

(No Model.)

S. R. SMITH.
SAW MILL CARRIAGE.

No. 376,050.

Patented Jan. 3, 1888.

Fig. 1.

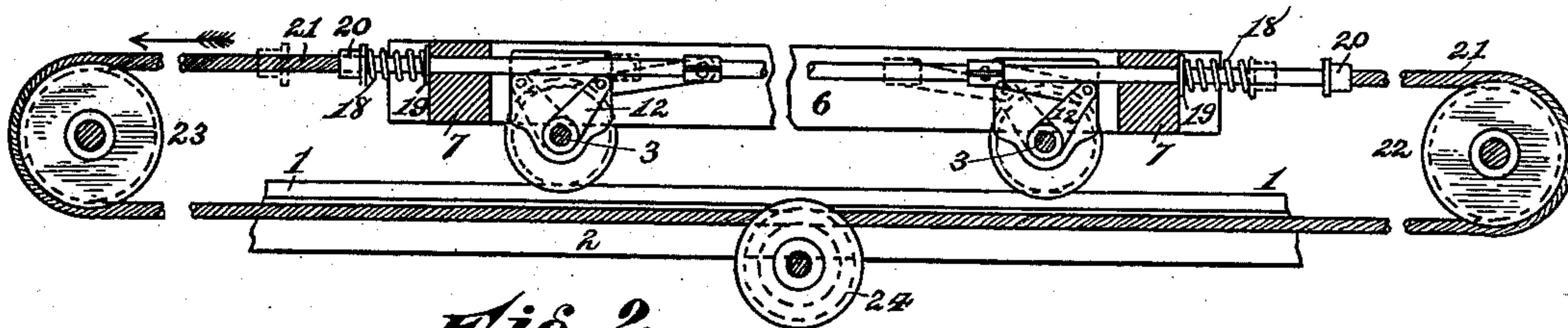


Fig. 2.

