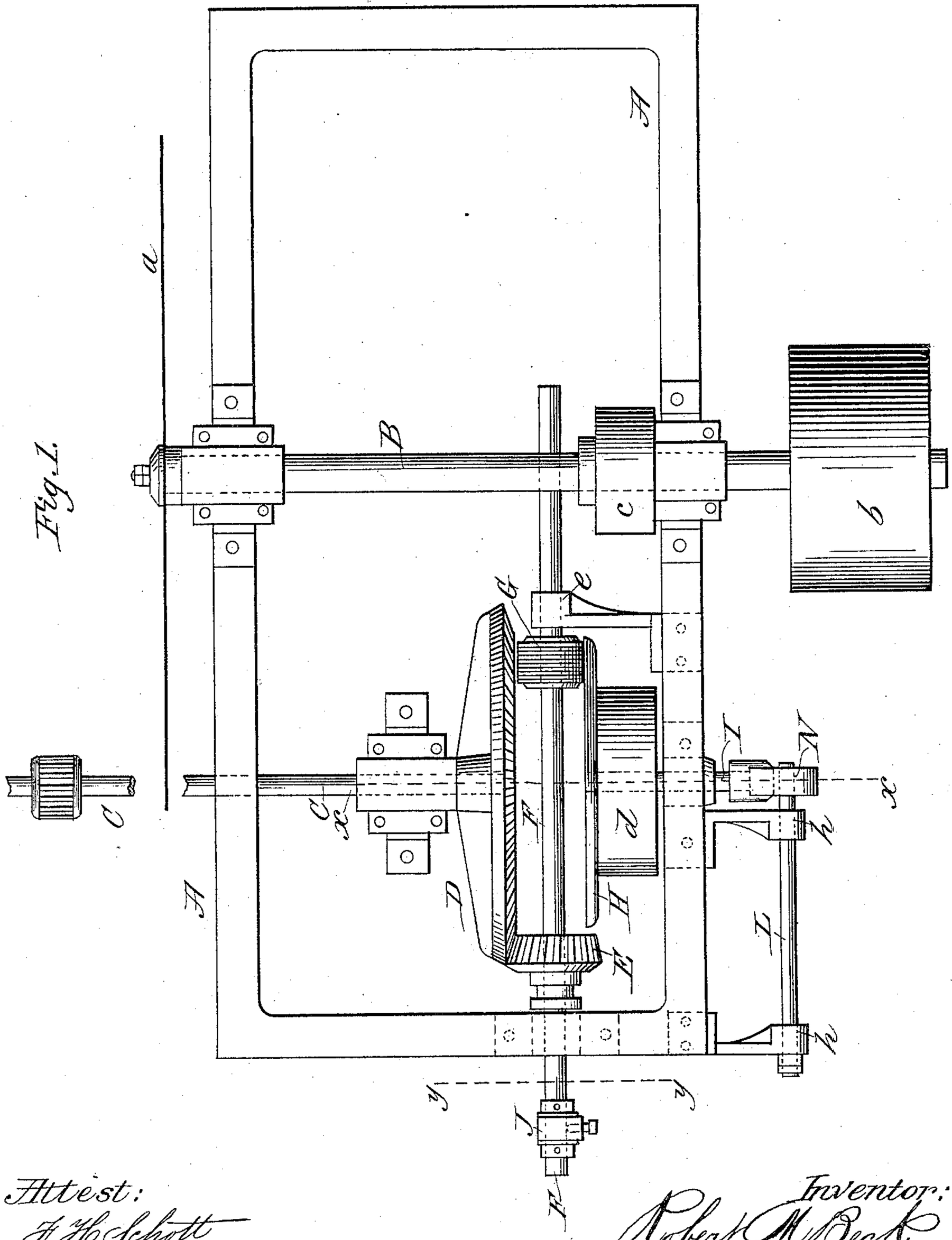
(No Model.) 3 Sheets—Sheet 1.

R. M. BECK.

CIRCULAR SAW MILL.

No. 299,194. Patented May 27, 1884.

Fig. 1.



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3 Sheets—Sheet 2.

