

Patented Feb. 27, 1872.

Fig. 1.

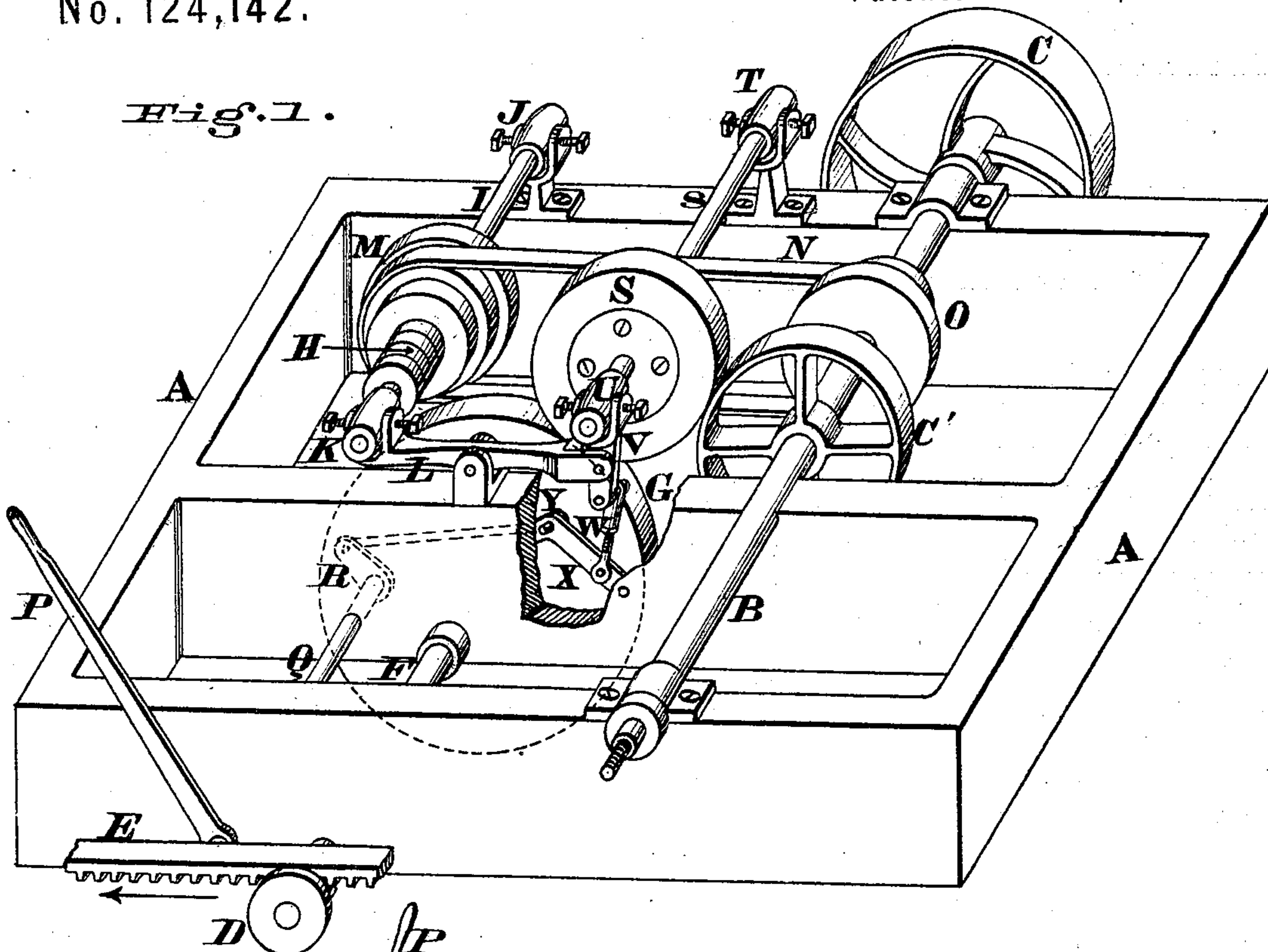


Fig. 2.

