

(No Model.)

W. E. HILL.

## STEAM FEED MECHANISM FOR SAW MILL CARRIAGES.

No. 370,058.

Patented Sept. 20, 1887.

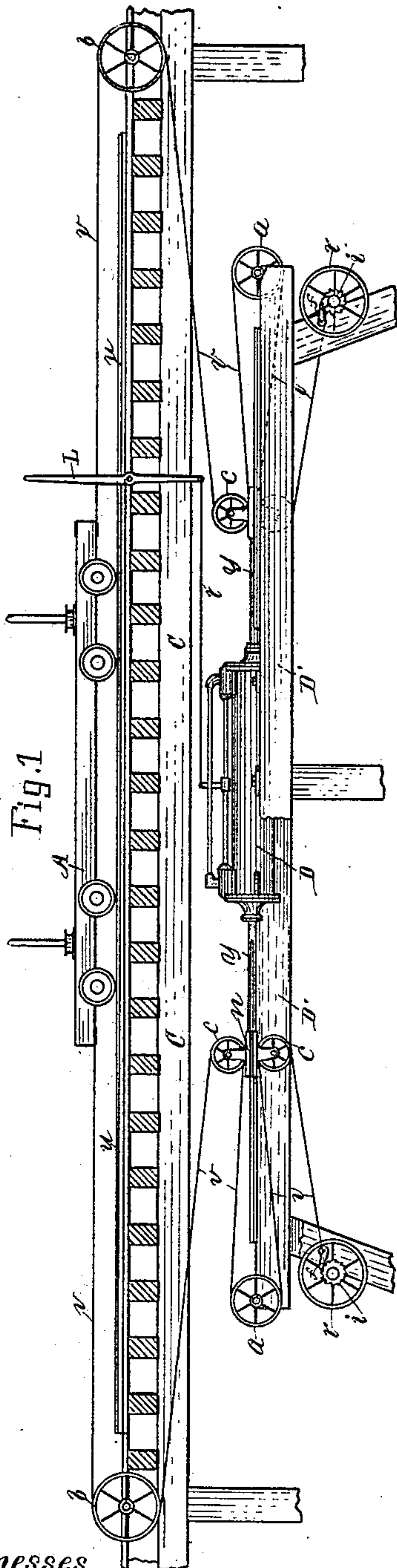


Fig. 1

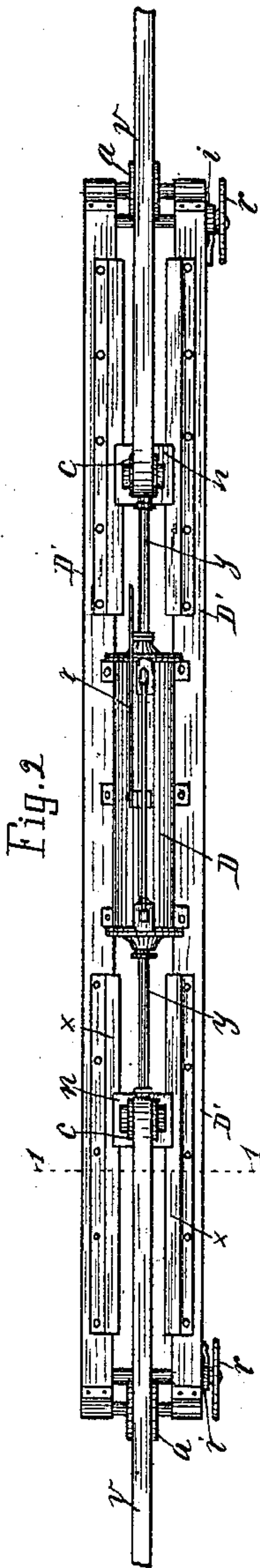


Fig. 2

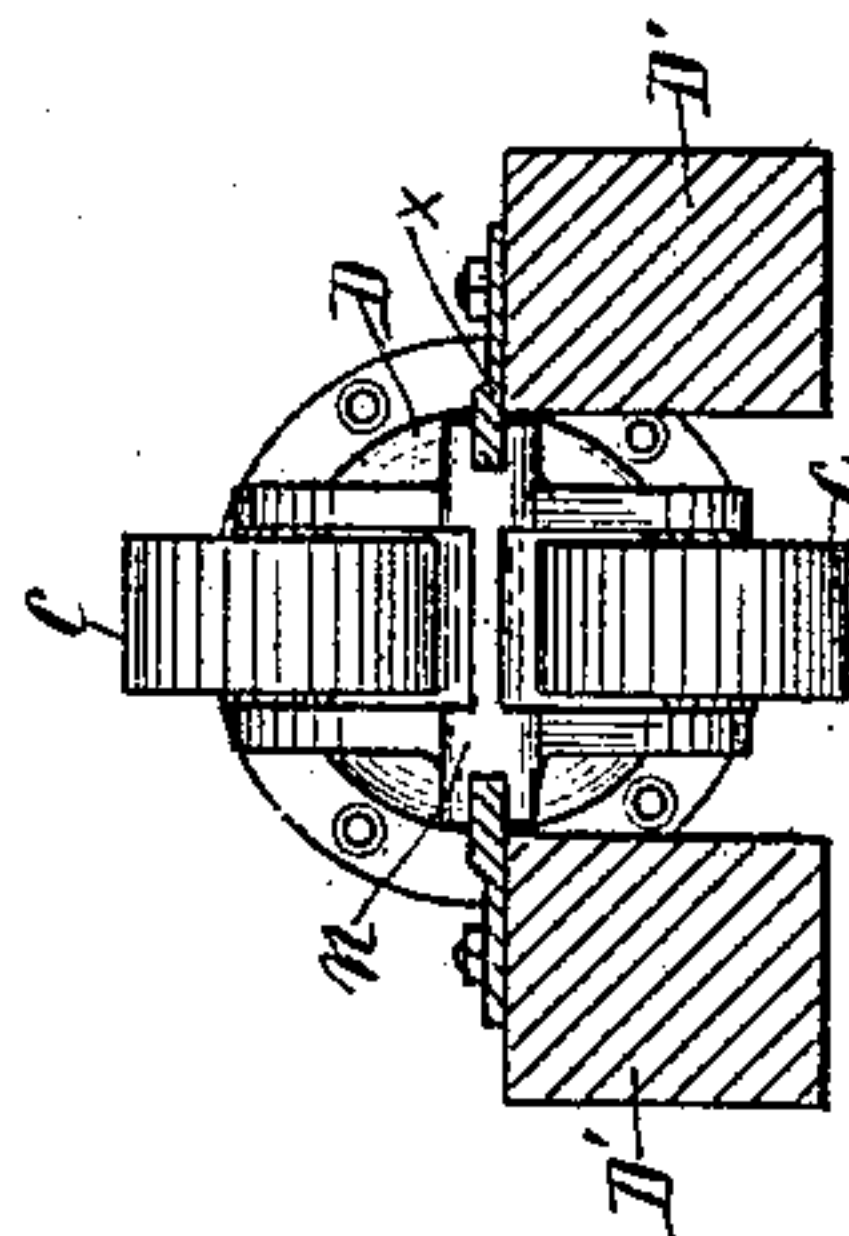


Fig. 3

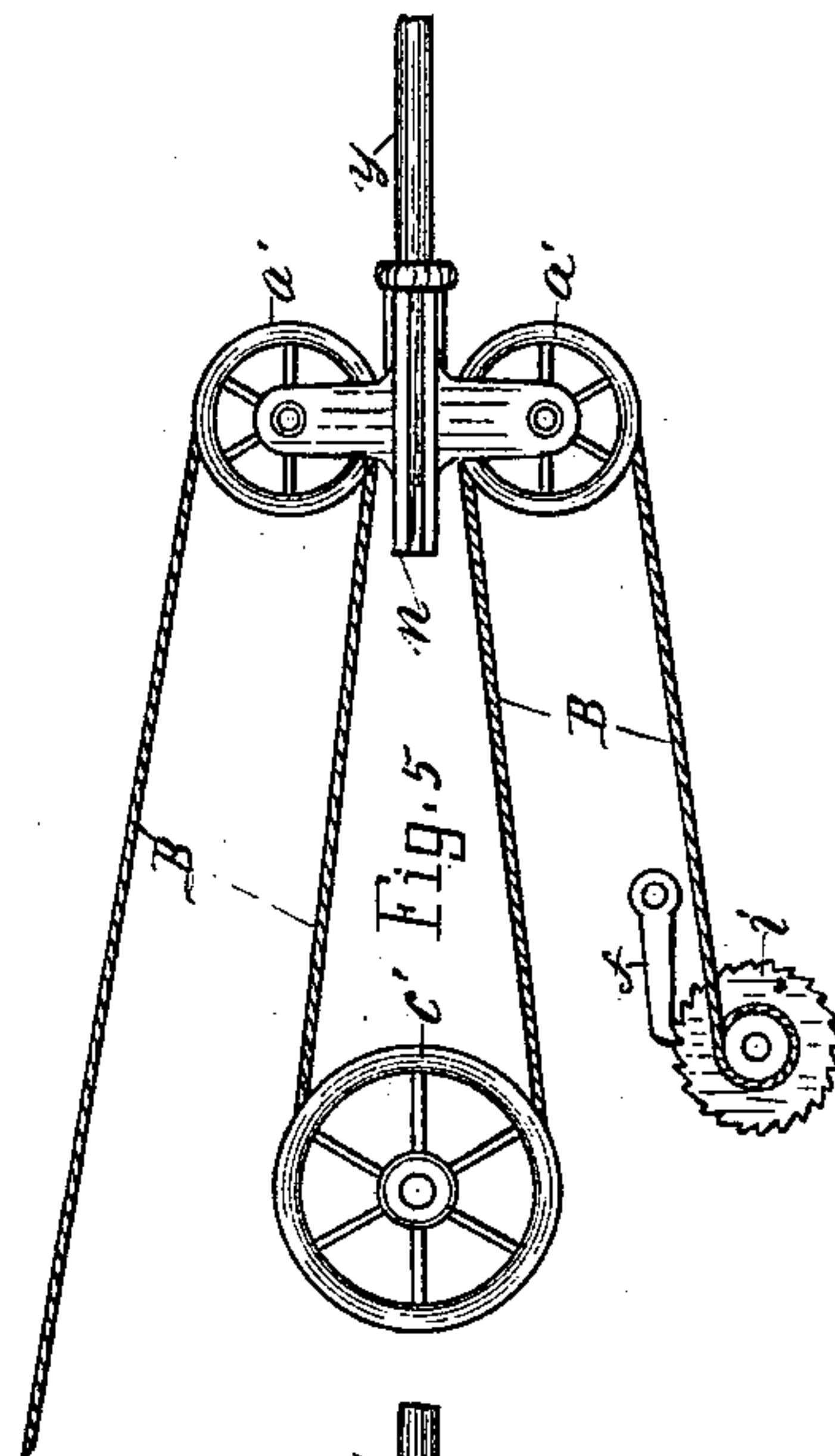


Fig. 5

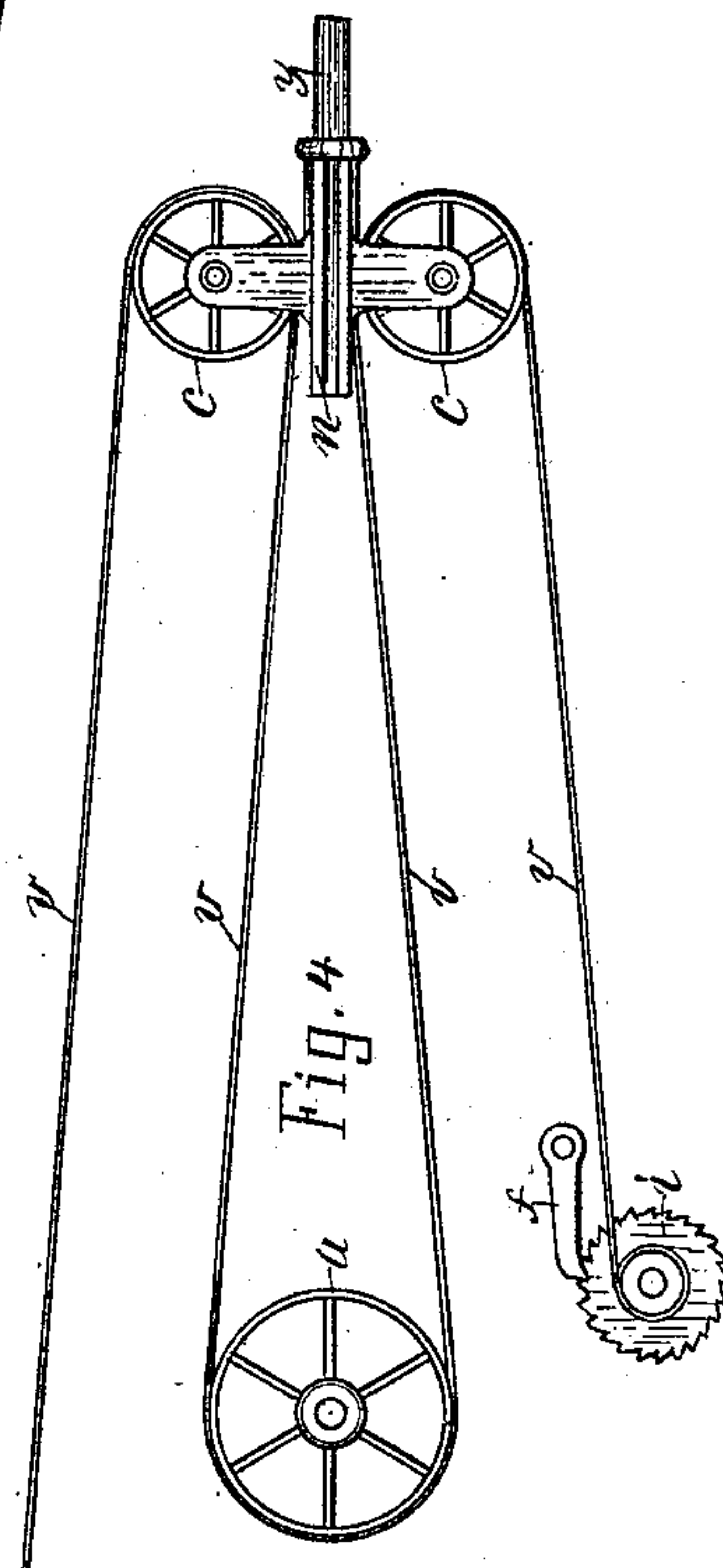


Fig. 4

Witnesses,

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Atty-



# UNITED STATES PATENT OFFICE.

WILLIAM E. HILL, OF KALAMAZOO, MICHIGAN.

## STEAM-FEED MECHANISM FOR SAW-MILL CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 370,058, dated September 20, 1887.

Application filed October 8, 1886. Serial No. 215,684. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. HILL, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Steam-Feed for Saw-Mills, of which the following is a specification.

This invention relates to log-carriages which are moved in opposite directions by means of a steam piston-rod and ropes or cables looped around pulleys; and it has for its object certain details of construction and arrangement of parts in combination, as below described and claimed.

In the drawings forming a part of this specification, Figure 1 is a side elevation showing the steam-cylinder, belts, and log-carriage and a mill-floor in section; Fig. 2, a plan of the portion in Fig. 1 which is beneath the mill-floor; Fig. 3, a cross-section, enlarged, on line 1 1 in Fig. 2, looking from a point at left of the latter-named figure; Fig. 4, an enlarged detail of lettered parts in Fig. 1; and Fig. 5 is the same, showing the use of a cable in lieu of a belt.

