(No Model.) 3 Sheets—Sheet 1.

W. N. WHIPPLE.

PORTABLE SAW MILL.

No. 247,726. Patented Sept. 27, 1881.

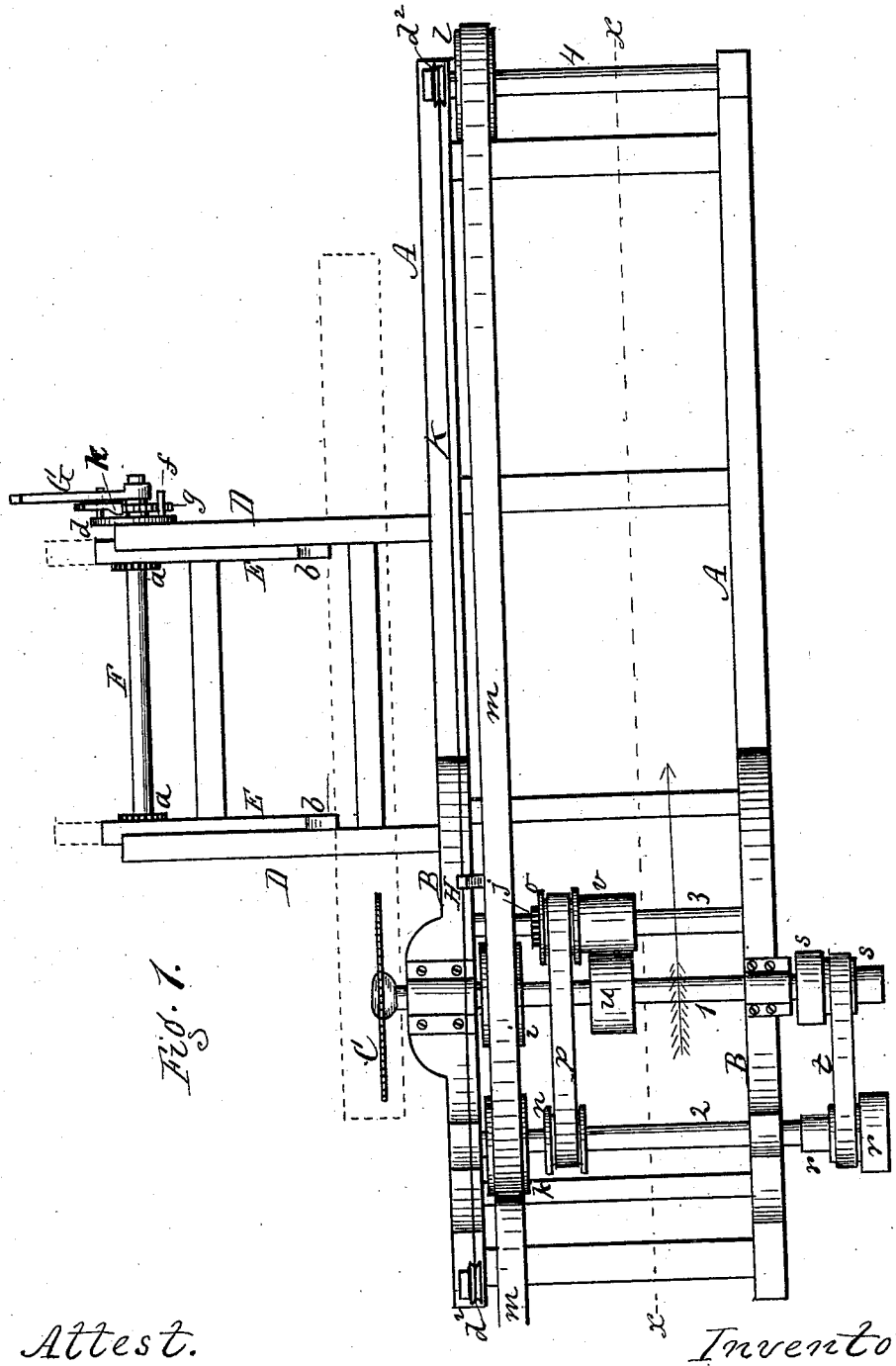

Fig. 1.

