

No. 798,519.

PATENTED AUG. 29, 1905.

E. T. MANNING.
ADJUSTABLE BAND SAW.
APPLICATION FILED MAR. 13, 1905.

2 SHEETS—SHEET 1.

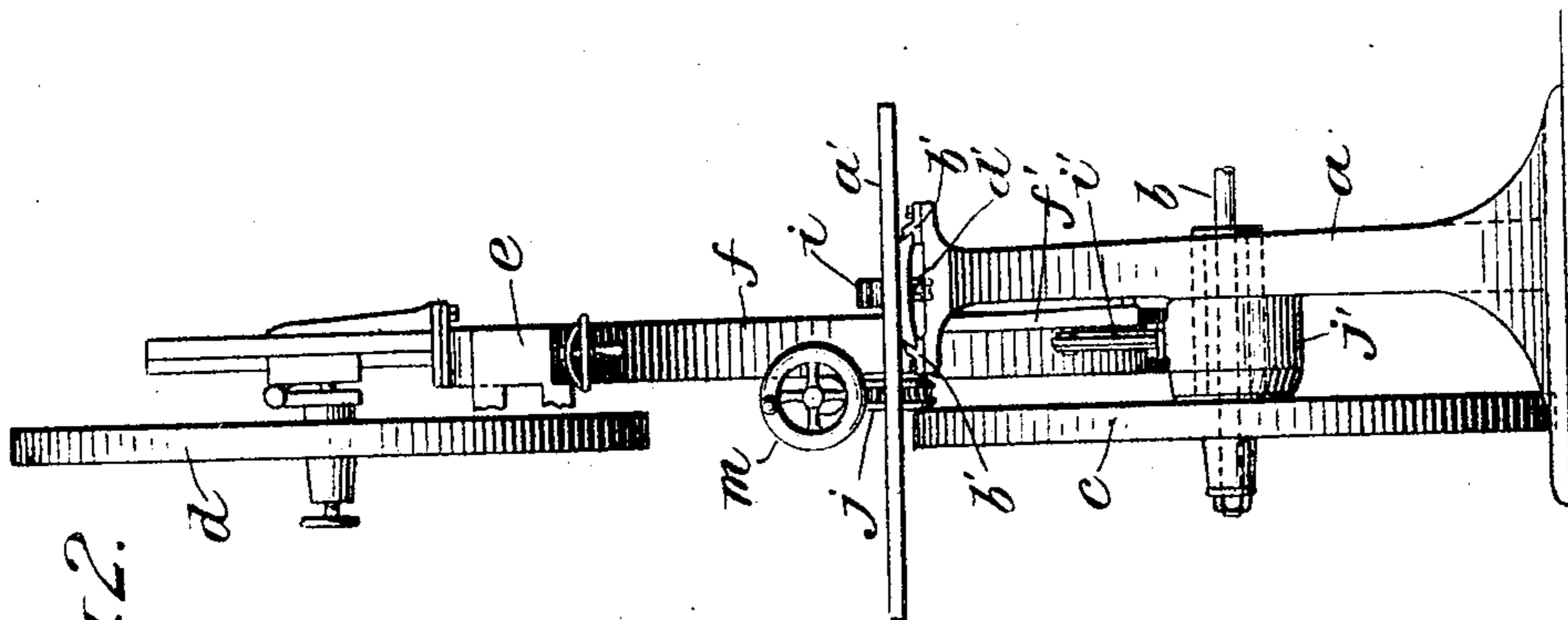


Fig. 2.

