

United States Patent Office.

GEORGE SELDEN, OF ERIE, PENNSYLVANIA.

Letters Patent No. 107,728, dated September 27, 1870.

IMPROVEMENT IN HEAD-BLOCKS FOR SAW-MILLS.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, GEORGE SELDEN, of Erie, county of Erie and State of Pennsylvania, have invented a new and improved Pawl and Ratchet Device for Head-Blocks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan or top view of the device;

Figure 2 is a side view of the same, showing the parts in proper position for advancing the log to the saw;

Figure 3 is a side view representing the parts in position for withdrawing the log or head-block from the saw; and

Figure 4 is a transverse vertical sectional view through line *x y*, fig. 1.

This invention consists in an improvement upon a head-block ratchet patented by me, June 7, 1870, in which two shipping-levers were employed, both of which were required to be used in effecting any change in the direction in which the head-block was to be moved, while, in my improved construction, the change is effected by a single movement of a single lever, and the parts are so constructed and arranged that the throw of this lever in either direction is limited to about the required distance, and, when it has been moved to the proper position, it is then locked automatically, so as to avoid accidental displacement, as will be fully explained in the following description of its construction.

In the drawing—

A represents a base plate, or the side of a head-block, and A' a bent arm or bracket, firmly secured to plate A, substantially in the relation shown in fig. 1, these two pieces forming a support, upon which the working parts of the device are mounted.

B is a ratcheted wheel, shown in full lines in figs. 1 and 4, and in dotted lines in figs. 2 and 3. This wheel is provided with hubs or sleeves *b b'*, and, in practice, is keyed to shaft B', which represents the pinion-shaft, said shaft having suitable bearings in plate A and bracket A'.

C is the main operating lever, forked at one end, as shown in fig. 1. Each arm of this lever is expanded at its lower end, and encircles or incloses the hubs or sleeves of ratchet-wheel B, in such manner as to oscillate about shaft B' as a center.

Arm *c* of lever C fits closely hub *b*, but the perforation or bearing in arm *c'* is larger than the outside diameter of hub *b'*, to which it is concentric, thereby admitting of the interposition of another sleeve, *d*, of the double cam H, which will be hereinafter described.

C' is a pawl located between the arms of lever C, in such position that it can be made to engage with

ratchet-wheel B, and vibrate about pivot *c''*. This pawl is shown in dotted lines in fig. 3, and partly in dotted and partly in full lines, fig. 2.

C² is a tongue-spring, attached at one end to the under side of lever C, the free end of said spring engaging with the upper side of a heel extension of pawl C', as shown in dotted lines at *c''*, figs. 2 and 3.

D' D' is a series of pawls pivoted in lever C.

E E is another series of pawls, arranged upon the opposite side of the wheel, to check its return from the point to which it has been advanced by pawls D' D'.

As the difference in the length of these pawls, and the manner in which they are arranged, so that the different members of the same group act successively upon the wheel, is fully explained in the patent before referred to, I will not enter into the details here.

F is a tripping-shaft, provided with a lip or jaw, *f'*, by means of which the pawls E E are withdrawn from wheel B when required.

Shaft F is actuated by arm F', on the front or outer side of supporting-arm A'. The throw of arm F' is limited by two stops, *f f'*, upon arm A'.

G is a pivot-stop, which engages with an adjustable stop supported from plate A, or its equivalent, but not shown, for regulating the extent of the throw of lever C in its forward movement.

Arm A' is expanded or enlarged upon its inner end, that is, the end toward lever C, in such manner as to form a rib or stop concentric with shaft B', and terminating at each end in shoulders *a a'*, shown plainly in figs. 2 and 3.

