No. 714,879. Patented Dec. 2, 1902.

S. EDWARDS.

SAWMILL FEED WORKS.

(Application filed Oct. 5, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

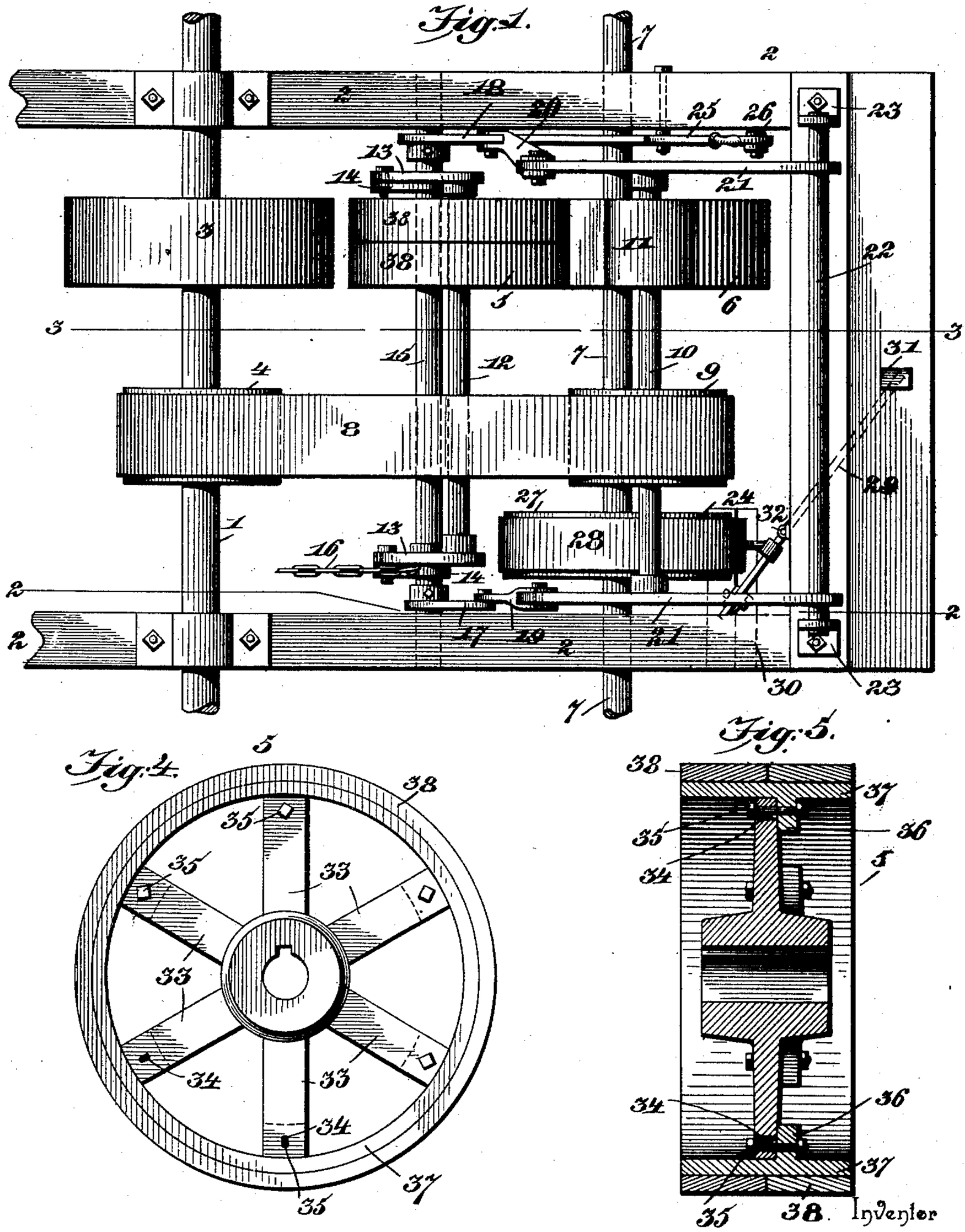

Fig. 4.

Fig. 5.

