

E. H. STEARNS.
Saw-Mill Dogs.

No. 145,026.

Patented Nov. 25, 1873.

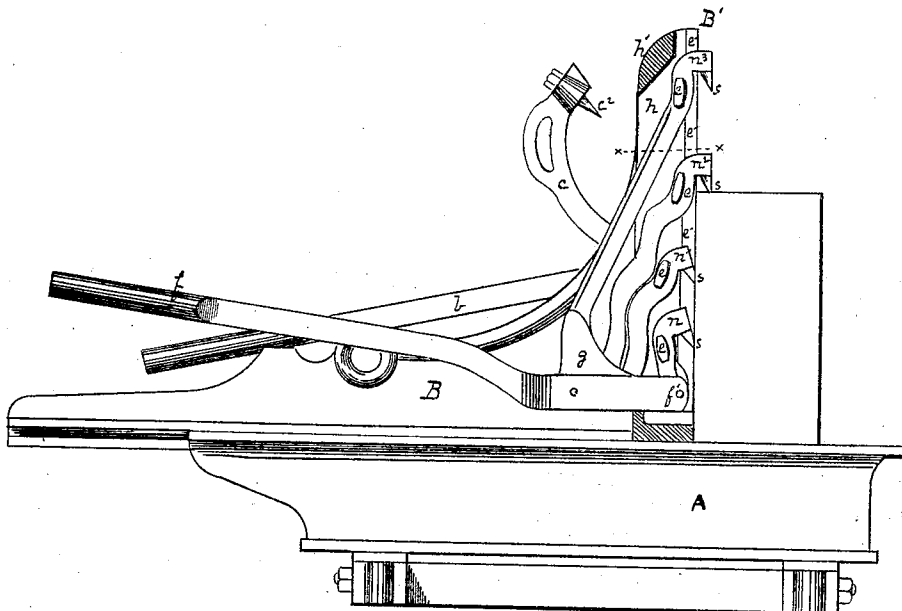


Fig. 1.

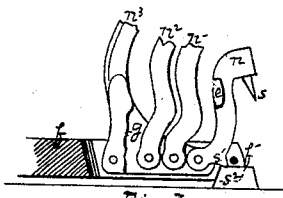


Fig. 3.

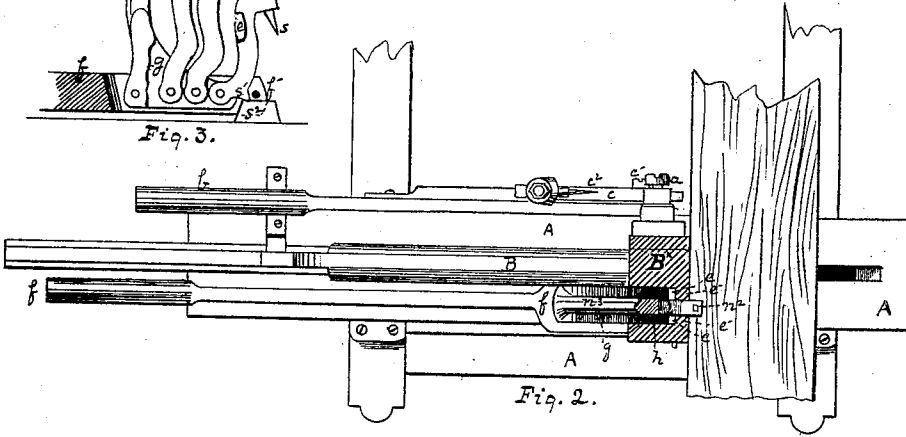


Fig. 2.

WITNESSES.

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INVENTOR.

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his attys.