Attest.
Chas. F. Brown
Jacob Spahr

Inventor.
Wm. N. Whipple,
per R. H. Osgood,
atty.

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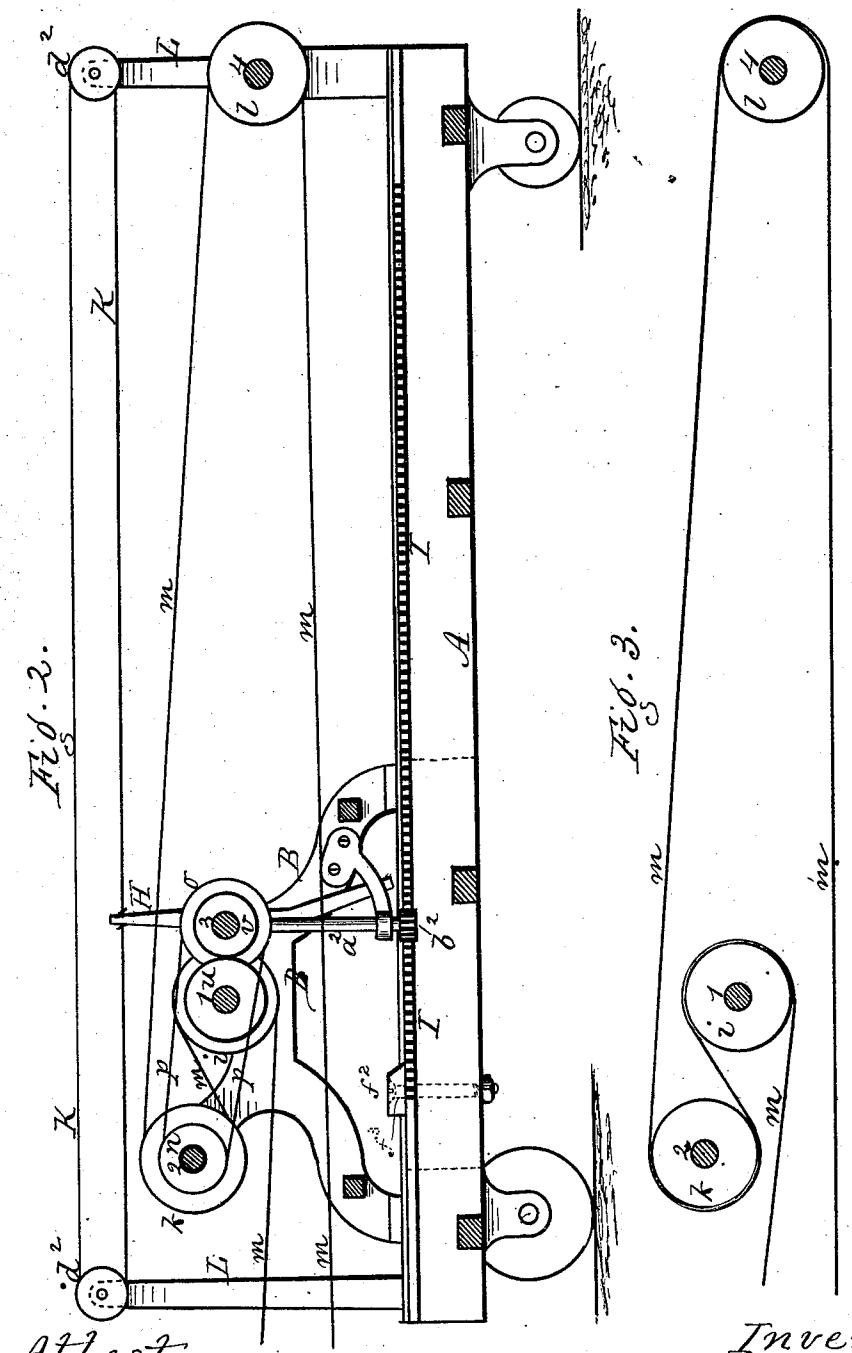

Fig. 2.

