

(No Model.)

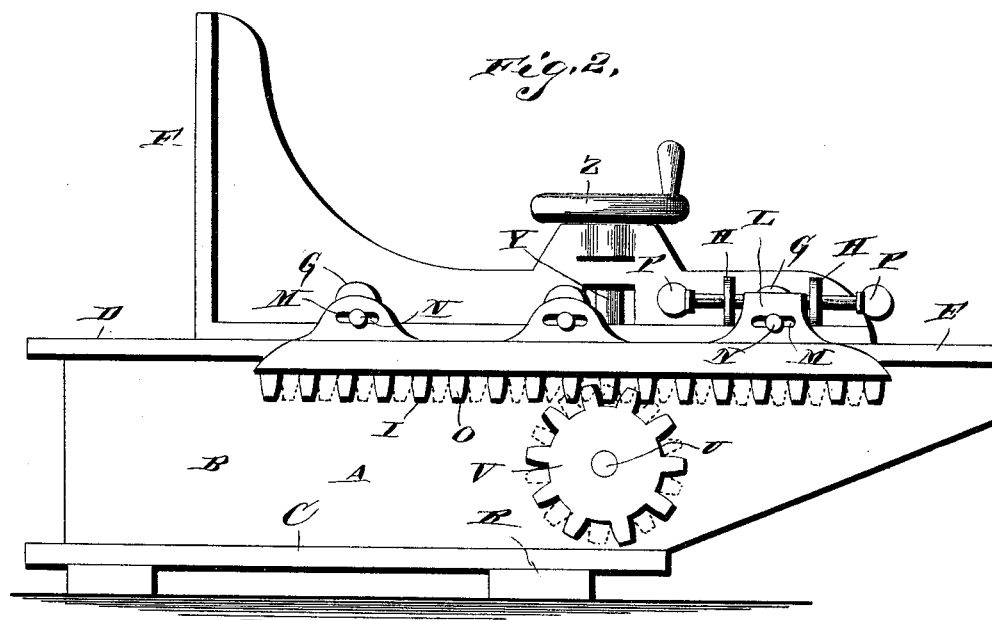
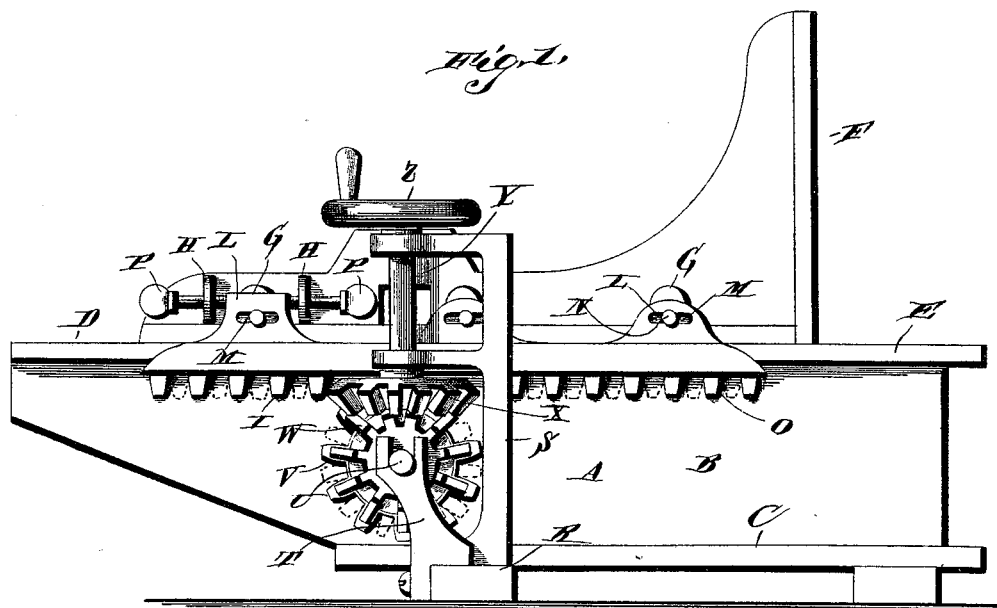
2 Sheets—Sheet 1.

F. P. ZIEGLER.

HEAD BLOCK FOR SAW MILLS.

No. 387,030.

Patented July 31, 1888.



Witnesses.

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2 Sheets—Sheet 2.

