(No Model.) 2 Sheets—Sheet 1.

W. KRATZER.

BAND SAW GUIDE.

No. 334,175. Patented Jan. 12, 1886.

Fig. 1.

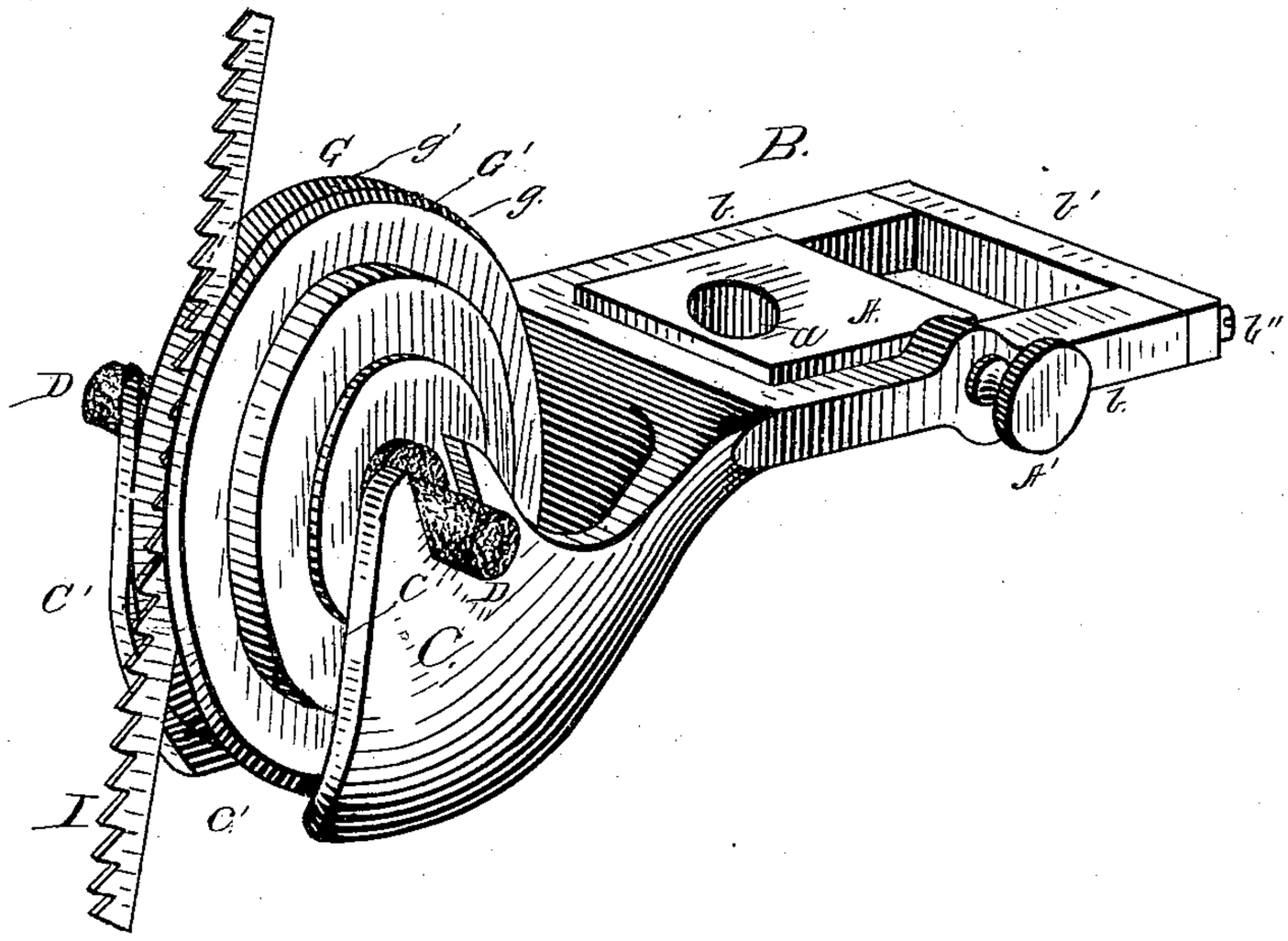


Fig. 2.

