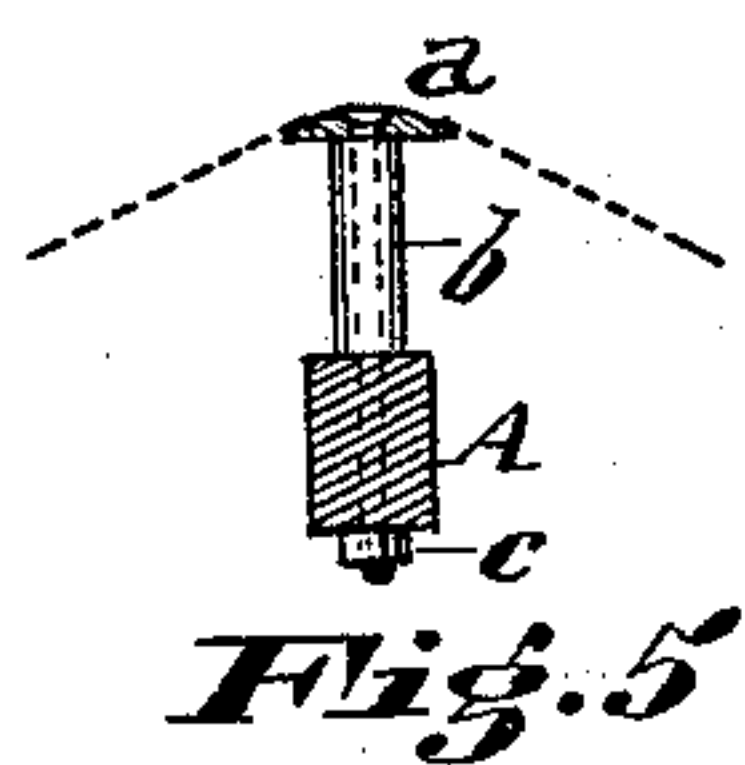
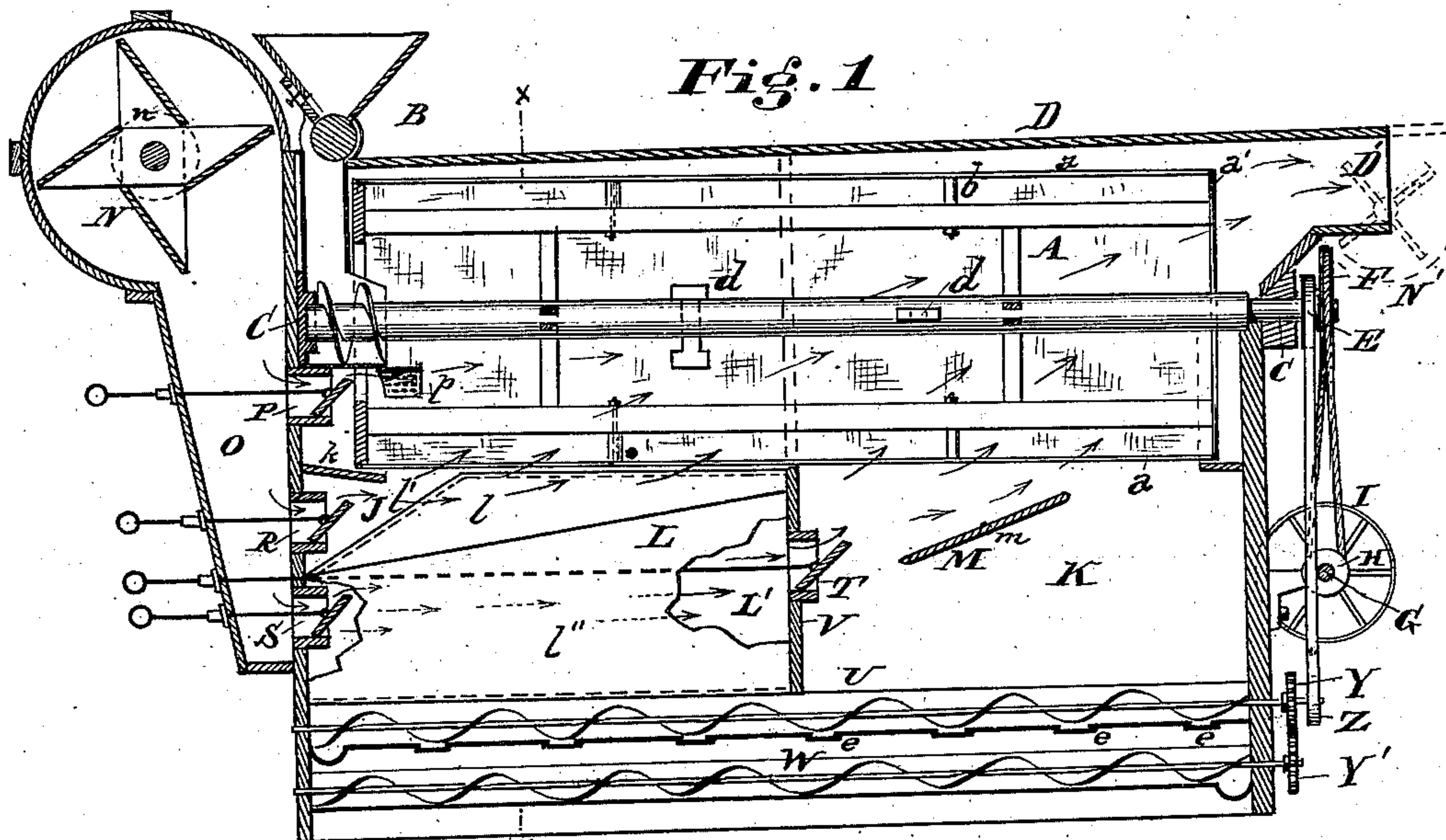