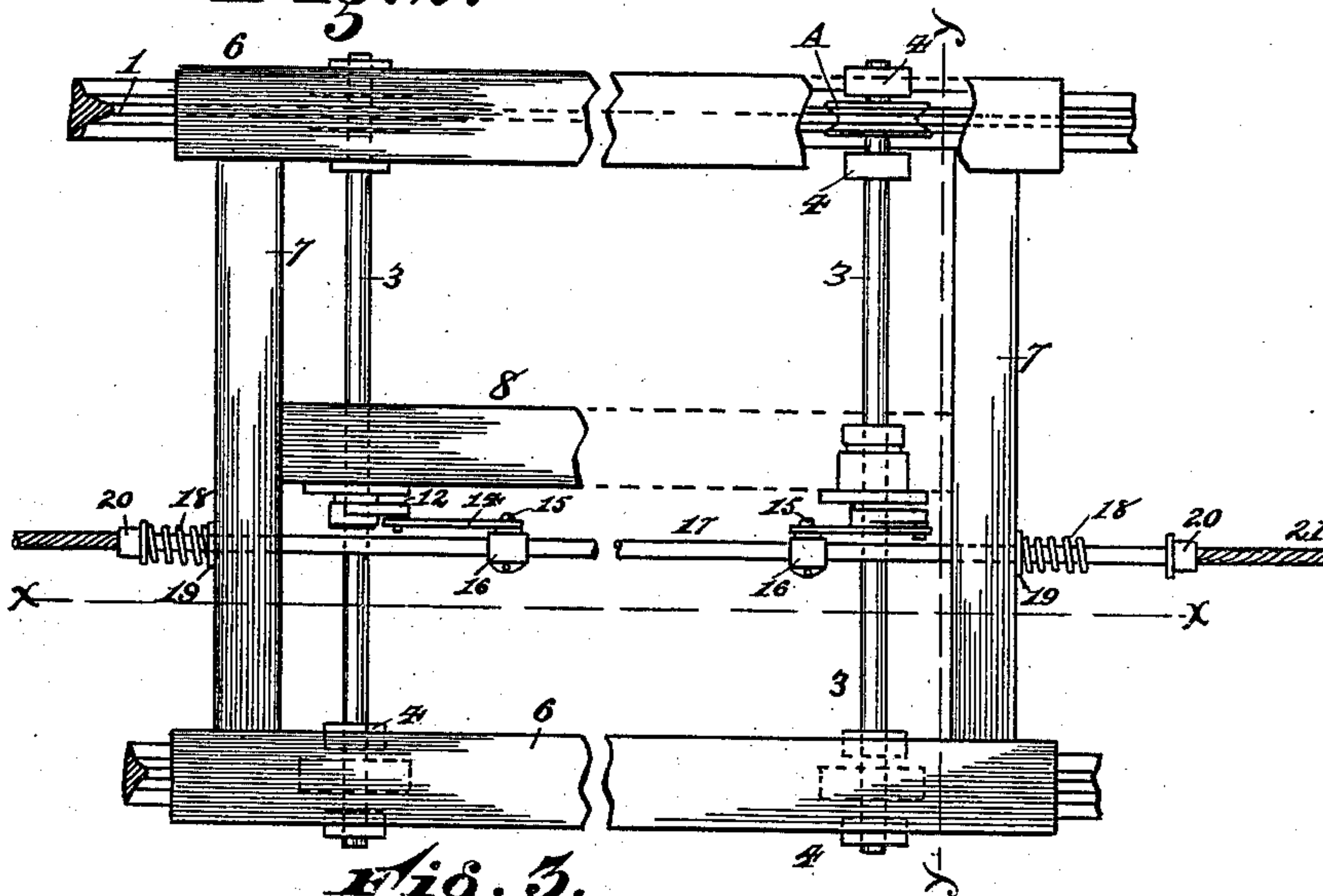


Fig. 3.