Inventor

Samuel Edwards

Witnesses

H. G. Dieterich

J. J. Riley

By his Attorneys,

C. A. Snow & Co.

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Fig: 2.

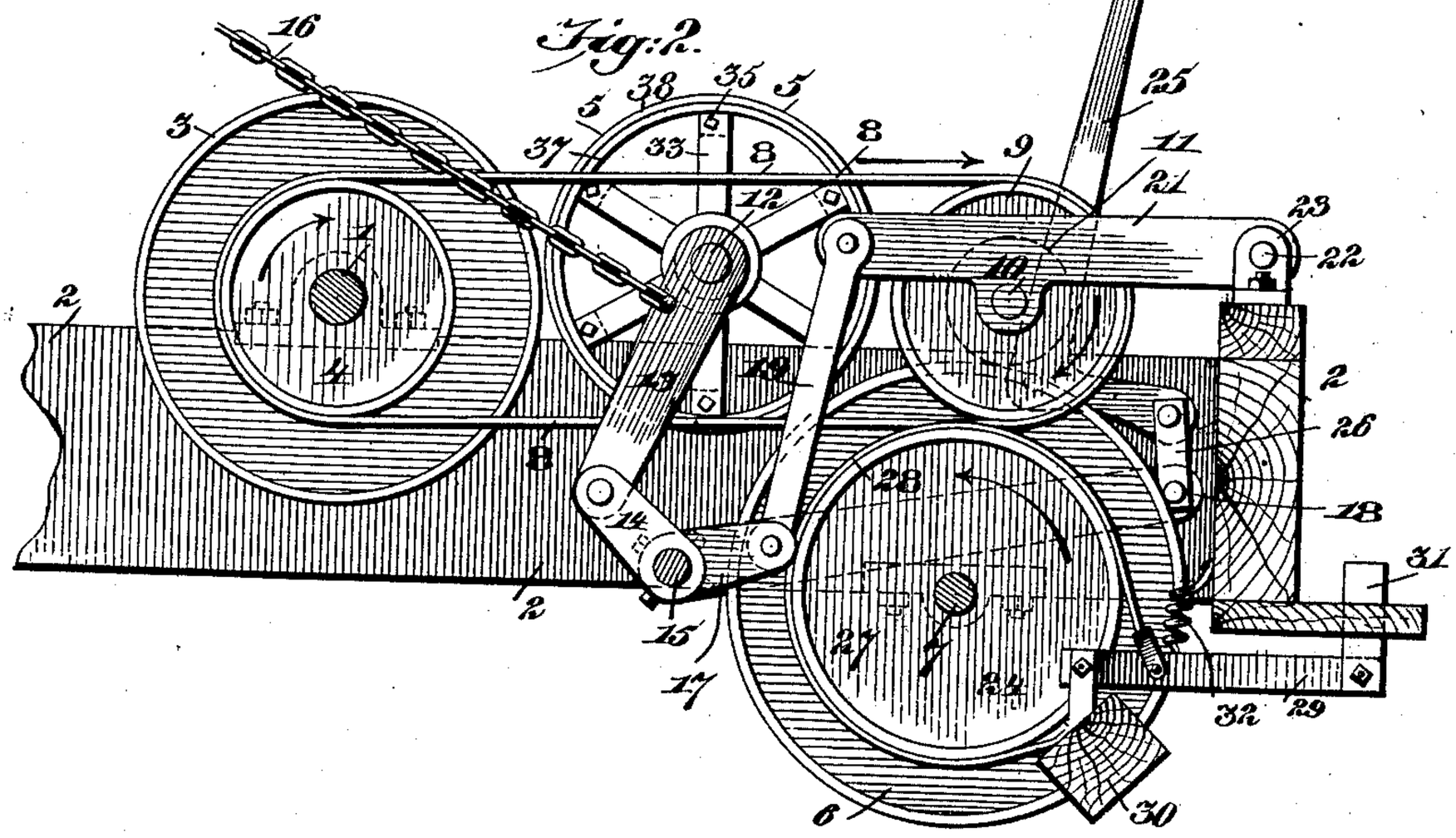
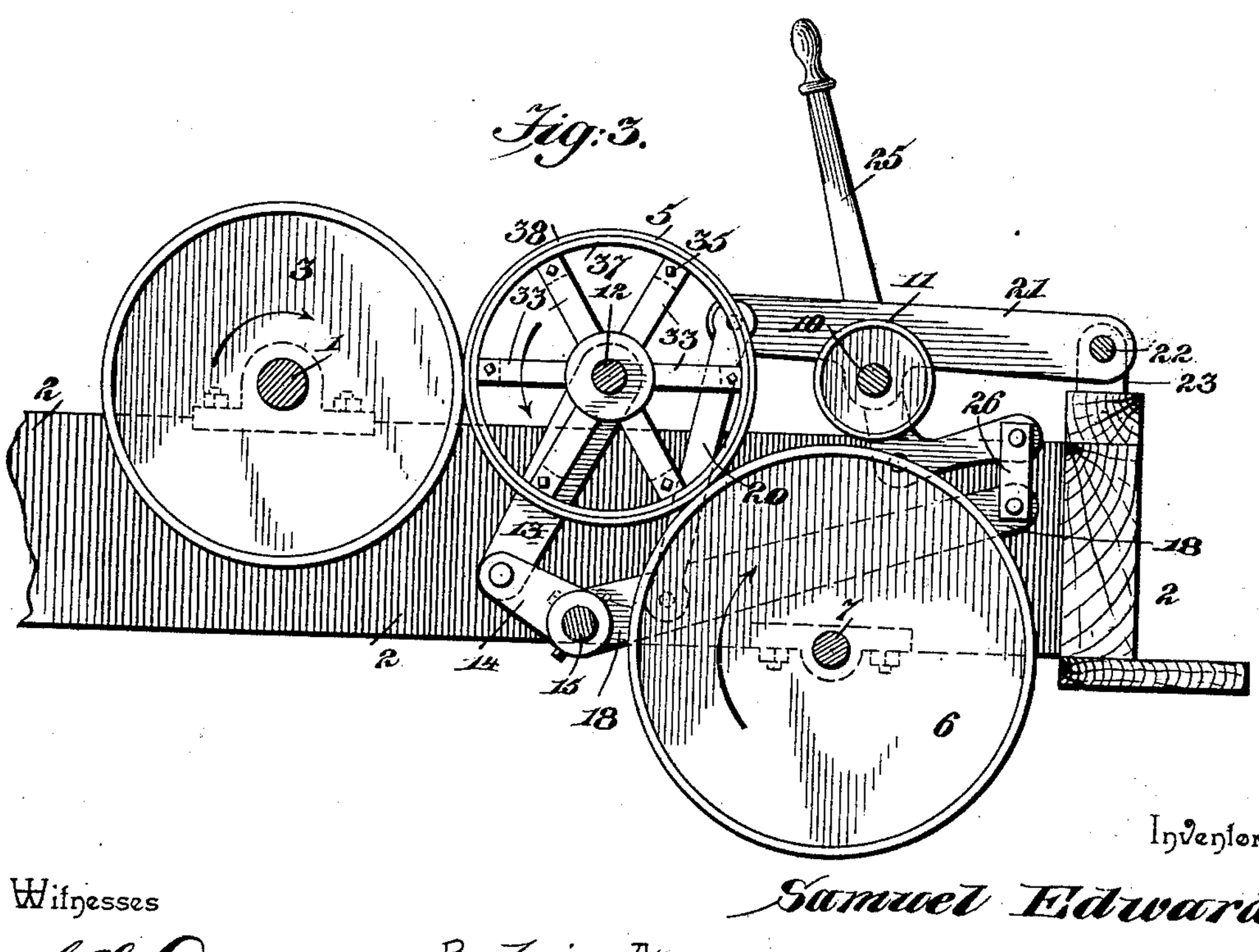