H is a double cam-plate, employed for throwing the parts into and out of action. This cam is essentially and in its operation the equivalent of two cams, each of which operates in its turn upon a different pawl or set of pawls, and I will, therefore, proceed to describe them, and to indicate their functions separately. One of them, which I will designate as the inner one, because it is located next to ratchet-wheel B, is employed to actuate the set of pawls D' D', which are made wider than the face of wheel B, so as to overlap and rest upon the periphery of said inner cam, as shown at fig. 1. This cam is mounted upon hub *b'* of wheel B, and is of such size that, when placed with its greatest radius next to pawls D', said pawls will be lifted from wheel B, as in fig. 3, but when the position of the cam is reversed the pawls shall be free to engage with wheel B, as in figs. 1 and 2. The outer cam is used to control the movements of spring pawl C', which is wide enough to overlap wheel B and both cams, but is not effected by the inner one, because there is a notch cut in the lower end of the pawl, at a point opposite said inner cam, and into which the cam can enter leaving a spur upon the

outer side of the pawl, which rests upon the outer cam.

These cams are, however, made by preference in one piece, and are provided with a sleeve, *h*, which occupies the space above referred to, between sleeve *b'* and arm *c'* of lever *C*, and of sufficient length to reach a short distance beyond arm *A'*, fig. 4.

I is a shipping-lever, expanded at one end into a ring of sufficient size to encircle sleeve *h*, to which it is rigidly fastened by the key *i*. A portion of the outer face of this ring is cut away, leaving a section of it of smaller outside diameter, and thereby forming two shoulders, *i'* *i''*, shown in figs. 2 and 3.

I' is a spring-latch, pivoted to shipping-lever *I*, and serving to lock the devices in proper position, as will presently be explained.

In figs. 1 and 2 the parts are represented as being in proper position for feeding the log to the saw. It will be seen, by reference to fig. 2, that pawls *D'* and *E* are engaged with wheel *B*, so that an upward movement of lever *C* will carry the wheel with it, and pawls *E* retain said wheel as the lever is returned.

In this position the greatest radius of the inner cam is below arm *A'*, while the greatest radius of the outer cam is above arm *A'*, and is traversed on its periphery by pawl *C'*, which is thereby kept from contact with wheel *B*.

By an examination of fig. 2 it will be seen that arm *F'* is confined between shoulder *i'*, on shipping-lever *I*, and stop *f'*, on arm *A'*, which prevents pawls *E* from being accidentally thrown out by means of lip *f''*, and it will also be seen that latch *I'*, engaging with shoulder *a'*, on arm *A'*, prevents an upward movement of shipping-lever *I*.

In order to withdraw the log or head-block from the saw, I release spring-latch *I'* from shoulder *a'*, and move the shipping-lever over into the position shown in fig. 3, carrying with it the double cam *H*. In this figure, it will be seen, the position of the two cams is

exactly the reverse of what it is in fig. 2, that is, the inner one is now above the arm, with pawls *D'* resting upon it, so that they cannot engage with wheel *B*, while the outer cam is thrown below arm *A'*, so that spring pawl *C'*, traveling over the lesser radius of said cam, may engage with wheel *B*, moving it only at the downward stroke of lever *C*, the pawls *E* being withdrawn by lip *f''*, on shaft *F*, to permit this retrograde movement. This change in the position of shaft *F* is effected by shoulder *i''* striking against the outer end of arm *F'*, forcing it down to stop *f*.

It will be readily seen that arm *F'* and stops *f* *f'* serve to limit the throw of shipping-lever *I*, and, also, that when the parts are in either of the working relations above described, the combination of shipping-lever *I*, spring-latch *I'*, and arm *F*, with stop *f* and shoulder *a*, or with stop *f'* and shoulder *a'*, form a perfect lock, to guard against accidental displacement.

Having now described my invention,

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

1. The combination of the operating lever *C*, the ratcheted wheel *B*, the pawls *C'* *D'*, double cam *H*, and shipping-lever *I*, constructed and operating substantially as set forth.

2. The lever *I*, provided with shoulders *i'* *i''*, in combination with arm *F'* and tripping-shaft *F*.

3. The lever *I*, provided with shoulders *i'* *i''*, in combination with tripping-shaft *F*, arm *F'*, latch *I'*, and arm *A'*, provided with shoulders *a* *a'* and stops *f* *f'*, for locking the tripping-shaft, substantially as set forth.

4. The combination of lever *I*, latch *I'*, arm *A'*, provided with shoulders *a* *a'* and studs *f* *f'*, the arm *F'*, and cam *H*, for locking the cam, as set forth.

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Witnesses:

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