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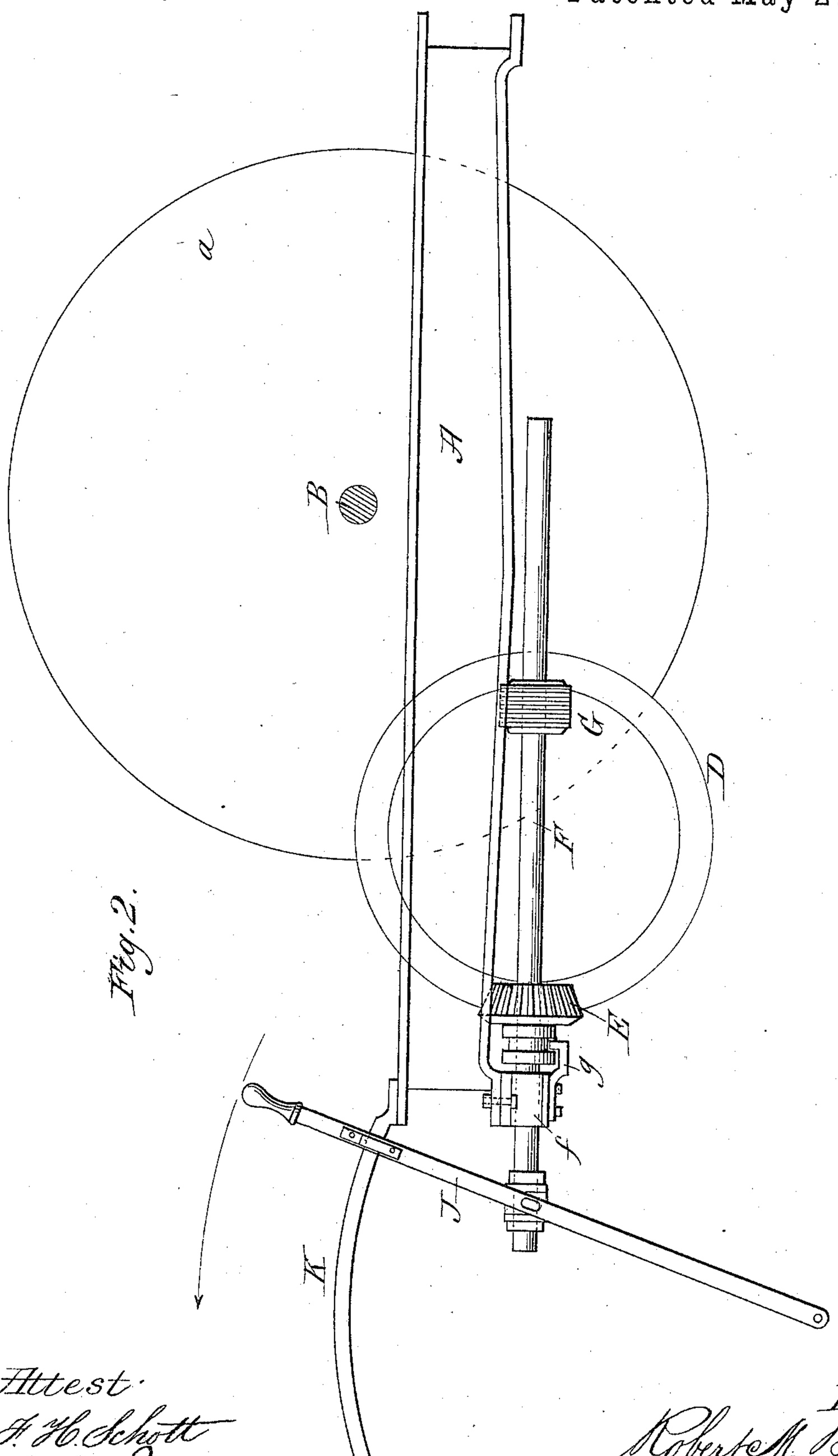

Fig. 2.

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CIRCULAR SAW MILL.

No. 299,194. Patented May 27, 1884.

Fig. 3.