Fig. 3.

Attest.
Chas. F. Smeen
Jacob Spahn

Inventor.
Wm. N. Whipple,
per R. T. Osgood,
atty.

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W. N. WHIPPLE.

PORTABLE SAW MILL.

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Fig. 8.

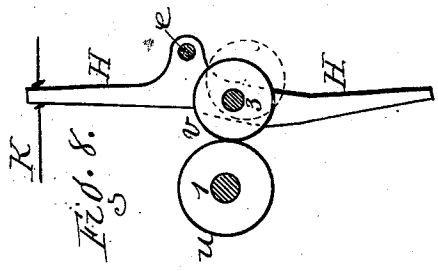


Fig. 9.

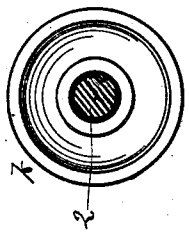


Fig. 6.

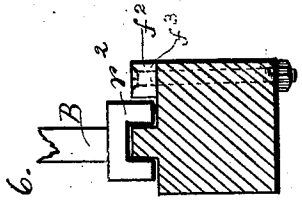


Fig. 7.

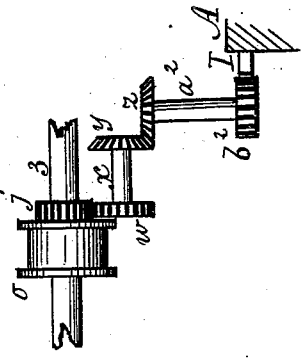


Fig. 4.

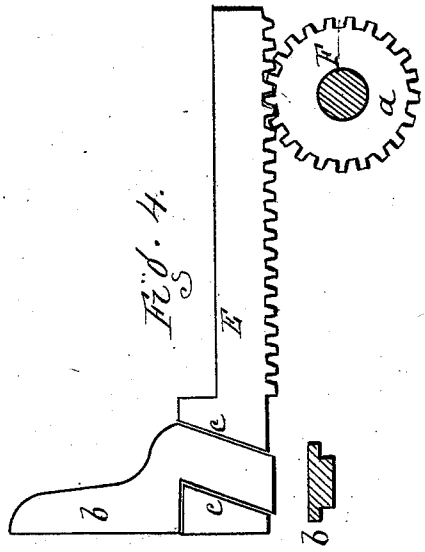
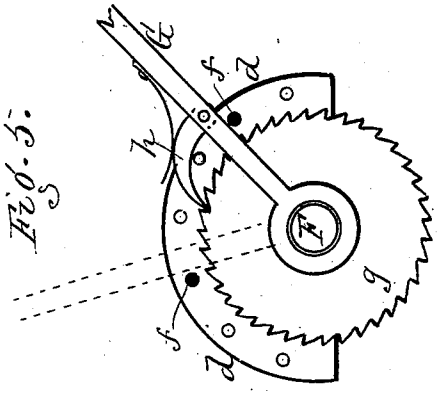


Fig. 5.



Attest.
Chas. F. Burgess
Jacob Spahn

Inventor.
Wm N. Whipple.
per R. L. Osgood
atty.

UNITED STATES PATENT OFFICE.

WILLIAM N. WHIPPLE, OF GENOA, ASSIGNOR TO E. M. BIRDSALL & CO., OF PENN YAN, NEW YORK.

PORTABLE SAW-MILL.

SPECIFICATION forming part of Letters Patent No. 247,726, dated September 27, 1881.

Application filed February 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. WHIPPLE, of Genoa, Cayuga county, New York, have invented certain new and useful Improvements in Portable Saw-Mills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan of the machine. Fig. 2 is a longitudinal section in line *x x* of Fig. 1; Fig. 3, diagram of main band; Figs. 4, 5, 6, 7, 8, and 9 are detail views.

