

W. W. CAREY.  
BAND SAWING-MACHINE.

No. 170,814.

Patented Dec. 7, 1875.

Fig. 1.

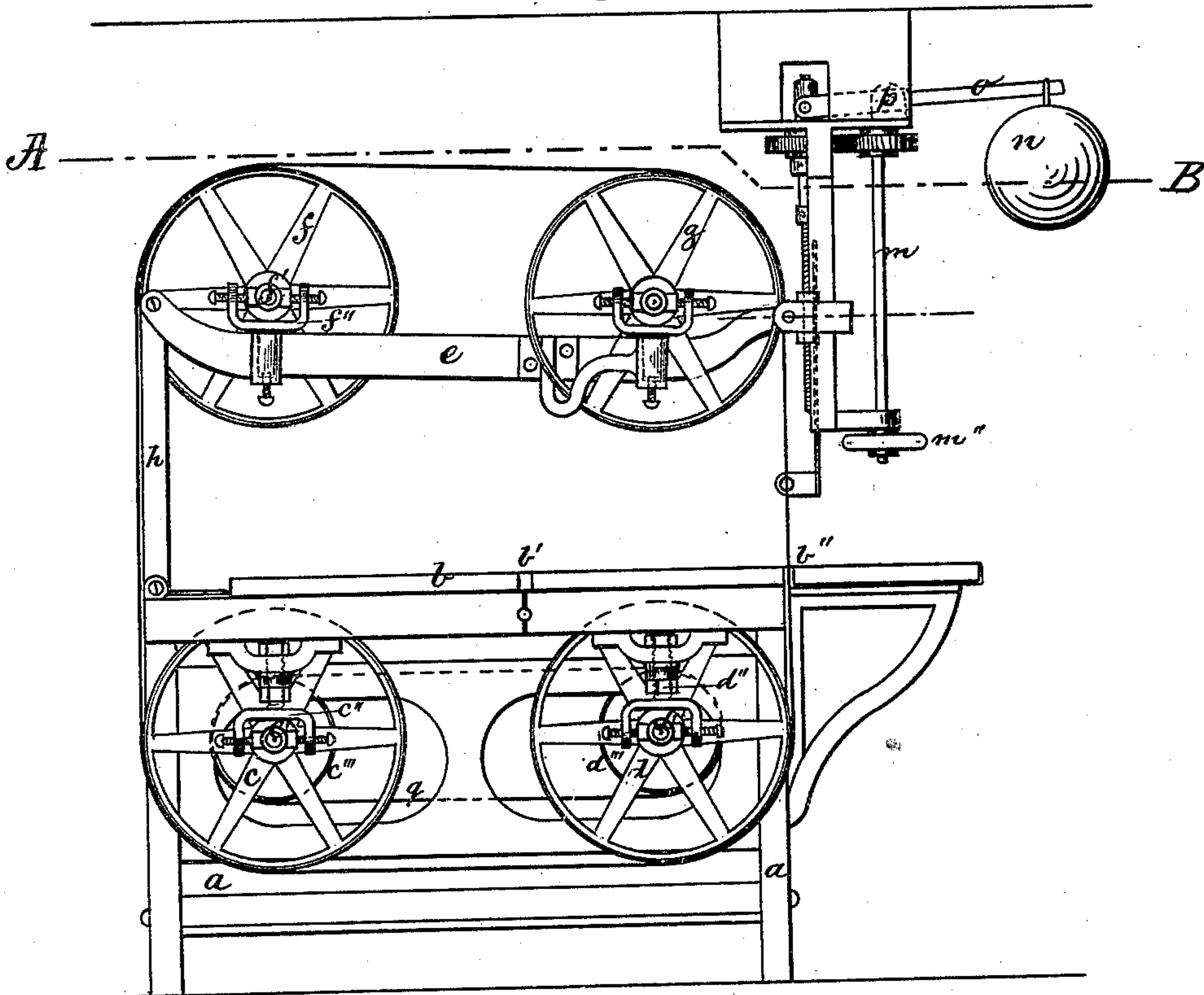
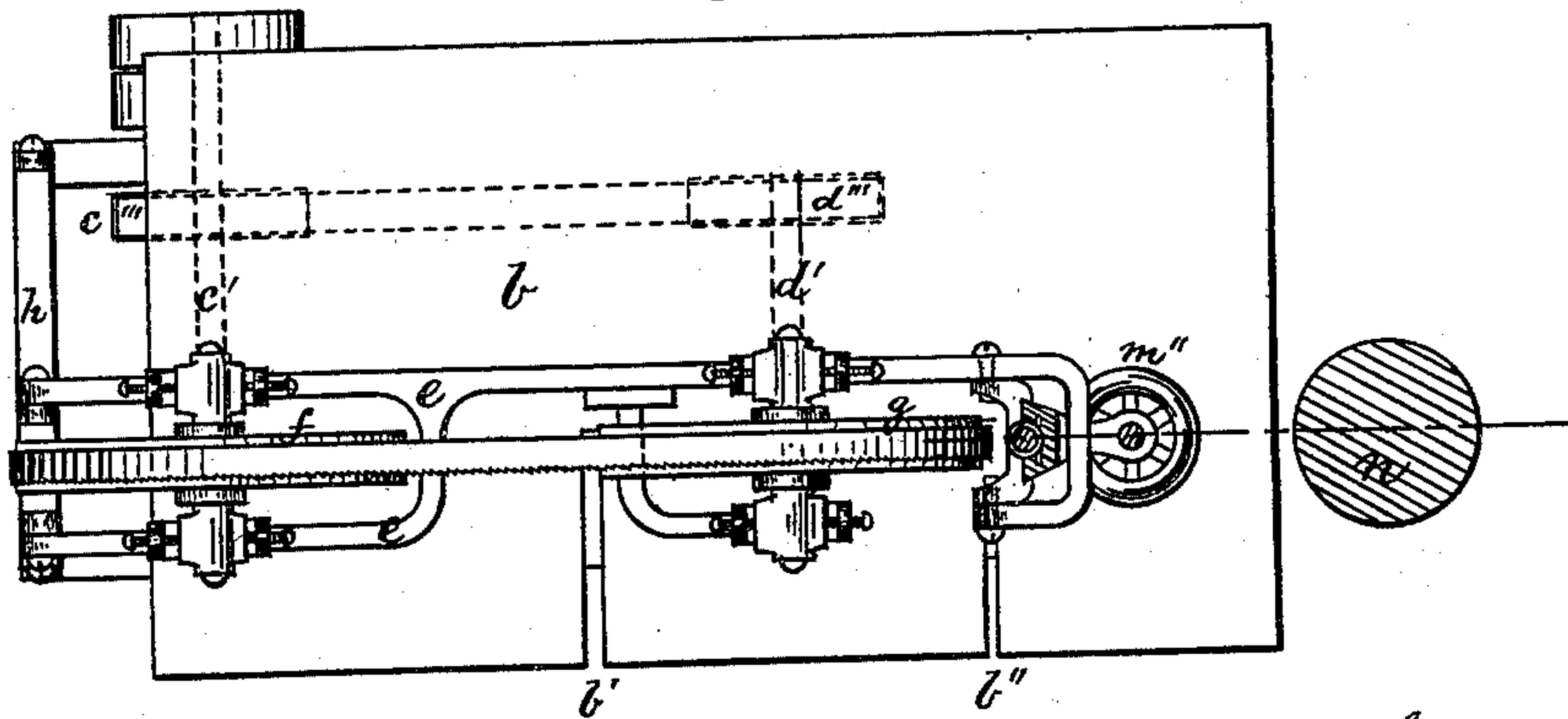


