(No Model.) 2 Sheets—Sheet 1.

# A. DELANEY & J. M. BOND.

## SAW MILL DOG.

No. 344,355. Patented June 29, 1886.

*Fig. 2.*

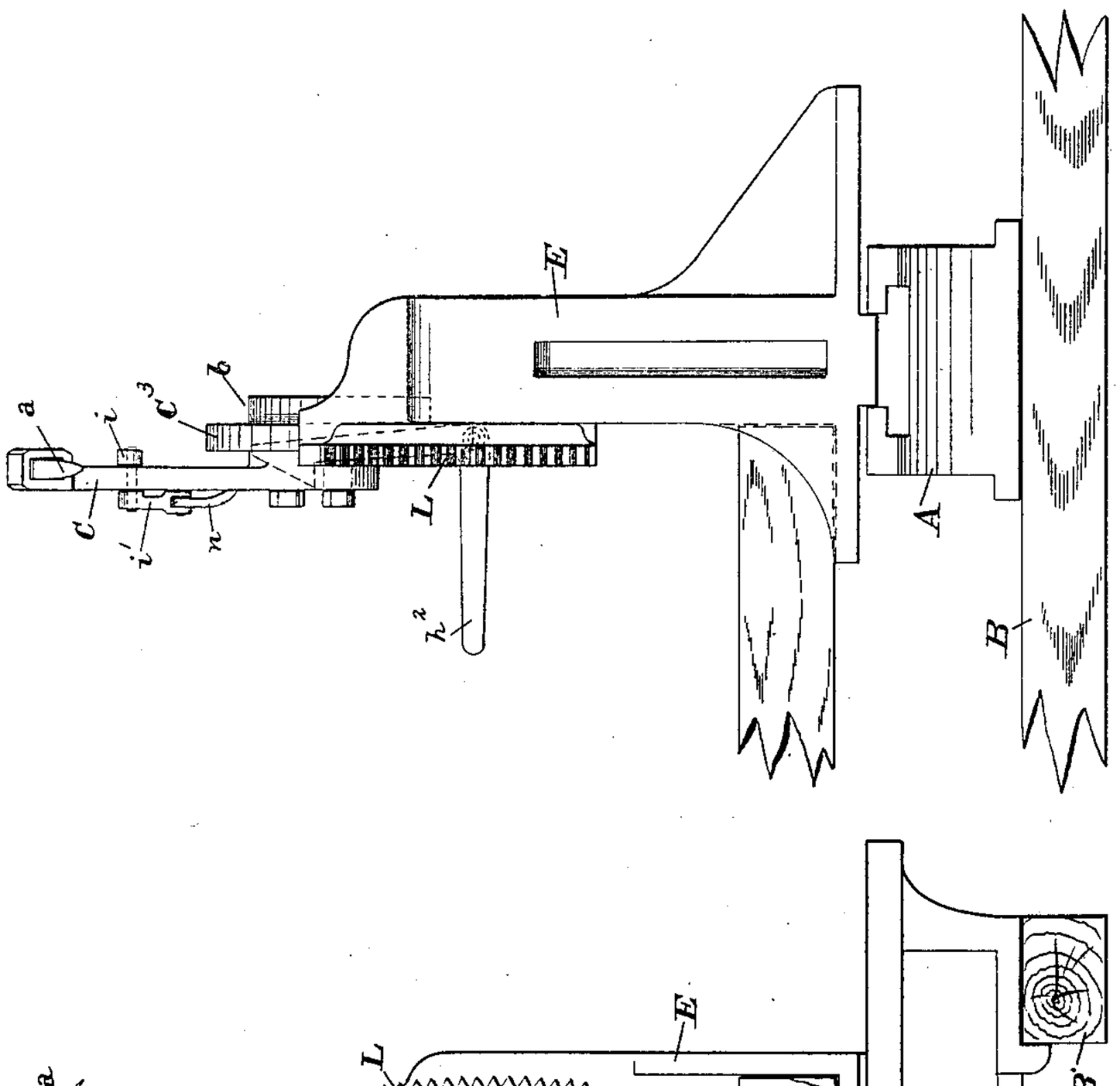
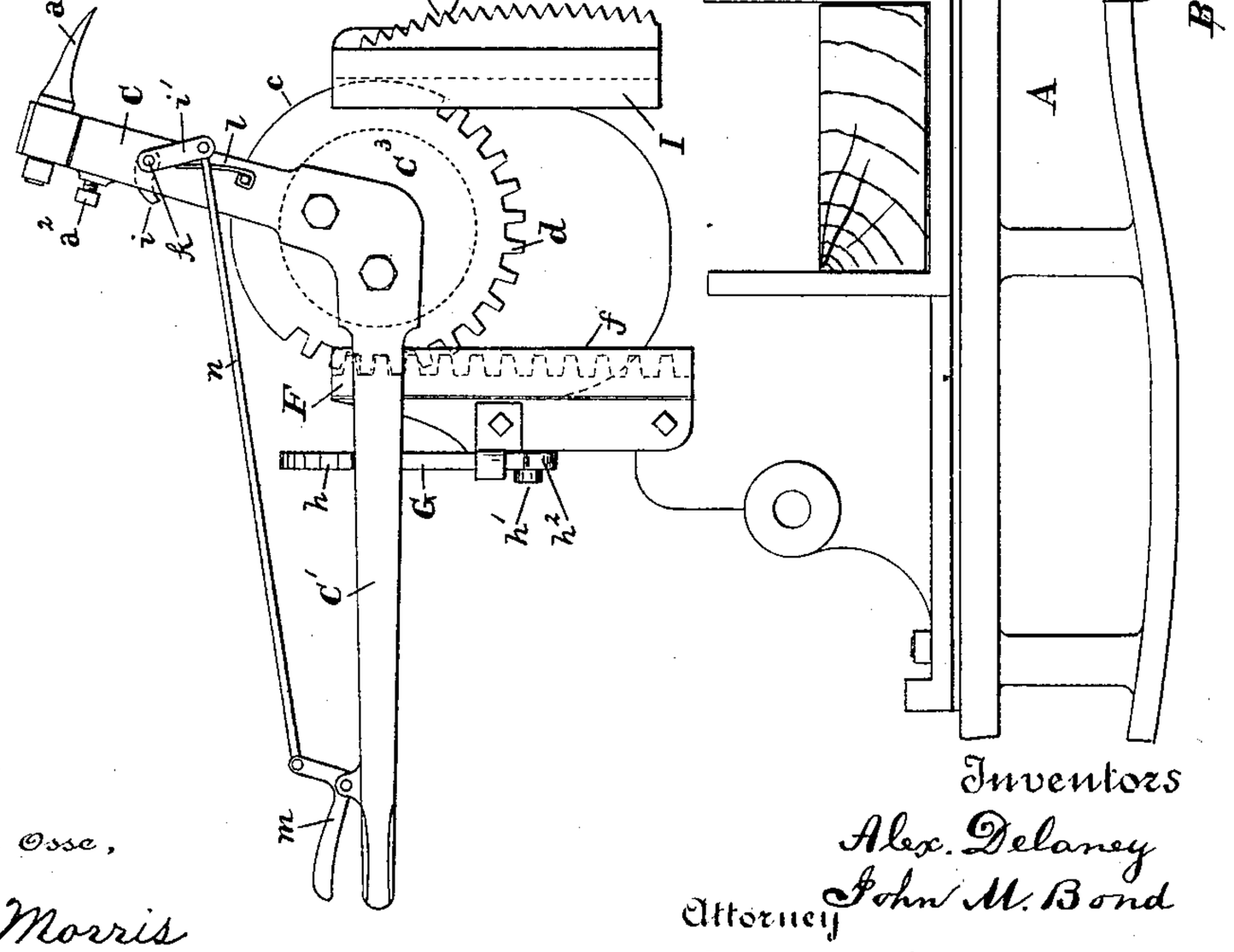



