

(No Model.)

W. J. HENDERSON.  
REVERSING GEAR FOR SAW MILL CARRIAGES.

No. 440,152.

Patented Nov. 11, 1890.

Fig. 1.

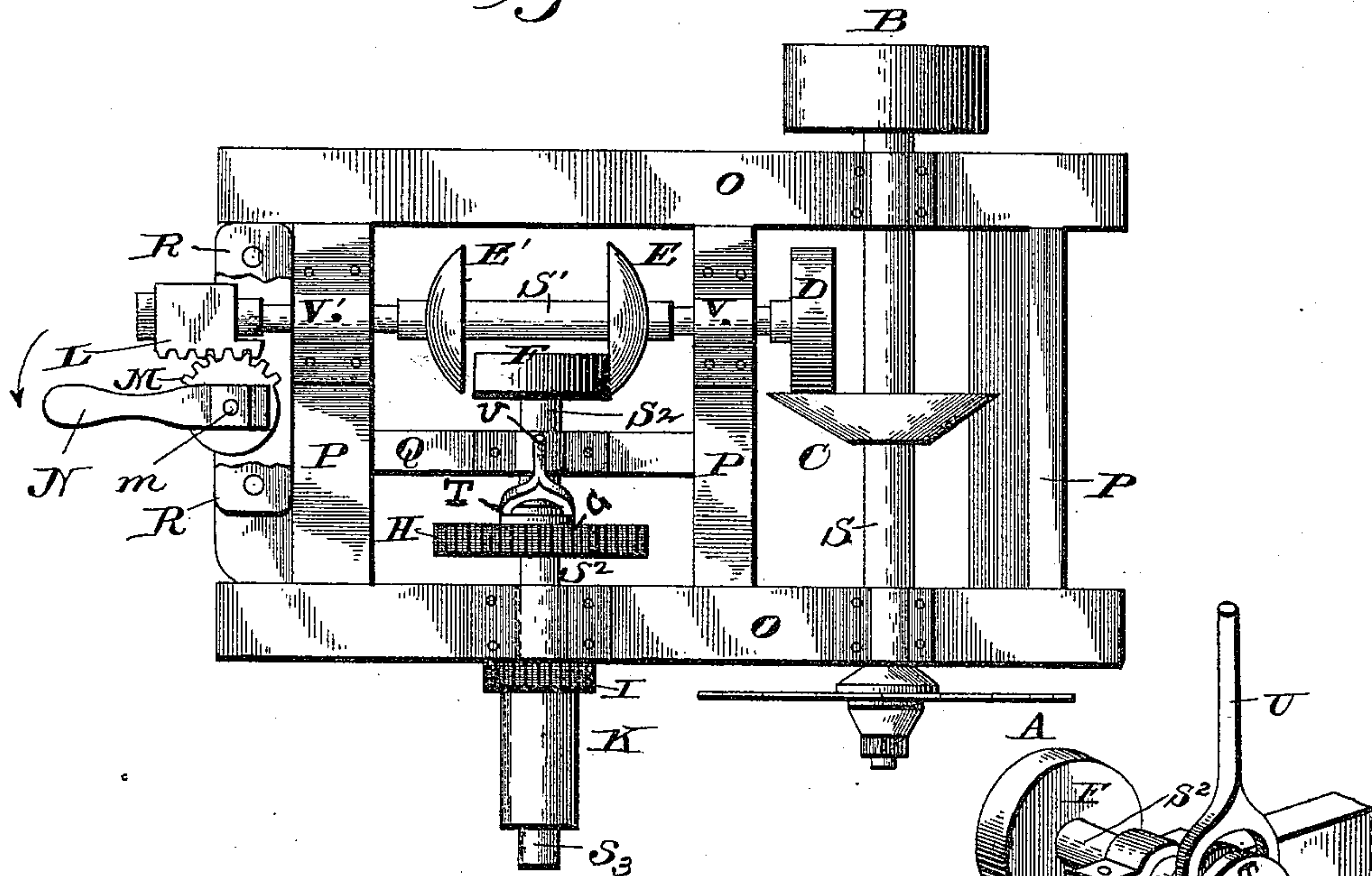


Fig. 3.