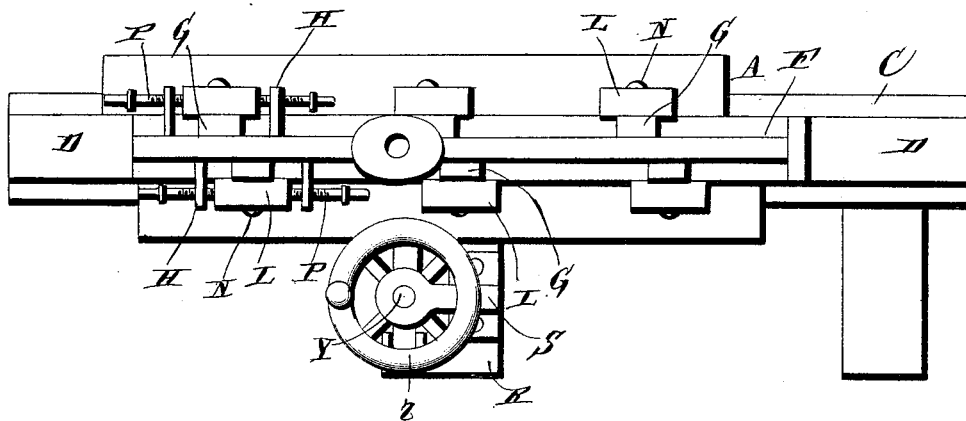
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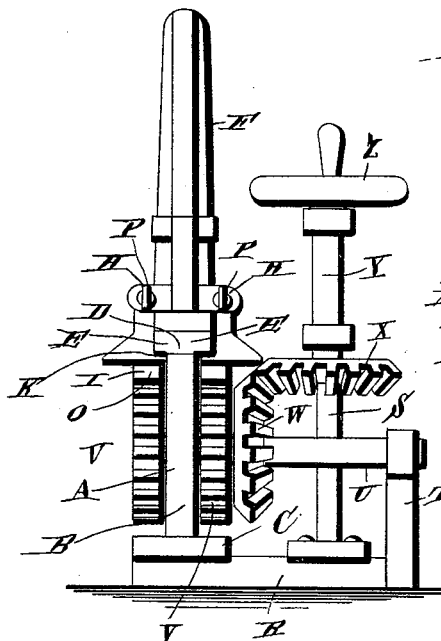
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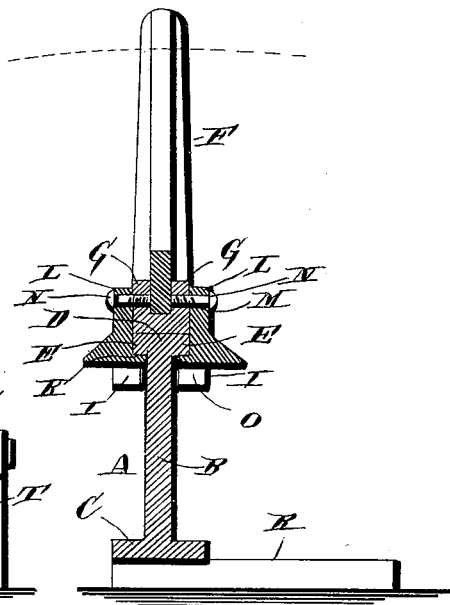
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

FRANKLIN PIERCE ZIEGLER, OF ABDERA, PENNSYLVANIA.

## HEAD-BLOCK FOR SAW-MILLS.

SPECIFICATION forming part of Letters Patent No. 387,030, dated July 31, 1888.

Application filed March 15, 1888. Serial No. 267,258. (No model.)

*To all whom it may concern:*

Be it known that I, FRANKLIN PIERCE ZIEGLER, a citizen of the United States, residing at Abdera, in the county of Clinton and State of Pennsylvania, have invented new and useful Improvements in Head-Blocks for Saw-Mills, of which the following is a specification.

My invention relates to improvements in head-blocks for saw-mills; and it consists in the peculiar construction and combination of devices, that will be more specifically set forth hereinafter, and particularly pointed out in the claims.

The object of my invention is to provide means whereby lost motion between the pinions and racks employed to operate the knee will be obviated, and whereby the knee may be moved forward or rearward very rapidly, and thus enable the lumbermen to save time in operating the mill.

In the accompanying drawings, Figure 1 is a side elevation of a head-block embodying my improvements. Fig. 2 is a similar view of the opposite side of the same. Fig. 3 is a top plan view of the same. Fig. 4 is an end elevation of a modified form of my invention, wherein the cogs on the pinions and racks do not break joints. Fig. 5 is a transverse section.

A represents the head-block, which consists of a vertical web, B, having a broadened base, C, and a head, D, forming flanges E, which project from opposite sides of the web.

F represents the knee, the base of which rests upon the head D and is adapted to slide back and forth on the same. From opposite sides of the knee, at a suitable distance above the base thereof, and at suitable regular distances apart, project offsets G; also from opposite sides of the knee, in advance and in rear of the rear offset, G, project brackets or lugs H, which extend in a horizontal direction.

I represents a pair of rack-bars, which are provided on their inner sides with grooves or recesses K, that adapt them to receive the flanges E, and thereby the inner sides of the rack-bars bear against the sides of the web B and against the sides of the base of the knee. From the upper sides of the rack-bars, and formed integrally with the same, project ears L, which correspond in number with the offsets G and register with the same, and said ears are provided with longitudinal slots M.