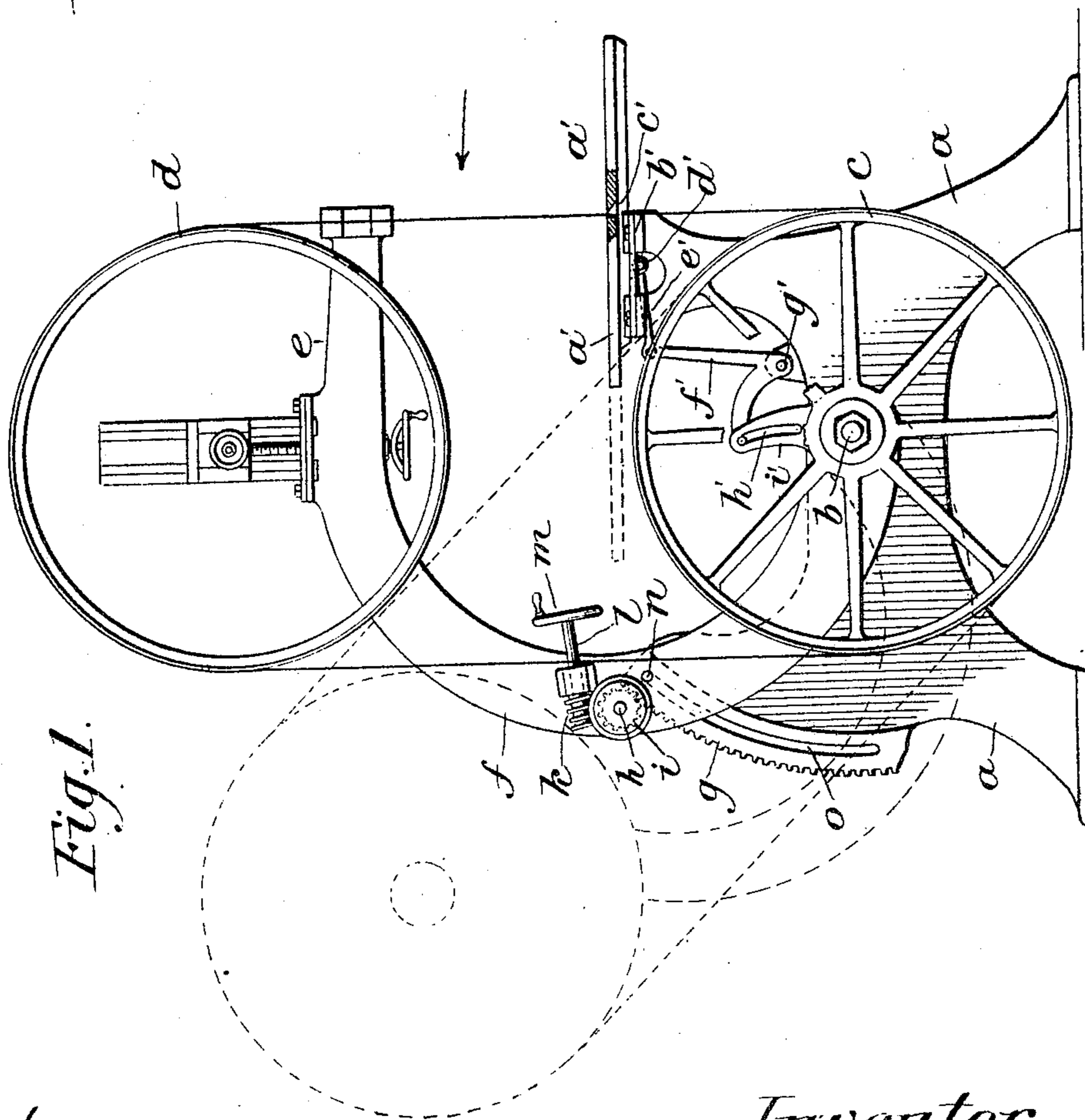


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 4.