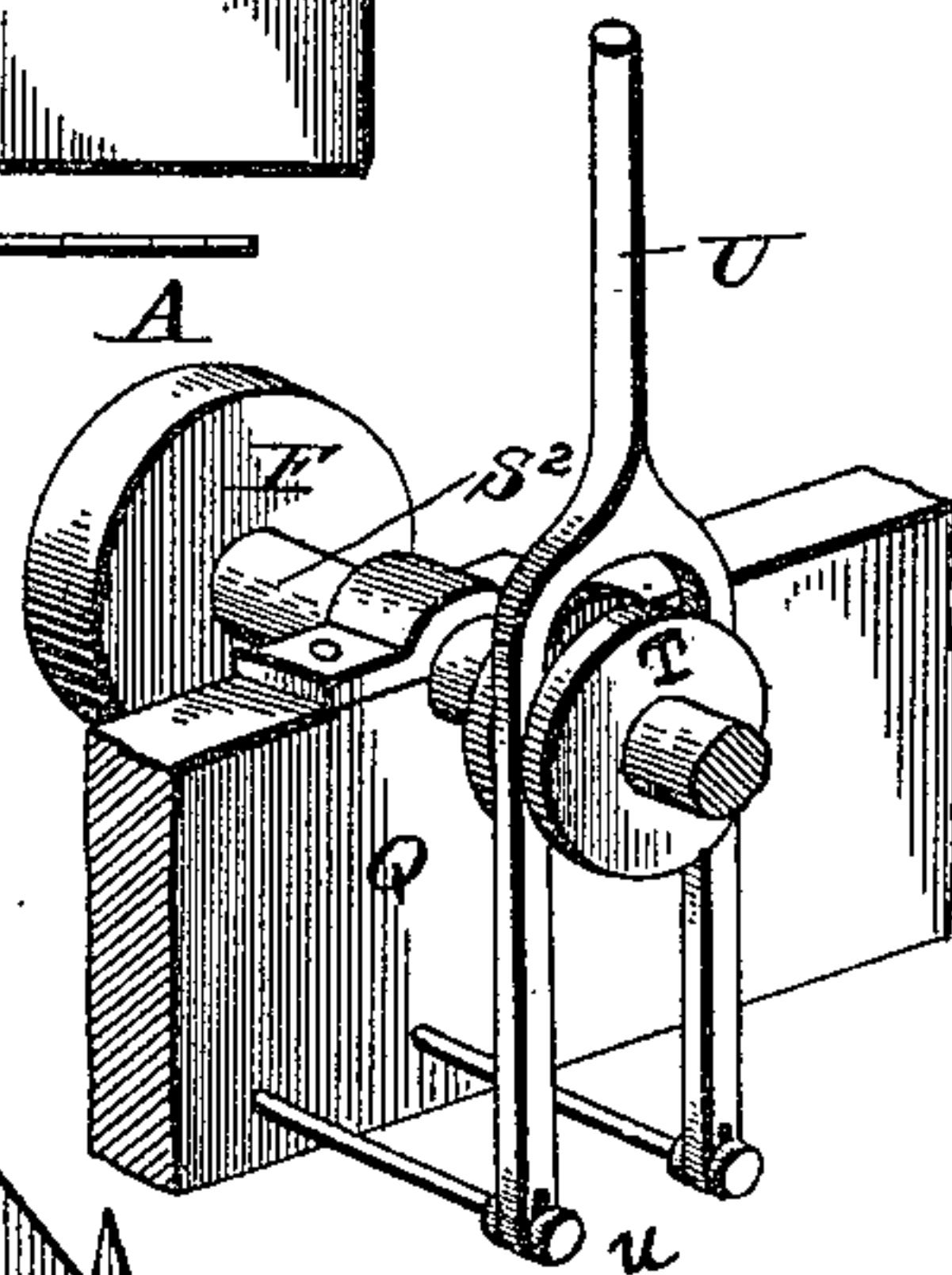