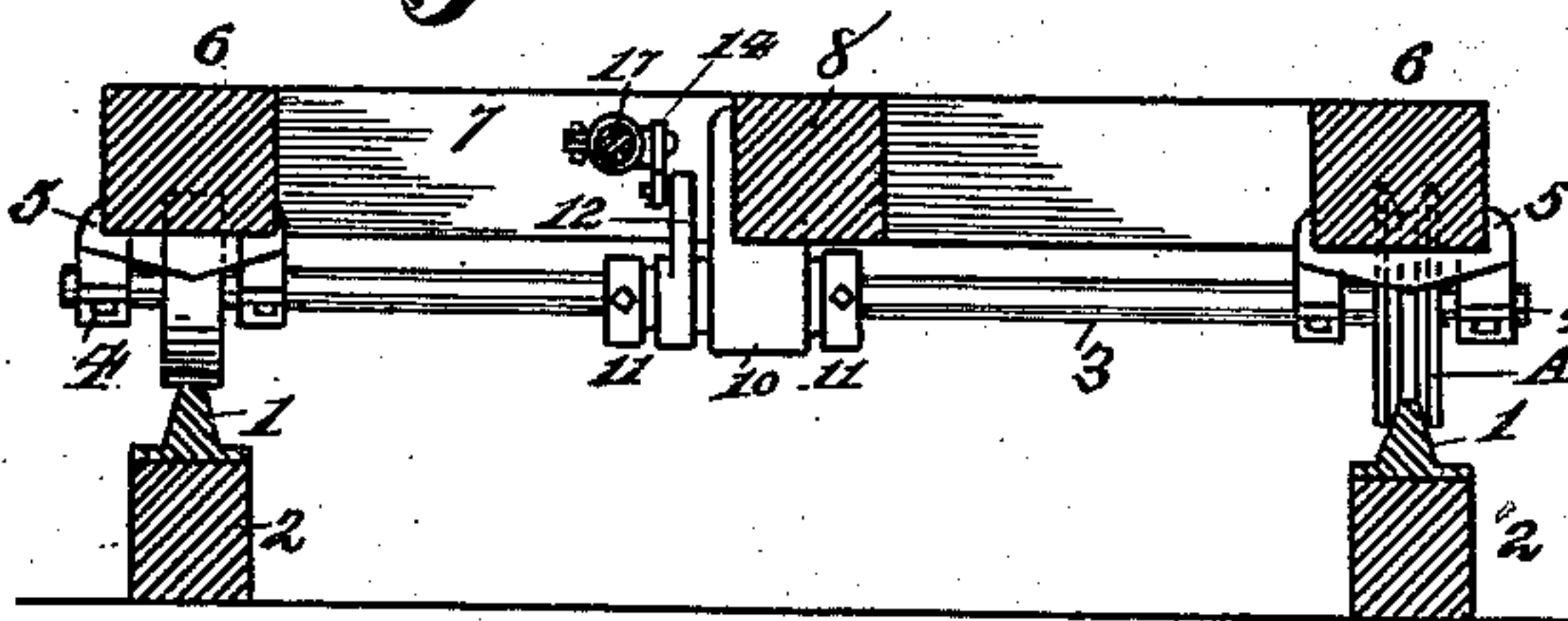


Fig. 5.

