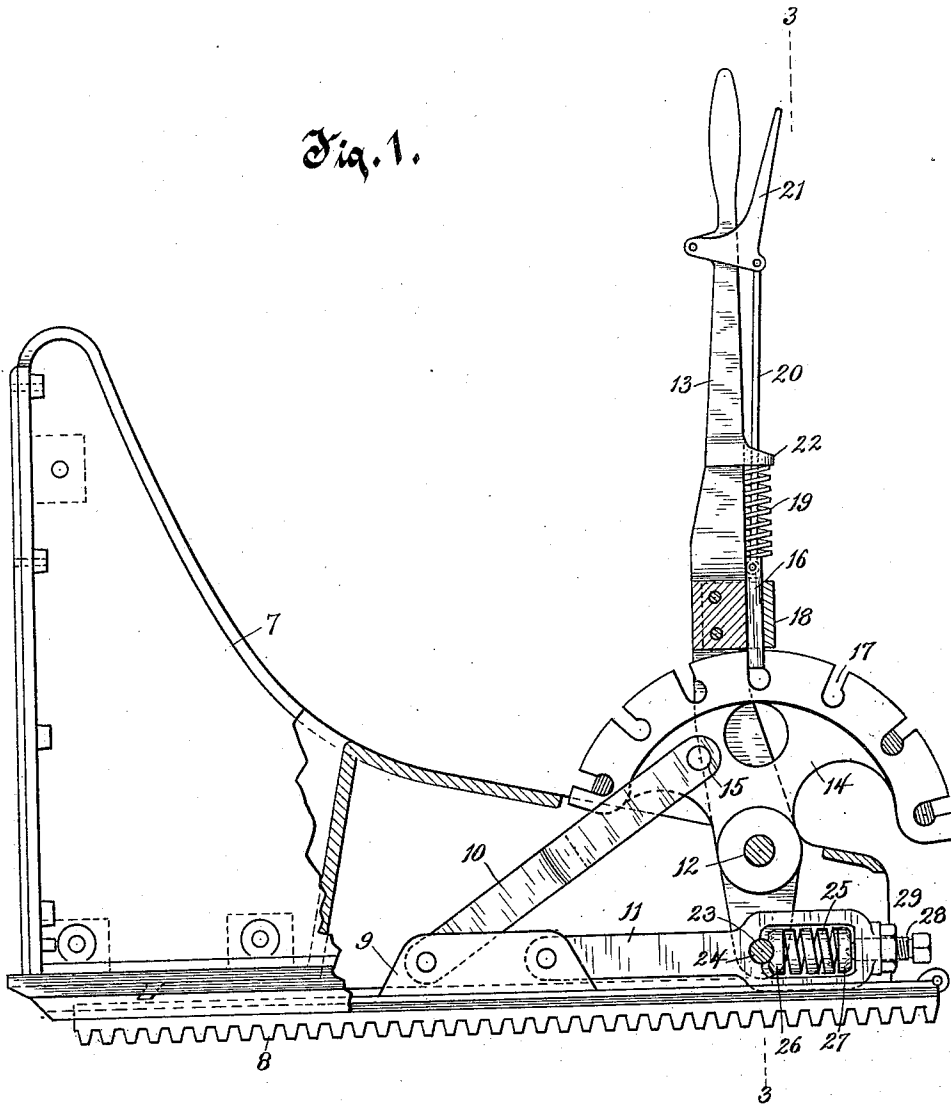


T. S. WILKIN.
TAPER MOVEMENT FOR SAWMILL KNEES.
APPLICATION FILED OCT. 29, 1907.

934,866.

Patented Sept. 21, 1909.
2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

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Fig. 2.

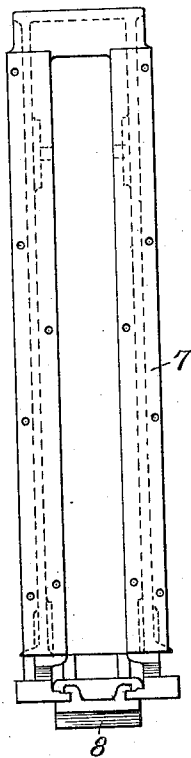


Fig. 3.