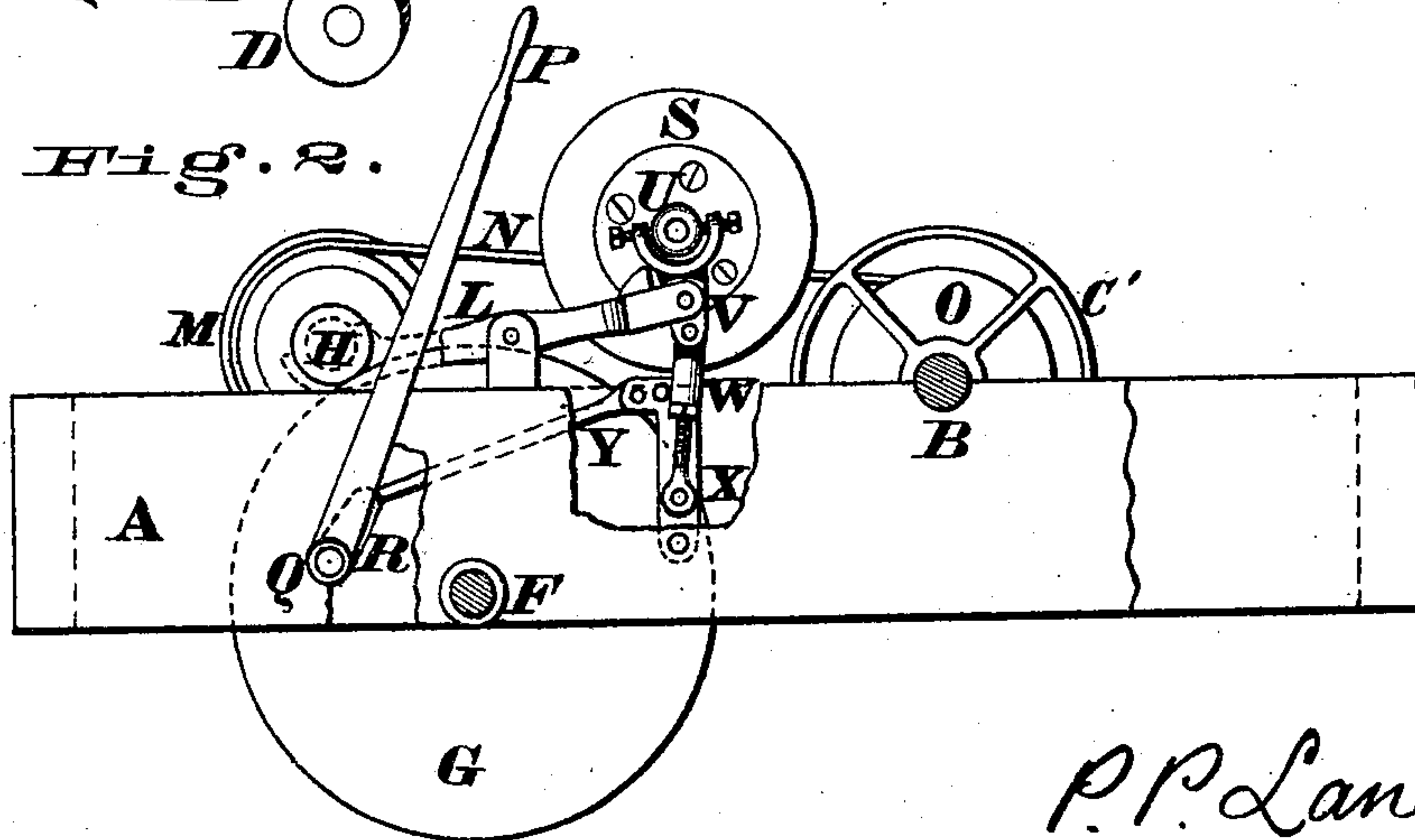
