

(No Model.)

E. E. THOMAS.  
SET WORKS FOR SAWMILLS.

No. 538,630.

Patented Apr. 30, 1895.

Fig. 1,

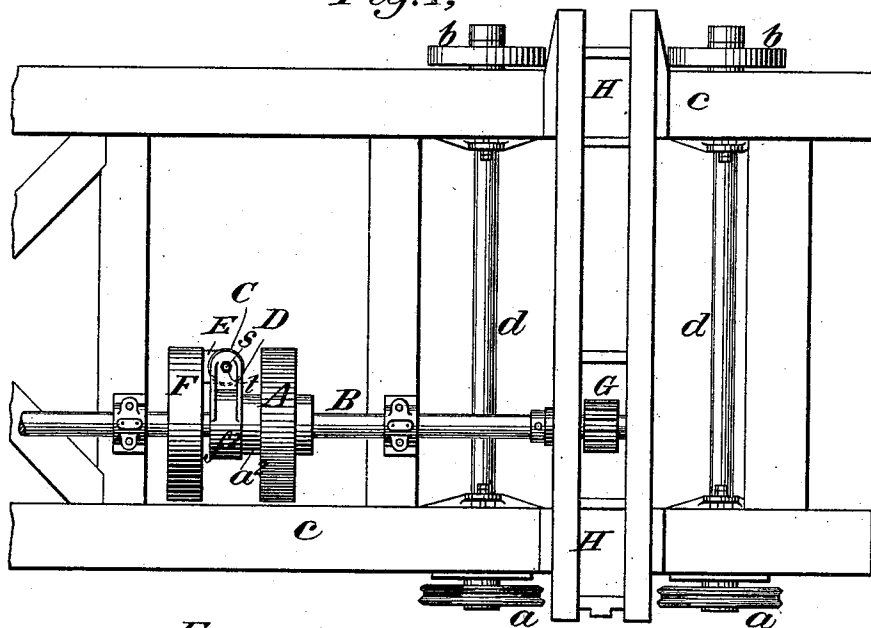


Fig. 2,

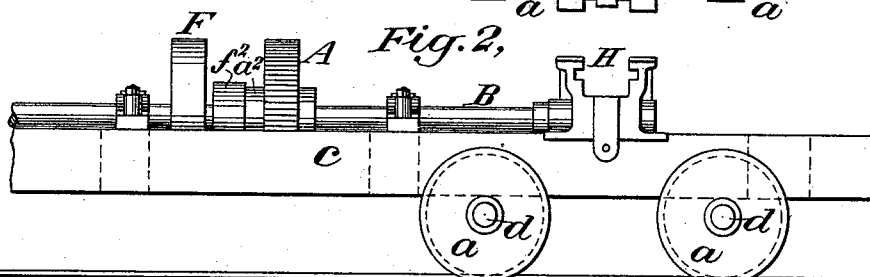


Fig. 3,

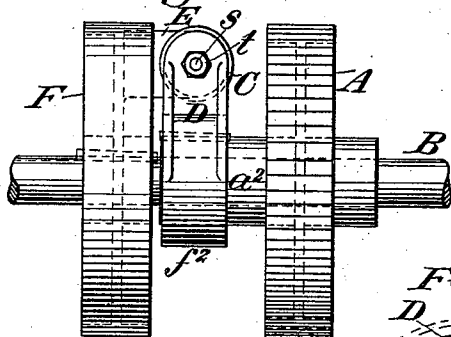


Fig. 4,

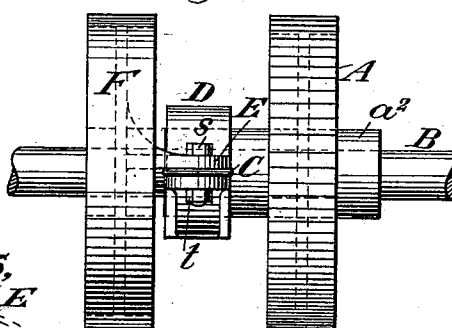
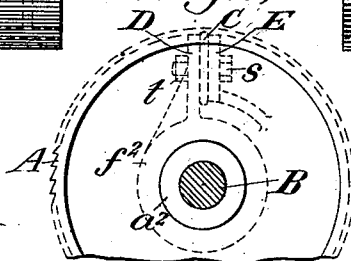