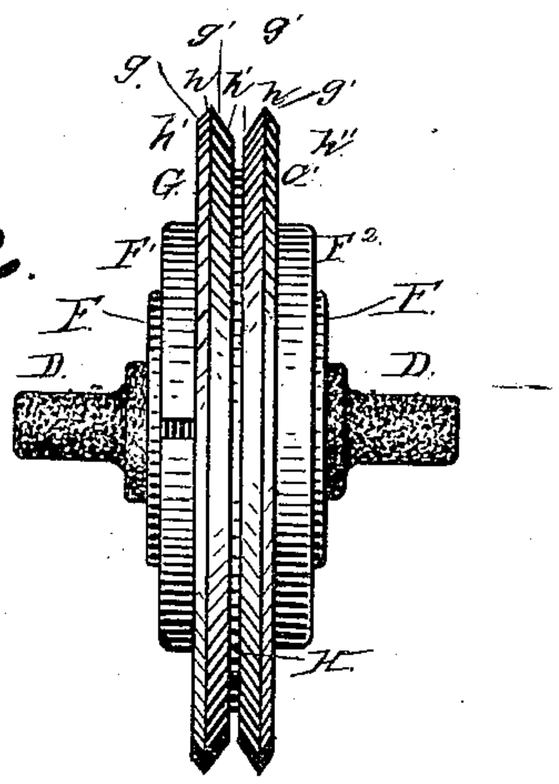
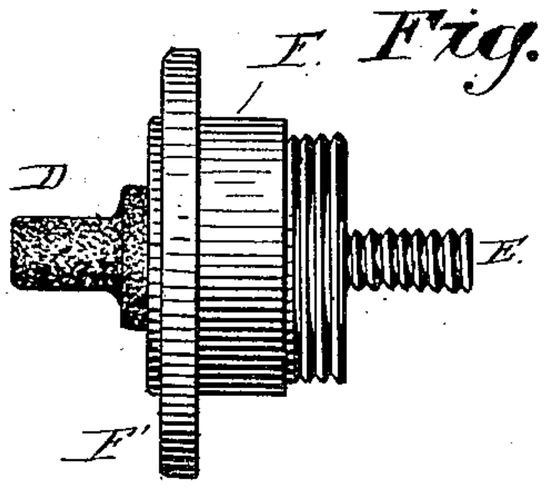


Fig. 3.



WITNESSES

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Duffy & Brashears

(No Model.) 2 Sheets—Sheet 2.

W. KRATZER.

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Fig. 4.