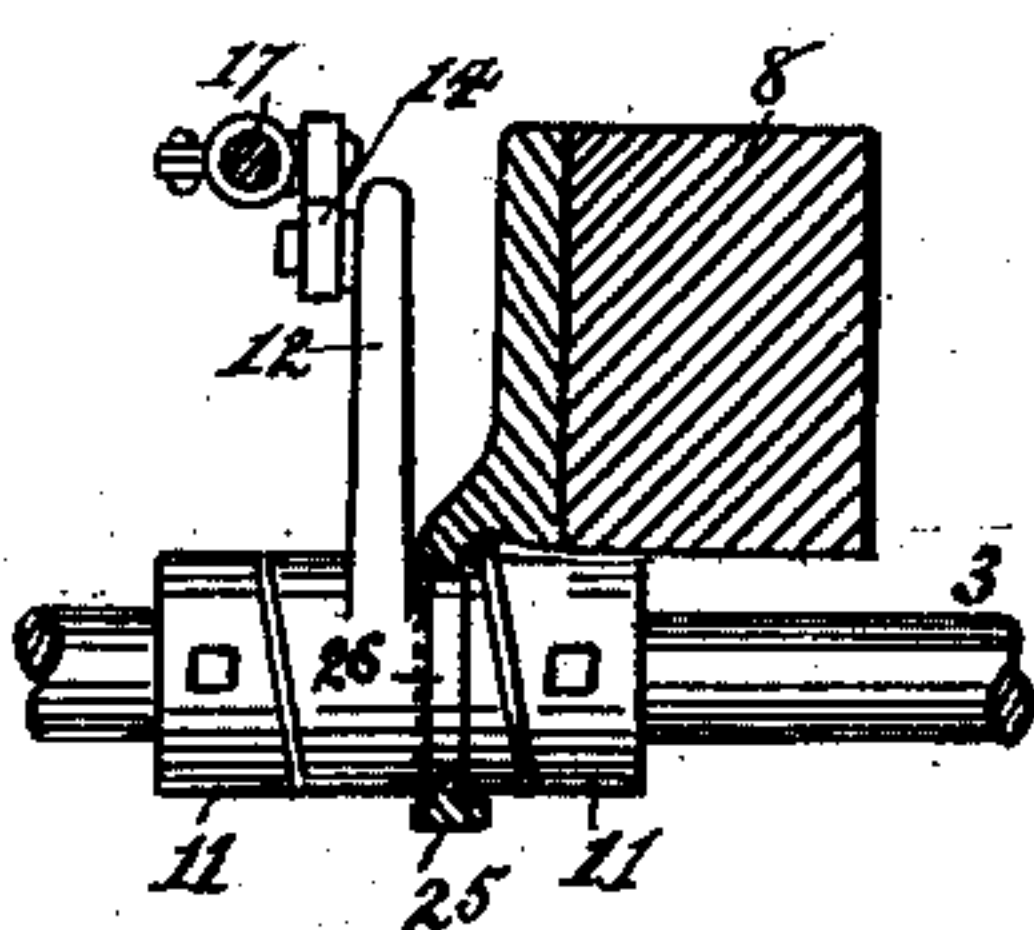
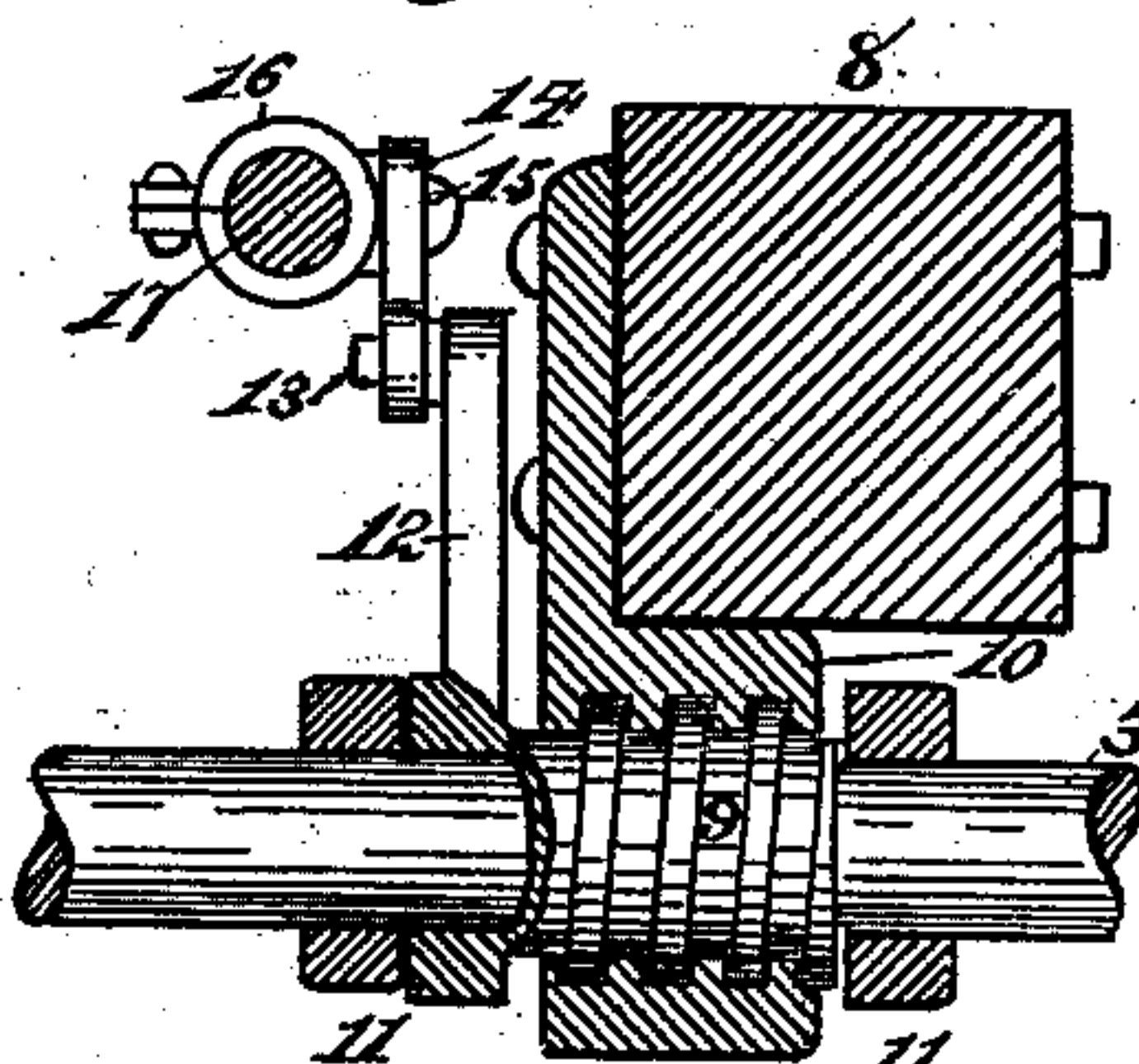


Fig. 4.