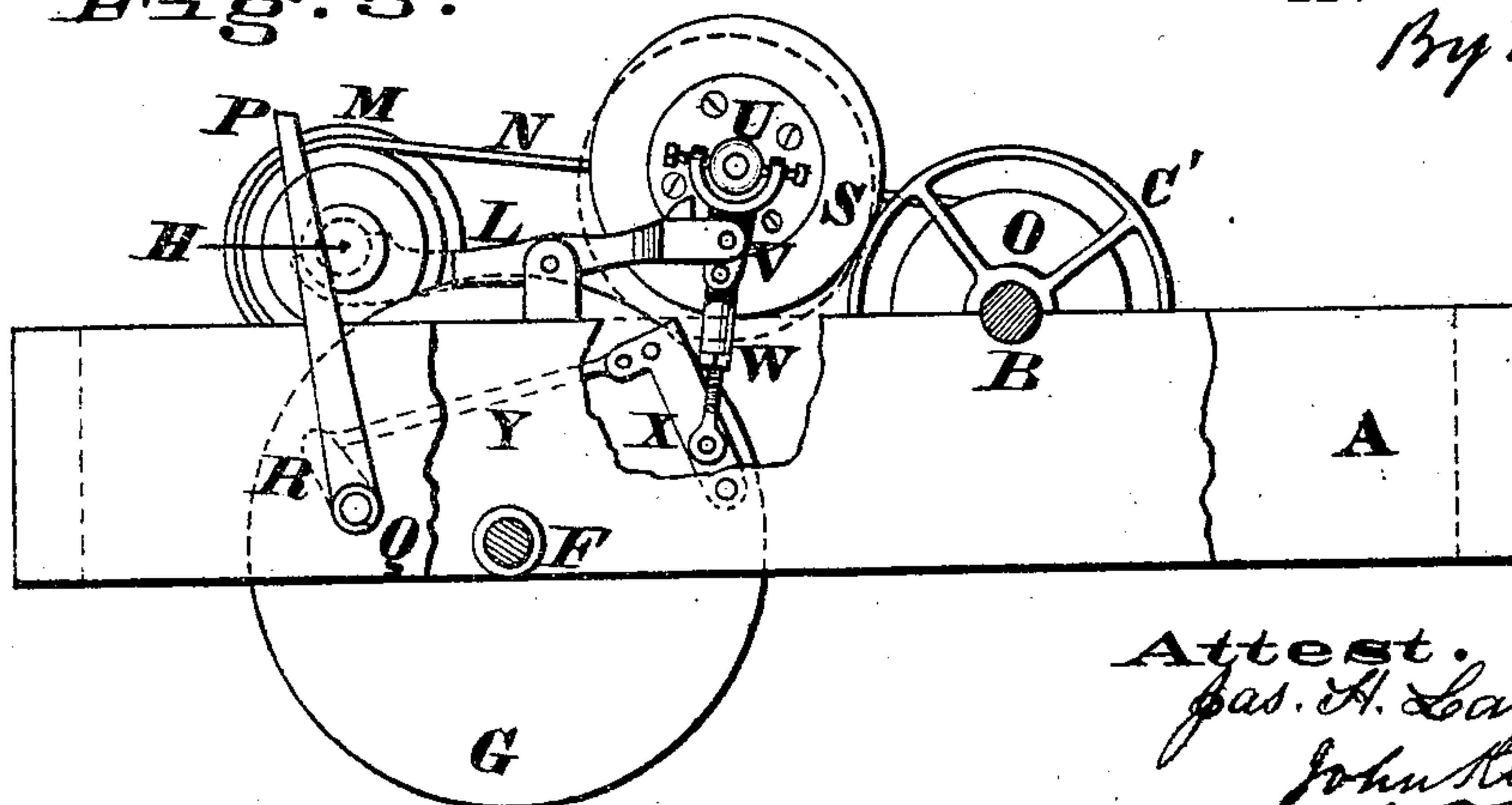