Fig: 3.



Witnesses

H. G. Dieterich

T. F. Riley

Inventor

Samuel Edwards

By his Attorneys,

Cachow & Co.

UNITED STATES PATENT OFFICE.

SAMUEL EDWARDS, OF CHARLESTON, WEST VIRGINIA.

SAWMILL FEED-WORKS.

SPECIFICATION forming part of Letters Patent No. 714,879, dated December 2, 1902.

Application filed October 5, 1901. Serial No. 77,742. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL EDWARDS, a citizen of the United States, residing at Charleston, in the county of Kanawha and State of West Virginia, have invented a new and useful Sawmill Feed-Works, of which the following is a specification.

The invention relates to improvements in sawmill-carriages.

The object of the present invention is to improve the construction of sawmill-carriages, more especially that class of feed mechanism employing a train of friction-wheels for transmitting motion from the saw mandrel or shaft to the axle or shaft upon which the carrying-wheels are mounted and to enable a sawmill-carriage to be easily handled with great speed and to be quickly stopped before reversing the frictional gearing, whereby the latter is relieved of much wear and great heat.

A further object of the invention is to enable the frictional gearing to be readily adjusted to take up the wear and secure the proper frictional engagement.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a plan view of a portion of a sawmill-carriage constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view on line 2 2 of Fig. 1. Fig. 3 is a similar view on line 3 3 of Fig. 1. Figs. 4 and 5 are detail views of the expansible friction-wheel for reversing the sawmill-carriage.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a saw mandrel or shaft journaled in suitable bearings of a sawmill-carriage frame 2 and carrying a friction-wheel 3 and a pulley 4, which are keyed or otherwise fixed to the saw shaft or mandrel 1. The friction-wheel 3 of the saw shaft or mandrel 1 is designed to communicate motion through an intermediate friction-wheel 5 to a friction-wheel 6 of a feed shaft or axle 7, and the pulley 4 is connected by a belt 8 with a pulley 9 of a shaft 10, which carries a small friction-wheel 11, adapted to communicate motion to the said friction-wheel 6 to rotate the shaft or axle 7 in the opposite direction to the rotation imparted to it by the intermediate frictional gear-wheel 5. The small gear-wheel 11 produces a forward rotation of the friction-wheel 6, as indicated by the arrow in Fig. 2 of the accompanying drawings, and the intermediate gear-wheel produces a rapid backward movement of the sawmill-carriage, as illustrated by the arrow in Fig. 3 of the accompanying drawings. The intermediate frictional gear-wheel 5 is mounted on a shaft 12, which is supported by link-bars 13 and which is capable of upward and downward movement to carry it into engagement with the frictional gear-wheels 3 and 6 and to disengage it from them. The link-bars 13, which are disposed at an inclination, are connected at their upper terminals to the shaft 12, and their lower ends are pivoted to a pair of forwardly-extending arms 14 of a rock-shaft 15. The shaft 12 is also supported by a stay-chain 16, extending upward from and connected to one of the links 13. The rock-shaft 15 is also provided with a pair of rearwardly-disposed arms 17 and 18, which are connected by link-bars 19 and 20, and with a pair of substantially horizontally disposed levers 21. The levers 21, which extend longitudinally of the sawmill-carriage frame and which are located at opposite sides thereof, are fulcrumed at their rear ends on a transverse rod 22 and carry the shaft 10, upon which the pulley 9 and the frictional wheel 11 are mounted. The rod 22, which is located at the rear end of the sawmill-carriage frame, extends entirely across the same and is mounted in suitable bearing-brackets 23.

When the shaft 15 is rocked, the wheels 5 and 11 are moved in opposite directions to carry one of them into engagement with the friction-wheel 6 and the other one out of engagement with the same, and the said wheels 5 and 11 are also adapted to be stopped at an intermediate point to hold both of them out of such engagement, so that the sawmill-carriage can be completely stopped by a band-brake 24 before the gear is applied to reverse its motion, thereby preventing great wear and heat of the parts.

