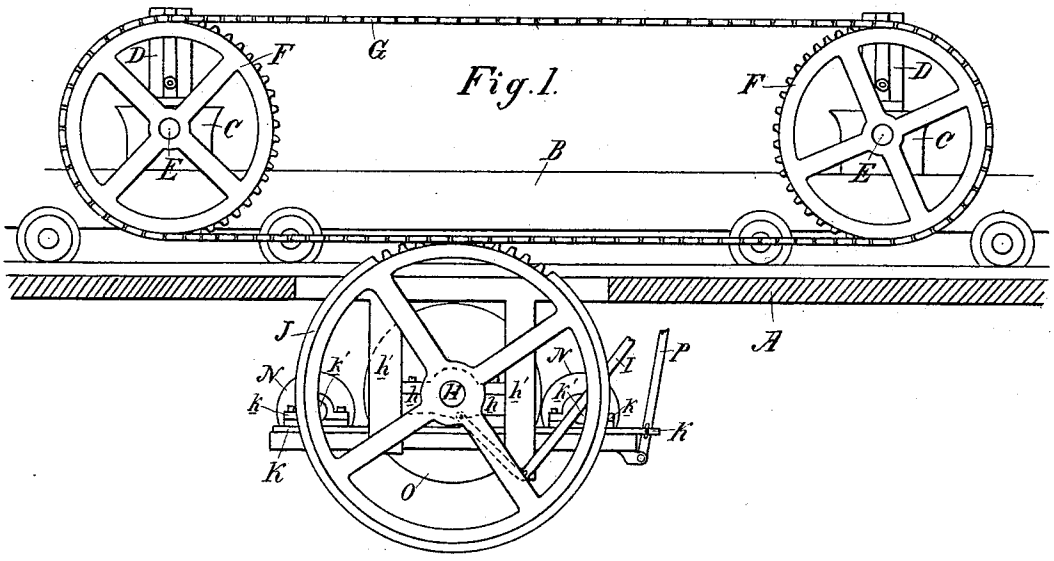
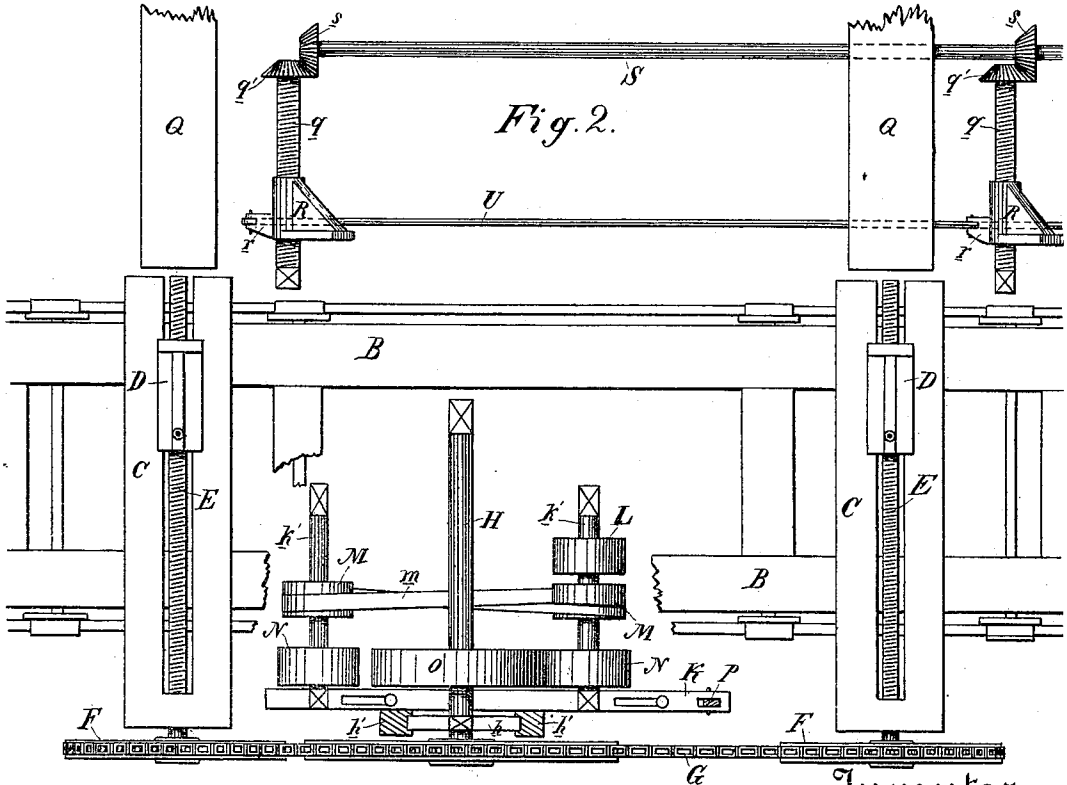
(No Model.) 2 Sheets—Sheet 1.

