(No Model.) 2 Sheets—Sheet 1.

A. B. LANDIS.

FEED MECHANISM FOR SAW MILLS.

No. 357,087. Patented Feb. 1, 1887.

Fig. 1

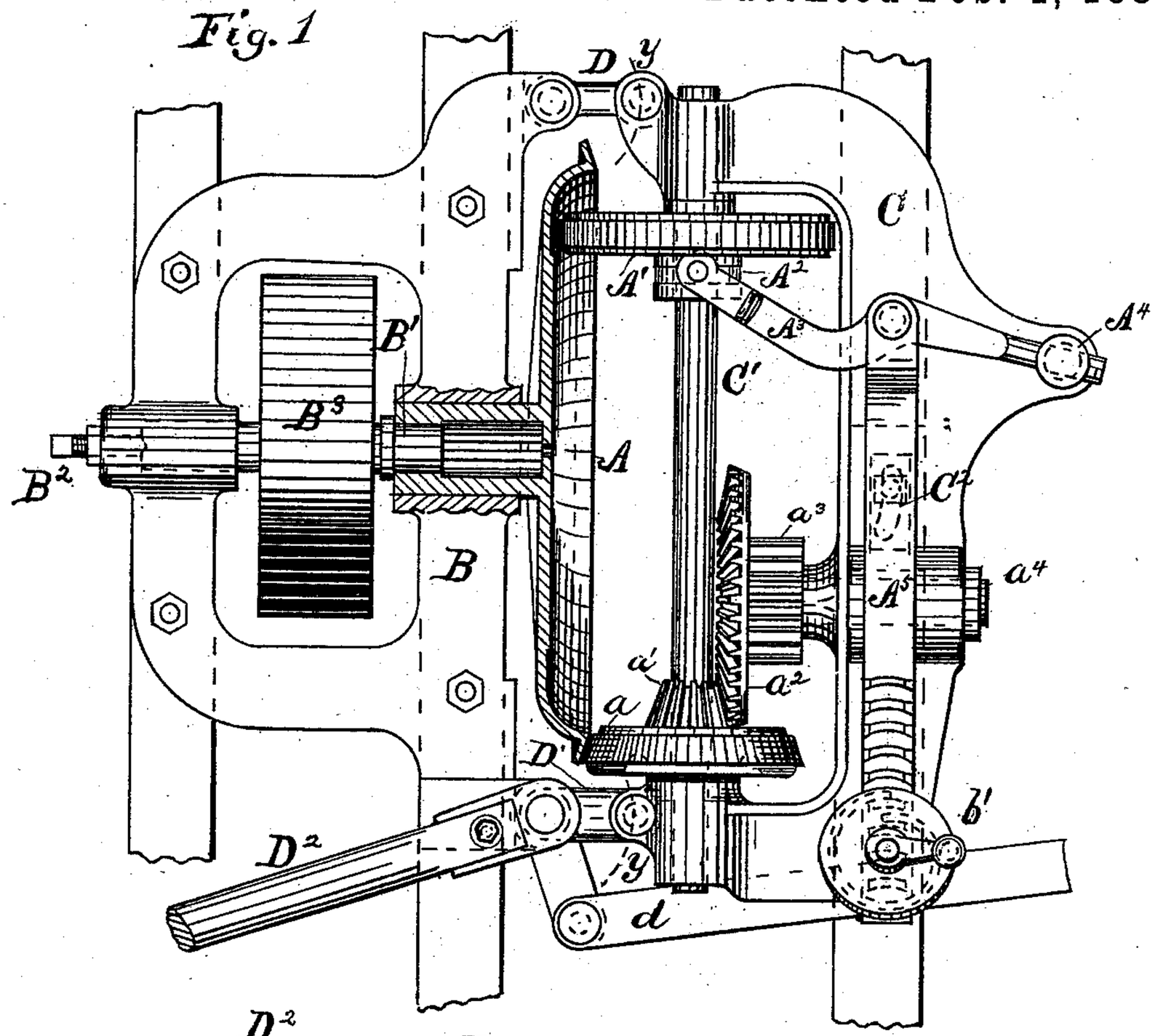