Fig. 5,



Witnesses:-

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M. E. Foster

Inventor:  
E. E. Thomas  
By atty.  
J. N. M. Squire

# UNITED STATES PATENT OFFICE.

EDWIN E. THOMAS, OF BAY CITY, MICHIGAN, ASSIGNOR TO MICHAEL GARLAND, OF SAME PLACE.

## SET-WORKS FOR SAWMILLS.

SPECIFICATION forming part of Letters Patent No. 538,630, dated April 30, 1895.

Application filed June 20, 1894. Serial No. 515,140. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN E. THOMAS, of Bay City, in the county of Bay and State of Michigan, have invented a certain new and useful Improvement in Set-Works for Sawmills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to saw mill machinery and especially to the mechanism employed in connection with the log-carriage of a mill, for the purpose of adjusting, or setting, the knees on the head-block; which mechanism is very commonly designated as the "set-works" of the carriage.

As is well known by those familiar with the construction and practical operations of saw mill machinery, the "set-works" of the log-carriage is always subjected to severe and sudden strains, and shocks, incidental to a log rolling heavily against the knees of the carriage mechanism, when struck suddenly by the "steam nigger," or other log-turning device, or when being severely crowded against the knees. Now, while the carriage mechanism, including the "set-works," has usually been made strong enough to withstand these necessary strains, the effect has been to rapidly cut out, and impair the perfect working condition of, the ratchet wheel pawls and other working parts of the set-works; and my present improvement has for its main object, to provide a perfect remedy for this defect of the log-carriage mechanism, as heretofore made; or, in other words, has for its object to provide for use a form of set-works, in which the parts thereof will be relieved of all the injurious strains and shocks, which have heretofore tended to rapidly wear them out, or so affect them, as to soon impair the perfect working thereof.

To this main end and object my invention may be said to consist in the combination, with the usual, and necessary, operative parts of the set-works of a log-carriage, of a cushioning device, located intermediately of the set-shaft of the carriage, and the ratchet device (worked by the usual set-lever); and operating to absorb all the sudden strains, or

shocks, imparted in the usual manner, to the knees of the carriage (and through them to the gearing and set-shaft), and thus relieve the ratchet-mechanism and other working parts, from the concussive strains which have heretofore proven very injurious to the set-works mechanism.

To enable those skilled in the art to which my invention relates, to make and use log-carriages, embodying, in one or another form, my said invention, I will now proceed to more fully describe the latter, referring by letters to the accompanying drawings, which form part of this specification, and in which I have shown my improvement carried out in that form of log-carriage set-works, and under those details of construction, under which I have, so far, successfully practiced my invention; though it may, of course, be carried out under various modifications of the details of construction herein shown and described.

In the drawings, Figure 1 is a partial top view of a log-carriage having my improvement applied thereto. Fig. 2 is a front view of the same. Figs. 3, 4, and 5 are respectively a top view, a front view, and an end view, on an enlarged scale, of the strain-cushioning devices of the set works, detached, and in the several views the same part will be found always designated by the same letter of reference.

At Figs. 1 and 2, *c* is the frame-work of an ordinary two block carriage, forty-six inch opening (only about one-half of which is shown to condense the drawing, without making it on too small a scale), provided, about as usual, with four axles, such as seen at *d*; four guide-wheels *a*; and four wheels *b* having plain peripheries; and having two head-blocks, such as *H*, that are provided with sliding toothed bars, or racks, and each having a knee mechanism, or device; which rack-bars and knee-devices, I have not deemed it necessary to show.

