

(No Model.)

J. N. QUINN.

GRINDING MACHINE FOR SCARFING OR BEVELING SAWS.

No. 489,984.

Patented Jan. 17, 1893.

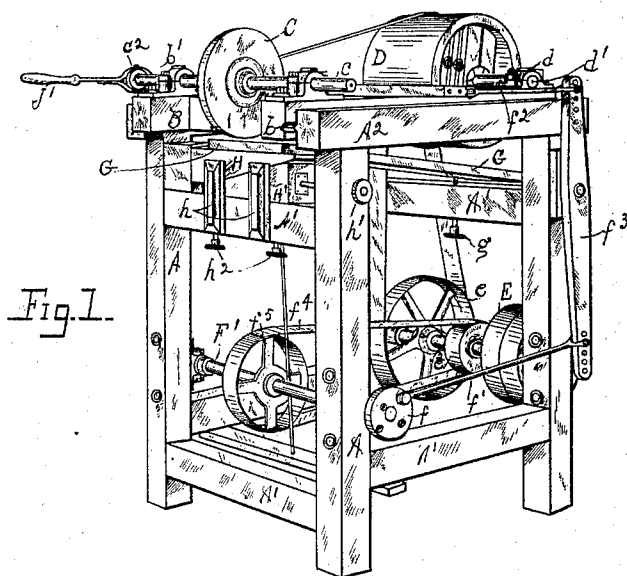


Fig. 1.

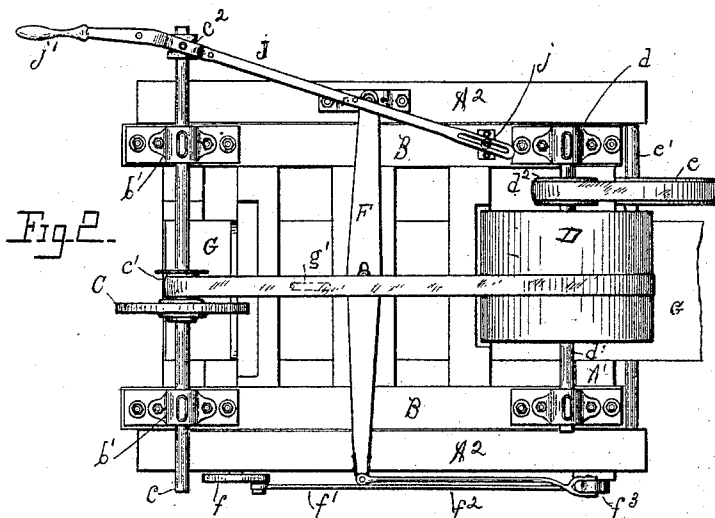


Fig. 2.

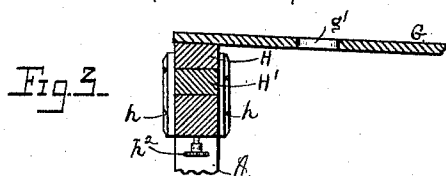


Fig. 3.

Witnesses.

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GRINDING-MACHINE FOR SCARFING OR BEVELING SAWS.

SPECIFICATION forming part of Letters Patent No. 489,984, dated January 17, 1893.

Application filed September 2, 1892. Serial No. 444,867. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. QUINN, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Grinding-Machines for Scarfing or Beveling Saws, of which the following is a specification.

My invention relates to machines for scarfing the meeting ends of band saws, dressing shingle saws, and for similar purposes.

Its objects are to lessen the labor of grinding the lap joints and beveled surfaces generally, to insure uniform work, and prevent the uneven wear of the grinding wheel. These objects I attain by the means illustrated in the accompanying drawings, in connection with which the invention will be first fully described, and then particularly referred to and pointed out in the claims.

Referring to the drawings, in which like parts are indicated by similar reference letters wherever they occur throughout the various views: Figure 1 is a perspective view of the machine embodying my improvements. Fig. 2 is a plan view of the same. Fig. 3 is a detail view in central vertical section through the upper front rail of the frame, the inclined bed plate and its supports.

The frame of the machine may be of any approved construction. In the present case it consists of four uprights A, braced together by cross-rails A', and parallel top-rails A². The inner edges of the top-rails A² are provided with V-shaped guides which enter corresponding depressions, b, in the side rails of the sliding frame B. Upon this sliding frame are secured bearings, b', for the sliding shaft or mandrel, c, which carries the grinding wheel C, and the pulley, c', by which the mandrel is driven, and also bearings, d, for the shaft, d', upon which are secured the belt-drum D and the belt-pulley, d². The shaft, d', is driven by a belt passing over a pulley, e, and the pulley, d². The pulley, e, is secured upon a shaft, e', which shaft is driven by a belt from any suitable source of power passing over the pulley E, which is also secured upon the shaft, e'. The frame B is reciprocated in its guides by a lever F, which is actuated by a crank wheel, f, through connecting bars, f', f², and a lever bar, f³. The crank

wheel, f, is secured upon a shaft F', which shaft is driven by a belt, f⁴, which passes over a pulley, f⁵, secured upon the shaft F' and a pulley, e², secured upon the driving shaft, e'. The stroke of the sliding frame B is regulated by shifting the connecting rods, f', f², nearer to or farther from the fulcrum of the lever, f³. A series of holes is bored in each end of the lever for this purpose.