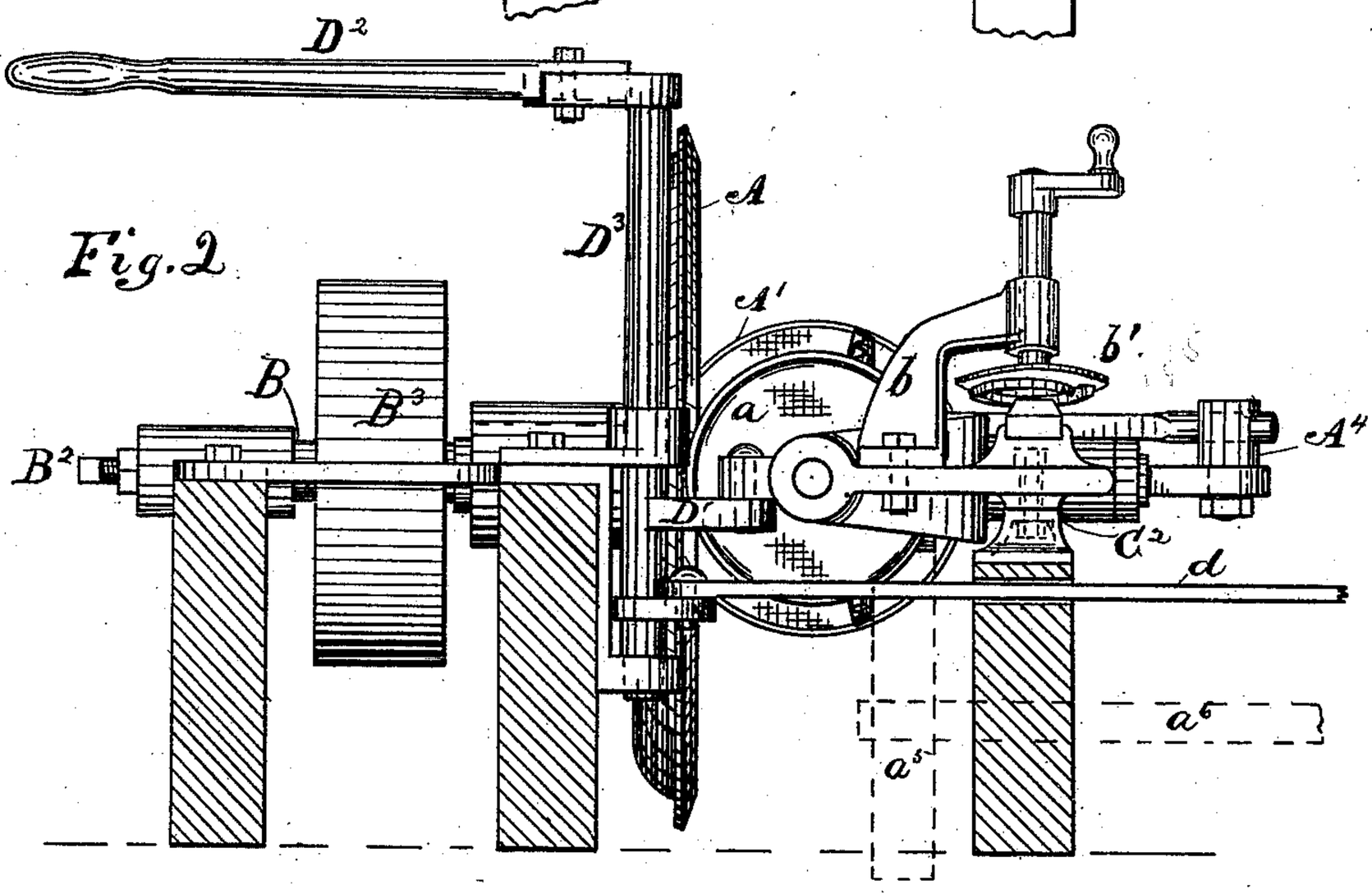


Fig. 2



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(No Model.) 2 Sheets—Sheet 2.