Fig. 2.



Witnesses:

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*J. H. Allen*

Inventor:

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attys.

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Fig. 3.

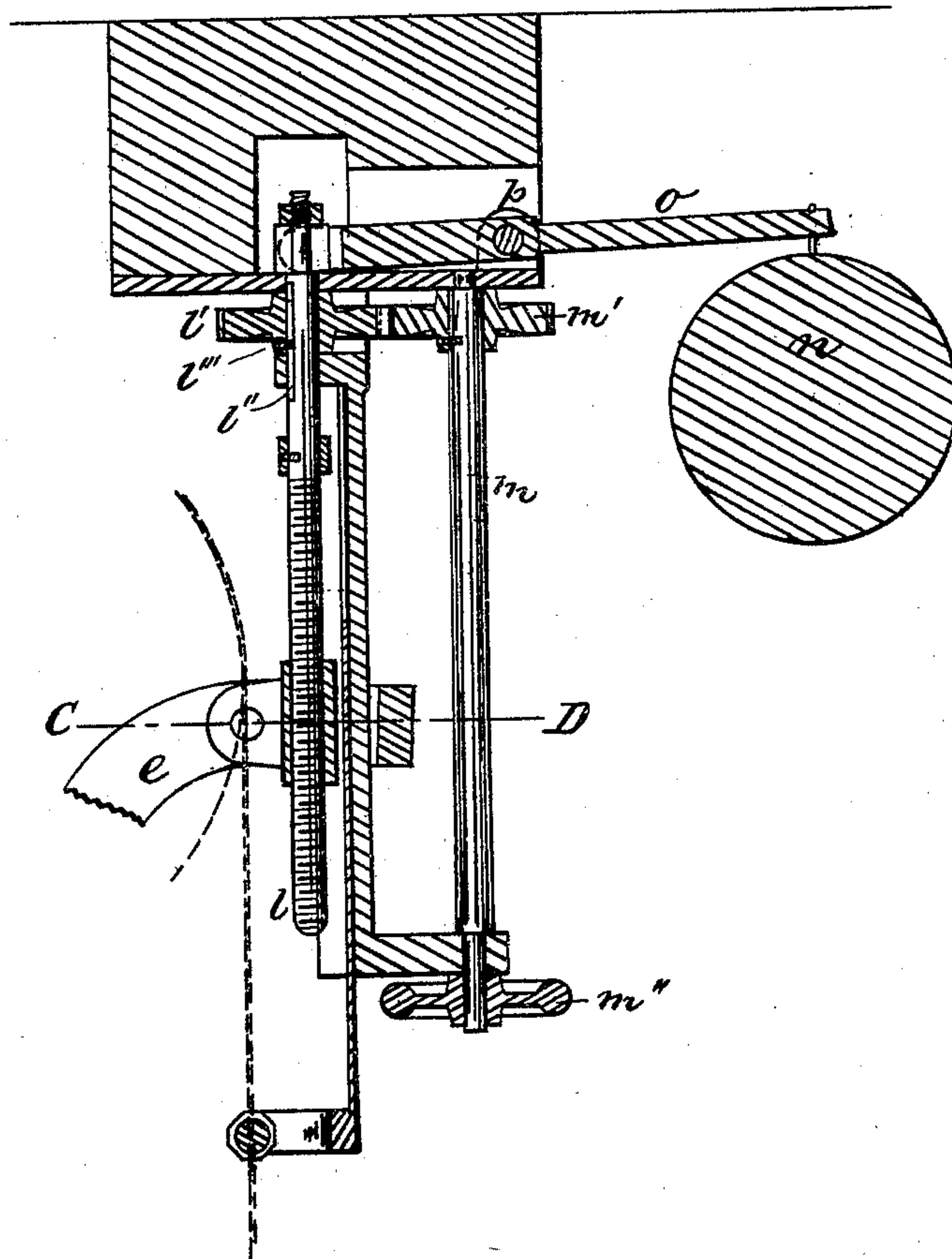
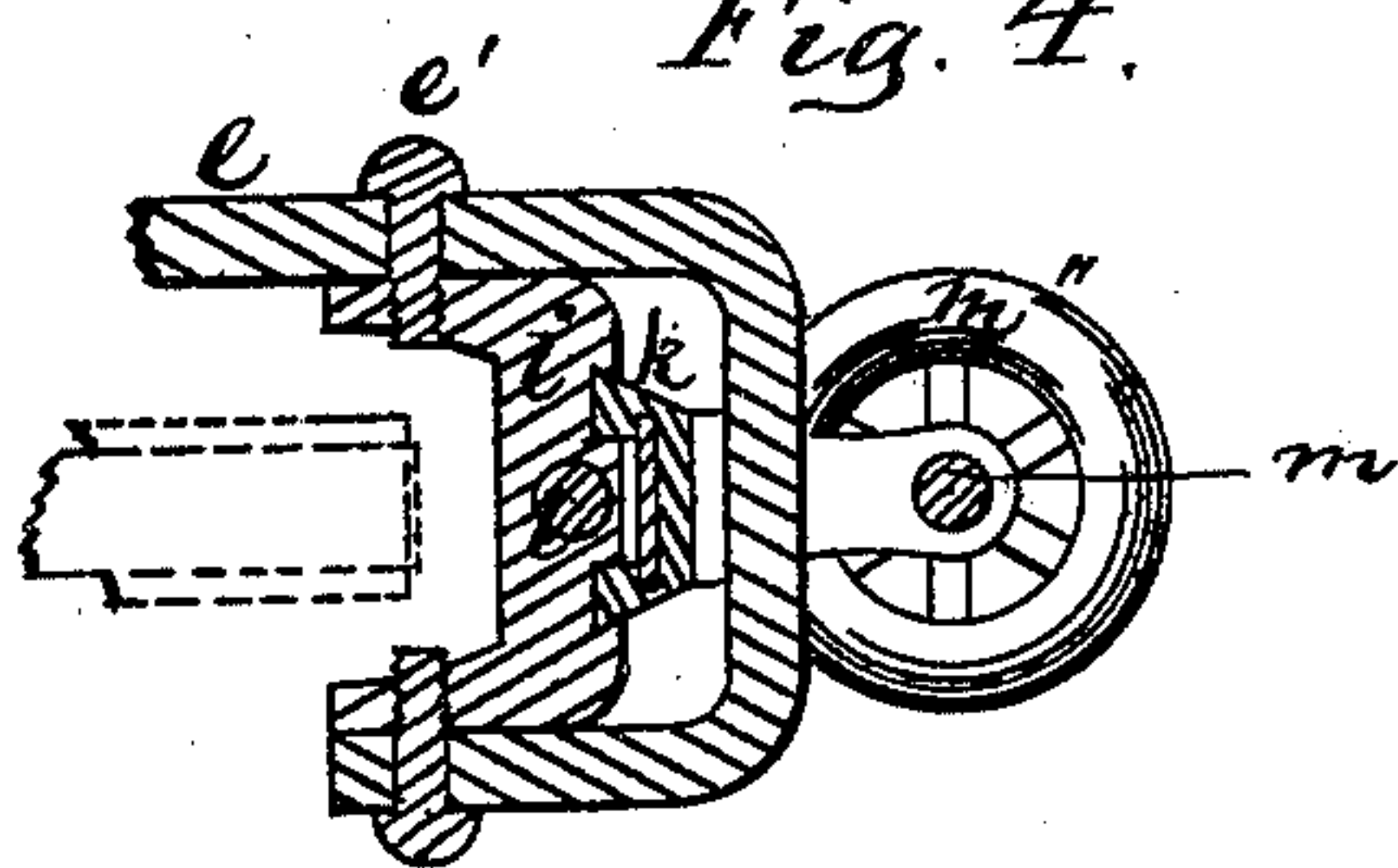