N represents adjusting-screws, which extend through the slots M and engage threaded openings in the offsets G, and thereby secure the rack-bars firmly to the knee and enable them to be adjusted longitudinally thereon for a slight distance.

It will be observed by reference to Fig. 3 that the offsets G on one side of the knee are out of line with the offsets on the opposite side thereof, so that the offsets are diagonally arranged with relation to each other, and thereby the rack-teeth O of each rack-bar are opposite the spaces between the rack-teeth of the other rack-bar.

P represents adjusting-screws which extend through and engage threaded openings in the outer ends of the ears or lugs H, and the points of said screws bear against the front and rear edges of the rear lugs, L, on the rack-bars I, and when the screws N are loosened said rack-bars may be adjusted longitudinally, as before stated, by turning the adjusting-screws P, for the purpose to be hereinafter explained.

R represents the sills, which are arranged transversely under the head-blocks on which the latter are secured. These sills project beyond the outer side of the head-block, and one of the same is provided with a vertical arm, S, and with a vertical standard, T, the latter being arranged beyond the arm.

U represents a shaft, which is journaled in a transverse opening in the head-block and in a bearing in the upper end of a standard, T, and to the said shaft, on opposite sides of the head-block and in close proximity thereto, are keyed pinions V, which pinions mesh with the teeth O of the rack-bars I. Inasmuch as the teeth of the rack-bars are out of line with each other, and inasmuch as the teeth of the pinions engage the teeth of the rack-bars, it follows that the teeth of the pinions are also arranged out of line with each other.

W represents a miter-wheel, which is keyed to the shaft U and engages a miter-wheel, X, secured to the lower end of the shaft Y, which shaft Y is journaled vertically in a pair of horizontal brackets that project rearwardly from the upper end of arm S. To the upper end of shaft Y is keyed a hand-wheel, Z.

The operation of my invention is as follows: By turning the hand-wheel and shaft Y and miter-wheel X rotary motion is imparted to

the shaft U through the miter-wheel W, and thereby the pinions are caused to revolve, and by being engaged with the rack-bars the revolution of the said pinion causes the knee to be  
 5 moved longitudinally on the head-block in either direction, according to the direction in which the hand-wheel is turned. There being two of the pinions and two rack-bars on opposite sides of the head-block, the knee is  
 10 constantly impelled in a straight line and entirely relieved of side strain and friction, and is consequently adapted to be moved very easily. Moreover, by reason of the teeth of the rack-bars and the teeth of the pinions being  
 15 out of line with each other, there is no lost motion or play between the teeth of the pinions and the teeth of the rack-bars, and consequently the knee may be moved to exactly the distance required in order to cause the lum-  
 20 ber to be sawed evenly. By adapting the rack-bars I to be longitudinally adjusted, as hereinbefore described, compensation may be made for wear caused by the friction of the teeth of rack-bars and pinions, thereby  
 25 enabling the device to be used for a very long period of time and preserving its efficiency unimpaired.

By means of the shaft Y, geared to the pinion-shaft, and the hand-wheel secured to shaft  
 30 Y, the knee may be moved in either direction by the lumberman or sawyer with maximum rapidity and with comparative ease.

Having thus described my invention, I claim—

35 1. The combination of the head-block, the knee movable longitudinally thereon and having the rack-bars on opposite sides bearing against the sides of the head-block and forming guides for the knee, and the shaft U, having the pinions meshing with the rack-bar S,  
 40 for the purpose set forth, substantially as described.

2. The combination of the head-block, the knee movable longitudinally thereon, the rack-

bars secured to opposite sides of the knee 45 and adjustable longitudinally thereon, said rack-bars bearing against oppositesides of the head-block and forming guides for the knee, and the shaft U, having the pinions V engaging the rack-bars, substantially as described. 5c

3. The combination of the head-block, the knee, the rack-bars on opposite sides of the knee, having their teeth arranged out of line with each other, and the pinions on opposite sides of the head-block engaging the rack- 55 bars, the teeth of said pinions being also out of line with each other, substantially as described.

4. The combination of the head-block, the knee, the rack-bars on opposite sides of the 60 knee and head-block, having the longitudinal slots M, and the screws N, extending through said slots and entering threaded openings in the knee, said screws clamping the rack-bars to the knee at any desired adjustment, and the 65 pinions meshing with the rack-bars, substantially as described.

5. The combination of the head block, pinions on opposite sides of the same, the knee movable longitudinally on the head block and having the projecting lugs or brackets H, the rack-bars having the lugs L, provided with longitudinal slots M and bearing against opposite sides of the knee and head-block, the clamping-nuts extending through said slots 75 and engaging the knee to secure the rack-bars to the latter, and the adjusting-screws P, engaging threaded openings in arms or brackets H and engaging the lugs or ears L of the rack-bars, for the purpose set forth, substantially 80 as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

FRANKLIN PIERCE ZIEGLER.

Witnesses:

T. M. STEVENSON,  
 H. T. HARMONY.