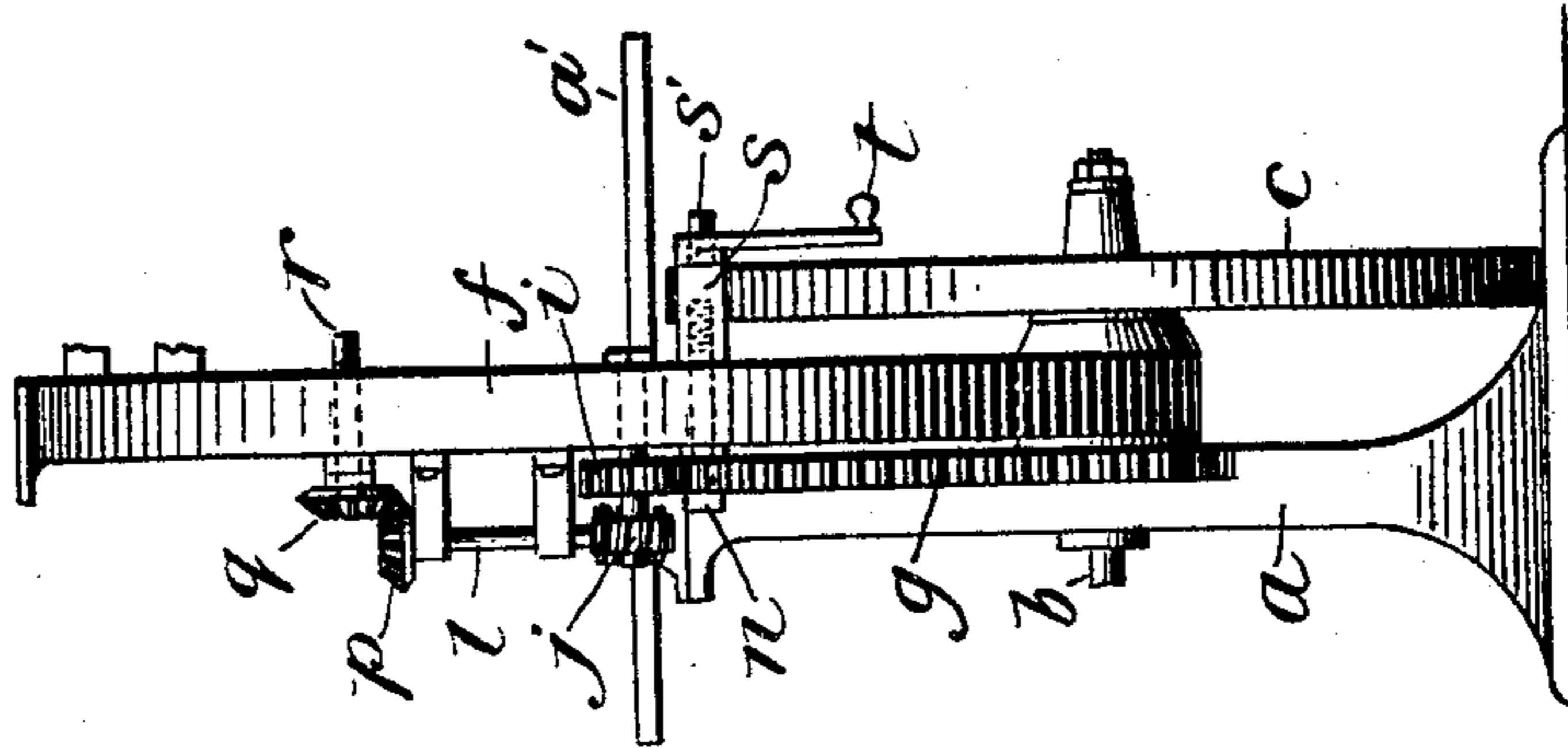
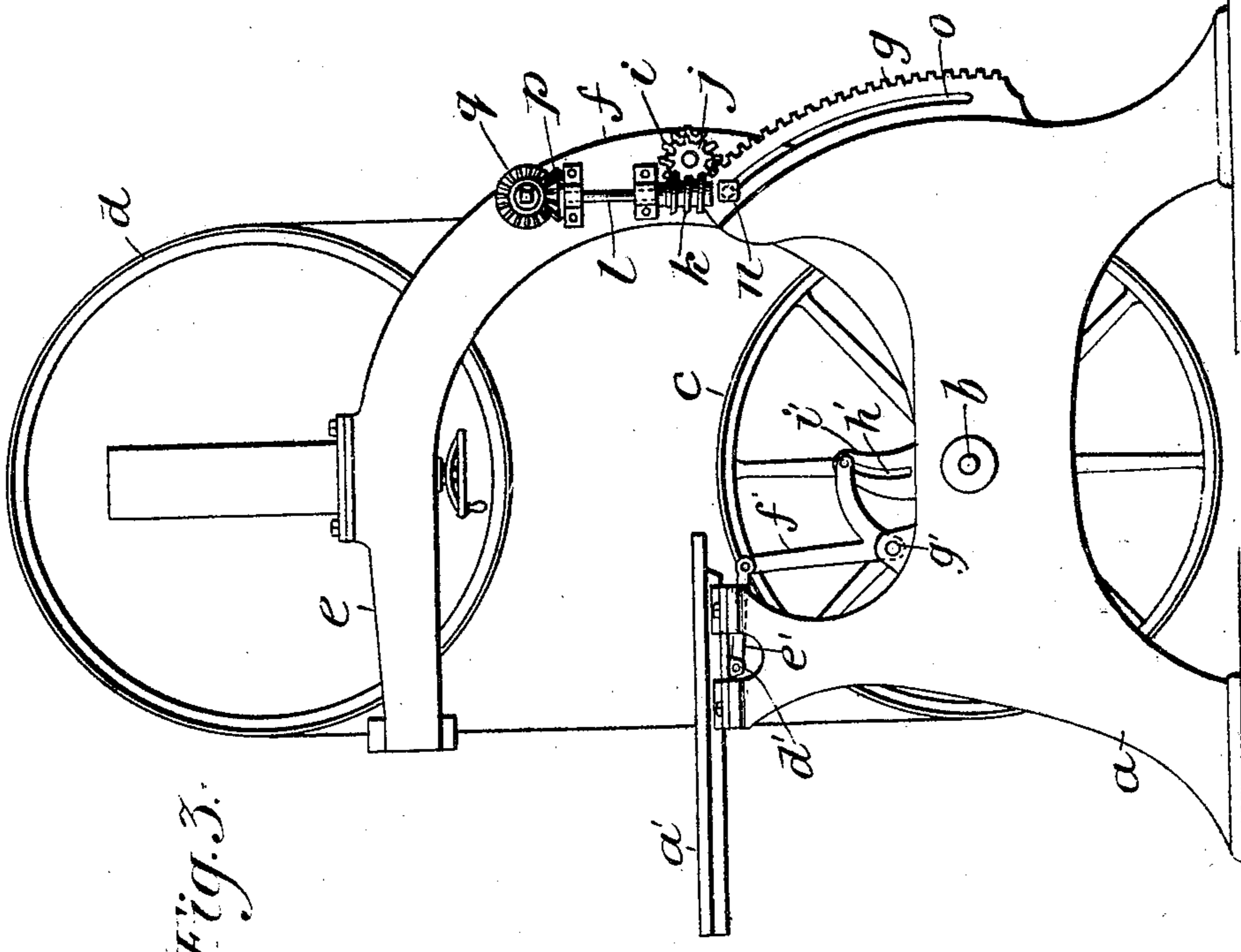