Fig. 3.



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PHILANDER P. LANE, OF CINCINNATI, OHIO, ASSIGNOR TO LANE & BODLEY,
OF SAME PLACE.

IMPROVEMENT IN CIRCULAR-SAW MILLS.

Specification forming part of Letters Patent No. 124,142, dated February 27, 1872.

I, PHILANDER P. LANE, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Circular-Saw Mills, of which the following is a specification:

This is an improvement in the class of combined feed and reverse apparatus for saw-mills which enables the sawyer, by means of a simple lever, to either advance, stop, or back the carriage without arresting the rotation of the saw or disconnecting the motive power; and my invention consists in a mechanical arrangement, whereby the reversing-pulley, which communicates the backing motion to the pinion-drum, is made to acquire its proper velocity from the driving-pulley before coming in contact with the pinion-drum, the connection between the lever and the said reversing-pulley being also such as to insure constant contact of said pulley with both the driving and the driven surfaces during the entire reverse stroke of the carriage, and this although one or more of said surfaces may become irregularly worn. The invention relates particularly to the feed and reverse motion of myself and S. R. Smith, subject-matter of patent No. 22,268, issued December 7, 1858, to Lane & Bodley, assignees, which is the basis represented.

Figure 1 is a perspective view of a portion of a circular-saw mill embodying my invention, the parts being set for "gigging back." Figs. 2 and 3 are elevations, showing the positions of the operative parts for the forward stroke and for the backward stroke respectively.

A is a portion of the frame of a circular-saw mill; B, its saw-arbor; C, driving-pulley on saw-arbor; D, the pinion, which engages with the carriage-rack E; F, the shaft of same; G, the drum upon the pinion-shaft. H is the small friction-pulley, which, when brought into contact with the drum G, operates to impel the log-carriage forward. One end of the shaft I of the friction-pulley H is journaled in a pivot gimbal-box, J, and its other end in a gimbal-box, K, which rests in one end of a rocker, L, whose opposite end supports the reversing friction-roller in a peculiar manner, to be hereinafter explained. The shaft J carries a step or graduated pulley, M, which is driven by a band, N, from a corresponding pulley, O, upon the saw-arbor. P is the hand-lever on one end of

shaft Q, whose other end has a crank, R, connected by a pitman, Y, with a toggle, W X.

All of the parts above recited have been used before.

The rear extremity of the shaft *s* of the reversing-pulley S is journaled in a pivot gimbal-box, T. The gimbal-box U, which supports the front journal of shaft *s*, is not attached directly to the rocker L, but to the upper end of an arm, V, that is pivoted at or near its mid height to one end of the rocker L, and has its lower end pivoted to the upper member W of the toggle W X.

The operation is as follows: It being desired to reverse or "gig back" the carriage, the lever P is shifted from its position in Fig. 2 to its position in Fig. 3. This motion of the lever, by drawing back the pitman Y, acts through the toggle W X, to elevate the feed-pulley, and to draw downward and slightly inward the lower end of arm V, so as to throw its upper end downward and outward, and, by so doing, to bring the reversing-pulley S in contact with the "live" or driving-pulley C, of whose motion it partakes, and immediately afterward to bring said pulley in contact with the pinion-drum G, imparting to the latter, and through it the carriage, a rapid retrograde or gigging-back motion. The lever, being brought to a vertical position, releases both friction-pulleys from contact with the pinion-drum; and a motion of the lever toward the position shown in Fig. 2 reverses the above-described actions of the several parts, the pulley S first leaving the pinion-drum, and then the driving-pulley and the two members W X of the toggle, approaching coincidence, operate by elevating the reverse end of the rocker to depress its other end, and to press the pulley H firmly upon the pinion-drum. The relative position of the two members W X of the toggle at this juncture becomes a lock, which holds the pulley H with great power to its work, with little or no labor to the sawyer until a backward movement again becomes necessary. My described flexible or yielding connection of the pulley S with the rocker L, and the described toggle and pitman connection of the former with the operating lever, insures the proper momentum of the reversing pulley be-

fore striking the pinion-drum. It also enables the said reversing-pulley to act continuously and with equal pressure on both the opposing surfaces, and this even after one or both of said surfaces have become unequally worn.

Claims.

I claim herein as new and of my invention—

1. The flexible support V for the bearing U of the reversing or gig-back pulley S, the same operating, as described, to give said pulley an equal bearing on the driving-pulley C' and pinion-drum G.

2. The combination of the arm or lever V

extended below its pivot, as shown, the rocker L, toggle W X, and toggle-shifting mechanism Y R Q P, operating, as shown and described, to insure the contact of the reversing or gig-back pulley S with the driving-pulley C' and pinion-drum G, in the order named, for the purpose set forth.

In testimony of which invention I hereunto set my hand.

PHILANDER P. LANE.

Witnesses:

GEO. H. KNIGHT,
JAMES H. LAYMAN.