

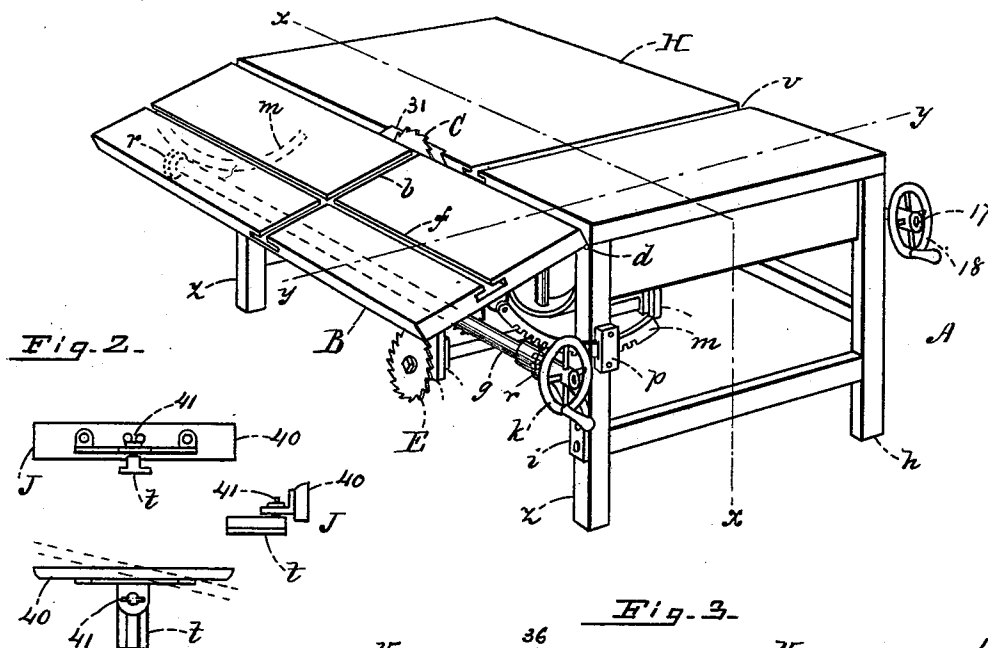
(No Model.)

F. E. FARWELL.  
CIRCULAR SAWING MACHINE.

No. 386,806.

Patented July 31, 1888.

Fig. 1.



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# UNITED STATES PATENT OFFICE.

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## CIRCULAR SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 386,806, dated July 31, 1888.

Application filed April 30, 1888. Serial No. 272,376. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERIC E. FARWELL, of Fitchburg, in the county of Worcester, State of Massachusetts, have invented a certain new and useful Improvement in Circular Sawing Machines, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of my improved circular sawing machine, represented as in position for use; Fig. 2, detail views of the gage detached; Fig. 3, a vertical longitudinal section of the circular sawing machine, taken on line *xx* in Fig. 1, certain parts being shown in side elevation; Fig. 4, an enlarged side elevation of a portion of the saw-rack; and Fig. 5, a vertical transverse section of the circular sawing machine, taken on the line *yy* in Fig. 1, certain of the parts being shown in side elevation.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to a circular sawing machine provided with interchangeable saws; and it consists in certain novel features, as hereinafter fully set forth and claimed, the object being to produce a more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the framework of the circular sawing machine, B the adjustable leaf, and CD EF the circular saws. The bench comprises a table proper, H, supported by legs *z* *h* in the usual manner, which is provided on its top with a lateral groove, *v*, to receive the tongue *t* of the ordinary gage, J. (See Fig. 2.)

The adjustable leaf B is hinged at *d* to an edge of the table H, and is provided on its upper face with a lateral groove, *b*, and longitudinal groove *f*, said grooves being adapted to receive the tongue *t* of a gage, J. A horizontally-arranged shaft, *g*, is journaled in

brackets *i*, secured to the front of the legs *z*, and is provided on one end with a hand-wheel, *k*.

Pivoted centrally by one end to each end of the leaf B is a curved ratchet bar or segment, *m*, which is fitted to slide through a guide, *p*, on the leg *z* of the bench, the teeth of said bars being adapted to engage the gears *r* at the ends of the shaft *g*, which gears may be in the form of toothed gears, or in any equivalent form.

A transversely-arranged horizontal shaft, *w*, (see Fig. 5,) is journaled centrally in the framework of the table, said shaft being provided with a centrally-disposed friction-wheel, 15, and also with a driving-pulley, 16, on its outer end. A horizontally-arranged worm, 17, provided with a hand-wheel, 18, on its outer end, is journaled to the rear leg, *h*, of the table, said worm intermeshing with a worm-gear, 19, secured to the outer end of a sleeve, 20, disposed on the shaft *w*.