D. L. HARBACH.

SAW MILL SET WORKS.

No. 330,020. Patented Nov. 10, 1885.





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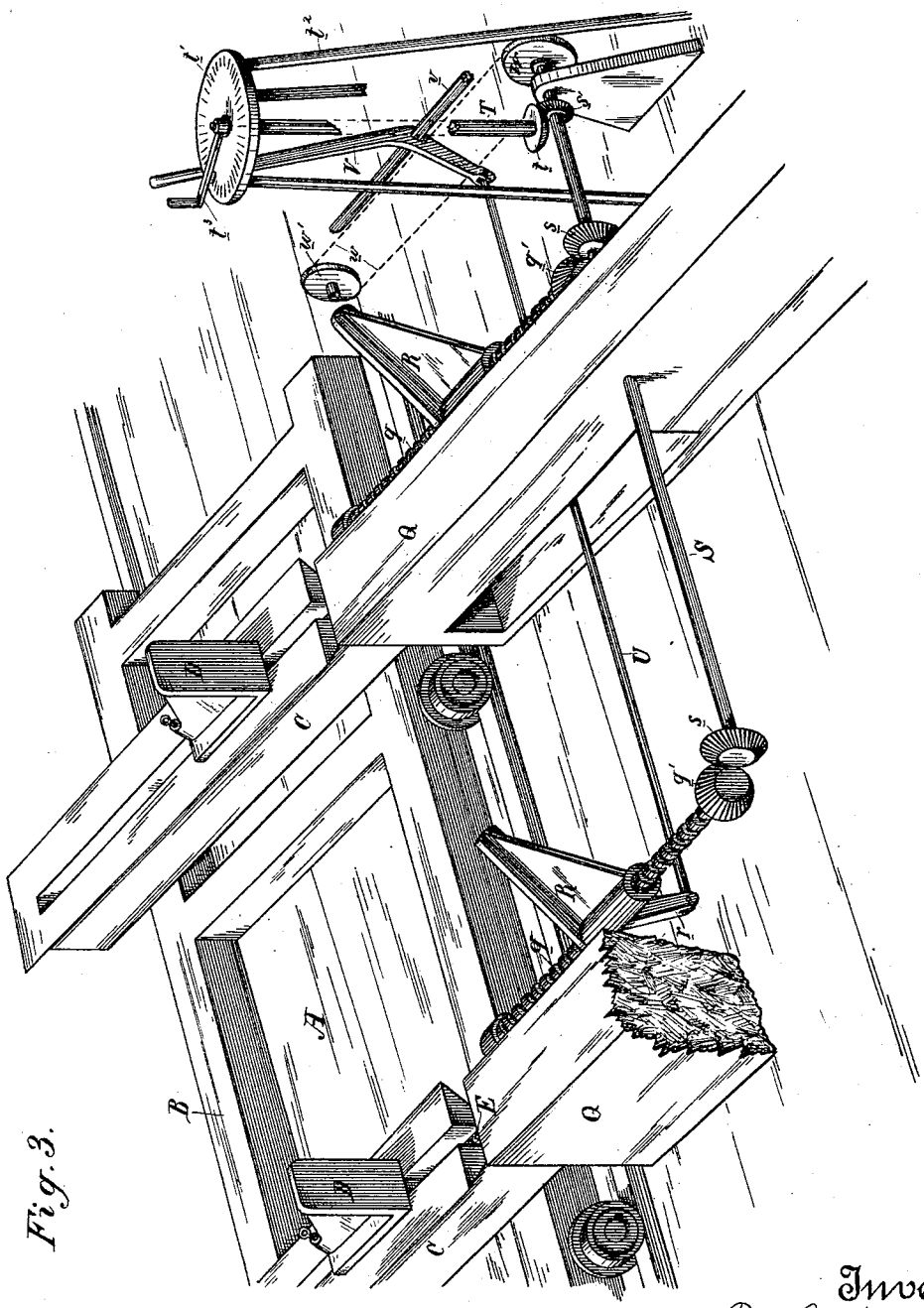


Fig. 3.

