[111.]

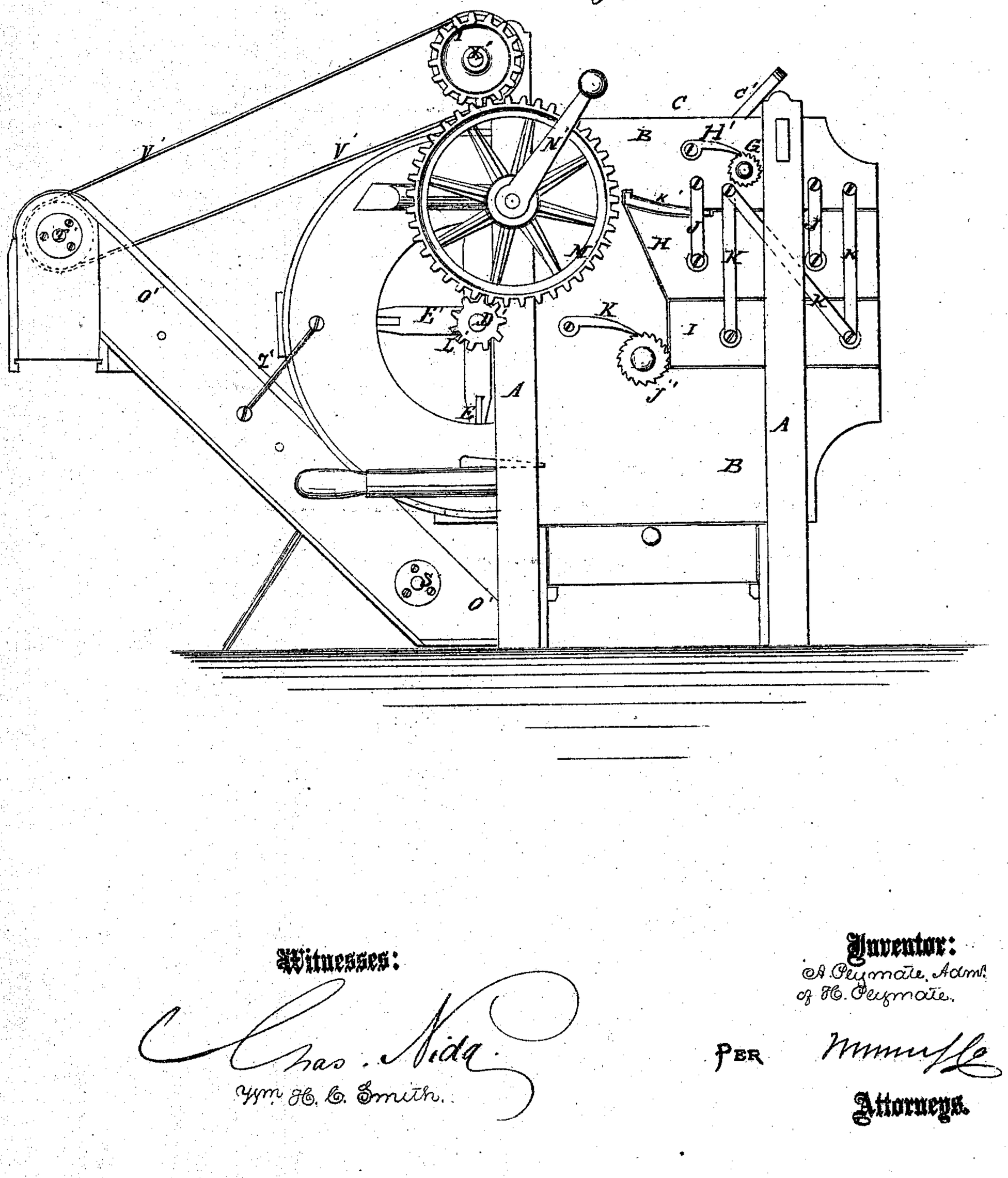
2 Sheets--Sheet 1.

A. Plymate, Administrator of H. Plymate,

Fan Mills.

No. 119,174. Patented Sep. 19, 1871.

Fig: 1.



Witnesses:

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Wm. H. C. Smith.

Inventor:

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A. Plymate, Administrator of H. Plymate,

No. 119,174. **Fan Mill.** Patented Sep. 19, 1871.

Fig: 2.