A. B. LANDIS.

FEED MECHANISM FOR SAW MILLS.

No. 357,087. Patented Feb. 1, 1887.

Fig. 4.

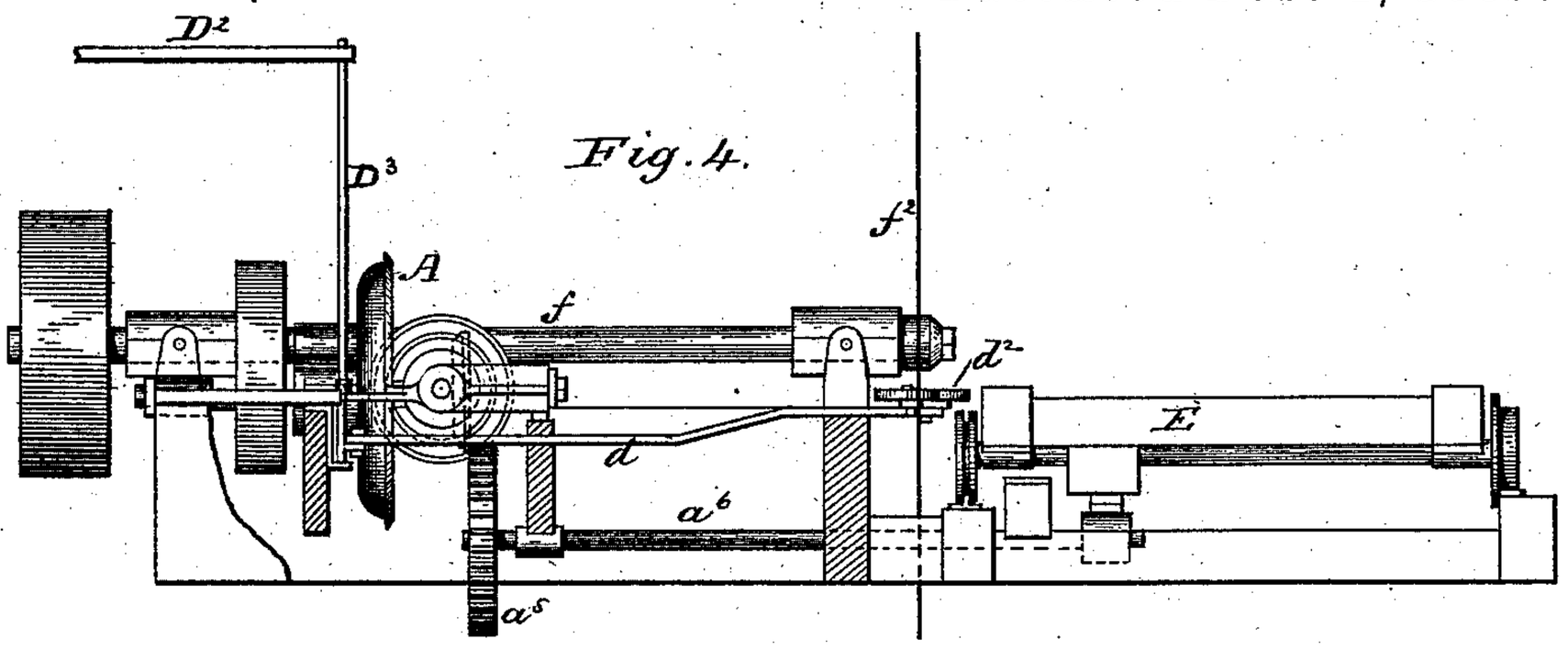