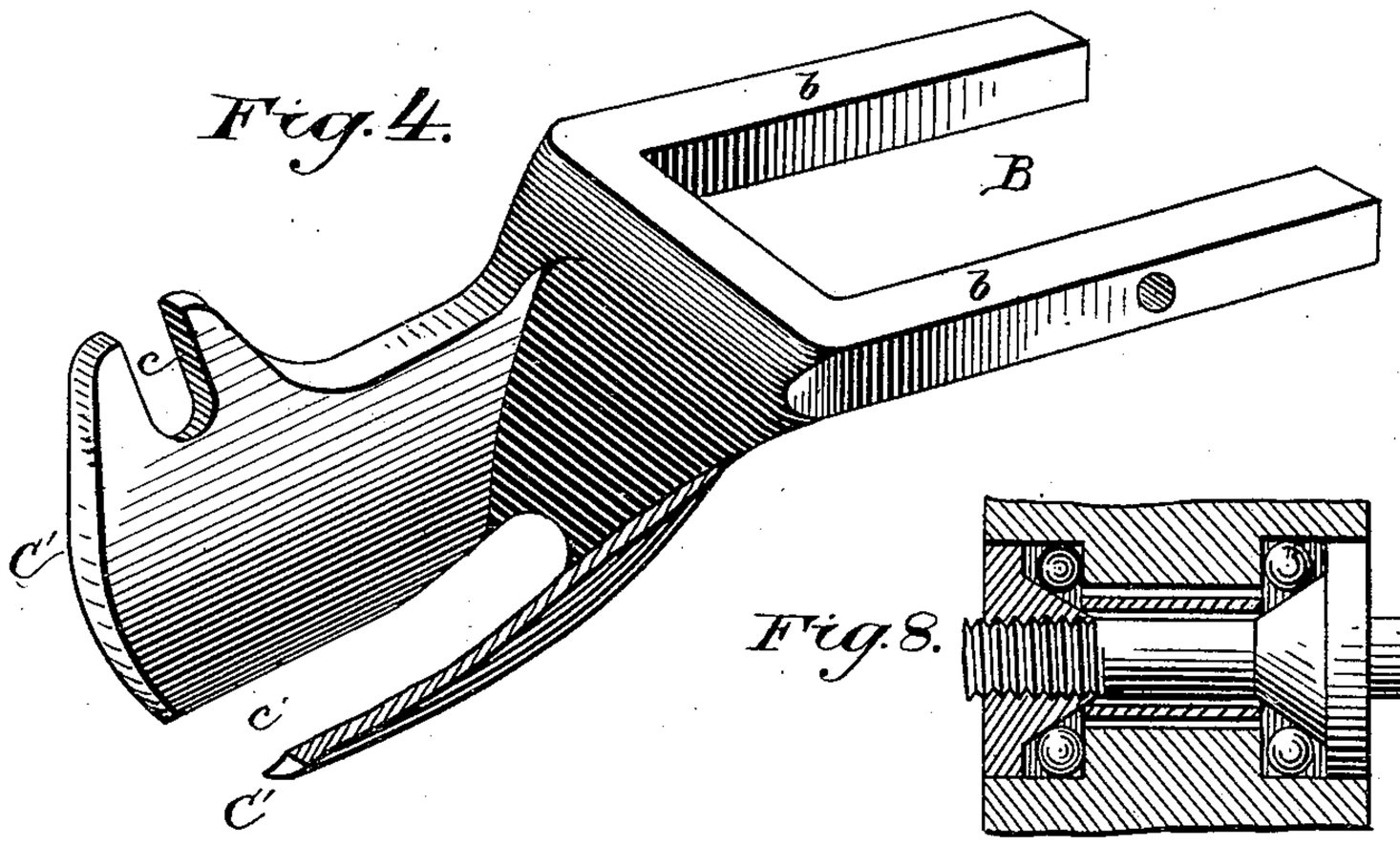


Fig. 8.

Fig. 6.

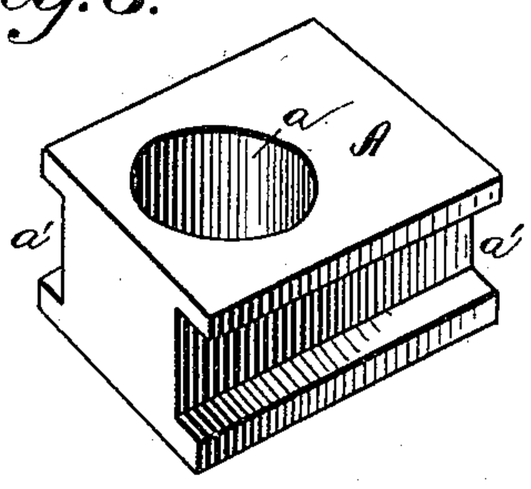


Fig. 5.

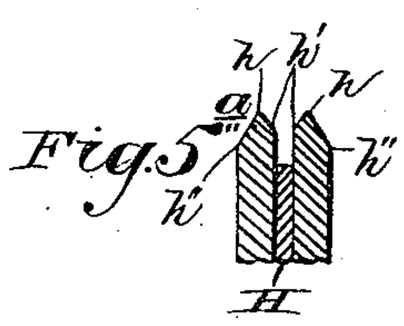


Fig. 5.