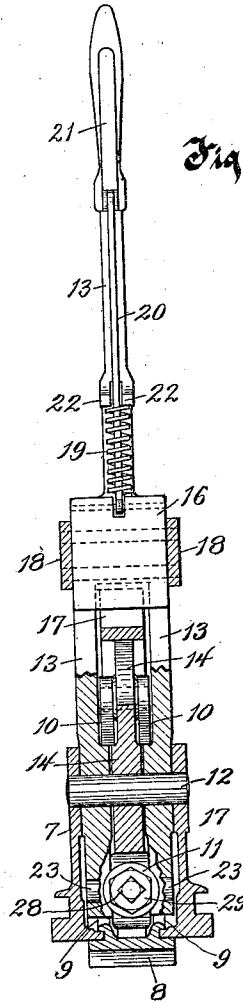
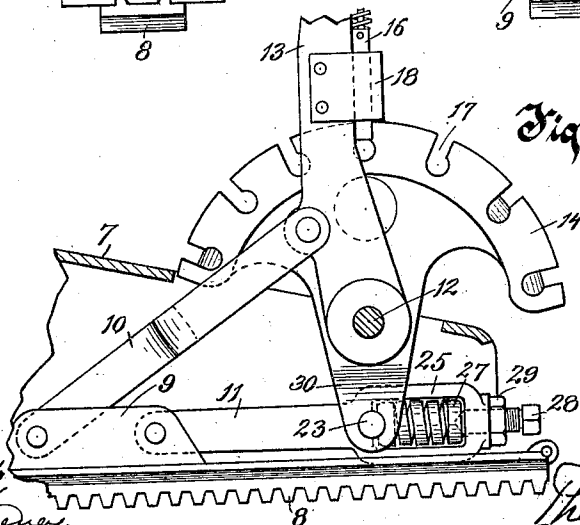


Fig. 4.



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UNITED STATES PATENT OFFICE.

THEODORE S. WILKIN, OF OSHKOSH, WISCONSIN.

TAPER-MOVEMENT FOR SAWMILL-KNEES.

934,866.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed October 29, 1907. Serial No. 399,668.

To all whom it may concern:

Be it known that I, THEODORE S. WILKIN, residing in Oshkosh, in the county of Winnebago and State of Wisconsin, have invented new and useful Improvements in Taper-Movements for Sawmill-Knees, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

10 This invention has for its object to provide a novel mechanism for producing independent adjustment of a saw mill knee toward or from the log or cant, known as a taper movement from its function being to permit the dogs of the several knees engaging a tapering or crooked log.

15 The taper movement of this invention is designed for strength, to prevent the breakage of parts and the accidental change of adjustment of the knee resulting from blows received from the logs when they are being rolled or turned against it.

20 Heretofore taper adjustments have usually comprised a hand lever on the knee having a crank and link connection with the slidable rack, whereby the knee may be changed in its position on the rack, there being a quadrant and a pawl by which the lever is locked in its adjustments. By this construction the knees were arranged in alignment when in their normal adjustment and were advanced or receded simultaneously by means of pinions on a common feed shaft meshing with the racks. When independent adjustment of the knees was required they were set forward or backward out of alignment by sliding them on their racks by means of the hand levers. An objectionable feature of taper movements of this construction is that the frequent shocks received by the knee from the logs impose a severe strain upon the pin connections of the link and a torsional strain upon the fulcrum pin of the hand lever which in time becomes twisted between the crank and the hand lever and so changes the normal adjustment of the knee and destroys the alinement of the knees when in their normal positions.

25 This invention has for its object to strengthen the connecting parts between the rack and the knee and prevent the torsional strain upon the fulcrum pin or shaft of the hand lever so as to maintain the proper adjustments of the knee, there being a yielding means in the connection to take up the force of the blow of the logs against the knee and

immediately restore the knee to its proper position.

