B. D. Whitney.

Grinding Cylinder Saws.

No. 63,773. Patented Apr. 9, 1867.

Fig. 1.

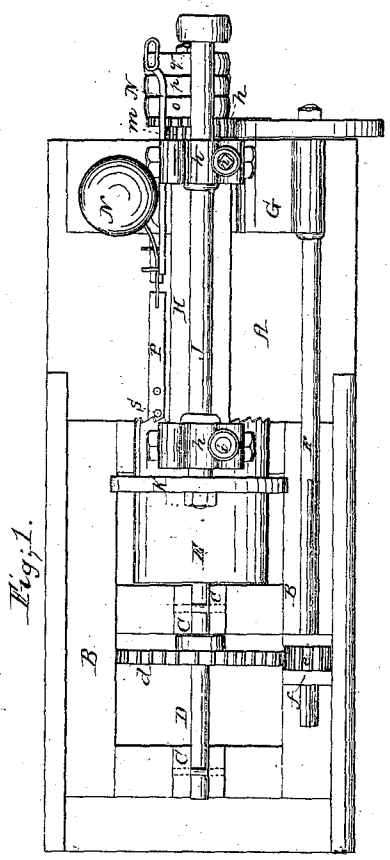
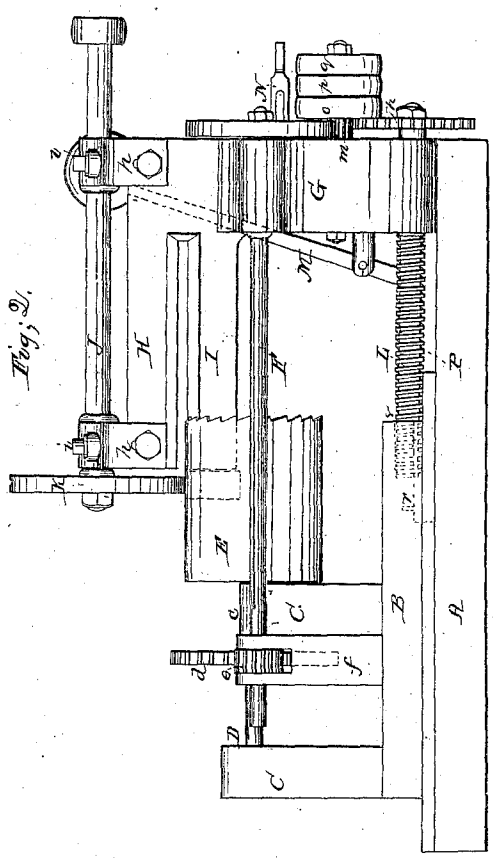


Fig. 2.



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BAXTER D. WHITNEY, OF WINCHENDON, MASSACHUSETTS.

Letters Patent No. 63,773, *dated April* 9, 1867.

IMPROVEMENT IN MACHINES FOR GRINDING SAWS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, BAXTER D. WHITNEY, of Winchendon, in the county of Worcester, and State of Massachusetts, have invented a new and useful Machine for Grinding, or reducing to an even thickness, Cylindrical Saws; and the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a plan or top view of the machine.

Figure 2 shows a side elevation of the same.

The object of my invention is to reduce to a perfectly uniform thickness, by a process of grinding, any cylindrical saw, whether of equal or of a constantly varying diameter. My invention consists in the application and use of grinding-wheels, or grindstones, so arranged as to be brought in contact with the outside, and also, if necessary, with the inside of cylindrical saws after they are formed and welded, brazed, or soldered together, while the saw is made to slowly revolve and traverse longitudinally from end to end, and reverse its movement by the arrangement and action of a suitable mechanism for the purpose.

To enable others skilled in the art to make and use my invention, I will describe it in detail, referring to the drawings and to the letters of reference marked thereon.

The bed piece *a* may be made of hard wood or of cast metal. On the top of the bed piece is fitted a sliding-frame, B B, it having standards C C, in the top of which are slots or openings O O, to receive the shaft or mandrel D, on whose end the cylindrical saw E is secured for the grinding process. On the mandrel D is placed a large spur gear-wheel, *d*, which is driven by the pinion *e*, supported in the stand *f*, so as to move lengthwise on the driving-shaft F, as the cylindrical saw is alternately moved endwise when it is being ground. The grinding apparatus consists of a metal frame or sort of lathe head, G, secured to the bed piece A, it having long arms H and I, the upper one of which supports the journal boxes *h h*, which are adjustable by set-screws *i i*, in which boxes the shaft J is mounted. On the end of the shaft J the grinding-wheel K is properly secured. To the end of the lower arm is attached a friction-roll, *j*, on which the saw rests as it revolves, these arms being made ridged, the surfaces of the roll and grinding-wheel remain the distance set apart by the set-screws *i i*, and as the saw passes between the roll and grinder it is reduced to uniform thickness. When it is desirable to grind the inner surface of the saw it may be done at the same time by removing the friction-wheel and having another similarly constructed grinding-wheel shaft and adjustable journal boxes placed on the under side of the lower arm I, to work opposite the wheel K; thus each grinding-wheel giving support to the other. When it is desirable to grind the inner surface only, it is done by lengthening the standards C C, so as to let the outside of the saw rest on the friction-roll, in which case the grinding-wheel will run inside of the saw. The travelling lateral motion is given to the saw, while grinding, by the feed-screw L, which is connected by a belt and series of cog-wheels, *k b m*, to the driving-shaft, and the motion is reversed by the action of the tripping-ball lever M and belt shifter N, on the pulleys *o p q*, which is operated by the sliding-frame B B, as it impinges against the pins *r s*, in the slide-bar P, which is connected with the lower end of the ball lever M. When the saw is being ground the mandrel D is not confined in the opening O O so but that it can move up and down so as to allow the saw to rest firmly on the friction-roll *j*, in case the saw is not perfectly true. When the saw to be ground is made with a constantly varying diameter or bulging in the form of a barrel, the carriage or sliding frame B B is made to traverse on ways curved to correspond to the bulge of the saw.

The use of cylindrical saws for getting out staves for barrels, kegs, tubs, buckets, and for all kinds of cylindrical work in wood, is an immense saving of labor and material, and the more perfect they can be made the thinner they may be, thereby saving lumber and working more easily. It is very important that saws should be made of uniform thickness, (a result almost impossible heretofore,) otherwise they will not balance on the mandrel, therefore they can be run only at low speed, whereas saws reduced by this process are perfectly balanced, thus enabling them to be run at a very increased velocity without jar or trembling; thus it will be seen that there is much advantage in my mode of constructing machinery for the purpose.

Having thus fully described my invention, I claim reducing the plates of cylindrical saws to an even and uniform thickness by means of the sliding-frame B, on which the saw E is supported, revolved, and moved laterally, by the action of the reversible screw L, slide P, and lever M, in combination with the grindstone or grinding-wheel K, arranged and operating in the manner substantially as herein described for the purpose set forth.

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