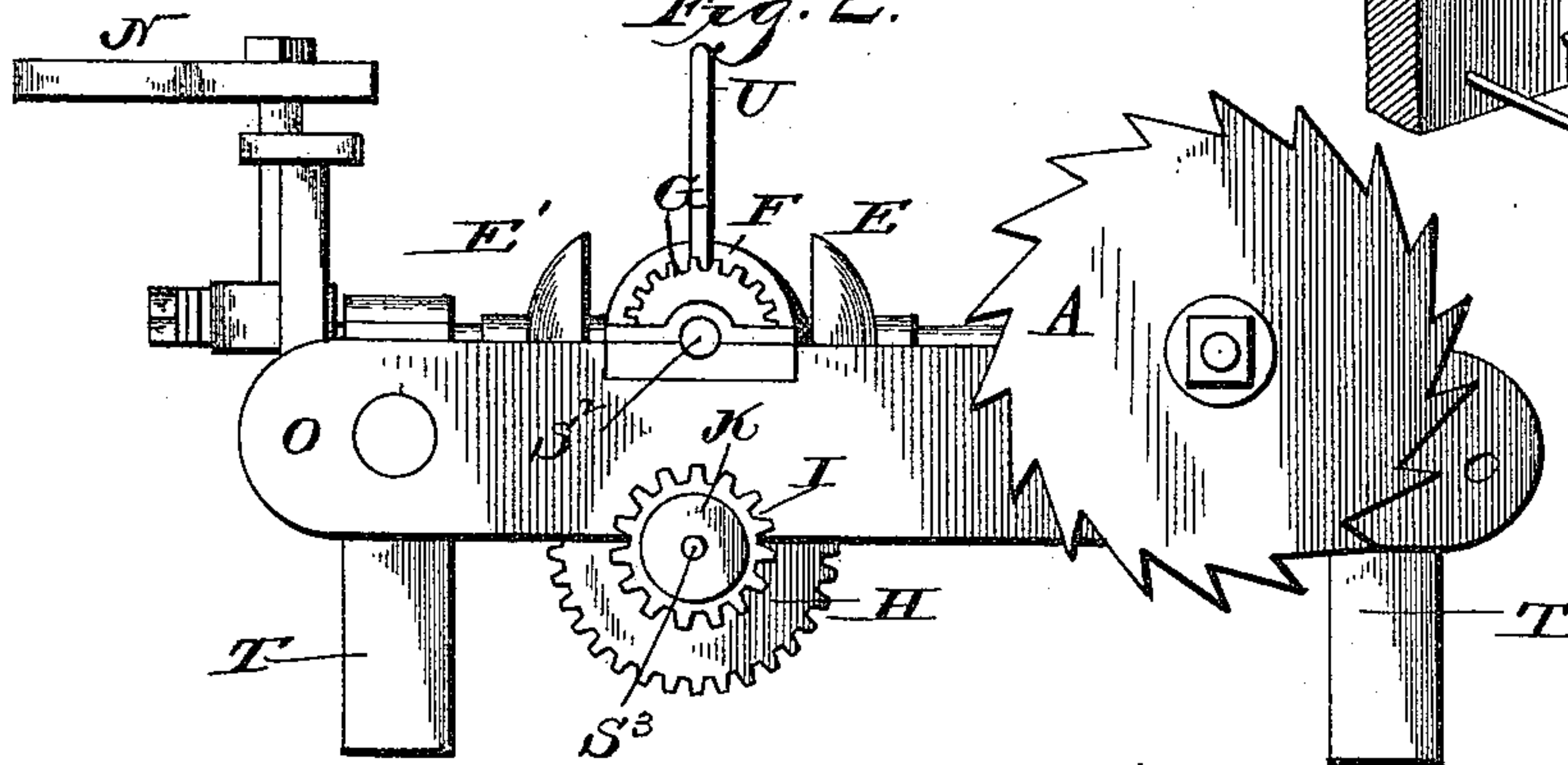