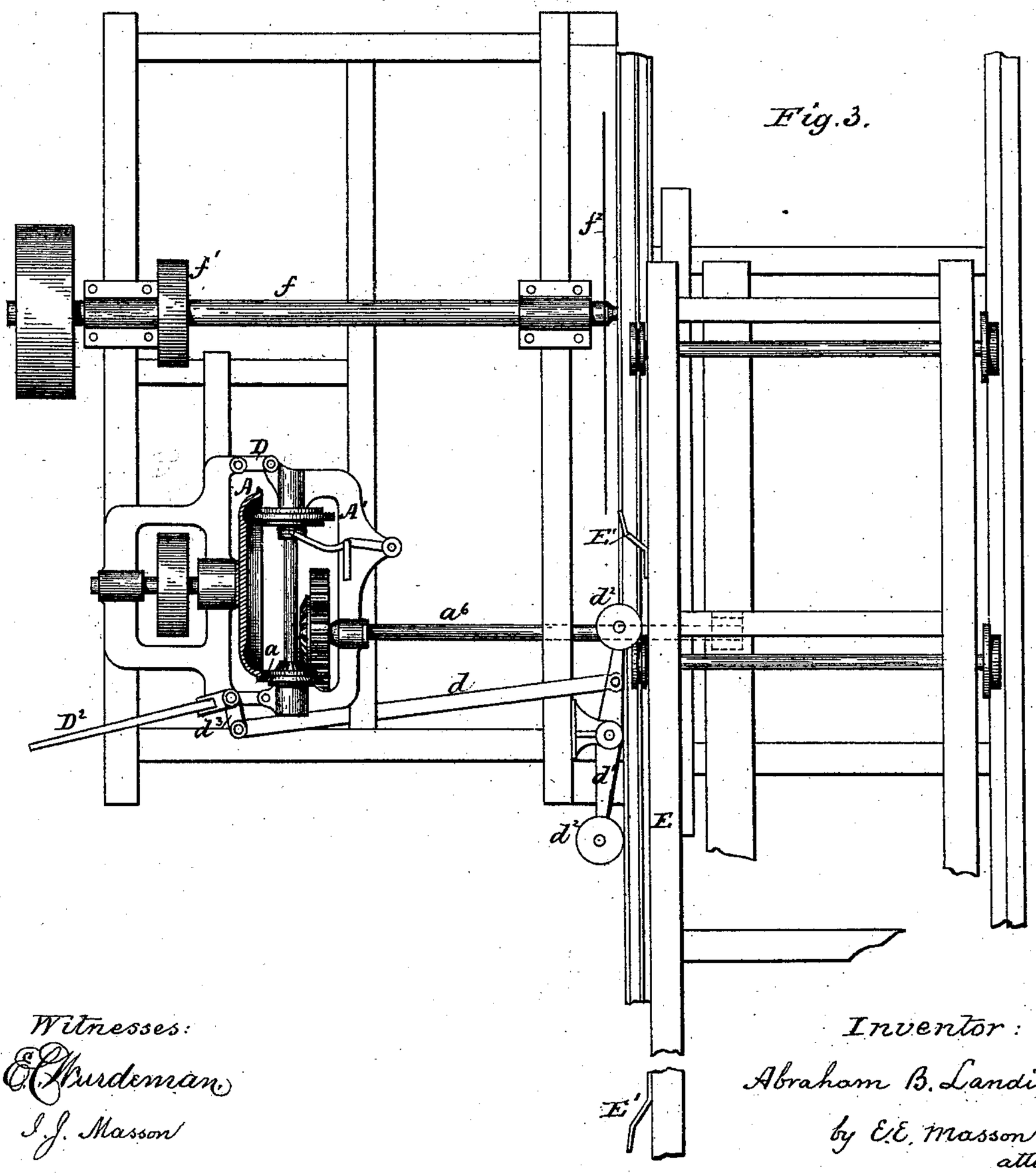


Fig. 3.



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UNITED STATES PATENT OFFICE.