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWARD TIERS MANNING, OF KNOXVILLE, TENNESSEE, ASSIGNOR
TO TY-SA-MAN MACHINE COMPANY, OF KNOXVILLE, TENNESSEE,
A FIRM.

ADJUSTABLE BAND-SAW.

No. 798,519.

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed March 13, 1905. Serial No. 249,771.

To all whom it may concern:

Be it known that I, EDWARD TIERS MANNING, a citizen of the United States, residing at Knoxville, county of Knox, State of Tennessee, have invented certain new and useful Improvements in Adjustable Band-Saws; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to band-saws where the frame carrying the saw-blade is adjustable, so as to set the saw at different oblique positions in order to adapt it to cut bevels at any desired angles. It is desirable where the saw-blade is adjustable in this way that the work-supporting table through which the saw passes should also be adjustable to follow the different positions of the saw; and the present invention relates specifically to means for effecting the adjustment of the saw-carrying frame and also to means for automatically effecting an adjustment of the table to correspond with the different positions of the saw.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side view of a band-saw embodying the invention, the saw-carrying frame being shown in two positions of adjustment by full and dotted lines. Fig. 2 is an end view of the machine looking in the direction of the arrow, Fig. 1. Fig. 3 is an elevation of the opposite side of the machine, showing a modified arrangement for operating the worm-shaft. Fig. 4 is a rear end view of the machine, illustrating the same gearing arrangement as in Fig. 3.

Referring to these views, *a* denotes the standard or base-frame of the saw; *b*, the driving-shaft that is journaled in said standard and carries at one end the lower saw-carrying wheel *c*. The upper saw-carrying wheel *d* is journaled on the overhanging arm *e* of a curved or gooseneck saw-carrying frame *f*, that is pivoted to the standard coaxially with the shaft *b* and the lower saw-carrying wheel *c*.

As will be understood from the drawings, the pivoting of the saw-carrying frame on the axis of the wheel *c* enables the frame to be adjusted to various positions without affecting the distance between the two wheels carrying the saw-band, and in order to effect this adjustment I provide the rear end of the standard *a* with a gear-rack *g*, that is curved on an

arc struck from the center of the wheel *c*, and I mount in transverse bearings in the saw-carrying frame *f* a shaft *h*, carrying at one end a spur-pinion *i*, gearing with the rack *g* on the standard, and at the other end a worm-gear *j*, into which meshes the worm *k* of a short shaft *l*, having a hand-wheel *m*. Projecting from the saw-carrying frame adjacent to the standard there is a guide pin or stud *n*, and the standard *a* is provided just inside of the gear-rack *g* with a curved slot *o*, into which the pin fits, so as to guide and steady the frame in its various movements and prevent the pinion *i* from accidental disengagement from the rack *g*.