Fig. 4.



Witnesses:  
V. May  
G. H. Allen

Inventor:  
Wilson W. Carey.  
by Alban Andrews.



# UNITED STATES PATENT OFFICE.

WILSON W. CAREY, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE W. HARRIS, OF SAME PLACE.

## IMPROVEMENT IN BAND SAWING-MACHINES.

Specification forming part of Letters Patent No. 170,814, dated December 7, 1875; application filed October 9, 1875.

*To all whom it may concern:*

Be it known that I, WILSON W. CAREY, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Band Sawing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in band-saws; and consists of a stationary frame, on which a stationary work-table is resting. Below the work-plate are located in universal bearings a pair of band-carrying pulleys, that are coupled together by means of a smaller pulley, secured to each shaft of the band-carrying pulleys, which smaller pulleys are simultaneously rotated together by means of a connecting belt or strap. Above the work-plate are located a pair of band-carrying pulleys in universal bearings, in an adjustable swinging frame, the rear of which is hinged to an upright link, the lower end of which is hinged to the saw-bench or other stationary support. The front end of the said adjustable swinging frame is hinged to a screw-threaded block, that is made adjustable up and down on a stationary guide, secured to the ceiling above the upper drums, or other stationary support. The said screw-threaded block is adjusted up or down by means of a hand-wheel secured to a shaft, to the upper end of which is attached a spur-wheel, gearing into a secondary spur-gear attached to the screw-shaft that works into the said screw-threaded block.

Independent of this arrangement for raising or lowering the upper band-carrying pulleys, so as to give a proper tension to the band-saw, I use a weight hung on a lever that is hinged in suitable bearings. The inner end of said lever is jointed to the upper end of the screw-threaded shaft, that is made with a key or groove, fitting in a corresponding groove or projection in the hub of the secondary spur-wheel, by which arrangement the proper ten-

sion of the band-saw is automatically regulated, independent of the hand-wheel and its connecting mechanism, to the swinging frame.