G is an inclined board or bed-plate, upon which the article to be dressed is secured. Its front end rests upon two wedgeshaped blocks, H, H', which are held loosely between blocks, h, which are secured upon opposite sides of the cross-brace A', upon which the lower block, H', rests. The lower block, H', is adjustable along the cross-brace A', by means of a screw-shaft tapped through a nut in one of the uprights A'. The inner end of this shaft is connected by a swivel joint to a plate secured in the end of the wedge block, H', and the outer end is provided with a hand-wheel, h', by which the screw shaft is turned and the lower block is moved to lower or elevate the front end of the bed-plate G. To secure proper cross-alignment of the bed-plate G two set screws, h², are provided, which pass through the cross-brace A', and bear against the under side of the sliding block H'. The rear end of the bed-plate G is vertically adjustable by means of a set screw, g, which is tapped through the rear cross-brace A', and bears upon the under side of the bed-plate G. The purpose of the adjustable wedge-blocks, H, H', is to set the machine for grinding blades of different thicknesses. The purpose of the set-screws, h², is to align the bed to adapt it to grind a true lap, even though the plate be inclined from one edge to the other. And the purpose of the screw, g, for elevating the rear of the bed-plate G, is to adapt the machine to grind bevels of different angles.

The mandrel, c, which carries the grinding wheel C, is fitted to slide in its bearings, and is actuated in its sliding movement by a hand lever J, the rear end of which is slotted to traverse a fulcrum pin, j, secured upon the longitudinal side rail B. It is, near its forward end, provided with a strap which fits into a grooved collar, c², and at its forward end with a handle, j', by which the operator slides the shaft, c, and carries the grinding

wheel C back and forth across the edge of the blade until the proper lap or bevel is formed. The grinding wheel shaft being mounted in bearings upon each side of the grinding wheel, and working against the edge of the lap, or longitudinally of the blade if a band saw is being ground, insures a steady motion of the wheel, and an even wear upon its face, which it is impossible to attain in an overhanging wheel. I find by experience that a more perfect joint can thus be produced in less time than it is possible to make an inferior joint with an overlapping wheel working across the edge of the blade.

For beveling the edges of shingle saws the bed-plate G has a central longitudinal slot, as shown at, g' , Fig. 2, to receive a bolt which passes through the eye of the saw, and has a nut on top to secure the saw on the bed-plate. There is little need to change the connecting-rods, f' , f^2 , for grinding the laps of band-saws; but where a longer bevel is required, as upon shingle saws, it is necessary to impart a longer stroke to the sliding frame B; and this is accomplished by bringing the upper connecting-rod, f^2 , nearer to, and the lower one, f' , farther away from the fulcrum of the lever, f^3 . The end of the connecting-rod, f' , which is connected to the crank wheel, f , may also be provided with a series of holes to receive the wrist-pin which may be changed from one hole to another in the face of the disk-wheel, f , and the stroke of the sliding frame be regulated in this manner.

What I claim is:

1. In a machine for grinding beveled surfaces, the combination of the supporting frame in which the driving mechanism is mounted, a sliding frame mounted therein, the grinding wheel shaft mounted to slide in bearings secured upon the sliding frame, the grinding wheel secured upon said shaft be-

tween the bearings, the inclined bed-plate for holding the work to be beveled, arranged underneath the sliding frame a hand lever to reciprocate the grinding shaft in its bearings, and means, such as shown, to automatically reciprocate the sliding frame, substantially as shown and described.

2. The combination of the frame having upper guide rails A^2 , the sliding frame carrying the grinding wheel fitted to slide in said rails, the shaft bearings secured upon said frame, the grinding wheel shaft fitted to slide in said bearings, the grinding wheel secured upon said shaft between said bearings, the inclined bed-plate G arranged under the grinding wheel and parallel with the sides of the sliding frame, the lever F, and means to rock it connected to the driving mechanism to automatically reciprocate the frame, and the hand lever J, fulcrumed on the frame and connected to the grinding wheel shaft, for the purpose of sliding the shaft in its bearings and carrying the grinding wheel back and forth across the edge to be dressed, substantially as hereinbefore set forth.

3. In a lap grinding and scarfing machine of the character described the combination, substantially as hereinbefore set forth, of the main frame, the sliding frame carrying the grinding wheel shaft mounted to slide in bearings secured thereon, the lever J to reciprocate said shaft in its bearings, the lever F fulcrumed upon the main frame and connected to the sliding frame, the lever, f^3 , the crank wheel, f , and the connecting rods, f' , f^2 , to automatically reciprocate the sliding frame, and the inclined bed-plate G, vertically and angularly adjustable, for the purposes set forth.

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Witnesses:

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