In Figs. 3 and 4 a slightly different arrangement of the gears is illustrated. The pinion *i* and the worm-wheel *j* are both located on the same side of the frame *f*, and the worm-shaft *l* extends vertically and has a bevel-pinion *p* on its upper end. This bevel-pinion gears with a similar pinion *q* on a short shaft journaled in the frame *f*, extended through to the other side of the frame, where its end *r* is squared to receive a detachable crank-handle, by means of which it may be turned. In this form the guide pin or stud *n* is made in the form of a bolt, having one end headed, as usual, and the other provided with an ordinary screw-thread. On the threaded end of this bolt fits a cap-nut *s*, having a squared end *s'*, which is also adapted to receive the crank-handle *t* above referred to. By tightening up this cap-nut *s* on the bolt the bolt in addition to its guide and holding function already described serves as a positive lock to hold the saw-supporting frame in any position to which it may be adjusted, thus relieving the worm and pinion from this strain. The squared ends *r* and *s'* of the shaft of the pinion *q* and the cap-nut *s* are preferably made of the same size, so that the same crank *t* may be used to adjust both parts.

The work-supporting table is indicated at *a'*. It is mounted in guides *b'* on the standard *a*, so as to slide in a horizontal plane as the saw-carrying frame is adjusted. The saw passes through this table, as usual, and the slot through which it passes is beveled underneath at the front of the saw, so that when the saw assumes the oblique position (indicated in dotted lines) the table may also move without jamming the saw in the slot. On its under side the table *a'* is provided with lugs

d' , and a link e' has one end pivotally connected to these lugs and its other end similarly connected to a bell-crank lever f' , that is pivoted at g' on the saw-standard near the axis of the wheel c . The other arm of the bell-crank f' has a pin in its outer end which fits in the slot h' in a curved arm i' , projecting from the hub j' of the saw-carrying frame f , so that when the frame is tilted backward the arm i' rocks the bell-crank lever and causes its longer arm to slide the table in the same direction and at the same rate of speed as the saw.

The construction being as thus described, it will be noted that the mechanism for tilting the frame is simple and positive in operation and that the gearing employed serves to hold the frame in any position to which it may be adjusted. It is also to be noted that the guide-slot and threaded stud connection between the frame f and the standard of the machine not only prevents the disengagement of the operating-pinion i from the rack on which it runs and steadies the frame as it moves, but provides an additional lock for holding the frame.

The table by reason of its connection with the arm i' , rising from the hub of the frame f , slides to and fro as the frame is rocked, and the lengths of the arms of the bell-crank lever f' and the crank i' are so arranged and proportioned that the table moves with the same speed as the saw, so that any position of adjustment may be given the saw without its binding or cramping in the slot in the table.

What I claim is—

1. In a band-saw machine, the combination of the standard having the lower saw-carrying wheel journaled therein, and provided at its rear with a gear-rack concentric with the wheel, a slidable work-supporting table on said standard, a frame for the upper saw-carrying wheel pivoted concentrically with the

lower wheel, a pinion carried by the frame and gearing with the rack, a worm shaft and gear for operating said pinion, and means connecting the slidable table and the saw-carrying frame to adjust the table with the saw.

2. In a band-saw machine, the combination of the standard having the lower saw-carrying wheel journaled therein, and provided at its rear with a gear-rack concentric with the wheel, a slidable work-supporting table on said standard, a frame for the upper saw-carrying wheel pivoted concentrically with the lower wheel, a pinion carried by the frame and gearing with the rack, a slot in the standard concentric with the rack, a guiding, holding and locking stud on the pivoted frame running in the slot, and means connecting the slidable table and the saw-carrying frame to adjust the table with the saw.

3. In a band-saw machine, the combination of the standard having guides thereon, a work-supporting table sliding in said guides, a pivoted frame for the upper saw-carrying wheel, a bell-crank lever f' pivoted on the standard, a connection between one arm of the lever and the saw-carrying frame, and a link connecting the other arm of the lever to the table.

4. In a band-saw machine, the combination of the standard a guides $b' b'$ thereon, a work-supporting table a' sliding in said guides, a pivoted frame f for the upper saw-carrying wheel, a bell-crank lever f' pivoted on the standard, a link e' connecting one arm of the lever with the table, and a crank-arm i' rising from the hub of the frame f and connected by a pin and slot with the other arm of the bell-crank lever.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD TIERS MANNING.

Witnesses:

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A. C. HARMON.