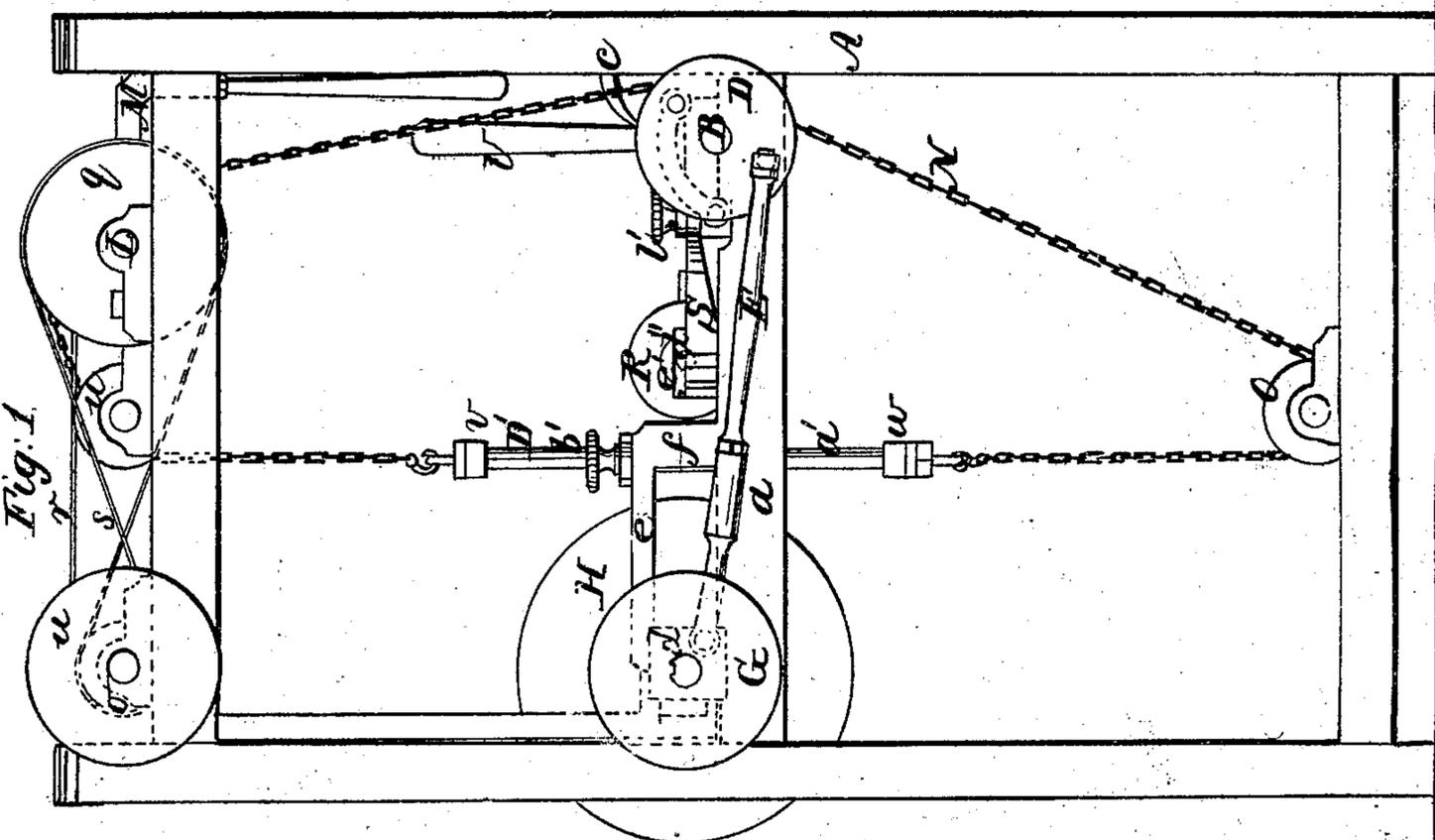