*B* is the set-shaft arranged and operating in a well-known manner, and provided, at the vicinity of each head-block *H*, with a spur-pinion *G* adapted to engage in about the usual manner, with one of the two rack-bars (shown) of the head-blocks, and on which set-shaft *B* are arranged the ratchet wheel *A*, and

a wheel F, that carries a laterally projecting lug E. Said wheel F is keyed fast on the set-shaft B; but the ratchet-wheel A is mounted loosely upon, or is free to turn on said shaft, and has its hub  $a^2$  elongated, or extended toward that of the wheel F, to a sufficient extent to permit the hub-like part  $f^2$  of an arm D to be mounted and keyed fast on said hub extension  $a^2$ ; all as clearly shown (see more particularly Figs. 1, 2, and 3) in the drawings.

The adjacent portions, or surfaces, of the lug E, and arm D, (which are of about the same superficial size) lie in parallel planes, and, arranged intermediately of the adjacent surfaces of said parts is a heavy rubber spring, or cushion, C, which, in the case shown, is in the form of a short cylinder, or thick circular block. In practice, I have made this rubber cushion C, on a carriage such as herein shown, about four inches in diameter, and about one-half of an inch thick. The cushion C is centrally perforated, and a suitable bolt  $s$ , passed through the lug E, arm D, and said cushion, and provided with a nut  $t$ , all as shown, serves to securely bind, or clamp, these parts together. In assembling the said parts, they should be clamped together, so as to effectuate a compression, so to speak, of the cushion C, to that extent merely that the pressure to which the cushion may be subjected during the usual, or ordinary, operations of setting forward the knees, by means of the ratchet-wheel A (actuated by any suitable pawl lever) acting, through the medium of the wheel F, set-shaft B and pinions G, on the knee racks, will not further compress said cushion.

In the operation of my improved anti-shock set-works, the set-shaft B is turned on its axis to cause its pinions G to actuate the racks that cause the necessary movement of the knees by any of the known appliances of a set-works mechanism. In the case shown the well-known "set-lever" is used to intermittently rotate the ratchet-wheel A, and a pawl, or detent, engaging with said wheel prevents any recession in the rotary movement. Whenever this ratchet wheel A is turned, the arm D, securely fastened to its elongated hub-portion  $a^2$ , (as already explained) moves with the said wheel, and the projecting end of said arm D, being secured by bolt and nut  $s, t$ , to the lug E of the wheel F, forces the said lug and its wheel F to move in the same direction, and to

substantially the same extent as wheel A, and, since the wheel F is keyed fast to the shaft B, said shaft is thus forced to turn with the wheel F, and to practically the same extent that the ratchet wheel may be turned; because (as before remarked) the intermediately located cushion C, having been compressed so that the usual force applied to work the knees against a log, or the ordinary strain necessary to set a log against the knees, will not further compress it, it follows that the set-shaft B; the wheel F fast thereon; and the wheel A loose thereon, together with the coupled parts D and E of said two wheels, will all move substantially in unison. As, however, any excessive force, or sudden shock, or strain, applied to the parts will operate to further compress the spring pad C, it follows that in the event of any such shock being inflicted on the knees, for instance, when the parts of the set-works are locked in place, the said cushion will further yield and permit the set-shaft and the parts E, F, made fast thereto, to slightly rotate, while the locked ratchet-wheel A, and its rigidly attached arm D, remain stationary (the set shaft turning slightly within the hub of wheel A), and in this manner will the force, or sudden strain, that tends to turn the fixed ratchet-wheel A be absorbed, or taken up, by the cushion C; to the relief of said ratchet-wheel, its attached parts and the pawl, by which it is positively held against any such movement as the strained parts tend to impart to it.

What I therefore broadly claim as new, and desire to secure by Letters Patent, is—

In a saw mill carriage set-works, the combination, with the set-shaft; and the ratchet wheel having a lateral projection and mounted to turn on said shaft, of a device, as A, made fast to the set-shaft and provided with a lateral projection; and a cushioning-device, located intermediately of the said projections of the loose ratchet wheel and the device A; all substantially as and for the purposes set forth.

In witness whereof I have hereunto set my hand this 4th day of December, 1893.

EDWIN E. THOMAS.

In presence of—

RICHARD A. MCKAY,  
A. B. LENNOX.