W. L. TETER.
Middlings-Purifier.

No. 224,969.

Patented Feb. 24, 1880.



Attests
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Inventor
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By his attorney
[Signature]

UNITED STATES PATENT OFFICE.

WILLIAM L. TETER, OF PHILADELPHIA, PENNSYLVANIA.

MIDDLINGS-PURIFIER.

SPECIFICATION forming part of Letters Patent No. 224,969, dated February 24, 1880.

Application filed October 16, 1879.

To all whom it may concern:

Be it known that I, WILLIAM L. TETER, of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Middlings-Purifiers, of which the following is a specification.

My invention relates to that class of purifiers known as the "rotary-bolt purifiers;" and it consists of a rotating bolt of peculiar construction, into which middlings are fed and acted on by air, as hereinafter set forth; and, further, in a construction of the purifier-box whereby air is admitted and the quantity governed at various distances along the bolt during its rotary motion.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of my improved purifier. Fig. 2 is a cross-section of same through the line *xx* of Fig. 1. Fig. 3 is a perspective view of the air-tube. Figs. 4 and 5 are sections of the bolt-ribs.

A is the reel or bolt, and is constructed in the usual manner, with the exception that the bolting-cloth does not lie upon the wooden ribs, but instead rests upon iron ribs *a*, which are supported upon the wooden ribs. By this means the middlings are not carried up, as is done in most machines of this nature, but always remain at the bottom during the rotation of the reel.

The iron ribs *a* are shown in section in Fig. 5. They rest upon sections of tube *b*, and are held there by countersunk bolts *c*. Both ends of the rib *a* are secured to circular heads.

The sectional iron rib was patented by me in 1879, and bears date of July 8. This form of rib is an improvement upon that, and is especially adapted for this particular use.

The reel A rotates in bearings C C. The axis of the reel is supplied with two drop-hammers, *d d*, the purpose of which is to keep the reel from clogging.

At one end of the reel is the feed-hopper B, from which the middlings are fed to the feeding-screw upon the shaft of the reel A, which screw causes the middlings to fall inside the reel. Inclosing the reel is a box, D, which is divided by a partition, V. At the end of the reel farthest from the feed-hopper B is a dust-flue, D'. The lower sides, J, of the box are inclined inward, meeting in a conveyer, U. Immediately under this conveyer is another, W.

The trough of the conveyer U is furnished with openings at regular intervals, and which are closed at will by paddles *e e*. The part of the box D next to the blast-box is fitted with the air-tube L, which has inclined sides *l l'* and an oblique head, *l'*, forming a clear passage, L'. Opening into this tube L' is a valve, T, in the partition V.

In the compartment K is a vane, M, which has a fulcrum or axis at *m*, the object of which is to throw the air up against the reel or bolt. It is inclined at any angle from the outside.