It will thus be seen that I employ four band-carrying pulleys—two below and two above the work-table—by which I am able to swing considerably larger pieces of work on the work-table, as compared with the ordinary band-saws, in which only two pulleys are used, and this I am able to accomplish with much smaller pulleys, as compared with the ordinary band-saws. The work-table is provided with two slits or openings, so that I may use a long band running over all four pulleys when sawing large stock, and only two pulleys—the upper and lower front ones—when sawing smaller stock. I am thus able to utilize short or broken blades for this latter purpose.

Rotary power is applied to the shaft of one of the lower pulleys in the usual manner.

On the accompanying drawings, Figure 1 represents a side elevation of my invention. Fig. 2 represents a horizontal section on the line A B, shown in Fig. 1. Fig. 3 represents a vertical section of the adjusting device for the swinging frame; and Fig. 4 represents a cross-section on the line C D, shown in Fig. 3.

Similar letters refer to similar parts wherever they occur on the drawings.

*a a* represent the frame or bench on which the work-table *b* is resting. *c d* represent band-carrying pulleys, secured to the shafts *c' d'*, and revolving in universal bearings *c'' d''*, that are secured to the frame or bench *a* below the work-table *b*. The bearings *c'' d''* are made universally adjustable, so as to insure accuracy in the running of the saw-blade, and this is particularly the case where I use four band-carrying pulleys, as it would be difficult to locate so many pulleys in stationary bearings, and at the same time have them all located perfectly plumb and true. Above the work-table *b* is arranged the swinging frame *e*, in which the band-carrying pulleys *f g*, secured to the shafts *f' g'*, are made to run loosely in the universal bearings *f'' g''*, as shown in Fig. 1. The rear end of the frame *e* is hinged to the upright link or connection *h*, the lower end of which is hinged to the



work-plate *b*, or other stationary support. The forward end of the swinging arm *e* is hinged, at *e'*, to a screw-threaded block, *i*, that is movable up and down on the vertical stationary guide *k*, the upper end of which is secured to the ceiling above, or other stationary support.

It will thus be seen that by the employment of the swinging frame *e*, link or connection *h*, the stationary guide *k*, and block *i*, the band-carrying pulley *g* can always be made to occupy its relative vertical position to that of the pulley *d* below, and consequently the cutting part of the saw will always be kept vertical, although the frame *e* is swung around its hinge at the rear, where it is connected to the link *h*.

The screw-threaded block *i* is adjusted up and down by means of the screw-shaft *l*, with its pinion *l'* attached to its upper end, which pinion gears into another pinion, *m'*, secured to the upper end of the shaft *m*, having a hand-wheel, *m''*, in its lower end, as shown in the drawings.

The swinging frame *e* is adjusted independently of the hand-wheel *m''*, its shaft and gear, by means of the weight *n*, adjustable on the lever *o*, that is supported on the fulcrum *p*, as shown in Figs. 1 and 3. The opposite end of the lever *o* is connected to the upper end of the screw-shaft *l*, in a manner as shown in Fig. 3. A groove, *l''*, is made in the upper end of the screw-shaft *l*, into which fits a pin or projection, *l'''*, that projects through the hub of the spur-gear *l'*, by which arrangement the shaft *l* and gear *l'* are made to rotate together, although the shaft may be raised up or down

independent of the gear *l'*. To the shaft *c'* is secured a drum, *c'''*, as shown in Figs. 1 and 2, and a similar drum, *d'''*, is secured to the shaft *d'*, which said pulleys or drums are connected together by means of the belt or strap *q*, so as to convey the rotary driving-power from one to the other of said pulleys.

In the work-table *b* are made two slits or openings, *b'* and *b''*, of which the slit *b''* is only used when the endless band-saw is run over all four pulleys *c d f g*. When running a short blade over the pulleys *d* and *g* only, I use both the slits *b'* and *b''* for the saw to run through.

What I wish to secure by Letters Patent and claim is—

1. The combination, with the pulleys *c d*, below the work-plate *b*, of the adjustable pulleys *f g*, swinging arm *e*, its link *h*, and the stationary guide *k*, as and for the purpose set forth.

2. The combination, with the swinging arm *e* and its pulleys, of the stationary guide *k*, shaft *l*, the lever *o*, and the adjustable weight *n*, as and for the purpose set forth.

3. The combination, with the swinging arm *e* and its pulleys, of the screw-shaft *l*, gears *l' m'*, shaft *m*, and hand-wheel *m''*, as and for the purpose set forth.

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

WILSON W. CAREY.

Witnesses:

ALBAN ANDRÉN,  
F. ALLEN.