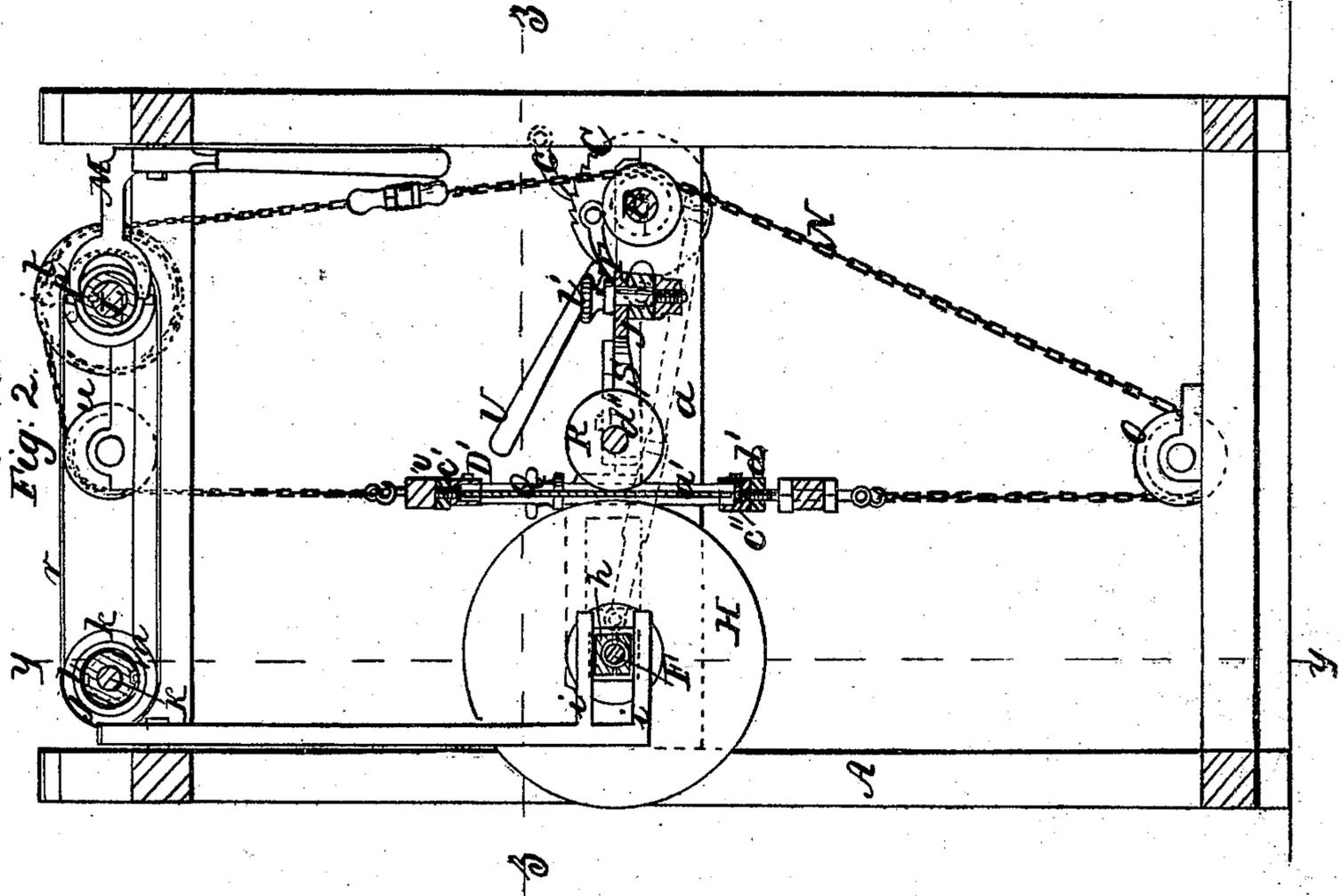