*Fig. 1.*




Witnesses

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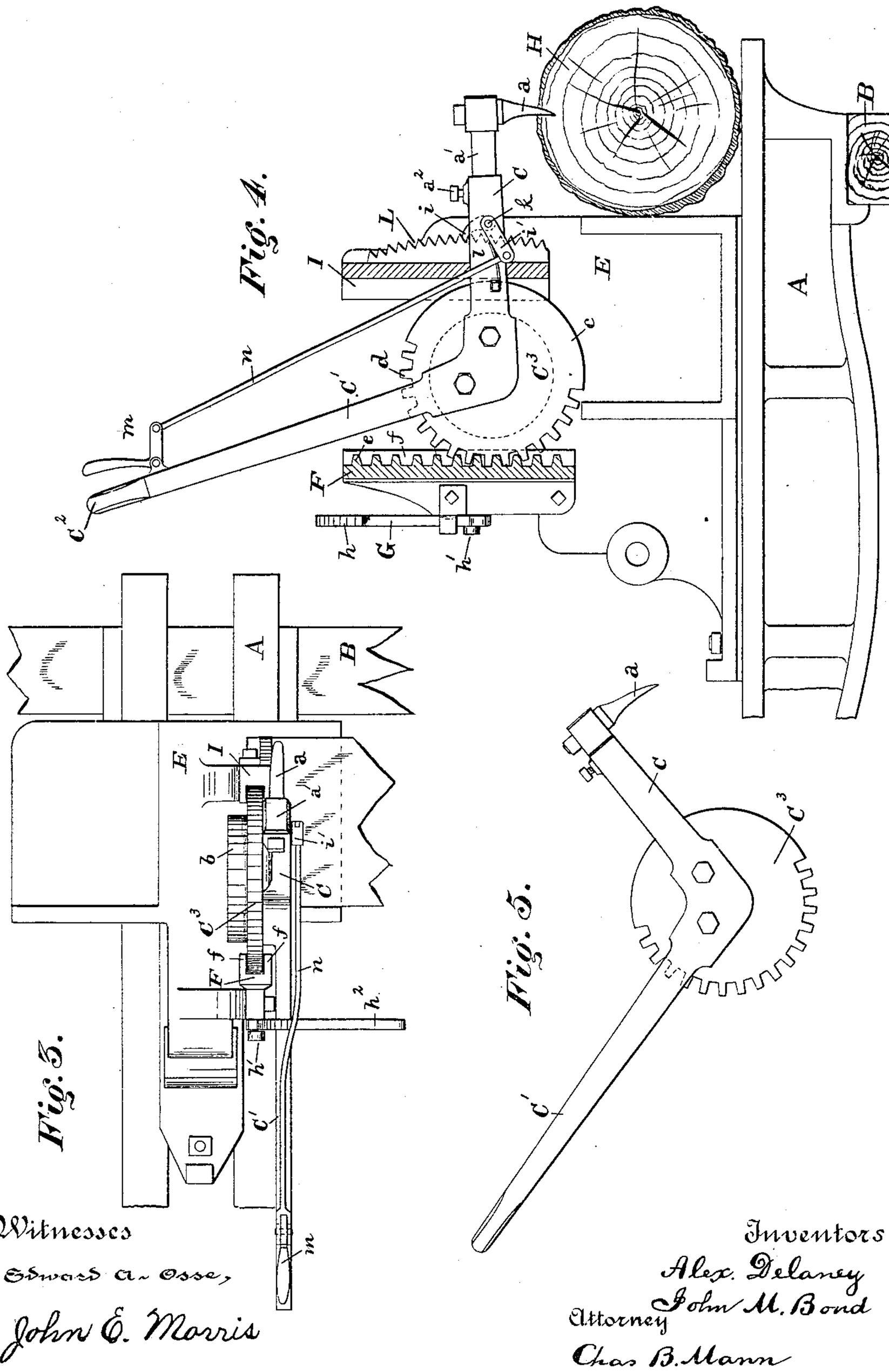


Fig. 4.




