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M. W. DANKS.

Improvement in Circular Saw Mills.

No. 122,161. Patented Dec. 26, 1871.

Fig. 1.

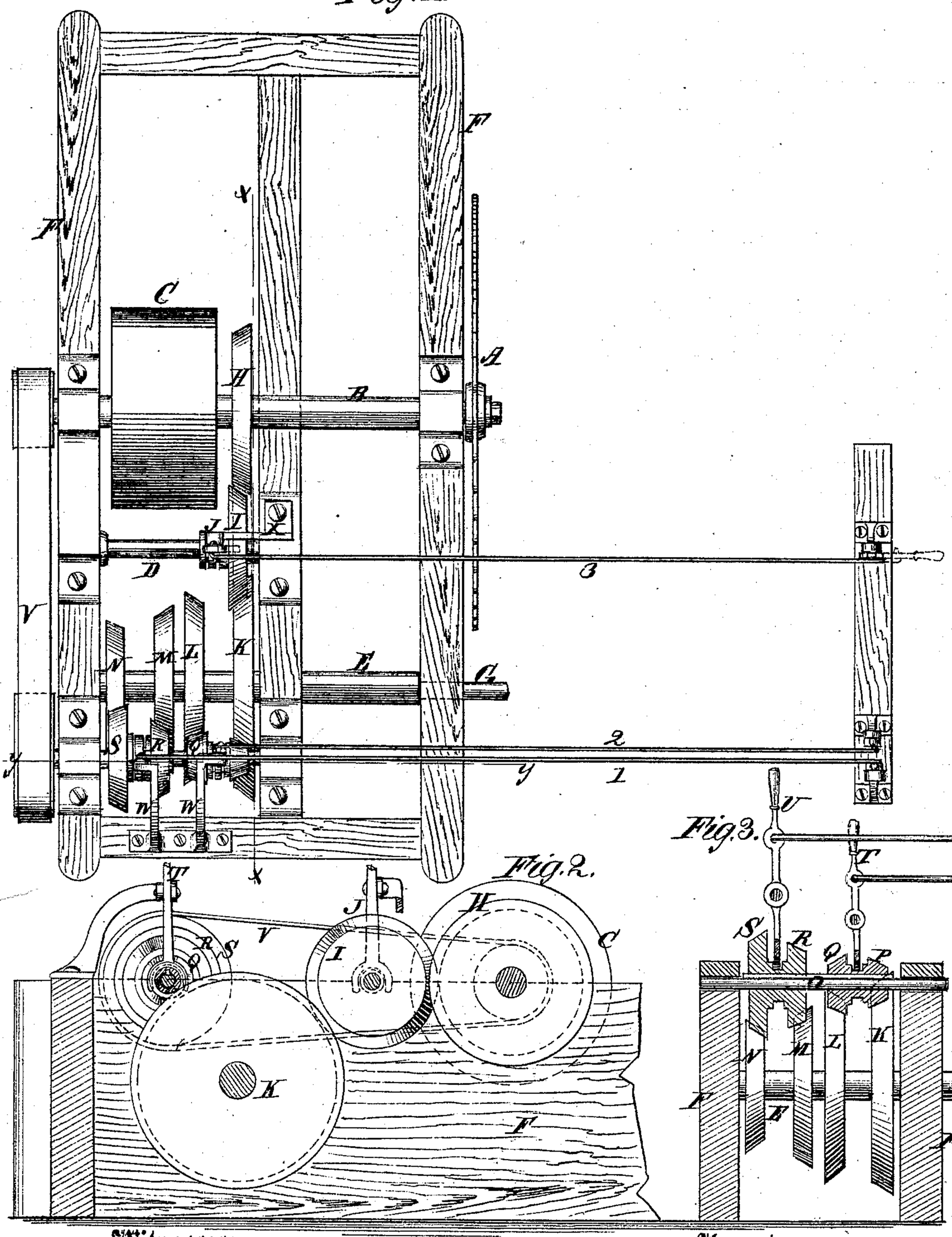

Fig. 2.

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

MALANCTON W. DANKS, OF FULTON, NEW YORK, ASSIGNOR TO HIMSELF AND J. E. HARROUN, OF SAME PLACE.

IMPROVEMENT IN CIRCULAR-SAW MILLS.

Specification forming part of Letters Patent No. 122,161, dated December 26, 1871.

Specification describing certain Improvements in Circular-Saw Mills, invented by MALANCTON W. DANKS, of Fulton, in the county of Oswego and State of New York.