A. S. Nijtes,  
Saw Grinding.

N<sup>o</sup> 17,110.

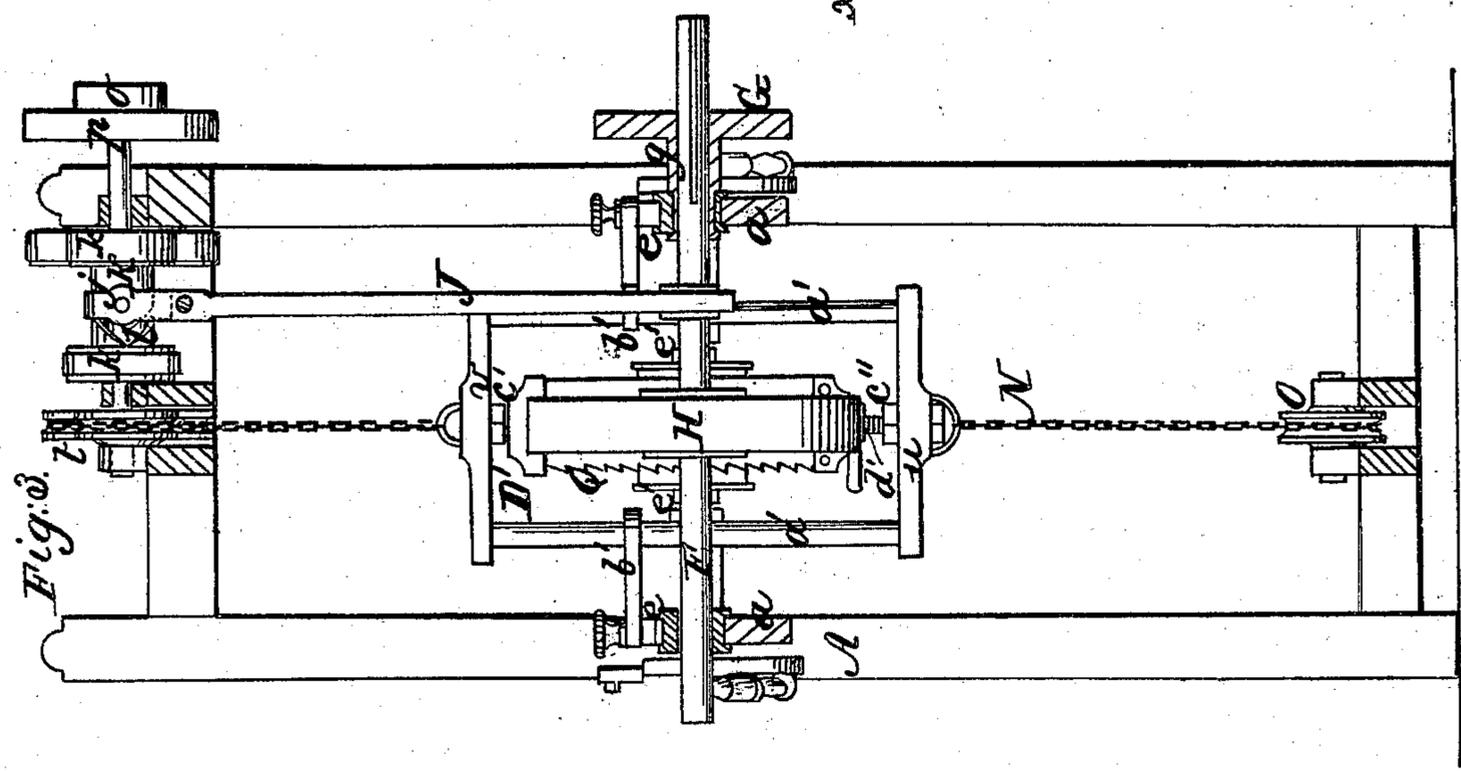
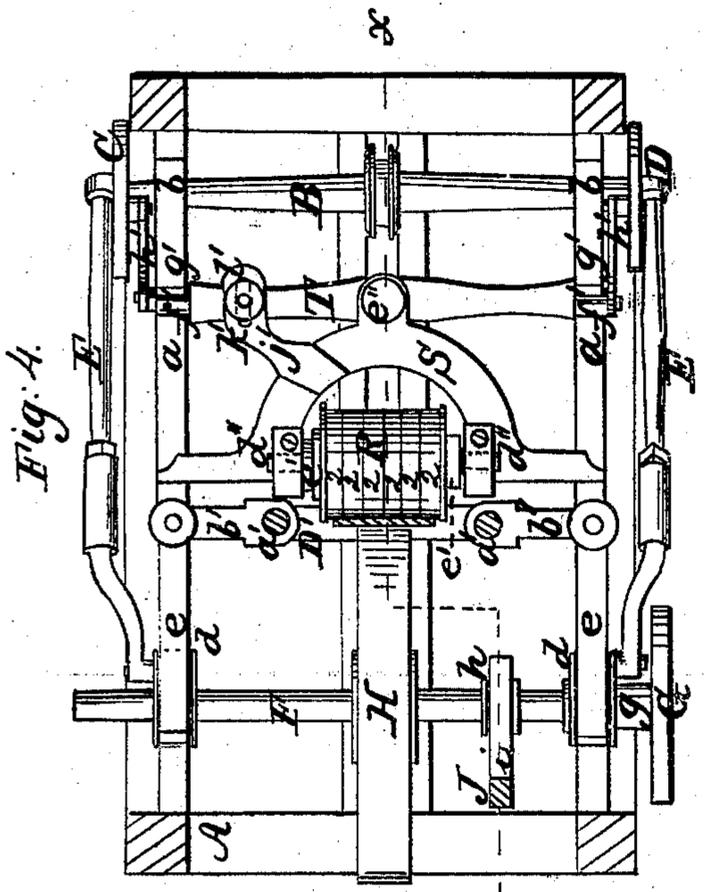
Patented Apr. 21. 1857.