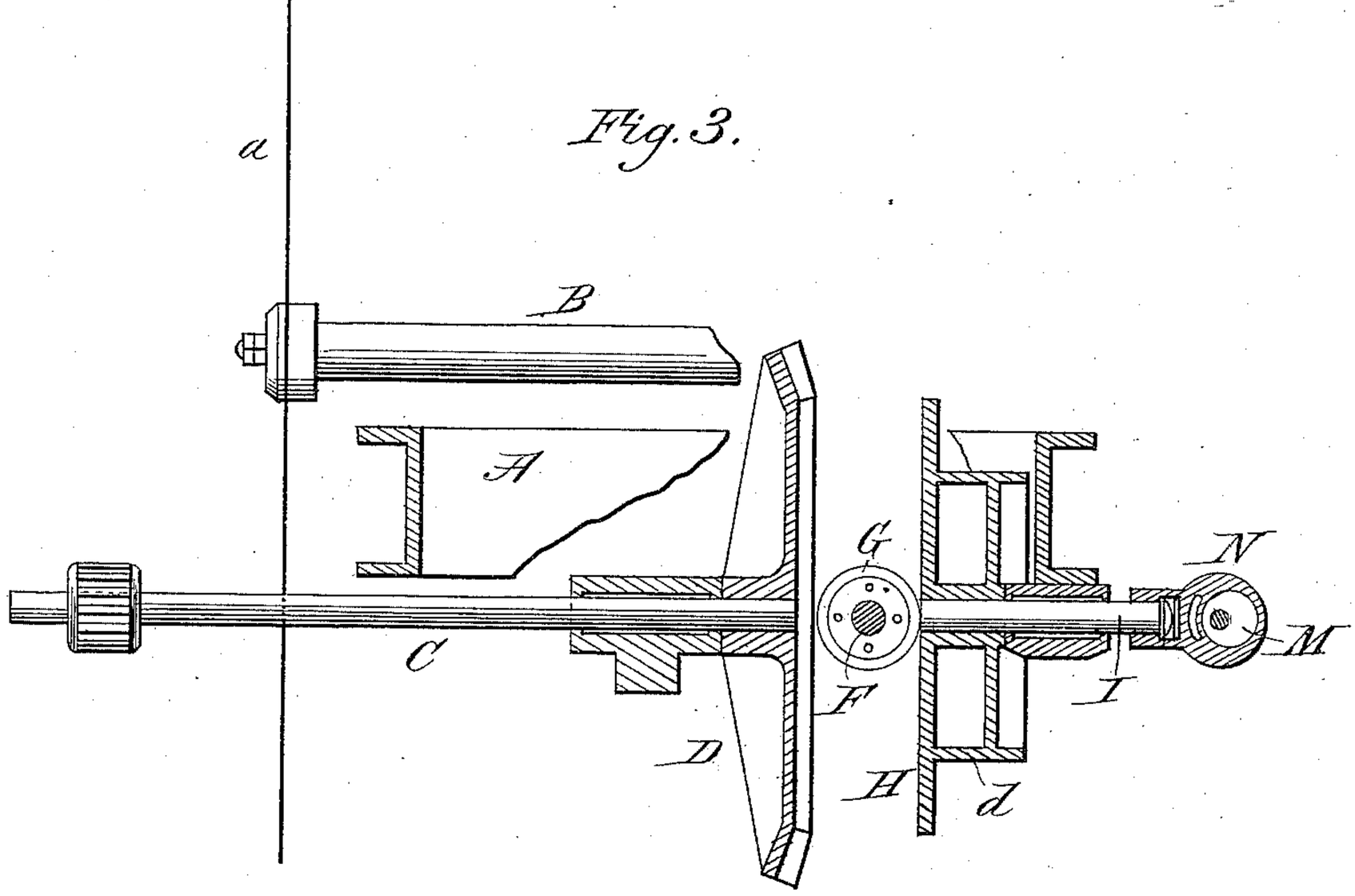
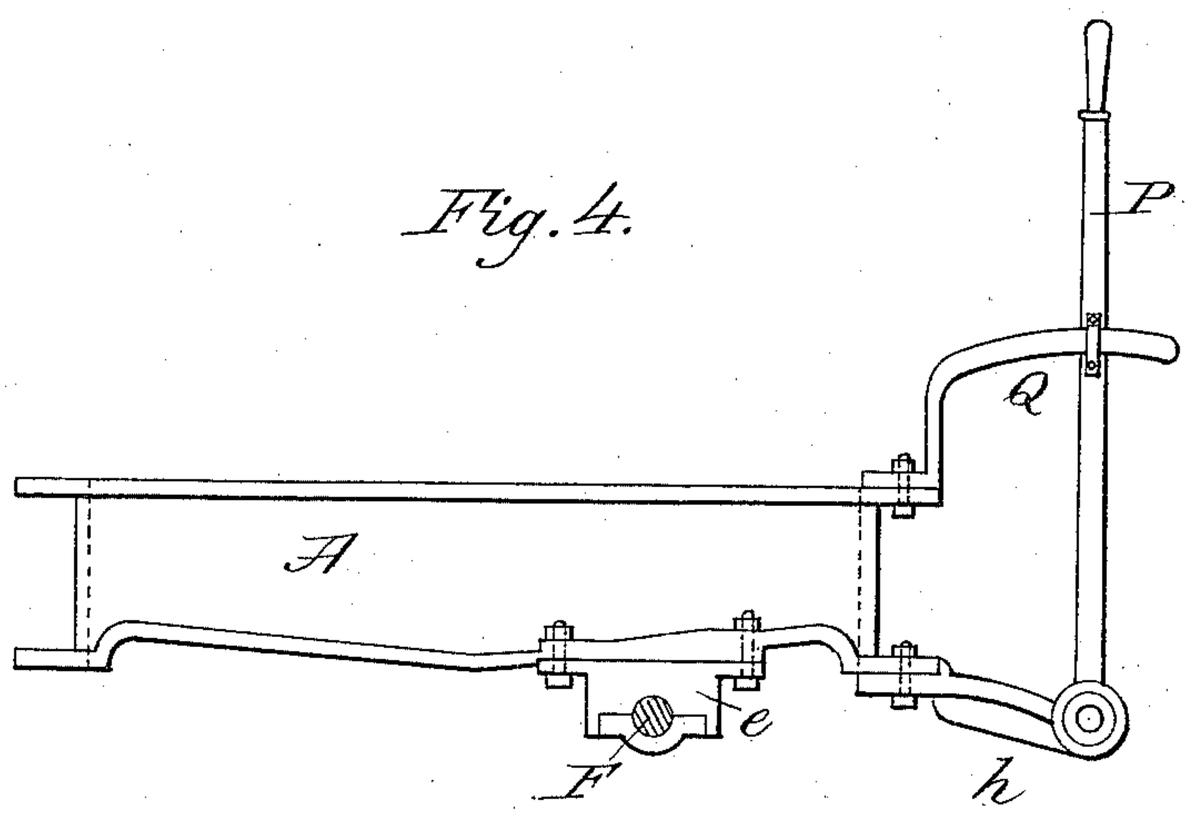