ABRAHAM B. LANDIS, OF WAYNESBOROUGH, PENNSYLVANIA.

FEED MECHANISM FOR SAW-MILLS.

SPECIFICATION forming part of Letters Patent No. 357,087, dated February 1, 1887.

Application filed July 1, 1886. Serial No. 206,894. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM B. LANDIS, a citizen of the United States, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Feed Mechanisms for Saw-Mills, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in mechanisms capable of transmitting a variable feed to be used in connection with saw-mills and other machinery; and the objects of my improvements are to provide a disk as one of the frictional surfaces in connection with a wheel adapted to travel on its face by means so that the friction between the frictional surfaces is automatically maintained by the power transmitted, so that the friction increases and decreases in the same ratio as the load; also, to provide an automatically-reversing saw-mill carriage driven by the same friction-feed. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view, partly in section, of a variable-feed mechanism constructed in accordance with my invention. Fig. 2 is an elevation of the same. Fig. 3 is a top view showing the plan of mounting said feed upon the husk or frame of the saw-mill and its automatic reversing feature by the saw-mill carriage. Fig. 4 is an elevation of the same.

Like letters represent like parts in all the drawings.

In the drawings, A represents a disk having a flat surface with a rim projecting for the travel of the small wheel *a*, which disk is mounted upon one end of a shaft, B′, retained in suitable bearings of frame B, carrying a pulley, B^3, through which motion is transmitted to the feed mechanism, to be hereinafter described.

C is a frame with bearings carrying shaft C′, upon which is mounted the friction-wheel A′ for the feed and the wheel *a* for the gig-back movement of the log-carriage. Said frame C′ is mounted upon two swinging links or brackets, D and D′, the latter being fixed to the upright shaft D^3, to which is attached the hand-lever D^2. The other part of frame C rests on the support C^2, and is held by a bolt and allowed to slide in the curved slot shown. This support C^2 is an extension or a part of the bearing in which the shaft a^6 revolves, forming a connection between said shaft and said frame C, preventing the gearing a^3 and a^5 from separating, being held down by the bolt shown, and said frame C allowed to slide, as stated, in the curved slot. A bevel-pinion, *a*′, is mounted on shaft C′, which engages with bevel-gear a^2, mounted upon a shaft, a^4, and upon the same shaft is mounted the spur-pinion a^3, which engages with spur-gear a^5, mounted on the pinion-shaft a^6, which drives the log-carriage.

The feed of the log-carriage is varied by sliding the feed-wheel A′ on the shaft C′ by means of a lever, A^3, coupled to the hub of said feed-wheel at one end, the other end being coupled to frame C by joint A^4. A bar, A^5, is attached to this lever, which is toothed at one end for the engagement of a scroll-gear, *b*′, which is mounted upon a shaft having a crank or hand-wheel at its upper end. It will be seen that by turning said crank in either direction the feed-wheel A′ will be drawn toward and from the center of said disk, thus readily varying the feed while feeding or otherwise, and will remain fixed until changed by said crank. A sliding bar coupling direct from feed-wheel A′ to scroll-gear *b*′ could be used instead of the lever A^3 and bar A^5. The friction-wheel *a* is smaller than wheel A′, and is used for the gig-back movement of the log-carriage, which, traveling on the rim of the disk, gives the quick motion necessary for that purpose. The reversing is accomplished by the lever D^2, which gives the circular movement to frame C, (shown by dotted line *y y* in Fig. 1,) which is produced by the links D and D′. This movement, it will be seen, brings either wheel in contact with the disk, the feed-wheel A′ coming in contact by the circular movement of the frame in one direction and the gig-back wheel *a* escaping, owing to the bevel of its face, (so made to get perfect rolling-surface.) The reverse movement of the frame disengages the feed-wheel A′ and brings the gig-back wheel *a* in contact with the rim of the disk owing to its bevel.

Instead of swinging the frame C by links, it might be slid in angular guides or radial slots and accomplish the same purpose without departing from the spirit of my invention; but I

prefer the links or brackets, as they produce the least friction.