Attest

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UNITED STATES PATENT OFFICE.

SAMUEL R. SMITH, OF CINCINNATI, OHIO, ASSIGNOR TO SMITH, MYERS & SCHNIER, OF SAME PLACE.

SAW-MILL CARRIAGE.

SPECIFICATION forming part of Letters Patent No. 376,050, dated January 3, 1888.

Application filed November 9, 1886. Serial No. 218,408. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL R. SMITH, a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Saw-Mill Carriages, of which the following is a specification.

My invention relates to an automatic mode of shifting a saw-mill carriage laterally a slight distance away from the saw when it has passed the limit of the log to be sawed, and just after the return movement, by means of mechanism, to bring it back to its original position, ready for a second setting of the log by the head-block.

The object of my invention is, first, to allow the log and carriage to be moved laterally after the cut has been made by the saw without having the log come in contact with the teeth of the saw and causing it to chatter or vibrate on its return movement. This allows the carriage to be retracted rapidly without dulling or injuring the set of the teeth and without injuring the lumber.

Another object is in moving the log laterally away from the saw to prevent the liability of the back edge of the saw from catching splinters and tearing the lumber on the return or backward movement of the log and carriage, all of which will be fully set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal vertical section on line *x x*, Fig. 2, of my improvement. Fig. 2 is a top plan view of my improved carriage and shifting apparatus. Fig. 3 is a vertical section on line *y y*, Fig. 2. Fig. 4 is an enlarged detail view of the shifting devices. Fig. 5 represents a modification showing the use of a cam in place of the screw for shifting the carriage.

1 represents tracks on which the carriage runs.

2 represents the sills on which the track is placed.

I have shown two axles, 3, which is the preferred number for a saw-mill carriage, but more may be employed. These axles are constructed so as to have the carriage move laterally by the sliding of the journals on the

axles, and thereby shift the log away from the saw by the following instrumentalities:

4 represents journal-boxes forming bearings for the axles 3.

5 represents saddles rigidly secured to the journal-boxes 4, and forming a base on which the sills 6 rest and by which they are supported.

7 represents cross-girders rigidly attached to the sills 6.

8 represents a center sill.

The axles 3 are adapted to move laterally in the journal-boxes. This is accomplished by means of a screw-threaded sleeve, 9, and a sleeve-nut, 10.

11 represents collars adjustably connected by set-screws to each of the axles 3, and between which the sleeve-nut 10 moves. The screw-sleeve 9 is held from lateral movement by means of the collars 11, and the sleeve-nut 10 is made sufficiently short to allow of the desired lateral movement between the collars 11 and the crank-arms 12, each of which are provided with crank-pins 13, which journal in a link, 14, pivoted upon centers or stud-pins 15, which project laterally from the collars 16, that are rigidly secured to the shifting-rod 17.

18 represents a coiled spring, one end of which seats against the collar 19, that is attached to the cross-girders 7. 20 represents stop or compressing collars which receive the outer ends of the spring 18.

21 represents an endless rope rigidly secured to the collars 20.

22 23 represent idler-pulleys at each end of the carriage, over which the rope 21 passes, and thence around a driving-pulley, 24. The carriage is moved or driven by this driving-pulley 24 and the rope 21.