Fig. 5.




Fig. 5.

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# UNITED STATES PATENT OFFICE.

ALEXANDER DELANEY AND JOHN M. BOND, OF RICHMOND, VIRGINIA.

## SAW-MILL DOG.

SPECIFICATION forming part of Letters Patent No. 344,355, dated June 29, 1886.

Application filed January 8, 1886. Serial No. 187,959. (No model.)

*To all whom it may concern:*

Be it known that we, ALEXANDER DELANEY and JOHN M. BOND, citizens of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Log-Dogs for Saw-Mills, of which the following is a specification.

This invention relates to a dog for saw-mills.

In the accompanying drawings, which illustrate the invention, Figure 1 is a side elevation of certain parts of a saw-mill and the improved dog, showing the position of the latter when not in use. Fig. 2 is a front elevation of the same. Fig. 3 is a top view of the same. Fig. 4 is a side elevation of the improved dog and those parts of a saw-mill which aid in its proper illustration. In this view the dog is shown holding a log. Fig. 5 is a view of the dog-driver and dog.

The letter A designates a head-block resting on the timbers B of a saw-mill carriage, and E the knee, which, as usual, slides on the head-block.

The dog-tooth *a* is fixed on the end of an arm, *a'*. This arm may be integral with the rest of the dog-driver proper or it may be separate, and by occupying a socket having a set-screw, $a^2$, it may thereby be adjustable.

The dog-driver, including the dog, is shown separately in Fig. 5, and consists of a circular or partly-circular head, $C^3$, having a portion of its rim provided with gear-teeth *d* and another portion, *c*, smooth or without teeth. Rigidly attached to this head $C^3$ is an arm, C, which has the socket and set-screw $a^2$ above referred to; but, as also stated, the socket may be dispensed with, and this arm C and the dog-arm *a'* may be integral. Another arm, C', is attached to the circular head, and has a handle, $C^2$, and serves as a lever for raising or drawing back the head and the dog-tooth arm. The head $C^3$ is a metal casting, and has in its composition sufficient metal to give it the requisite weight to impart driving-force to the dog-tooth arm. It may be made weighty to any desired extent by casting a bulk, *b*, of metal at one side. (See Fig. 3.)

At one side of the knee E, or to any other suitable support, is attached the means whereby to support and raise and lower the dog-driver. These consist of a vertical rack, F, comprising teeth *e*, and on each side of the teeth a guide, *f*. In other words, the rack F has two guides, *f*, which form between them a vertical groove, (see Fig. 3,) and the teeth *e* of the rack are in the groove. The toothed portion *d* of the rim of the head $C^3$ occupies the rack-groove, and the teeth *d* of the head engage or gear with the teeth *e* of the rack. It will thus be seen, by reference to Fig. 1, that when the raised dog-arm moves down to strike the timber the head $C^3$ partly turns, and the teeth *d* will traverse down the rack F and the weight of the metal head $C^3$ will impart the force to the dog-arm, by which it is driven with a curved movement forward and down and into the timber.

By reference to Fig. 4 it will be seen that when it is desired to raise the dog-arm from the timber H the lever-handle $C^2$ must be drawn back and down, which action will cause the teeth *d* of the head $C^3$ to traverse up the rack F. By thus making the dog-arm and a weight to drive it directly and rigidly united as one part, (see Fig. 5,) and arranging it as described, a device of great effectiveness and extreme simplicity is produced.

That part of my invention relating to the dog-arm C provided with a weighted driver, $C^3$, directly united to it, is distinguishable from other known devices in that the arm and weighted driver here shown are directly and rigidly united and are not pivoted, and when the dog-arm is driven forward and down with a curved movement to strike the timber the weighted driver and the end of the dog-arm attached to it moves vertically downward. The construction of this dog-arm and weighted driver are such also as to permit them at any time to be readily detached by merely lifting them from their support.