My improvement relates to portable saw-mills which can be moved from place to place as occasion requires, and which can be run by a portable engine or any other suitable power. A special feature in the case is that the log remains stationary, while the saw is attached to a movable carriage or frame which travels longitudinally upon a way, the saw traversing the log from end to end and cutting the boards or planks.

The invention consists in the construction and arrangement of parts, hereinafter more fully described.

In the drawings, A indicates a long frame, forming a way or track for a carriage, B, which traverses it forward and back, carrying a circular saw, C, by which the work is done. The way and the carriage may both be of any convenient form for the purpose; but the carriage on one side has shoes or feet r^2, which are grooved and fit over corresponding ribs of the track to keep the carriage in place, as shown in Fig. 6, cross-section. On one side of the track or way is a fixed right-angled frame, D, which forms a bed or support for the log which is rolled thereon to be sawed. In the sides of this bed are slides E E, which are movable forward and back by means of racks on their under side, with which engage spur-pinions *a a*, attached to a cross-shaft, F. To the inner ends of the slides are attached short vertical standards *b b*, which form clamps to press against the log and hold the same in place. These standards are removable, their lower ends being of the inclined or dovetail form shown in Fig. 4, and fitting in corresponding sockets *c c* of the slides. By being removable they can be taken from place while the log is being rolled on, and then can be fitted in their sockets again and be made to bear against the log by forcing the slides forward.

d is a half-circular gage-plate, attached to the outside of one side of the bed D and over the projecting end of the cross-shaft F. In this gage-plate are a series of holes, in which fit removable pins *f f*, Fig. 5. To the end of the cross-shaft is attached a ratchet-wheel, *g*, and turning loosely on the end of the shaft is a lever, G, which has a spring-pawl, *h*, which engages with the ratchet-wheel. The upper part of the lever rests between the gage-pins *f f*, by which its strokes are limited. Every stroke of the lever will move the ratchet, and, consequently, turn the shaft and move the slides, and therefore feed up the log to the saw, and the degree of feed to produce different thicknesses of cut is regulated by changing the pins *f f* to different holes in the gage-plate. When the log is in position for work it stands back from the plane of the saw at such a distance that the saw will commence its cut on the inner side, and as the work progresses the log is gradually forced up, the cuts being removed either in succession as fast as they are made or in a body after the whole log has been sawed. The saw projects sufficiently beyond the carriage to allow proper inward feed of the log.

In the carriage B are mounted three shafts, 1 2 3, upon which are located the pulleys and wheels by which the machine is operated. The saw C is located upon the end of the shaft 1. At the rear end of the track is also located a shaft, 4. On these several shafts, 1, 2, and 4, are located pulleys *i k l*, around which passes the main belt *m*, proceeding from the pulley of the engine in a convenient way to allow the carriage a forward-and-back motion the length of the track without increasing or lessening the tension of the belt. In the drawings, the upper length of the belt, as it comes from the engine, passes first under, around, and over the pulley *i*, fast on the main shaft 1; thence back under, around, and over a loose pulley, *k*, on the shaft 2; thence over, around, and under the pulley *l*, attached to shaft 4, and thence back under the carriage, proceeding to the engine again.

If desired, the pulley *l* may be capable of

being moved forward and back with its shaft to form a tightener.

By the means above described the carriage can have its full motions forward and back the length of the track, the main belt being under the same tension at all times.

On the shafts 2 and 3 are pulleys *n o*, connected by a band, *p;* and on the ends of shafts 1 and 2 are cone-pulleys *r s*, connected by a belt, *t*, said cones allowing the speed to be changed at pleasure. On the two shafts 1 and 3 are also friction gear-wheels *u v*, which are capable of being thrown together in contact or separated. To accomplish this, one end of shaft 3 rests in a rock-lever, H, having its fulcrum at *e* in the main frame of the carriage and outside of the shaft. As the lever H is thrown in one direction or the other it throws the two friction-wheels *u v* correspondingly into and out of gear, thereby shifting the motion of the carriage or the feed by which the carriage is operated.