Mode of operation.—The parts operate in the following manner: The driving-pulley 24 winds the rope 21 around it, as it is driven, and draws the carriage—say first to the left for its forward movement—until it has nearly reached the limit of its motion, when the spring 18 strikes against the compressing-collar 20, which slackens the motion and cushions the stopping of the carriage, thereby taking off the shock or jar which would be caused by a sudden stop. As

the spring 18 commences to be retracted by the collar 20, the shifting-rod 17 is drawn by the contraction of the spring, and with it the links 14 and cranks 12 are moved, thereby turning the threaded rod 9 in the sleeve-nut 10. This movement of the screw-threaded collars 9 in one direction moves the sleeve-nut 10 in the opposite direction, thereby imparting a lateral movement to the central sill, 8, and with it the entire carriage, which is supported by the journal-boxes 4 of the axles 3, so that the log and the carriage are bodily shifted laterally on the axles 3 by the movement of the crank-arms 12 and links 14. When the movement of the driving-pulley 24 is reversed—say, to carry the carriage backward ready for a second cutting of the log—the screws and collars will work in a similar manner, pulling the shifting-rod 17 in the opposite direction, reversing the movement of the crank-arms 12 and links 14, and consequently bringing the carriage, sliding on the axles 3, back to its normal position ready for a second cutting.

I have not shown the methods of adjusting the collars 20 upon the rope 21, as this may be done by any well-known means of regulating the adjustment of the carriage to the movement of lateral play required. Neither have I shown the method of limiting the forward movement of the carriage, as any well-known means of stopping the movement by controlling the number of revolutions of the driving-pulley 24 may be employed.

The means employed for guiding the carriage on the track are grooved trucks A upon one side of the carriage, which fit a similarly-shaped rail, 1.

Another feature of my invention consists in the use of the adjustable collars 11 to take up lost motion laterally of the carriage on its tracks. The collars 11, being adjustably connected to the axles 3, may be moved laterally on the axles to any desired fixed position, thereby taking up lost motion occasioned by the wear of the trucks, tracks, and other parts. This method of taking up the wear by means of the adjustable collars 11 is a very important improvement, as it prevents lost motion, and hence a uniformity of cutting is secured by the adjustment.

In Fig. 5 I have shown a cam-sleeve, 12, with a cam upon one of its faces, and one of the adjustable collars 11 provided with a counterpart cam-extension, and a lug, 25, on arm

10, engaging in an annular groove, 26, cut in sleeve 12, for laterally moving the axles in their journal-boxes. This modification is not as good as the screw and thread, as it is liable to fill with dust, and the frictional wear causes more lost motion; but this will work comparatively well because of the take-up allowed by the collars 11.

I do not herein claim, broadly, the combination, in a saw-mill carriage, of the supporting wheels and axles, the log-supporting frame laterally adjustable thereon with reference to the line of travel of said carriage, screws mounted upon the axles and working in internally-screw-threaded boxes, which are secured to said frame, and mechanism for operating said screws.

I claim—

1. The combination, with a saw-carriage and its axles, of an endless driving-rope for moving the carriage back and forth, the screw-and-nut mechanism on the axle, the shifting-rod, and the crank-arm connected therewith and with the screw-and-nut mechanism, substantially as described.

2. The combination of a saw-mill carriage mounted upon axles by moving bearings rigidly secured to the frame-work of the carriage, of the driving-rope, the shifting rod, the spring attached to the rope and rod, the slidable collar, the screw-and-nut mechanism on the axle, and the crank-arm connected with the shifting-rod and the screw-and-nut mechanism, substantially as described.

3. The combination, with a saw-mill carriage and its axles, of the endless carrier, the shifting-rod, the screw-and-nut mechanism on the axle, connections between the shifting-rod and the screw-and-nut mechanism, and the adjustable collars 11 on the axle for taking up lost motion, substantially as described.

4. The combination, with a laterally-movable saw-mill carriage, the driving-rope, the shifting-rod, a laterally-moving power device on the axle, the crank-arm 12, and a connection between said crank-arm and shifting-rod, substantially as described.

In testimony whereof I have hereunto set my hand this 1st day of November, 1886.

SAMUEL R. SMITH.

Witnesses:

E. G. WOOD,
ROBERT ZAHNER.