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No 17,110.

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# UNITED STATES PATENT OFFICE.

ALBERT S. NIPPES, OF LOWER MERION, PENNSYLVANIA.

## GRINDING SAWS.

Specification of Letters Patent No. 17,110, dated April 21, 1857.

*To all whom it may concern:*

Be it known that I, A. S. NIPPES, of Lower Merion, in the county of Montgomery and State of Pennsylvania, have invented a new and Improved Implement or Device for Grinding Saws; 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, making a part of this specification, in which—

Figure 1, is a side view of my improvement. Fig. 2, is a longitudinal vertical section of the same; (*x*) (*x*), Fig. 4, showing the plane of section. Fig. 3, is a transverse vertical section of the same; (*y*) (*y*), Fig. 1, showing the plane of section. Fig. 4, is a horizontal section of the same; (*z*) (*z*) Fig. 2, showing the plane of section.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in the employment or use of a bearing roller, fitted within a swinging and pivoted or adjustable frame, as will be hereinafter shown and described, whereby the roller may be raised and placed out of the way of the saw, to allow the same to be turned in its frame or sash, and the roller also allowed to be placed angularly so that the saws may be ground transversely in taper form.

My invention further consists in the peculiar means employed for adjusting the grind-stone to the saw.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, represents a rectangular frame, which may be constructed in any proper manner, to support the working parts. At about the center of the frame, or midway between its upper and lower ends, two horizontal bars (*a*) (*a*) are secured, one at each side. On one end of these bars, (*a*) (*a*), a shaft B is placed; said shaft being fitted in suitable bearings (*b*) (*b*). On one end of the shaft B, a ratchet wheel C, is placed; into which a pawl (*c*) on the frame A, gears; see Fig. 2. On the opposite end of said shaft, a circular disk D, is placed. To the disk D, and to the ratchet wheel C, rods E E, are attached, one to each. The opposite ends of the rods being attached to bearings (*d*) which are fitted between the upper surfaces of the bars (*a*) (*a*) and horizontal bars (*e*) which are connected with the bars

(*a*) by small upright bars (*f*). The bearings are allowed to slide freely between the bars (*a*) (*e*), and in these bearings a shaft F is fitted; said shaft being allowed to slide in its bearings. One end of the shaft passes through a tube (*g*) which is fitted in one of the bearings; said tube being connected with the shaft F, by a feather and groove, so that the tube is connected with the shaft F, as they rotate; the shaft being allowed to slide longitudinally through it. On the outer end of the tube (*g*) a wheel G is placed. A grind-stone H, is placed upon the shaft F; and a square plate (*h*) is secured to the shaft F; said plate being grooved at its upper and inner edge.

At the lower end of a vertical bar J, two parallel bars (*i*) are attached. These bars (*i*) are fitted, one in the upper and the other in the lower groove of the plate (*h*) as shown clearly in Fig. 2. The upper end of the bar J, is attached to a strap (*j*) which encompasses a small shaft K, placed in the upper part of the frame A. This shaft K has a pulley (*k*), at each end; and the shaft, between the two pulleys (*k*), is of larger diameter than elsewhere and has a spiral groove (*l*) formed in it; projections (*m*) one or more, on the inner side of the strap, fitting in the groove (*l*), see Fig. 2. On the outer end of the shaft K, two pulleys, (*n*) (*o*), are attached. On the upper part of the frame A, a shaft L is placed. This shaft L is parallel with the shaft K, and has two pulleys (*p*) (*q*) upon it, around which belts (*r*) (*s*) pass from the pulleys (*k*). The belt (*s*) being a cross belt. The two pulleys (*p*) (*q*) are both placed loosely on the shaft L, and either may be connected with it, when desired, by a clutch M.