With the above and other objects in view the invention consists in the taper movement for saw mill knees herein claimed, its parts and combinations of parts, and all equivalents.

Referring to the accompanying drawings in which like characters of reference indicate the same parts in the several views:— Figure 1 is a sectional elevation of a saw mill knee provided with a taper adjustment constructed in accordance with this invention; Fig. 2 is an end elevation thereof; Fig. 3 is a transverse sectional view thereof taken on the plane of line 3—3 of Fig. 1; and, Fig. 4 is a fragmental view similar to Fig. 1, of a modified form of taper adjustment also illustrating the present invention.

75 In these drawings 7 represents a saw mill knee of usual construction having the feeding rack 8 slidably mounted thereon in the ordinary manner. Within the hollow rear portion of the knee the rack is provided with a pair of upstanding lugs 9 arranged side by side and forming pivotal connections for a yoked link 10 at one end and for another link 11 at the other end.

80 A pin or shaft 12 which passes through the side members of the knee forms a fulcrum for the bifurcated lower end of a hand lever 13, and a pivotal mounting for a quadrant 14 which is loose thereon between the furcate members of the hand lever and is pivoted at 15, above the shaft 12, to the yoked link 10 which embraces it for that purpose.

85 A spring pressed pawl 16 is carried by the hand lever 13 to engage the notches 17 of the quadrant and comprises a flat plate the full width of the lever and bearing against the broad shoulders thereof where the furcate members join, being slidable within a U-shaped keeper 18 on the lever. A coil spring 19 is mounted on the rod 20 which connects the pawl with the bell crank 21 at the handle of the hand lever and bears upon projecting lugs 22 to hold the pawl in engagement with the notches of the quadrant.

90 The pair of furcate members of the hand lever extend downwardly beyond the shaft or fulcrum pin 10 and embrace the rear end of link 11, having a pin 23 connecting them and passing through an eye formed in the end of link 11 and seated upon a groove or bearing 24 at the end of said eye. A strong

coil compression spring 25 is located in the eye of link 11 with a bearing plate 26 at one end pressing against the pin 23 of the hand lever and a bearing plate 27 at the other end mounted upon a set screw 28 which is threaded in the end of the link and has a jam nut 29 thereon to lock it in its adjustments, the set screw serving to adjust the compression of spring 25 and thus vary the force required to move pin 23 away from the bearing 24.

In operation, the knee may be adjusted by means of the rack 8 in the usual manner, the knee being locked to the rack by the link 10 and quadrant 14 on one side of the shaft 12 and the link 11 and the lower ends of hand lever 13 on the other side of shaft 12, since the quadrant and hand lever are fixed in their relation to each other by the engagement of the pawl 16 with one of the notches of the quadrant. Furthermore, the blow received by the knee from a log turned thereagainst is distributed through these connecting members on both sides of the shaft, and as the pivotal connections 15 and the pivotal pin 23 are at the same distance from the shaft 12, the tendency to swing the quadrant in one direction is opposed by the equal tendency to swing the hand lever in the other direction, as they are locked together, thus the blow is taken up by the shaft 12 in its bearings in the knee and there is no tendency to produce a torsion which would result in destroying the normal adjustment of the knee. While the shock of a mild blow on the knee may be taken up in this manner, owing to the compression spring 25 being very stiff and unyielding thereto, the shaft 12 is relieved from the stress of a heavy blow by the yielding of compression spring 25, the tendency of the shaft 12 to move rearward independent of the rack being permitted by the swing of the quadrant and the hand lever, the pin 23 moving away from the bearing 24 and against the pressure of the spring 25 which immediately restores it and the other parts to their normal positions when the blow has thus been taken up. Obviously the force of blow at which the spring 25 will yield may be varied by the adjustment of the set screw 28. This yielding of the parts under a severe blow of the knee avoids the possibility of breakage and assures the return to normal adjustment when the pin 23 is reseated in the bearing 24. The pawl 16 is so constructed that the blow received by it from the quadrant will drive it against the hand lever 13 and in this manner is strengthened against breakage or loosening.