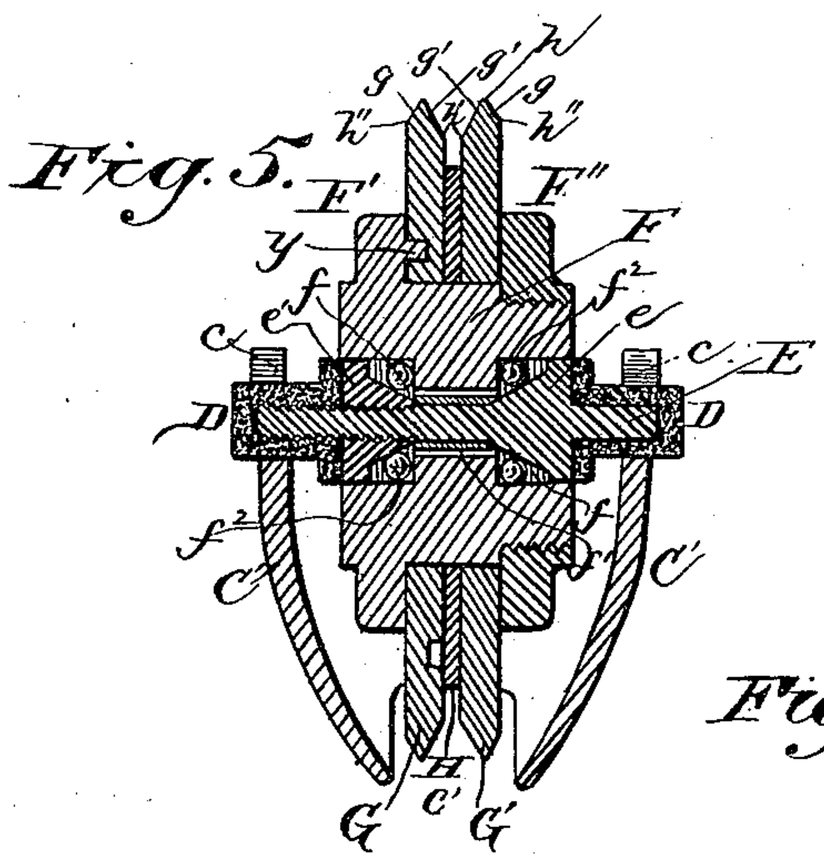


Fig. 7.

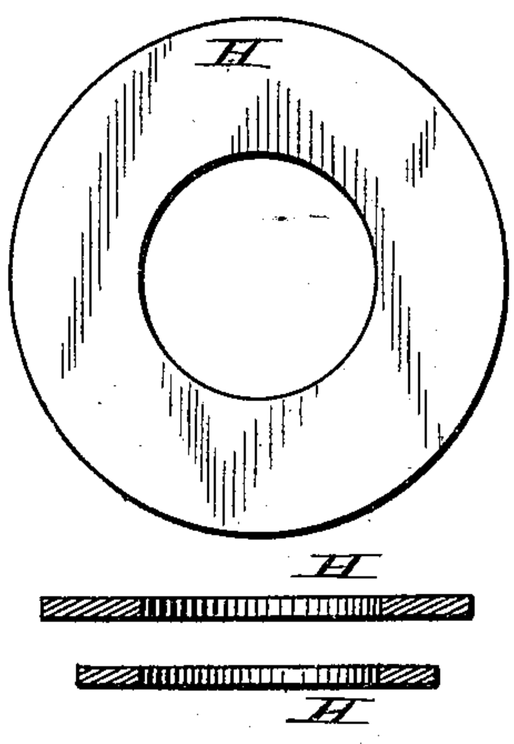
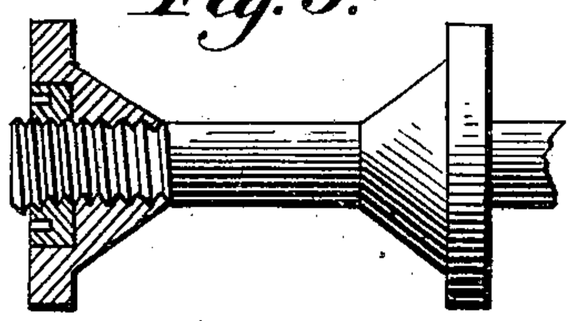


Fig. 9.