The object of this invention is to provide convenient and efficient means for feeding, gigging back, and changing or varying the feed to circular saws, so as to adapt the feed to light or heavy work; and it consists in a series of bevel friction-wheels, so arranged that while the feed motion and the gigging motion of the carriage is produced by means of said bevel friction-wheels, the feed may be varied at the will of the attendant, as may be desired or necessary, all as hereinafter more fully set forth and described.

In the accompanying drawing, Figure 1 represents a top or plan view. Fig. 2 is a vertical section looking to the left of the line *x x* of Fig. 1. Fig. 3 is a vertical section of Fig. 1 taken on the line *y y*, showing the bevel friction feeding-wheels and shifting apparatus.

Similar letters of reference indicate corresponding parts.

A is the saw. B is the saw-shaft. C is the driving-pulley. D is the gig-shaft. E is the feed-shaft or shaft by means of which the carriage of the mill is moved back and forth. F is the frame-work, by which these shafts and the parts connected therewith are supported. On the end G of the shaft E a pinion-wheel is placed, which engages with a rack on the under side of the carriage—parts not shown in the drawing, but well understood. H is a bevel friction-wheel on the saw-shaft B. I is a bevel friction-wheel on the gig-shaft D. This wheel I works on a feather, and is made to slide on the gig-shaft by means of a shifting-lever, J, and engage with the friction-wheel H of the saw-shaft and the large bevel friction-wheel K of the feed-shaft E.

It will be seen that by engaging the beveled faces of these friction-wheels I do not only obtain a larger frictional surface, but am enabled to work the wheels on parallel shafts.

On the shaft E are three other bevel friction-wheels, marked L, M, and N, diminishing in diameter from K to N, as seen in the drawing. O is a shaft placed parallel with the shaft E, which carries a bevel friction-wheel to engage with each of the friction-wheels on the shaft E, marked respectively from the smallest to the largest P, Q, R, and S. These wheels operate in pairs, each pair being connected together by a grooved sleeve and working on a feather, so that they are made, by means of the levers T U to slide on the shaft and each engage with its proper friction-wheel on the feed-shaft. The shaft O is driven by the belt V from the saw-shaft, and of course is in motion whenever the saw is in motion.

For the convenience of the sawyer the shifting-levers J T U are operated by means of the rods 1 2 3 at the opposite side of the carriage, short levers or handles being so connected with the rods that he may work each of the levers and feed the saw, change the feed, and gig back the carriage without changing his position.

For giving a slow feed he will engage the bevel friction-wheel P with the large friction-wheel K. For increasing the feed, the wheel P will be pushed from K, and the wheel Q will engage with the wheel I. For still further increasing the feed, the lever U is operated and the wheel R is made to engage with the wheel M; and to give the fastest feed, the wheel S is made to engage with the wheel N.

I do not confine myself to any particular number of bevel friction-wheels, nor to any particular diameter or proportion for either the sliding wheels or those on the feed-shafts. For gigging back the carriage, the lever J is operated by means of the rod 3, and the wheel I is made to engage with the wheel H on the saw-shaft, and with the wheel K on the feed-shaft. This, it will be seen, reverses the motion of the feed-shaft, and moves the carriage back, and is done while the shaft O, with the friction-wheels thereon, is revolving, for these wheels do not affect the wheels on the feed-shaft, except when they are pressed thereto by the sawyer or by some other means. The wheel I acts simply as an "intermediate" in gigging back, and is disengaged immediately when that operation is accomplished.

W represents fulcrum-stands for the levers T and U, and X is the fulcrum-stand for the gig-lever J. The friction bevel-wheels are made mainly of iron, but may be faced with wood or with any other suitable material.

I do not confine myself strictly to saw-mill

feed-works in the application of my bevel friction-wheels, as they may be applied with great advantage to many other purposes.

I do not claim to be the first to employ friction-wheels in a feeding or gigging apparatus; but

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

1. The bevel friction-wheels H and I K and P, saw-shaft B, gig-shaft D, feed-shaft E, carrying-wheels P, Q, and R, the wheels L, M, and N, and shaft O and its friction-wheel, all constructed, arranged, and operating as shown and described.

2. The arrangement, in combination with bevel friction-wheels for feeding and gigging, as described, of the levers J T and U, and rods 1, 2, and 3, by means of which the sawyer may give the proper feed or change the feed, or gig back the carriage without changing his position, substantially as set forth.

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