The power transmitted by the disk revolves shaft C′, which carries bevel-pinion a', which meshes into bevel-gear a^2, which revolves pinion a^3, which meshes into spur-gear a^5 on pinion-shaft a^6 and drives the log-carriage. It will be seen that in transmitting the power from pinion a^3 to spur-gear a^5 it exerts an end-thrust to the frame C, which, owing to its circular movement, presses the wheel A′ against the disk in one motion and the wheel a against the rim of the disk in the other motion, making the friction between these surfaces automatic, so that there is no need, after reversing for either movement, for holding the lever D^2, as the friction is automatically retained and increased and decreased in the same ratio as the power transmitted. A set-screw, B^2, is provided at the end of the disk-shaft B′ for the purpose of adjusting the disk to the friction-wheels as they become worn.

In Figs. 3 and 4 the automatic reversing device is shown in connection with the already-described feed, also the general plan of mounting said feed upon the saw-mill frame. The rod d connects at one end to an arm, d^3, on upright shaft D^3, and at the other end to a centrally-pivoted bar, d', which has on each end a small friction-roller, d^2.

In the drawings, Figs. 1 and 3, the friction is in contact for the gig-back, which moves the carriage from the saw. A tripper, E′, made of such form as will allow it to spring, is fastened on the carriage E, one at each end, at a point where it is desired to reverse the motion of the carriage. This tripper, it will be seen, comes in contact with the roller d^2, moves the arm d^3, and, by its connection with rod d, it moves shaft D^3, and, owing to the circular movement of the frame C, brings the feed-wheel in contact with the disk and drives the log-carriage in the opposite direction, and as the friction is automatically retained the carriage movement is positive in either direction.

It will be seen that with my device and manner of mounting it I employ a belt from a pulley, f', on the saw-arbor f to drive it with the pulley next to the saw-arbor box, consequently avoiding end-thrusts and springing of the saw-arbor.

Having now described my invention, what I desire to secure by Letters Patent, is—

1. In a variable-feed mechanism, a disk, in combination with a frame having a circular movement, links D and D′, connecting the main frame with the moving frame, the latter carrying a shaft, and a feed-wheel adapted to be moved longitudinally in said frame and to travel on the face of said disk, substantially as and for the purpose described.

2. In a feed mechanism, a disk, in combination with a movable frame, links connecting both ends of said movable frame to the main frame, a shaft carried by said movable frame, a wheel adapted to travel on the face of said disk, and a wheel adapted to travel on the rim of said disk, said frame having an end-thrust in either direction, automatically retaining the friction between the frictional surfaces, substantially as described.

3. In a feed mechanism, a disk, in combination with a frame movable upon a curved path and carrying a shaft, and upon said shaft a wheel adapted to travel on the face of said disk, and a pinion, a', the latter working with the gear a^2, carried by said frame, an end-thrust being produced by the transmission of the power from pinion a^3 to gear-wheel a^5, thereby automatically retaining the friction between the frictional surfaces, substantially as and for the purpose described.

4. In a feed mechanism, a disk, in combination with a movable frame carrying a wheel adapted to travel on the face of said disk, links D D′, or their equivalent, connecting frame C to frame B, for the purpose of engaging and disengaging said wheel with said disk by their circular movement, substantially as and for the purpose described.

5. In a feed mechanism, a disk, in combination with a movable frame, links connecting the main frame with both ends of the movable frame, the latter carrying a feed-wheel and a gig-back wheel, which are automatically held in contact with said disk, pinions a' a^2 a^3, and gear-wheel a^5, the upright shaft D^3, arm d^3, rod d, the pivoted bar d', and trippers E′ E′ on the log-carriage, substantially as and for the purpose described.

In testimony whereof I have affixed my signature in presence of two witnesses.

ABRAHAM B. LANDIS.

Witnesses:
D. M. GOOD, Jr.,
C. E. BESORE.