Fig. 4.



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UNITED STATES PATENT OFFICE.

ROBERT M. BECK, OF CHAMBERSBURG, PENNSYLVANIA.

CIRCULAR-SAW MILL.

SPECIFICATION forming part of Letters Patent No. 299,194, dated May 27, 1884.

Application filed March 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, ROBERT M. BECK, a citizen of the United States, residing at Chambersburg, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Variable Feed for Saw-Mill Carriages; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to a variable feed for circular-saw mills, the object being to provide a simple, efficient, and reliable means of increasing or decreasing the feed of the log to the saw while the latter is in motion, and to reverse the log-carriage after the cut is made, and run back at an increased speed over that employed while making the cut.

The invention consists in combining with the feed-shaft and its actuating mechanism an adjustable friction-disk and a friction-roller, the latter being mounted on an independent shaft arranged at a right angle to the feed-shaft and friction-disk, between said disk and feed-shaft, and having an adjustment endwise, whereby the friction-roller and friction-disk can be brought into contact at any desired point to vary the feed of the log-carriage, as hereinafter more fully set forth.

In the annexed drawings, illustrating my invention, Figure 1 is a plan view of the saw-frame with my improved feed-works. Fig. 2 is a side elevation, with the friction-disk and driving-pulleys removed. Fig. 3 is a section on the line *x x* of Fig. 1, and Fig. 4 is a sectional end view on the line *y y* of Fig. 1.

Like letters indicate like parts in the several views.