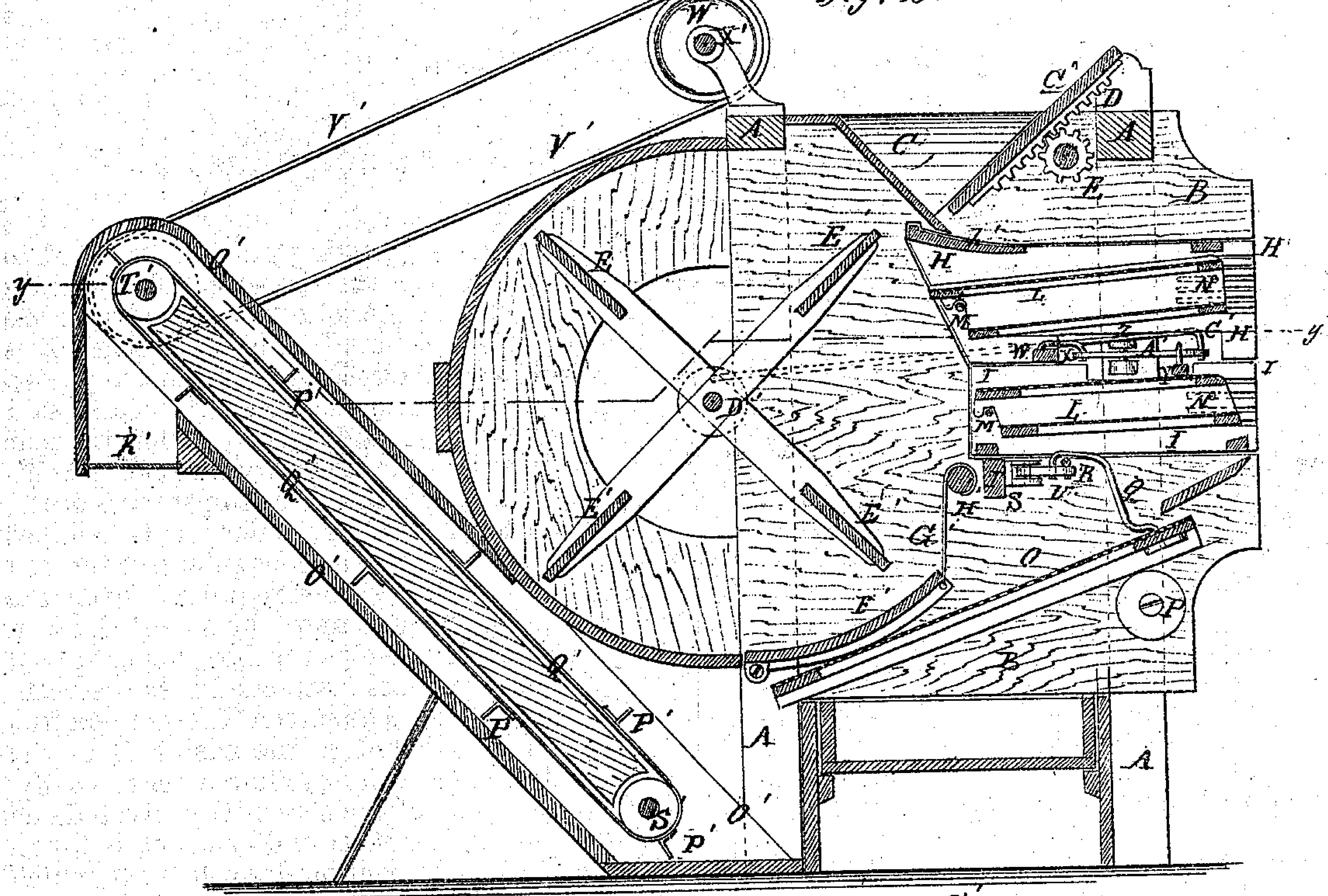