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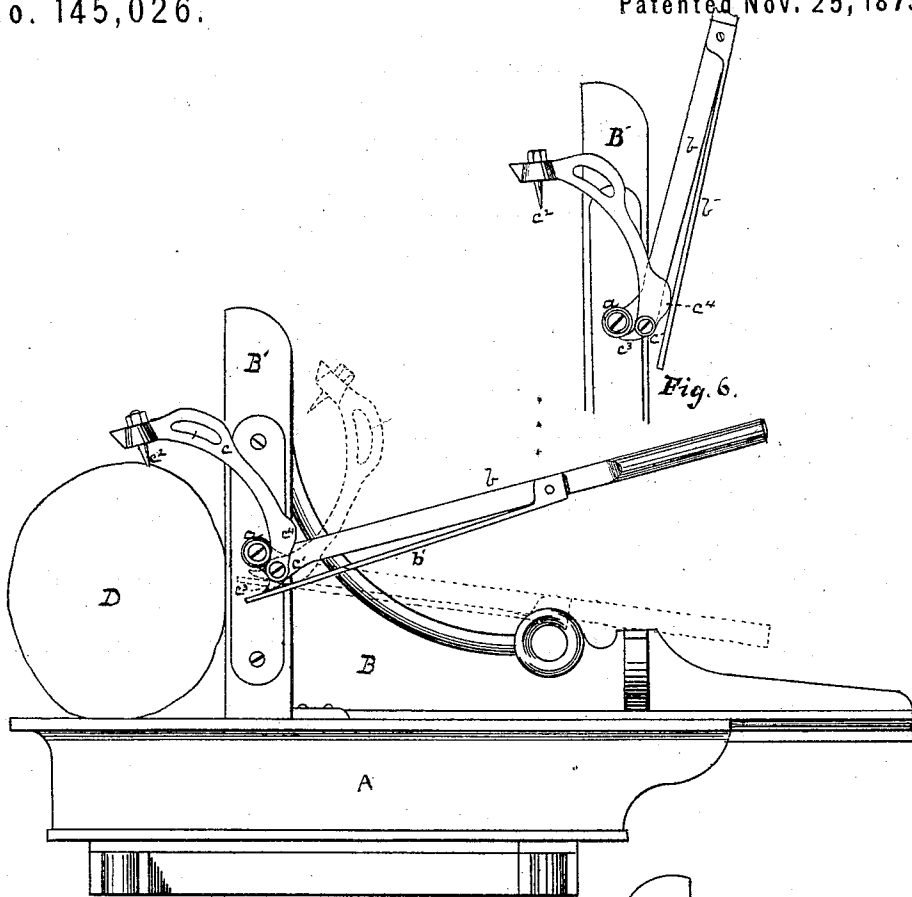


Fig. 4.

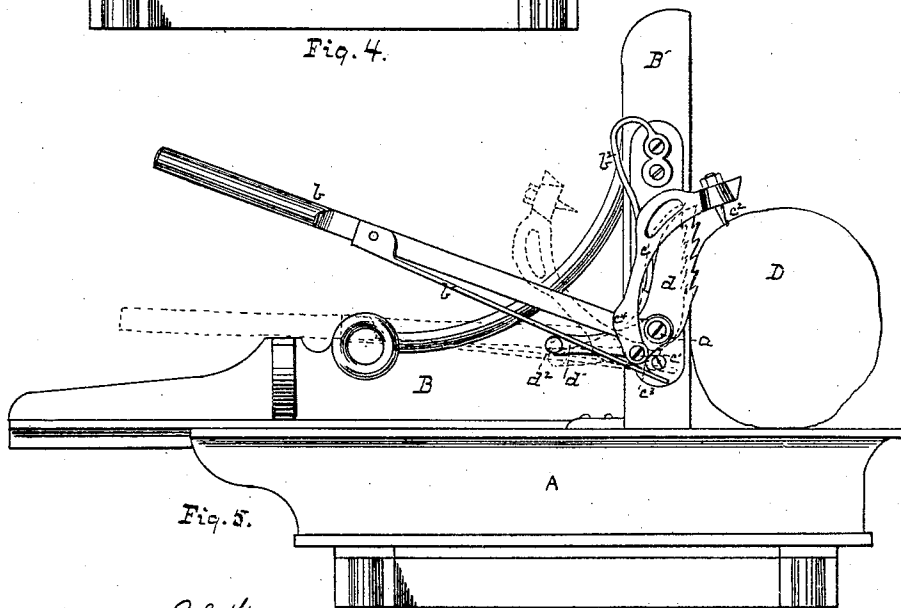


Fig. 5.

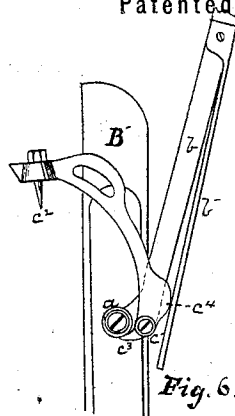


Fig. 6.

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UNITED STATES PATENT OFFICE.

EDWARD H. STEARNS, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN SAW-MILL DOGS.