N, represents an endless chain. This chain passes around a pulley O, at the lower part of the frame A, and around two pulleys (*t*) (*u*) on the upper part of the frame A. The upper end of the chain N is attached to the upper end of a saw-sash D<sup>1</sup>, and the lower end of the chain is connected to the lower end of said sash. The saw-sash is formed of an upper rail or cross-piece (*v*) and a lower rail or cross-piece (*w*); the ends of the said rails or cross-pieces being connected together by vertical rods (*a*<sup>1</sup>) which work through guides (*b*<sup>1</sup>), attached to the ends of the bars (*e*). The saw Q, is attached to

swivels ( $c'$ ) ( $c''$ ) in the sash, and the lower swivel ( $c''$ ) has a screw-rod ( $d^1$ ) connected with it, as shown clearly in Fig. 2; so that the saw may be perfectly strained by turning the said screw.

R, represents a roller upon a shaft ( $d''$ ) and secured thereon by nuts ( $e'$ ), at each side of the roller R. The shaft ( $d''$ ) is secured in a frame S, the back part of which is pivoted to a bar T, ( $e''$ ) being the pivot. The journals ( $f^1$ ) of the bar T, are fitted in oblong slots or bearings ( $g^1$ ), and the outer ends of the journals ( $f^1$ ) are connected by arms ( $h^1$ ) to the disk D, and the other to the ratchet wheel C. To the frame S, an arm ( $j^1$ ) is attached. This arm laps over upon the bar T, and has a slot ( $k^1$ ) made through it; a set screw ( $l^1$ ) passing through the slot ( $k^1$ ) in the arm ( $j^1$ ) and thereby securing the arm and frame in any desired position. To one end of the shaft B, a lever or handle U, is attached.

The sash  $D^1$  is operated or moved up and down by power being communicated to the chain N, in any proper manner. The saw Q is properly strained in the sash  $D^1$ , by turning the screw ( $d^1$ ), and the stone H is properly adjusted against one side of the saw, and the roller R against the opposite side by operating or moving the lever U; the roller and stone being moved simultaneously in opposite directions by the ratchet wheel C, disk D, and by the rods E, E, and arms ( $h'$ ) ( $h''$ ). As the saw moves up and down, it is ground by the stone H, and the stone is moved laterally from one side of the saw to the other by the bar J, which is operated in consequence of the projection ( $m$ ) fitting in the spiral groove ( $l$ ) in the shaft K.

When one side of the saw is ground, the frame S, in which the roller R is fitted or placed, is raised or thrown up; the bar T turning in its bearings. And the roller and stone being moved back from the saw, and the saw-sash raised, the saw is turned, and the opposite or unground side of the saw is brought facing the stone. The roller

frame, S, is then depressed, and the roller and stone brought toward the saw.

The saw Q, as usual, is made thicker at its cutting or toothed edge; and in order to allow or compensate for this taper form of the saw, the roller R should be so arranged that its axis may be placed or adjusted angularly with the axis of the stone H; because the face of the stone H, and the side of the saw Q, nearest the stone, must be parallel with each other, consequently the angular or oblique side of the saw will be opposite to, and bear against, the face of the roller R; and by having the frame S pivoted to the bar T, at ( $e''$ ), the roller may be adjusted parallel with the side of the saw.

I would remark that the stone H, may be operated with a greater or less speed, by varying the quickness of the spiral groove ( $l$ ), and one or more grooves may be made in the shaft K, so that the speed may be regulated as desired. I would further remark that the connecting-rods E, E, may be lengthened or shortened by means of screw connections, arranged in any proper way.

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

1. Placing the roller R within a frame S, which is pivoted to a bar T, which has its journals ( $f^1$ ) fitted in oblong slots or bearings ( $g^1$ ), substantially as shown, so that said roller may be elevated or raised up from the saw, and also be adjusted more or less angularly with the face of the grindstone H, for the purpose set forth.

2. I claim, operating or moving the stone H, and roller R, toward and from the saw, by connecting the bearings ( $d$ ) of the shaft of the stone, and the journals ( $f^1$ ) of the bar T, to the disk D, and ratchet C, by means of the arms ( $h^1$ ), and the rods E, substantially as described.

ALBERT S. NIPPES.

Witnesses:

JOHN J. THOMAS,  
LOUIS FRIEDMAN.