A device of some kind is necessary to retain the dog-driver head $C^3$ in contact with the rack F. In this instance we show a grooved guide, I, for this purpose. This guide has vertical position, and the smooth portion *c* of the rim of the dog-driver head occupies the groove *g* in the guide. As one portion of the head $C^3$ is in the rack F and the diametrically-opposite portion in the guide I, it will be seen

the said head cannot leave or be disengaged from the rack. A latch, G, is a bar bent at an angle, and has at one end a hook, *h*, which engages with the lever handle or arm C′ and holds it down, thereby keeping the dog-arm in an elevated position, as in Fig. 1. This latch swings on a pivot, *h′*, while the end $h^2$ opposite the hook end serves as a weight to cause the hook to press in the right direction, and also as a handle whereby to release the hook.

We deem it useful and desirable to have a device which when the dog *a* is in the timber will keep it in. The action of the saw causes a constant jar to the timber, which tends to release the dog therefrom, and we therefore provide means to prevent the dog from withdrawing itself. This consists of a fixed ratchet-bar, L, having a curved shape, and a pawl, *i*, on the dog-arm to engage with the said ratchet. The pawl in this instance is at one side of the dog-arm, and is attached to a pivot-bolt, *k*, which passes through the arm, and a short lever, *i′*, is attached to the pivot-bolt at the other side of the arm. A spring, *l*, presses on the short lever and keeps the pawl normally in position to engage with the ratchet L.

A bell-crank lever, *m*, is pivoted on the lever handle or arm C′, and a rod, *n*, connects the bell-crank lever with the pawl-lever *i′*. This construction insures that, upon the dog *a* being driven into the timber, the pawl *i* will automatically engage with the ratchet L, and thereby keep the dog from being released. When about to withdraw the dog, the first thing is to press the bell-crank lever to the lever-handle $C^2$, which serves to lift the pawl from the ratchet. The dog-arm may then be raised.

The operation of the dog is as follows: The log is first rolled on the head-block A and against the knee E. The dog-tooth arm *a′* is adjusted in its socket to bring the dog-tooth *a* to the position where it will strike and enter the log at the desired point. The latch G is then disengaged from the lever-handle C′, whereupon the dog-lever arm C is driven forward and down, forcing the dog *a* into the log.

Having described our invention we claim, and desire to secure by Letters Patent of the United States—

1. A saw-mill-dog mechanism comprising the combination of a dog, a dog-arm, and a weighted driver, $C^3$, directly united to the said dog-arm, and means, substantially as described, for guiding the weighted driver vertically when the free end of the dog-arm takes a curved movement, for the purpose set forth.

2. A saw-mill-dog mechanism comprising a dog, a dog-arm, and a weighted driver directly and rigidly united to the dog-arm, said driver having a partly-circular shape and provided with gear-teeth, in combination with a stationary vertical rack with which the said gear-teeth engage, as set forth.

3. A saw-mill-dog mechanism comprising a dog, a dog-arm, and a weighted driver directly and rigidly united to the dog-arm, said driver having a partly-circular shape and provided with gear-teeth, in combination with a stationary vertical rack with which the said gear-teeth engage, and a guide to retain the driver in contact with the rack, as set forth.

4. A saw-mill-dog mechanism comprising a dog, a dog-arm, and a weighted driver united to the dog-arm, said driver having a partly-circular shape and provided on one portion with gear-teeth *d*, while another portion, *c*, is smooth or without gear-teeth, in combination with a rack with which the said gear-teeth engage, and a guide having a groove, *g*, which is occupied by the said smooth portion of the driver, as set forth.

5. A saw-mill-dog mechanism, having in combination a dog, a dog-arm carrying the said dog and having a weighted driver directly and rigidly united thereto, a pawl pivoted on the said dog-arm, a knee, and a curved ratchet-bar with which said pawl engages, arranged as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

ALEXANDER DELANEY.
JOHN M. BOND.

Witnesses:
C. A. PEPLE,
I. S. TOWER.