The feed mechanism is operated by an L-shaped or bell-crank hand-lever 25, fulcrumed

at its angle and connected by links 26 with the arm 18 of the rock-shaft 15. The arm 18 is extended beyond the adjacent link-bar 20, and the latter is slightly bent to offset the lever 21 from the adjacent side beam of the sawmill-carriage frame to provide a sufficient space for the operating-lever 25. The band-brake 24 comprises a brake-wheel 27, fixed to the shaft 7, a strap or band 28, which engages the periphery of the brake-wheel 27, and a foot-lever 29, which is connected with one end of the strap or band. One end of the strap or band 28 is connected with a suitable support 30, upon which the foot-lever is fulcrumed, and the latter is disposed diagonally across one corner of the rear end of the sawmill-carriage frame and has a vertical arm or foot-piece 31 extending upward through the rear step of the sawmill-carriage frame and adapted to be engaged by the foot of the operator. The band is normally held off the brake-wheel by a spring 32, connected with the lever and with the sawmill-carriage frame.

In order to permit the intermediate frictional gear-wheel 5, which engages both the wheels 3 and 6, to expand and contract without cracking or otherwise injuring it, its rim is constructed separate from the spokes and is secured to the same by a slot-and-pin connection. The spokes 33 are formed integral with the hub and are provided at their outer ends with longitudinal slots 34, receiving bolts 35, which pass through lugs 36 of the rim. The rim is composed of inner and outer sections 37 and 38. The inner section is preferably constructed of cast metal and has the lugs 36 formed integral with it, and the outer section 38 is composed of two portions, as illustrated in Fig. 5 of the accompanying drawings, and is constructed of wrought metal. The outer section 38 of the rim is shrunk on the inner section and is suitably riveted to the same and greatly protects the inner section or rim proper. The slots 34 permit the rim to expand and contract without straining the spokes and without liability of cracking or otherwise injuring the parts of the wheel.

The other wheels may be constructed in any suitable manner to obtain the necessary degree of hardness to enable them to withstand the wear and also to secure the necessary cheapness of construction. When the friction-wheels have become worn, the wear may be readily taken up by adjusting or changing the position of the arms of the rock-shaft, and these arms are provided with clamping-screws for engaging the shaft 15.

It will be seen that the feed mechanism is easily held and will enable a sawmill-carriage to be rapidly operated and that much of the wear and heat incident to frictional gearing is obviated by enabling the sawmill-carriage to be completely stopped before changing the gearing to reverse the motion of the carriage. It will also be seen that the frictional gear-wheel, which is subjected to the greatest friction, is permitted to expand and contract freely and that its durability is thereby greatly increased. The links 13 support the friction-wheel 5 entirely independent of the horizontal levers 21 and permit the said friction-wheel 5 to exactly equalize its pressure on the wheels 3 and 6.

The feed mechanism is adapted for sawmill-carriages having circular saws and also those which operate in conjunction with band-saws, and I desire it to be understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

What I claim is—

1. In a sawmill-carriage, the combination of a sawmill-carriage frame, friction-wheels 3 and 6, horizontal levers located above the friction-wheel 6 and fulcrumed at their outer ends and connected together, a friction-wheel 11 carried by the horizontal levers and arranged to engage the friction-wheel 6, a friction-wheel 5, located above the friction-wheel 6 and arranged to engage the same and the friction-wheel 3, links arranged approximately parallel and connected at their upper ends with the horizontal levers and with the friction-wheel 5 and supporting the latter entirely independent of the said levers and permitting the friction-wheel 5 to exactly equalize its pressure on the wheels 3 and 6, operating mechanism connected with the lower ends of the links for moving the same in opposite directions, and means for driving the friction-wheels 5 and 11, substantially as described.

2. In a sawmill-carriage, the combination of a sawmill-carriage frame, friction-wheels 3 and 6, horizontal levers located above the friction-wheel 6 and fulcrumed at their outer ends, a friction-wheel 11 carried by the horizontal levers and located at a point between the ends of the same, a friction-wheel 5 located above the friction-wheel 6 and arranged to engage the same and the friction-wheel 3, upright links arranged approximately parallel and connected at their upper ends with the inner ends of the levers and with the friction-wheel 5 and supporting the latter entirely independent of the levers and permitting the friction-wheel 5 to exactly equalize its pressure on the wheels 3 and 6, a rock-shaft provided with oppositely-disposed arms connected with the lower ends of the links, means for operating the rock-shaft, and means for driving the friction-wheels 5 and 11, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SAMUEL EDWARDS.

Witnesses:
ADAM B. LITTLEPAGE,
E. A. BOONE.