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## REVERSING-GEAR FOR SAW-MILL CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 440,152, dated November 11, 1890.

Application filed August 8, 1890. Serial No. 361,419. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM JACKSON HENDERSON, a citizen of the United States, residing at Sycamore, in the county of Irwin and State of Georgia, have invented certain new and useful Improvements in Reversing-Gear for Saw-Mill Carriages; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to saw-mill carriages, and is applicable either to circular saws or to band-saws.

It has for its object the providing of suitable devices for reversing and regulating the travel of the carriage whenever at the end of a cut or at any other time it may be desired so to do.

Reference is had to the accompanying drawings, wherein the same parts are indicated by the same letters.

Figure 1 represents a plan view of my invention as adapted for circular saws showing the fixed frame-work carrying the saw, and my reversing-gear, the portion of the frame-work over the rack being broken away to better show the mechanism. Fig. 2 represents an elevation of the same. Fig. 3 represents a perspective view of the lever V, which will be more fully described.

A, Fig. 1, represents the saw, and B the band-wheel by which the rotary motion is given to the saw.

C represents a friction-wheel keyed on the same shaft S with the saw.

D, E, and E' represent three friction-wheels keyed on the shaft S', which shaft is capable of being moved longitudinally in the boxes V and V' by the rack L, sector M, and handle or lever N.

F represents a friction-wheel keyed on the shaft S<sup>2</sup>. On the same shaft S<sup>2</sup> is a pinion G, engaging in a spur-wheel H. This spur-wheel H turns the shaft S<sup>3</sup>, on which is keyed the pinion I and the spool K. I engages in a rack (not shown) secured to the carriage, and so causes the movable carriage to move either toward or away from the fixed saw-mill frame. Should any of the cogs on I or on the rack break, the saw-mill carriage may be driven by a rope wound around the spool K

and secured to the carriage in any suitable way. It will readily be seen that either the spool K or the pinion I may be omitted, thus leaving the carriage to be operated either by cogs alone or by the ropes alone.

L represents a rack held in a set-collar on the shaft S, which revolves without turning the rack.

M represents a racked sector turning on the shaft m and rigidly secured to the lever or handle N.

O, P, Q, and R represent the frame-work of the saw-mill and reversing-gear.

T represents a set-collar on the shaft S<sup>2</sup>.

U represents a lever pivoted at u, whereby the friction-wheel F may be brought closer to or farther away from the shaft S'. It will be readily seen that the closer F be brought to the shaft S' the less will be the leverage on the friction-wheels E and E', and consequently the easier will it be to move the carriage carrying a heavy load, while at the same time the slower will the heavy log move against the cutting-edge of the saw. When the load on the carriage is light and the strain on the saw easy, then the friction-wheel F should be driven from the outer portions of the radii of the friction-wheels E and E'. The distance between the friction-wheels E and E' is somewhat greater than the diameter of the friction-wheel F, so that at its central position F will be in contact with neither E nor E'. In this position the friction-wheels C and D will impart any motion given by the saw to the shaft S', which will revolve without moving the carriage.

Should it be desired to move the carriage in one direction, the friction-wheel E is brought into contact with the friction-wheel F, as shown in Fig. 1, by means of the lever N, sector M, and rack L. The friction-wheels E and F then impart the motion of the shafts S and S' to the shaft S<sup>2</sup> and pinion G. The pinion turns the spur-wheel H and the cog-wheel I or spool K on the same shaft with H, engaging in a rack, or winding up ropes attached to the carriage, converting the original rotary motion of the saw-shaft to the rectilinear motion of the saw-mill carriage. Should it be desired to reverse the motion of the carriage, the lever N should be pushed in the opposite direction, thus bringing E' into contact with



F. The motion imparted to F and finally to the cog-wheel I or spool K and to the carriage will then be reversed, provided the saw continues revolving in the same direction as before. The frame-work O, P, and Q being fixed, should it be desired to give the carriage a small lateral motion, as in "offsetting," the cogs on I may be made somewhat longer than the teeth on the rack attached to the carriage. Should rope-gear be used, the spool K would require no alterations for offsetting; but the offsetting devices themselves are not a part of my invention.