Two bars, 23 and 24, crossing each other at right angles, are secured centrally to the sleeve 20 on each side of the friction-wheel 15 by means of a flanged plate or collar, 25. Each of the bars 23 and 24 is provided on its outer end with a vertical slot, 26, (see Fig. 4,) in which is disposed a sliding block, 27, resting on a coiled spring, 28, secured in the lower end of said slot. A horizontally-arranged saw shaft, 30, is journaled in the blocks or adjustable bearings 27 in the corresponding outer ends of the bars 23 and 24, one of the circular saws C D E F being secured to the outer end of each of said shafts. The upper saw, C, projects slightly above the top of the table through a groove, 31, formed in the edge thereof adjacent to the leaf B, as shown in Fig. 1. By turning the hand-wheel 18 on the worm 17, thereby causing the sleeve 20 to revolve and carry with it the bars 23 and 24, either of the saws C D E F may be brought into position for use in the groove 31. A centrally-disposed small wheel, 35, is secured to each of the shafts 30, a cam-shaped block, 36, (see Fig. 4,) being secured to the under side of the table-top H in position to engage the blocks 27 in the arms 23 and 24 as said arms are revolved.

The gages J are of the ordinary form, consisting of a tongue, *t*, adapted to slide in the grooves *b* *f* *v*, and of a gage-plate, 40, secured

to said tongue by a thumb-screw, 41, by which said plate may be adjusted at different angles when in use.

The saws C D E F have teeth of different gages, and in the use of my improvement, by turning the wheel 18 and thus revolving the sleeve 20, as described, a saw of the gage desired, as C, may be brought into position in the groove 31. At the same time the blocks 27 engage the cam blocks 36, and are forced downward against the springs 28 until the small friction-wheel 35 on the shaft 30 comes into contact with the main friction-wheel 15. Power is then applied to the driving-pulley 16 by a belt in the usual manner, which causes the shaft *w* and friction-wheel 15 to revolve, thereby revolving the wheel 35 on the shaft 30, and with it the saw C.

It will readily be seen that by means of the worm 17 the saws may be interchanged at any time while the pulley 16 and friction-wheel 15 are in motion.

By turning the hand-wheel *k*, the leaf B may be adjusted at any desired angle to the saw, and by adjusting a gage, J, in proper position in a slot, *b* or *f*, of said leaf the operator is enabled to cut bevels, miters, and other angular forms with much greater facility than when saw-benches as ordinarily constructed are employed.

Two or more saws, mounted substantially as described, may be employed, as desired.

The table of the machine, in the present instance, consists essentially of the table proper, H and hinged leaf B.

The slot 31, through which the saws protrude when in use, may be formed in the table proper, H, leaf B, or partially in each.

Having thus explained my invention, what I claim is—

1. In a circular sawing machine, the combination of a supporting-frame provided with a table proper, a main shaft journaled in said frame provided with a driving-pulley, a friction-wheel on said shaft, a sleeve also on said shaft, radial arms fixed to said sleeve provided with vertical slots in their outer ends, adjustable bearings in said slots, springs for forcing said bearings outward, saw-shafts journaled

in said bearings, circular saws secured to said saw-shafts, friction-wheels on said saw-shafts, a fixed cam on said frame which is engaged by said bearings for forcing the friction-wheel of one of the saw-shafts into contact with the friction-wheel of the main shaft, and adjunctive mechanism for turning said sleeve to bring different saw-shafts into position for actuating their respective saws.

2. In a circular sawing machine, the combination of a supporting-frame provided with a table proper, a main shaft journaled in said frame provided with a driving-pulley, a friction-wheel on said shaft, a sleeve also on said shaft, radial arms fixed to said sleeve provided with vertical slots in their outer ends, adjustable bearings in said slots, springs for forcing said bearings outward, saw-shafts journaled in said bearings, circular saws secured to said saw-shafts, friction-wheels on said saw-shafts, a fixed cam on said frame, which is engaged by said bearings for forcing the friction-wheel of one of the saw-shafts into contact with the friction-wheel of the main shaft, a worm-gear on said sleeve, and a worm journaled on the frame and intermeshing with said worm-gear, substantially as described.

3. In a circular sawing machine, the combination of the frame-work A, the table proper, H, the shaft *w*, provided with a driving-pulley, 16, and friction-wheel 15, the sleeve 20, disposed on said shaft and provided with the worm-gear 19, the bars 23 and 24, mounted on said sleeve and provided with slots 26, the blocks 27 and springs 28, disposed in said arms, the shafts 30, journaled in said blocks and provided with the friction-wheels 35, the saws C D E F, mounted, respectively, on shafts 30, the worms 17 for rotating said sleeves, and the cams 36, adapted to engage the blocks 27 when said sleeve is rotated and thereby force one of the friction-wheels 35 into contact with the friction-wheel 15, whereby the saw is made to revolve when power is applied to the driving-pulley 16, substantially as set forth.

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