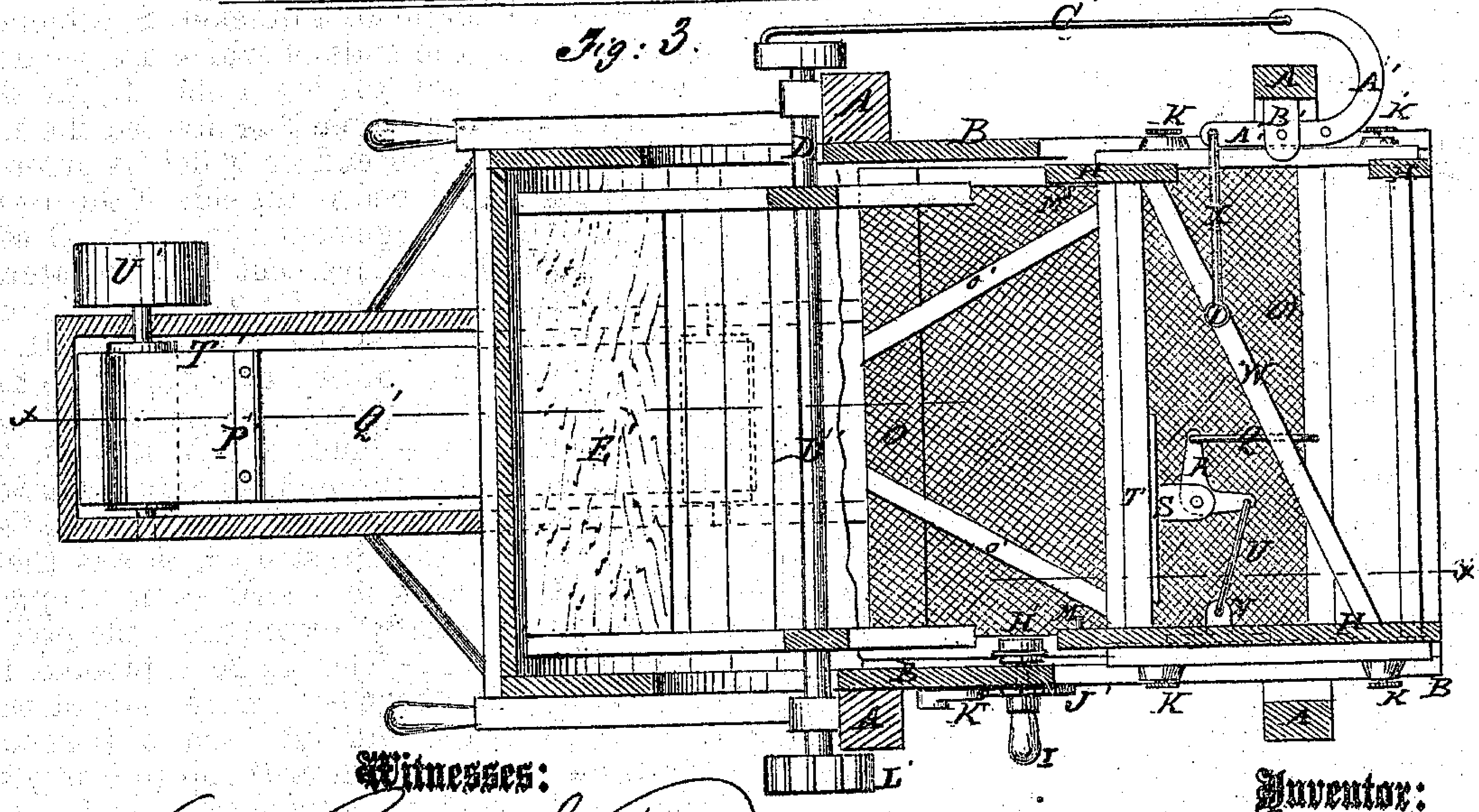