I do not wish to limit myself to the devices described, as many others would suggest themselves to a skilled mechanic which could be used without departing from the spirit of my invention.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a saw-mill, the combination of a friction-wheel on the saw-shaft engaging a friction-wheel on a shaft at right angles to the saw-shaft with two friction-wheels on the second shaft at a distance from each other slightly greater than the diameter of a friction-wheel lying between the two, and into contact with which either of the two friction-wheels may be brought by means of a rack secured by a set-collar to the said shaft, and a sector secured to the frame-work engaging therein and turned by a lever or handle, the said third wheel being part of any suitable mechanism for converting the rotary motion of the saw into the rectilinear motion of the carriage, substantially as described.

2. In a saw-mill, the combination of a friction-wheel on a saw-shaft engaging a friction-wheel on a shaft at right angles to the saw-shaft with two friction-wheels on the second shaft at a distance from each other slightly greater than the diameter of a friction-wheel lying between the two, and into contact with which either of the two friction-wheels may be brought by means of a rack secured to a set-collar on the shaft, and a sector secured to the frame-work engaging therein and turned by a lever or handle, the third friction-wheel having a pinion on the same shaft, said pinion engaging in a spur-wheel having on its shaft a cog-wheel gearing into a rack on the carriage, as and for the purposes described.

3. In a saw-mill, the combination of a friction-wheel on the same shaft engaging a friction-wheel on a shaft at right angles to the saw-shaft with two friction-wheels on the second shaft at a distance from each other slightly greater than the diameter of a friction-wheel lying between the two, and into contact with which either of the two friction-wheels may be brought by means of a rack secured to a set-collar on the shaft, and a sec-

tor secured to the frame-work engaging therein and turned by a lever or handle, the third friction-wheel having a pinion on the same shaft, said pinion engaging in a spur-wheel having on its shaft a cog-wheel gearing into a rack on the carriage, and a spool for winding up a rope or ropes attached to the carriage, as herein set forth.

4. In a saw-mill, the combination of a friction-wheel on a saw-shaft engaging a friction-wheel on a shaft at right angles to the saw-shaft with two friction-wheels on the second shaft at a distance from each other slightly greater than the diameter of a friction-wheel lying between the two, and into contact with which either of the two friction-wheels may be brought by means of a rack secured to a set-collar on the shaft, and a sector secured to the frame-work engaging therein and turned by a lever or handle, the third friction-wheel having a pinion and a set-collar on the same shaft, said pinion engaging in a spur-wheel having on its shaft a cog-wheel gearing into a rack on the carriage, said set-collar engaging in a lever, whereby the said shaft may be moved longitudinally, causing the said friction-wheel to engage at any desired portions of the radii of either one of the two parallel friction-wheels for the purpose of increasing or diminishing speed of the carriage, as and for the purposes described.

5. In a saw-mill, the combination of a friction-wheel on the saw-shaft engaging a friction-wheel on a shaft at right angles to the saw-shaft, with two friction-wheels on the second shaft at a distance from each other slightly greater than the diameter of a friction-wheel lying between the two, and into contact with which either of the two friction-wheels may be brought by means of a rack secured to a set-collar on the shaft, and a sector secured to the frame-work engaging therein and turned by a lever or handle, the third friction-wheel having a pinion and set-collar on the same shaft, said pinion engaging in a spur-wheel having on its shaft a cog-wheel gearing into a rack on the carriage, and a spool for winding up a rope or ropes attached to the carriage, said set-collar engaging in a lever, whereby the said shaft may be moved longitudinally, causing the said friction-wheel to engage at any desired portions of the radii of either one of the two parallel friction-wheels for the purpose of increasing or diminishing the speed of the carriage, as herein set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM JACKSON HENDERSON,

Witnesses:

JOHN W. SWEARINGEN,  
J. W. SMITH.