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UNITED STATES PATENT OFFICE.

DANIEL L. HARBACH, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO TATUM & BOWEN, OF SAME PLACE.

SAW-MILL SET-WORKS.

SPECIFICATION forming part of Letters Patent No. 330,020, dated November 10, 1885.

Application filed July 27, 1885. Serial No. 172,806. (No model.)

To all whom it may concern:

Be it known that I, DANIEL L. HARBACH, of the city and county of San Francisco, State of California, have invented an Improvement in Log-Setters for Saw-Mills; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of saw-mills and to new and useful improvements in setting the log on the head-block; and my invention consists in the power devices by which the ordinary or main knees of the head-block are adjusted, in peculiar opposing knees by which the log is stopped, and the mechanism for operating said knees, all of which I shall hereinafter fully describe by reference to the accompanying drawings, in which—

Figure 1 is a side elevation, showing the mechanism for adjusting the main knees. Fig. 2 is a plan of the same. Fig. 3 is a perspective view showing the opposing stop-knees and the mechanism for operating them.

The object of my invention is to provide a simple and effective mechanism for operating the various setting-knees.

A is the frame of the mill, and B is the reciprocating wheeled carriage traveling on said frame. On the carriage are the head-blocks C, in which are mounted and adapted to slide the main knees D, which are operated by the screws E, as customary. On the ends of the screws are mounted the chain-pulleys F, over which passes an endless chain, G. Under the main frame of the mill is a shaft, H, which is journaled in a box, *h*, adapted to be vertically adjusted in the guides *h'* by means of any suitable lever—such, for example, as the elbow-lever I. On the vertically-adjustable shaft H is a chain-pulley, J, which, when thrown up, is adapted to engage with and operate the endless chain G.

K is a sliding plate having standards *k*, in the tops of which are mounted shafts *k'*. On one of these shafts is the driving-pulley L, to which power is to be applied.

M are pulleys on the shafts *k'*, and *m* is a crossed belt between said pulleys. N are friction-pulleys on shafts *k'* on either side of a friction-pulley, O, on the shaft H.

P in Fig. 1 is a lever by which the sliding plate K may be moved, whereby the friction-pulleys N are moved, and are alternately brought into impingement with the friction-pulley O.

The operation of this portion of the device is as follows: By means of the crossed belt *m* the shafts *k'* are driven in opposite directions. By means of the lever P either of the friction-pulleys N, according to the direction of the revolution desired, is brought into impingement with the friction-pulley O, whereby the shaft H is rotated. By means of the lever I the shaft H is elevated to throw the chain-pulley J into engagement with the endless chain G, and according to the direction of its rotation the chain-pulleys F are rotated in one direction or the other, and the screws E set up or withdraw the knees D.

Q are skids belonging to the main frame of the mill. Journaled in suitable bearings on the sides of these skids are screws *q*, on which are threaded the stop-knees R. These are set up by the following mechanism:

S is a shaft having bevel-gears *s*, which mesh with bevel-gears *q'* on the screws *q*. Near the end of the shaft S is a bevel-gear, *s'*, which meshes with a bevel-gear, *t*, on a shaft, T, to which suitable power may be applied.