Fig: 3.



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UNITED STATES PATENT OFFICE.

ALEXANDER PLYMATE, OF BLUE EARTH COUNTY, MINNESOTA, ADMINISTRATOR OF FRANKLIN H. PLYMATE, DECEASED.

IMPROVEMENT IN FAN-MILLS.

Specification forming part of Letters Patent No. 119,174, dated September 19, 1871.

To all whom it may concern:

Be it known that FRANKLIN H. PLYMATE, of Garden City, in the county of Blue Earth and State of Minnesota, did, during his lifetime, invent a new and useful Improvement in Fan-Mills; and I, ALEXANDER PLYMATE, administrator to the estate of the said FRANKLIN H. PLYMATE, deceased, do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1, Sheet I, is a side view of the improved fan-mill. Fig. 2, Sheet II, is a detail longitudinal section of the same taken through the line *x x*, Fig. 3. Fig. 3 is a detail horizontal section of the same taken through the line *y y*, Fig. 2.

Similar letters of reference indicate corresponding parts.

This invention consists in improving grain-fans, as hereinafter fully described and subsequently pointed out in the claim.

A is the frame, B is the casing, and C is the hopper of the mill. The rear side *c'* of the hopper is movable, so that by adjusting it higher or lower the rapidity of the feed may be regulated at will. To the rear side of the board *c'* are attached toothed bars D, into the teeth of which mesh the teeth of the small gear-wheels E attached to the shaft F, which works in bearings in the casing B, and to the projecting end of which is attached a knob or other handle for convenience in turning it to adjust the said board *c'*. To the shaft F is attached a ratchet-wheel, G, upon the teeth of which the pawl H' takes hold to hold the board *c'* securely in any position into which it may be adjusted. From the hopper C the grain falls upon the feed-board *h'* attached to the forward part of the top of the upper part or section of the shoe. The shoe is made in two parts or sections, H I, placed one above the other, and suspended from the upper part of the casing B by the spring-bars J K, the upper ends of which are attached to the upper part of the casing B, and their lower ends to the parts H I of the shoe, as shown in Fig. 1. The sieves L belonging to each part H I of the shoe are rigidly and permanently connected together, as shown in Fig. 2. The forward end of each collection of sieves has notches formed upon its under sides, which drop over and take hold of inwardly-projecting pins M attached to the sides of the parts of the shoe. To the sides of the rear ends of the collections of sieves L are attached points or pins N, which enter grooves in the sides of the parts H I of the shoe, as shown in Fig. 2, several grooves being formed in said shoes to receive the said pins N, so that the rear ends of the sieves can be easily and conveniently raised or lowered, as the circumstances of the case may require. This arrangement also enables the sieves to be quickly and conveniently removed and replaced by others when required. From the sieves L the grain falls upon the screen O, down which it slides to the elevator-box, being guided in its descent by cleats *o'* attached to said screen, as shown in Fig. 3. The screen O rests upon friction-wheels P, pivoted to the casing B of the mill, so that it may be oscillated more easily. To the upper part of the screen O is pivoted one end of a rod, Q, the other end of which is pivoted to one end of the bent or elbow-lever R, which is pivoted at its angle to a bracket, S, attached to a cross-bar, T, the ends of which are secured to the casing B below the lower shoe I. To the other end of the bent lever R is pivoted the end of the rod U, the other end of which is pivoted to a bracket, V, attached to the side of the lower shoe I. By this arrangement the screen O will receive a longitudinal movement from the lateral movement of the said shoe I. To the cross-bar W, attached to the lower part of the shoe H, is pivoted the inner end of the rod X, and to the cross-bar Y, attached to the upper part of the shoe I, is pivoted the inner end of the rod Z. The rods X Z pass out through a slot in the lower edge of the shoe H, or in the upper edge of the shoe I, or partly in each of said edges, and their outer ends are pivoted to the bar A', upon the opposite sides of and equally distant from the pivoting-point of said bar. The bar A' is pivoted to a bracket, B', attached to the inner side of the post or upright of the frame A. One of the ends of the bar A' is bent outward, and to it is pivoted the rear end of the connecting-rod C', the forward end of which is pivoted to a small crank or crank-wheel attached to the projecting end of the fan-shaft D'. By this arrangement the shoes H I will be moved laterally and in opposite directions at the same time, thus producing a much better effect than is possible when the shoe is made in one piece. The shaft D' revolves in

bearings attached to the frame A, and to it are attached the fans E′. The rear lower part F′ of the casing of the fan-chamber is movable, and is pivoted or hinged at its forward edge. The rear edge of the board F′ is supported adjustably by a strap or straps, G′, the lower end or ends of which is or are attached to the rear edge of the said board F′. The upper end or ends of the strap or straps G′ is or are attached to a pin or shaft, H′, that works in bearings in the casing B, and to the outer end of which is attached a knob or other handle, I, for convenience in turning the pin or shaft H′ to raise and lower the rear edge of the board F′ to adjust the direction of the blast as may be required. The rear edge of the board F′ is secured in place, when adjusted, by the ratchet-wheel J′ attached to the pin or shaft H′, and upon the teeth of which the pawl K′ takes hold. To the projecting end of the fan-shaft D′ is attached a small gear-wheel, L′, the teeth of which mesh into the teeth of the large gear-wheel M, pivoted to the upper part of the frame A, and to which is attached the crank M′, by means of which the machine is operated. O′ is the elevator-box, in the lower part of which the cleaned grain is received from the mill. The grain is raised by buckets P′ attached to an endless band, Q′, and is discharged from the lower side of the upper end of the box O′ into bags or other receivers. The escape of the grain may be checked, when desired, by a slide, R′, as shown in Fig. 2. The upper end of the box O′ may be provided with a bag-holder to hold the bags while receiving the grain. The carrier P′ Q′ passes around a roller, S′, pivoted in the lower part of the box O′, and around a roller, T′, pivoted in the upper part of the box O′. To the projecting end of the journal of the upper roller T′ is attached a pulley, U′, around which passes the endless band or chain, V′, which also passes around a pulley, W′, attached to the shaft X′. The shaft X′ revolves in bearings attached to the frame A, and has a gear-wheel, Y′, attached to its end, the teeth of which mesh into the teeth of the crank-gear wheel M′, as shown in Fig. 1. The elevator-box O′ is connected with the casing B of the mill by supporting and brace-rods Z′, so as to be held securely in place.

Having thus described the invention of FRANKLIN H. PLYMATE, deceased, I claim as new and desire to secure by Letters Patent—

The feed-board *h′*, sieves L, and two-part shoe H I, constructed and arranged in a fanning-mill, as and for the purpose specified.

ALEXANDER PLYMATE,
Administrator of Estate of
FRANKLIN H. PLYMATE, *deceased.*

Witnesses:
R. J. MARVIN,
D. W. CASE.