Specification forming part of Letters Patent No. **145,026**, dated November 25, 1873; application filed July 3, 1873.

To all whom it may concern:

Be it known that I, EDWARD H. STEARNS, of Erie, in the county of Erie and State of Pennsylvania, have invented a new and useful Improvement in Saw-Mill Dogs; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, in two sheets, making a part of this specification, in which—

Figure 1, Sheet 1, represents a side elevation of the sliding knee of a saw-mill head-block, with my improvements attached for dogging a log cant or board, square or rectangular, in cross-section, one side of the standard being removed, the better to illustrate the operation of the dogs. Fig. 2 is a vertical section through the line *xx* of Fig. 1. Fig. 3 is a detached view of a portion of the devices of Fig. 1. Fig. 4, Sheet 2, is a side elevation of the sliding knee of a saw-mill head-block and cross-section of a log thereon, illustrative of my improved construction for dogging a round log. Fig. 5 is a like view, showing the same construction of dog in connection with the device for preventing the rotation of the log, and particularly designed for dogging small logs, &c.; and Fig. 6 illustrates the manner of securing a bite of the dog-tooth in the log.

Like letters of reference indicate like parts in each.

My improvement relates to the construction and combination of devices to be used in connection with the sliding knees of saw-mill head-blocks for holding the log in position while being squared and sawed.

To enable others skilled in the art to make and use my improvement, I will proceed to describe its construction and mode of operation.

The head-blocks, of any suitable construction, are represented at *A*, on which the sliding knees *B* are operated in the ordinary manner. The log *D* is first to be squared. If it be a log of considerable diameter, I make use of the dogging device represented in Fig. 4, which device is pivoted as at *a*, or otherwise attached to the standard *B'* of the sliding knee *B*. This pivot, or the pin which constitutes it, passes through the end of a lever, *b*, which is of the form substantially as shown, but such that the dog *c* may be attached thereto by a

loose joint, as at *c'*, so that when the dog-tooth *c*² engages the log and is pressed in, the point of the dog-tooth will be nearly or quite in line with the pivoting-points *a* and *c'*. The dog *c* has a lug, *c*³, against which the spring *b'* bears in such a way that, when the dog-tooth is disengaged from the log, it will be swung back and over to the position shown by dotted lines in Fig. 4, and, of course, away from the log and back of the front face of the standards *B'*. The lug *c*³ thus made comes between the end of the spring *b'* and the end of the lever *b*, at its pivoting-point *a*. The dog *c*, when at rest, also has a bearing by means of a swell, *c*⁴, on the spring *b'*, as shown, to hold it up in proper position for being thrown over for use.

In operation, the log is rolled onto the head-blocks and against the standards *B'*. The operator raises the outer end of the lever *b* till the point of the tooth *c*² comes against the log, and at the same time, or soon after, the lug *c*³ strikes the end or pivot-post *a* of the lever *b*, as shown in Fig. 6. The lever *b* and the dog *c* then constitute a rigid bend-lever, and the operator, bearing over on the outer end of the lever *b*, presses the dog-tooth *c*² downward and into the log. As soon as he thus secures the bite he reverses the lever, and thereby bringing the joint *c'* further from the pivoting-point *a*, he draws the dog-tooth *c*² into the log, so as to hold it securely therein, and dog the log in position. After the log is slabbed on one side it is rolled over by means of a log-turner, working against the side opposite to the standard *B'*, which has the effect to turn it, and at the same time loosen it from the tooth *c*². The spring *b'*, then, by its bearing on the lug *c*³, (and the lever *b* falling at the same time,) throws the dog *c* with its tooth back of the face of the standards. When the log comes to the desired position the operation is repeated.

The construction thus described is preferable for logs of considerable diameter, and where the log is small I make use of the devices shown in Fig. 5, in which the devices indicated by the same letters are identical, except that in some cases, if so preferred, the dog is made shorter, and its pivoting-point lower. But to the devices thus far named I add a ratchet-plate, *d*, which is loosely piv-