A graduated disk, *t'*, is supported upon a suitable frame, t^2, and the top of the shaft T passes loosely through this disk, and is provided with a lever-handle, t^3, which, moving over the graduated disk, indicates the amount of adjustment given to the knees R. In order to throw the knees R back out of the way of the log when it is being rolled upon the skids to reach the head-blocks and to throw them up again, whereby they may be adjusted against the log to hold it, I have the rod U, which connects the two knees through their downwardly-extending arms *r*. The end of the rod U is connected with the lower end of a lever, V, pivoted, as shown in Fig. 3. By moving this lever the knees R may be thrown back or up again. It will be observed that by reason of the longitudinal movement of the knees R it is necessary, in order to prevent the cramping of the connecting-rod U and lever V, that said rod and lever should move with the knees, and that this movement must be a positive one. Accordingly I pivot the lever V on a shaft, *v*, in such a manner that it

may slide thereon. On the end of the shaft S, by which power is transmitted to the screws to adjust the knees, there is a pulley, W, from which a belt or chain, *w*, extends to a pulley, *w'*. The connecting-rod U passes through an elongated slot in one of the skids.

The operation of adjusting the knees is as follows: When the log is being rolled along the skids Q to its position against the main knees D, the stop-knees R are thrown back, so as not to be in the way. When the log has reached its position against the knees D, the lever V is operated to throw the knees R to a vertical position. The handle *t'* is then moved, whereby power is transmitted, through the shaft S and the intermediate bevel-gears, to the screws *q*, whereby the knees R are set up against the log. At the same time, through the pulley W and chain *w*, the lever V is carried over with the knees, so that the connecting-rod U will not cramp.

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

1. In a log-setter for saw-mills, the combination, with the main knees D, of a mechanism by which they are adjusted, consisting of the screws E, the chain-pulleys F on the ends of the screws, the endless chain G over said pulleys, and a vertically-adjustable chain-pulley adapted to be thrown into or out of engagement with the endless chain, substantially as herein described.

2. In a log-setter for saw-mills, the main knees D, and the screws E, by which they are operated, in combination with the chain-pulleys F on the ends of the screws, the endless chain G on said pulleys, the vertically-adjustable chain-pulley J, engaging the chain G, and suitable driving and adjustable friction gears or pulleys by which the rotation of the chain-pulley J is effected in either direction, substantially as herein described.

3. In a log-setter for saw-mills, the main knees D, having adjusting-screws E, the chain-pulleys F on the screws, and the endless chain G over said pulleys, in combination with the vertically-adjustable shaft H, the chain-pulley J and the friction-pulley O on said shaft, the horizontally-sliding shafts *k'*, the pulleys M on said shafts, and crossed belt *m*, the friction-pulleys N on the shafts *k'*, adapted to impinge alternately on the friction-pulley O, and the driving-pulley L on one of said shafts, all arranged and adapted to operate substantially as herein described.

4. In a log-setter for saw-mills, the combination of the main knees on one side of the log, the vertically-swinging stop-knees on the opposite side, and the screws upon which the stop-knees are mounted, said screws having bearings in the main frame and operated by suitable gearing, substantially as herein described.

5. In a log-setter for saw-mills, the combination of the main knees and mechanism for operating the same with the pivoted and adjustable stop-knees R, provided with arms *r*, a lever, V, fulcrumed upon a shaft, *v*, and a rod, U, connecting the lower end of the lever with the short arms of the stop-knees, whereby the latter may be thrown back to allow the log to pass, and be thrown up again, substantially as herein described.

6. In a log-setter for saw-mills, the stop-knees R and screws *q*, on which they are mounted and pivoted, in combination with the mechanism by which the screws are operated to adjust the knees, consisting of the shafts S and T, and suitable bevel-gears by which power is transmitted from the shaft T, through the shaft S, to the screws, and the mechanism by which the knees are thrown back and up again, consisting of the connecting-rod U between the two knees and the pivoted lever V, substantially as herein described.

7. In a log-setter for saw-mills, the pivoted knees R and screws *q*, in combination with the adjusting mechanism, consisting of the shafts S and T and suitable intervening power-transmitting gears, the mechanism for throwing back and up again the knees, consisting of the connecting-rod U, and the lever V, pivoted and adapted to slide on a shaft or rod, *v*, and the means by which the rod U and lever V are made to accompany the knees, consisting of the pulley W on the shaft S, the pulley *w'*, and the endless belt or chain *w*, passing over said pulleys and connected with the lever, substantially as herein described.

In witness whereof I have hereunto set my hand.

DANIEL L. HARBACH.

Witnesses:
S. H. NOURSE,
H. C. LEE.