Referring to the lettered parts of the drawings, C is the mill floor; *u*, one of the rails of a log-carriage track; A, the log-carriage; and D' is a frame supporting the steam-cylinder D and belt-pulleys, below described, beneath the mill-floor. Of course it will be understood that this is the usual arrangement in saw-mills; but so far as this invention is concerned this does not matter further than for the purpose of illustrating the operation as applied to saw-mills.

The cylinder D here shown is so constructed that by operating the lever L, which is connected to the valve-rod by rod *t*, steam is let into either end of the cylinder at the will of the operator to throw the piston-rod *y* in either direction. There being nothing new in the cylinder D in this application, and as those skilled in the art will understand the operation from the above explanation, no further description need be given of the cylinder.

At each end of the carriage-track are pulleys *b*. To each end of the carriage A a belt, *v*, is attached, which belts pass over pulleys *b* and are attached to the ends of the piston-rod *y*, projecting from each end of the cylinder D.

Thus far described, when the piston-rod *y* is moved in one direction the carriage A would be drawn in the opposite direction by one of the belts *v*, and vice versa when the piston-rod is moved in the opposite direction. In such a construction the distance the carriage was drawn or propelled would correspond to the movement of the piston-rod, thus necessitating a long cylinder to secure a long movement of the carriage. While an arrangement of this kind is practical to a certain degree, I prefer the following-described plan: Each end of the piston-rod *y* has attached to it a cross-head, *n*, bearing an upper and lower pulley, *c c*. Beyond each end of the piston-rod *y* is a pulley, *a*, having stationary bearings in some suitable part of the mill-frame. The belts *v* are passed over the upper pulleys *c*, thence back upon themselves and over pulleys *a*, forward again over the lower pulleys *c*, and from thence are anchored to some fixed point. In the drawings the anchors consist in windlasses *r* with ratchet *i* and pawl *f*. By this means the belt may be slackened or tightened at will.

The reason that the folding of the belt around pulleys carried by the piston-rod *y* and around pulleys having a stationary bearing in this manner causes the carriage to be drawn a greater distance than the distance the piston-rod moves is explained as follows: Referring to Fig. 4, or to the same parts at left of Fig. 1, when the piston-rod moves to the right, carrying the pulleys *c c*, for instance, one foot, the lower branch of the belt *v* is made one foot longer, requiring a gain of two feet in the next branch above, three feet in the third, and four feet in the fourth. As the fourth branch goes on around pulley *b* and attaches to the carriage, it requires a movement of the carriage a distance of four feet to supply the needed addition of belt in the branches.

If one pulley *c* were attached to the piston-rod in lieu of two, the movement of the carriage would be greater than the piston-rod, but not as great as when two are employed. In some instances one pulley *c* may be used on each end piston. So these pulleys *c* may be increased in number, and also the pulleys *a*, or those having a stationary bearing, with a corresponding increase in the folds of the belt to make the contrast between the movement

of the piston and carriage greater; hence I do not limit the invention to any given number of pulleys and folds of the belt.

Fig. 5 shows a cable in lieu of belts. In this case, of course, the pulleys *c' a' a'* would be grooved.

Having thus described my invention, what I claim as new is—

In combination, a track, a pulley at each end of the track, the mill-frame, a log-carriage, a steam-cylinder having a piston-rod extended outward from each end of the cylinder, each end of the piston-rod being provided with the upper and lower pulleys, a pulley beyond each end of the piston-rod journaled on axles

attached to the mill-frame, and belts or cables attached to the ends of the carriage, looped around the track-pulleys, thence around the upper pulley of the piston-rod, back upon themselves and looped around the mill-frame pulleys, thence around the lower piston-rod pulleys, and the ends anchored to fixed supports, substantially as set forth.

In testimony of the foregoing I have hereunto subscribed my name in presence of two witnesses.

WILLIAM E. HILL.

Witnesses:

WM. TUTTLE,

PHILLIP P. SCHAU.