On the shaft 3 is a small spur-gear, *j*. With this pinion engages a spur-wheel, *w*, on a short horizontal shaft, *x*. On the opposite end of this shaft is a bevel-pinion, *y*, with which engages a corresponding bevel-pinion, *z*, on a short vertical shaft, a^2. On the lower end of last-named shaft is a spur-pinion, b^2, which engages with a cog-rack, I, on one side of the main track and extending its whole length.

It will be seen that when motion is communicated to shaft 3 in either direction, corresponding motion will be given to the set of gears *j w y z*, and the pinion b^2, meshing with the fixed cog-rack I, will cause the carriage to move forward or back. The motion is shifted by connecting or disconnecting the friction-wheels *u v*. When said wheels are in gear the shaft 3 will have been moved toward the shaft 2, and, consequently, the band *p* will be slack, and motion will be communicated to shaft 3 by the friction-wheel on the shaft 1. When the friction-wheels are disengaged motion will be transmitted to shaft 3 from shaft 2 through the medium of the band *p*, which has been tightened by moving the shaft 3 to disengage the friction-wheels. The above is a very effective means for giving the reverse motions to the carriage.

The upper end of the lever H is attached to an endless band or cord, K, which passes around grooved pulleys d^2 d^2, mounted on standards L L′ at the ends of the track. As the lever moves forward and back with the carriage the band or cord will run with it and turn the pulleys. When it is desired to change the motion a slight pull upon the band will shift the lever and reverse the carriage. The lower end of the rock-lever H projects down to near the top of the track, and on the latter is placed, at any desired position, a stop, f^2, which forms a gage, against which the lower end of the lever strikes, and by which it is tripped automatically to change the motion. The stop f^2 is adjustable by means of a slot and a set-screw, f^3, to any position, so that the stroke of the carriage may be fixed to any extent.

By the construction above described the log remains stationary upon its supporting-frame and the saw is movable longitudinally to do the cutting. An important result is that the saw stands above the log and cuts downward into and through the same, thereby cutting with instead of against the grain, and doing better work.

The machine is mounted upon wheels for convenience in transportation.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the track, the traversing carriage, the rack on the track, the stationary log-frame, the shafts 1 2 3, friction-wheels *u v*, pulleys *n o*, band *p* on the traversing carriage, the gearing between the shaft 3 and the rack, and a lever for shifting the shaft 3, for the purpose set forth.

2. The combination of the track, the traversing carriage, the stationary log-frame, the shafts 1 and 2 on the carriage, the shaft 4 on the track, the pulleys *i k l*, the band *m*, the laterally-shifting shaft 3, the friction-pulleys *u v*, the pulleys *n o*, the band *p*, the pulleys *r s* and band *t*, the rack on the track, the gearing interposed between the rack and the shaft 3, and a lever for operating said shaft, substantially as set forth.

3. The combination of the shifting-shaft 3, carrying a friction-wheel driven by a corresponding wheel on the saw-shaft 1, and a belt-pulley driven by a belt, *p*, from the shaft 2, with a lever for moving the shaft so as to throw either the belt or friction-wheels into operation by the direct movement of the shaft 3, substantially as and for the purpose set forth.

4. The combination of the track, the traversing carriage, the shifting-shaft 3 on the carriage, mechanism, substantially such as described, for actuating the carriage and shaft 3, a lever for operating said shaft to cause the carriage to move forward or back, and an endless cord, H, attached to the lever and passing over pulleys on the track.

5. The combination of the track, the traversing carriage, the shifting-shaft 3, mechanism which rotates the shaft in either direction to cause the carriage to travel forward or back, a lever for shifting the shaft, and an adjustable stop on the track which trips the lever and reverses the motion of the carriage, as set forth.

6. The combination of the slides E, transversely mortised, and the removable knees *b*, which set in the mortises in the slides, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand this 26th day of January, 1881.

WM. N. WHIPPLE.

Witnesses:
R. F. OSGOOD,
CHAS. F. SPENCER.