oted, at the pivoting-point *a*, to the standard *B'*, so as to be capable of a motion independent of the lever and dog. This ratchet-plate has a series of ratchet-teeth with points projecting upwardly, as shown, and a back extension, *d'*, from which a pin, *d''*, projects laterally out under the end of the lever *b*. A spring, *b''*, bears against the rear edge of the ratchet-plate *d*, and in such position that when the dog *c* is thrown forward or over to engage the log, the spring *b''* will press the ratchet-plate forward with its teeth beyond the front face of the standard *B'*, and against the side of the log adjacent thereto. Then, as the lever *b* is thrown back in locking the log, the ratchet-teeth engaging the side of the log will keep the log from rolling over in that direction. As soon as, by means of the log-turner, the dog-tooth is released from its bite, the lever *b* will fall down, and, striking on the pin *d''*, will carry it down and throw the ratchet-plate *d* away from the log and with its teeth back of the face of the standard, as shown in dotted lines. In this operation the ratchet-teeth take a sufficiently secure bite on the log to prevent its being turned by the dog *c*, but not so secure but that the log-turner, when brought into operation, will loosen the dog-tooth *c'* and release the apparatus, as already described.

In the manner thus far described the log is slabbed, and is then brought into position with the standard *B'* bearing against it, and, by means of the dog and devices shown in Figs. 1 and 2, is dogged in position for sawing.

In these devices a lever, *f*, is employed, and the standard is recessed, as indicated. The forward end of the lever is bifurcated and pivoted, as at *f'*, in the recess and near the outer face of the standard. Inside this bifurcation is a stirrup, *g*. This stirrup carries a series of dogs, *n n' n'' n'''*, in any desired number, the said dogs being pivoted to or in the stirrup at their lower ends; but the rear one, *n'''*, in order that it may act as a guide in holding the stirrup in proper position, may be connected rigidly therewith. Each dog is made with guides *e*, which, as the lever *f* is raised, bear against the guiding-strips *e'* of the standards *B'*, and keep the dogs from projecting beyond the face of the standards farther than is desired. The standard is boxed out or recessed, as at *h*, so as to allow the dog-teeth to come inside the face of the standard; and any suitable device may be employed to keep them from going back too far. When the lever *f* is raised up the dogs *n n'*, &c., having their center of gravity forward of their pivot-point, will fall outward with their teeth *s* beyond the face of the standard, and with the guides *e* against the guiding-strips *e'*, and as the lever comes down the knee *s'* of the lower dog *n* comes against the block *s''*, Fig. 3, and throws the

lower dog back with its tooth inside the face of the standard. As the motion is continued each upper dog strikes the one next below and in front of it, and is thrown inward in like manner; but there is play enough between the dogs to enable each lower dog to be moved within the standard, while the one immediately above it remains with its tooth outside the face of the standard. The cant being brought to position, with the standard *B'* bearing against its side or face, the lever *f* is raised up, by which motion the dog-teeth *s*, or so many of them as may be or are thereby brought above the face of the cant, are thrown forward outside of the face of the standard. Those below the upper face of the cant remain inside the standard, and are out of the way. The lever *f* is then depressed till the lowermost of the teeth *s* above the cant is brought against and embedded in the upper face of the cant, when the sawing proceeds in the usual way; and when it is so desired, the bite of the tooth on the cant is loosened by raising the lever *f*. These dog-teeth are arranged at a distance from each other, preferably, not greater than the length of their vertical motion, so that whatever may be the vertical thickness of the cant, or however much different cants may vary in thickness, some one tooth may be always brought to take a bite on its upper face, and the teeth below will always be out of the way; and when the cant is sawed up, and the lever *f* is down, the teeth are all inside the outer face of the standard, so as to be out of the way. The standard has a stop-block, *h'*, to prevent the too great backward motion of the dogs.

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

1. The cant-hook dog *c*, having the lug *c''*, in combination with the lever *b* and spring *b'*, substantially as set forth.
2. The cant-hook dog *c*, having the lug *c''* and the swell *c'*, in combination with a post or bearing at the pivoting-point *a*, and the spring *b'*, substantially as set forth.
3. The combination of the cant-hook dog *c*, lever *b*, spring *b'*, ratchet-plate *d*, and standard *B'*, substantially as set forth.
4. The series of dogs *n n'*, in any desired number, and having guides *e*, in combination with the stirrup *g*, guiding-strips *e'* of the standard *B'*, and lever *b*, substantially as set forth.
5. The series of dogs *n n' n'' n'''*, in combination with the guiding-strips *e'*, the knee *s'*, and block *s''*, substantially as set forth.

In testimony whereof I, the said EDWARD H. STEARNS, have hereunto set my hand.

EDWARD H. STEARNS.

Witnesses:

T. B. KERR,

G. H. CHRISTY.