A is the main saw-frame. B is the saw-mandrel, and C the feed-shaft for moving the log-carriage. The feed-shaft C carries a bevel-gear, D, that meshes with a pinion, E, on a friction-roller shaft, F. This shaft F carries a friction-roller, G, of paper or other suitable material. The shaft F derives motion from the frictional contact of its roller G with the face of a metal friction-disk, H, that is mounted on one end of a shaft, I, having a suitable bearing in one side of the saw-frame. The mandrel or arbor B carries a saw, *a*, and it is also provided with a driving-pulley, *b*, and a pulley, *c*, for a belt-connection with a belt rim, *d*, on the back of the friction-disk H, thereby actuating said disk. It is obvious, however, that instead of the pulley and belt rim, the friction-disk can be actuated from the saw-mandrel by any other suitable means.

When the parts are in the position shown in the drawings, the rotation of the disk H in frictional contact with the roller G on the shaft F will give motion through said friction-roller and shaft to the gears E D and feed-shaft C, by which the log-carriage is moved. A variable feed is accomplished by moving the friction-roller G across the face of the disk H, which increases or diminishes the speed of the roller according to the circumference of the disk H at the point of contact.

It will be seen that the friction-roller shaft F is supported in bearings *e f*, attached to the saw-frame. To one of these bearings, *f*, Fig. 2, is attached a flanged plate, *g*, for holding the bevel-pinion E to its engagement with the bevel-gear D, while the roller-shaft F is moved endwise, the pinion and shaft being connected by a groove and feather in a well-known manner. The shaft F is of a length sufficient to permit the necessary range of movement endwise in its bearings, and at its outer end it is connected to an adjusting-lever, J, which engages with an arc, K, so that the shaft and its roller G can be securely adjusted to any desired position. The feed can thus be varied by means of the lever J, moving the shaft F endwise, so as to bring the friction-roller G in contact with the disk H at varying points on its diameter. The disk H is adjustable toward and from the friction-roller G by means of a rock-shaft, L, which is secured in bearings *h h*, and operates an eccentric, M, Fig. 3, that works in a strap, N, at the outer end of the disk-shaft. Motion is given to the shaft L and its eccentric M by a lever, P, which is held in adjustment by an arc, Q, as shown in Fig. 4.

The operation and advantages of these feed-works will be readily understood. When the roller G is in the position shown in Fig. 1, it will run the log-carriage back or from the saw,

and by means of the lever J the roller can be moved across the face of the disk to vary the speed of the log-carriage as desired. When it is desired to feed the log to or from the saw, the disk H and roller G are kept in contact, and to reverse the movement of the log-carriage they are relieved of their frictional contact by means of the lever P, shaft L, and eccentric M, until the roller G has been moved by the lever J across the center of the disk H, said roller and disk being then again brought into frictional contact. This construction and combination of parts allow the log-carriage a range of movement from zero to ten inches to one revolution of the saw.

The parts are few and simple in construction, not liable to become disarranged, and enable the feed of the log to be readily increased or decreased, and the movement of the log-carriage reversed while the saw is in motion.

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

1. In a variable saw-mill feed, the combination, with the feed-shaft C, having gear D, of the adjustable friction-disk H, actuated from the saw-mandrel, and the independent shaft F, arranged at a right angle to the feed-shaft between the feed-shaft and friction-disk, and carrying a pinion, E, and a friction-roller, G, said shaft F having an adjustment endwise, whereby the friction-roller and friction-disk can be brought into contact at any desired point to vary the feed of the log-carriage, substantially as described.

2. The combination, with the saw-mandrel B and feed-shaft C, having gear D, of the adjustable friction-disk H, the adjustable shaft F, arranged at a right angle to the feed-shaft between it and the friction-disk, the friction-roller G, mounted on the shaft F, the pinion E, feathered to the friction-roller shaft, and the lever J, for adjusting said shaft, substantially as described.

3. The combination, with the saw-arbor B, feed-shaft C, having gear D, and the independently-adjustable shaft F, arranged at a right angle to the saw-arbor and feed-shaft, and carrying friction-roller G, and pinion E, of the friction-disk H, mounted on one end of a shaft, I, means for connecting the saw-arbor and friction-disk, and mechanism for adjusting said disk to and from the friction-roller G, substantially as described.

4. The combination of the saw-mandrel B, having pulley *c*, the adjustable friction-disk H, having belt-rim *d*, the shaft F, carrying friction-roller G, and pinion E, the feed-shaft C, having gear D, and means for adjusting the roller G and shaft F independent of the pinion E, substantially as described.

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

ROBERT M. BECK.

Witnesses:
ADAM F. SMITH,
D. K. WUNDERLICH.