At the front end of the machine are the fan N and air-box O. Opening from this air-box O is a valved passage, P, which admits air to the interior of the reel A, a second valved passage, R, which admits air under the front part of the reel, and a third valved passage, S, admitting air into the air-tube L.

Around the reel-head is a division-wall, *k*, which prevents air from passage R from entering the reel, or vice versa.

The valved passage S may be dispensed with, since the valve T will be sufficient to regulate the supply of air to the rear part of the reel. All of the valves are operated from the outside.

The two conveyers feed in opposite directions, being geared together by wheels Y Y'. Upon the axis of the reel A are two wheels, F and E. A band passes over the wheel F and wheel H on driving-shaft G. A band passes over wheel E, and a pulley, Z, on the shaft of the upper conveyer. There is also a band which passes over the pulley I and pulley *n*, which drives the fan N. Situated in the upper part of the box D is a brush, Q, which lies upon the rotating reel. There is a free passage from the reel to the conveyer U between the sides J J and air-tube L.

In the driving mechanism gearing may be entirely dispensed with, and bands alone used. The reel A is set upon a slight incline.

Operation: The fan N being put in motion, the reel A is slowly rotated, and middlings fed therein from hopper B. Blast is allowed to pass through P into the reel, through R to the outside of the front half of the reel, and through S and T to the outside of the rear half of the reel. All of the air is supposed to pass through the cloth of the reel before finding egress by the flue D'. As the reel rotates, the middlings

fall upon fresh portions of the cloth, and during this movement the air, being forced through the cloth of the reel, throws them up, so as to disengage the fluffy part, which is then blown out of the reel into the flue D' by the blast from P. The blast in part K is thrown up against the reel by vane M. During the above action the purified middlings pass through the bolting-cloth and fall to the conveyer U. Should the middlings which pass the cloth at or near the rear of the reel be insufficiently pure, a paddle, e, at such a juncture is withdrawn, whence all that produced from such a point to the front of the machine is fed or conveyed to the front end and collected, and all from such a point to the rear of the machine is conveyed to the opening in trough U and falls to the conveyer W, which conveys it to the rear end of the machine, where it is collected and rehandled. The brush Q keeps the reel or bolting-cloth clean.

In no purifier, to my knowledge, has middlings been treated with air in the manner described—viz., forcing the air from the outside to the inside of the reel, in combination with a blast of air lengthwise through the reel.

In Cochrane's purifiers the air is forced into the reel or bolt through the shaft, and escapes through the cloth from inside to outside, which prevents the escape of the fluffy part, which it is the object of the purifier to do, while with my construction the opposite is effected.

In practice I find that the product is finer, the yield larger, and the power required to drive the machine less than any purifier now known to me.

An important feature of my invention lies in the fact that as the middlings are fed into the reel they meet a current of air at right angles entering from valve P, which frees the middlings of a great part of the objectionable substance therein, and requires less work from the remainder of the reel and air. In feeding

the middlings into the reel by a conveyer, as shown, the tendency would be to form a narrow stream, which is objectionable; and to overcome this I place a perforated inverted-V-shaped piece, p, at the mouth of the conveyer, which spreads the middlings, so as to be acted on thoroughly by the air from valve P.

When the dust-flue D' is long it becomes necessary to place a small suction-fan, N', in said flue for the purpose of forcing out the matters which would otherwise be deposited therein.

I claim—

1. In a middlings-purifier, the combination of the reel A, hopper B, dust-flue D', fan N, air box or trunk O, partition V, air-tube L, and valves T and R, substantially as and for the purpose specified.

2. In a middlings-purifier, the combination of the reel A, hopper B and its feeding-screw, as shown, and perforated plate p, with a fan, N, air-box O, and valve P, for the purpose of spreading the middlings as they are fed into the reel, substantially in the manner and for the purpose specified.

3. In a middlings-purifier, the combination of reel A, hopper B, fan N, box O, dust-flue D', partition V and tube L, vane M, and valves P, R, and T, all constructed within a box, D, substantially as and for the purpose specified.

4. In a middlings-purifier, the combination of reel A, hopper B, fan N and box O, dust-flue D', partition V and tube L, vane M, and valves R and T, all constructed within the box D, substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

WILLIAM L. TETER.

Witnesses:

R. M. HUNTER,
R. CAVIN.