WITNESSES

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Chas. M. Wertz

INVENTOR

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By His Attorneys

Duffy & Brashears

UNITED STATES PATENT OFFICE.

WAYNE KRATZER, OF ALLENTOWN, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO TILGHMAN SCHADT, OF SAME PLACE.

BAND-SAW GUIDE.

SPECIFICATION forming part of Letters Patent No. 334,175, dated January 12, 1886.

Application filed October 19, 1885. Serial No. 180,227. (No model.)

To all whom it may concern:

Be it known that I, WAYNE KRATZER, of Allentown, in the county of Lehigh and State of Pennsylvania, have invented certain new and useful Improvements in Band-Saw Guides; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to band-saw guides, and has for its object to furnish a guide which shall be, first, easily and readily adjustable in position with relation to the saw; second, readily and easily adjustable to accommodate saws of different widths or of different thicknesses; third, practically frictionless in operation; fourth, practically noiseless in operation; and, fifth, furnished with an improved guard and support.

With these objects in view my invention consists in the construction, arrangement, and combination of parts, which I shall now proceed to fully describe, and afterward specifically point out in the claims.

In the drawings, Figure 1 is a view in perspective of my guide and attaching devices complete. Fig. 2 is a view of the guide and shaft in elevation removed from the bearings. Fig. 3 is a view of a detached portion of the guide. Fig. 4 is a perspective view of the guide-frame and bearing-piece. Fig. 5 is a transverse vertical section through the guide and bearings. Fig. 5ª is a similar section through sufficient of the guide-wheel to show another adjustment, the bevels being on the opposite side of the clamping-washers from that shown by Fig. 5. Fig. 6 is a perspective view of the attaching-block, which is adapted to slide in its frame for adjustment. Fig. 7 is a view in elevation and cross-section of the central washers, which vary in size to suit the varied-sized band-saws. Fig. 8 is an enlarged view in section, clearly showing the bushing or sleeve, the spaces between it and the hub, and also the space between the bolt and sleeve. This bushing performs two functions—first, to keep apart the conical head of the bolt and the conical nut, so that the anti-friction balls will have an easy bearing without danger of being overtight, and, secondly, to form a lock to prevent the unscrewing of the conically-shaped nut. The recesses in the hub and the conical bolt-head and nut form the journal-bearings for the anti-friction balls. Should the conical nut not be locked, it would in time turn and become loose, and to lock it by a check-nut there is no room. However, the conical nut could be provided with a recess and a lock-nut inserted and screwed up with a spanner-wrench, as shown by Fig. 9. Fig. 9 shows a sectional view detached.

Like letters of reference mark the same parts in all the figures, in which—

A is a block provided with a perforation, *a*, near one end and lateral grooves *a'*. (See Fig. 6.) B is the frame in which this block slides, the grooves *a'* passing over the sides *b* of said frame. The end *b'* of the frame is removable, being secured to the sides by means of screws *b''*, the purpose being to admit the block A when desired, or remove and reinsert it for reversal adjustment. A set-screw, A', passes through one of the sides, and impinging against the side of the block A holds it rigidly in any position to which it may be adjusted. The perforation *a* receives a vertical rod or screw, (not shown,) which, passing up through it from below, enters the bottom of the bar upon which the guide is supported, and by binding the block A against said bar holds the whole guide mechanism firmly in position, while permitting of adjustment around the screw in a horizontal plane. Secured rigidly to or formed integral with the frame B is the bearing-piece and guard C, which is composed of two branches or jaws, C' C', each of which is provided with a notch, *c*, at its top. An opening, *c'*, separates the two jaws or branches at the bottom, each branch or jaw being curved downward and inward toward said opening (see Fig. 5) to permit the sawdust to pass through.