Instead of connecting the upper link 10 to the quadrant as above described, it is obvious that it may be connected to the lever above shaft 12, as shown in Fig. 4, and the

link 11 connected to a yoked extension 30 of the quadrant instead of to the hand lever, and the operation of the parts will remain the same. In this construction it would be preferable to arrange the pawl 16 on the other side of the hand lever, but owing to the strength of the keeper 18 it is possible to leave it on the same side as before.

With the force of the blow against the knee distributed between links above and below the fulcrum pin 12, and the cranks with which said links connect constituting the lever and the quadrant respectively which are locked together by the pawl, the strain upon the parts is minimized and torsional strain upon the fulcrum pin is avoided entirely, while the yielding of the compression spring 25 relieves all parts of severe strain and assures the return of the knee to its normal position after the blow. Besides dividing the force of the blow against the knee between them so as to strengthen the structure, the links 10 and 11 by connecting with the quadrant and lever above and below the fulcrum pin respectively cause these members to move in opposite directions so that for a given movement of the lever there is an equal and opposite movement of the quadrant, and consequently the teeth between the notches of the quadrant are twice as long as they would be if the quadrant were stationary and are therefore stronger and enable a finer adjustment of the knee for a given size quadrant than would be possible with a stationary quadrant.

What I claim as my invention is;

1. An adjustable taper movement in the knee of a saw mill carriage head block, embodying a lever, a loosely mounted quadrant coöperating therewith, and two links attached to the operating or main rack of the knee, one of said links connected to the loosely mounted quadrant and the other link attached to the lever on the opposite side of the pivotal connection of the lever and quadrant from the connection of the first mentioned link.

2. A taper adjustment for saw mill knees, comprising a hand lever member and a co-operating quadrant member fulcrumed on the knee, a link connecting the operating rack of the knee to one member above the fulcrum of the lever and quadrant, and a link connecting the operating rack to the other member below the fulcrum of the lever and quadrant.

3. A taper adjustment for saw mill knees comprising a hand lever member and a co-operating quadrant member fulcrumed on the knee, a link connecting the operating rack of the knee to one member on one side of the fulcrum, and a link connecting the operating rack to the other member on the other side of the fulcrum.

4. A taper adjustment for saw mill knees, comprising a hand lever member and a co-operating pivoted quadrant member mounted on the knee, a link connecting one member at one side of its pivotal connection to the operating rack of the knee, and means connected to the operating rack of the knee for yieldingly holding the other member at a point on the other side of its pivotal connection.

5. A taper adjustment for saw mill knees, comprising a hand lever member and a co-operating pivoted quadrant member mounted on the knee, a link connecting one member at one side of its pivotal connection to the operating rack of the knee, and a link connecting the other member at the other side of its pivotal connection with the operating rack by means of a yielding bearing.

6. A taper adjustment for saw mill knees, comprising a hand lever member and a co-operating pivoted quadrant member mounted on the knee, a link connecting one member at one side of its pivotal connection to the operating rack of the knee, and a link connecting the other member at the other side of its pivotal connection with the operating rack of the knee by means of a yielding bearing comprising an adjustable compression spring.

7. A taper adjustment for saw mill knees, comprising a hand lever member and a co-operating quadrant member mounted on the knee, a link connecting one member to the operating rack of the knee, a link connected to the operating rack and having an eye, a pin on the other member passing through the eye of the link which forms a bearing therefor, a coil compression spring located in the eye of the link, a set screw threaded in the link, and bearing plate at the ends of the spring bearing on the set screw and the pin of the member respectively.

8. A taper movement for saw mill knees, comprising a fulcrum pin in the knee, a yoked hand lever mounted on the fulcrum pin, a quadrant also mounted on the fulcrum pin between the arms of the hand lever, a link connecting the operating rack of the knee with the quadrant above the fulcrum pin, and a link connecting the operating rack of the knee to the hand lever below the fulcrum pin.

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

THEODORE S. WILKIN.

Witnesses:

R. L. CLARK,
A. J. BARBER.