D D are rubber blocks which surround the ends of the shaft of the guide-wheel and rest in the slots *c' c'*, whereby the shaft may yield

and the guide adjust itself to the saw, and serving to deaden the noise made in the turn of the guide-wheel.

E is the shaft of the guide-wheel, which is provided with a cone, *e*, made integral therewith, and a cone-nut, *e'*, threaded thereon, which form bearings for the balls upon which they revolve. The shaft-bushing and nut remain stationary.

F is the hub of the wheel through which the shaft passes, and which has a recess, *f f*, on each of its sides to receive the anti-friction rolls, and also to receive the conical head of the bolt and conical nut, so that their outside is flush with the hub, and thus entirely out of the way. In the recesses *f f*, left in the inner ends of the hub, are arranged the balls f^2, which, when the cones of the shaft are in position, form a ball-bearing, as shown. The hub F has two flanges, F' F''—the one F' formed integral with the hub, and the other, F'', formed separate and suitably ready to be screwed to the hub, as shown in Fig. 5.

G G' are two washers, whose central bore is of a proper size to pass over the hub F to make a neat fit, and whose circumferences are each formed with reversely-beveled edges *g g'*, of different widths, the edge *g* reaching from the point *h* to the point *h'*, and the edge *g'* from *h* to *h''*, the purpose of which construction will be hereinafter explained. The washer G is formed with a depression to receive a projection, Y, on each of its sides, formed on the flange F', to cause it to always turn with said flange.

H is a plain circular washer, which is placed between the two washers F' F'', against which the back of the saw bears, and which revolves in the direction in which the saw is traveling, its central bore fitting the hub F, over which it is passed.

I is a section of the saw.

The object of the various constructions and the operation may be explained as follows, viz: The perforation *a* in the block A is placed near one end, so that a greater limit of adjustment may be had. This is accomplished by removing the block back and forth and reversing by taking it from the slide and turning it end for end and then restoring it to the slide, so that when in one position the perforation may be brought nearly to one end of the slide-frame, and in the reverse position it may be brought nearly to the opposite end, and in either adjustment a long, and consequently a strong, bearing is maintained between the block and its slideways. The part C' is curved downward and inward and brought down below the lower edge of the wheel, so that it may form a guard to prevent accidental contact of the board with the guide-wheel, and it has the opening made in it for the purpose of allowing it to constantly clear itself of dust or dirt. The double-inclined edges *g g'*, one greater than the other, are made on the washers G G', which may be made of any suitable material, so that by simply reversing these washers the guide may be adjusted in capacity for accommodation of saws of greater or less width. The distance from the plain washer H, which forms the guide to the back of the saw, to the edge of the portions of the washers which come in contact with the saw is greater or less in the two adjustments, as may be seen in Figs. 5 and 5ª, the two distances being from H to *h''*. The washers H are made interchangeable, so that thicker or thinner ones may be inserted to accommodate thicker or thinner saws. The rubber bearing or cushion blocks, as before stated, serve to deaden the sound and make the guide practically noiseless.

To put the device in position for operation, the frame is secured by a screw through perforation *a*, as before stated, and the whole frame adjusted toward or from the path of the saw and secured in such adjustment by turning up the set-screw against the sliding block A. The saw is now in the position shown in Fig. 1, and as soon as the saw is started the frictional contact against the wheel will cause it to revolve on the ball-bearings and properly guide the saw with the least possible friction or noise.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In combination with a saw-guide, the saw-guide frame having slideways and removable end, and the reversible sliding block having a perforation, *a*, near one end, and arranged to allow a different adjustment of the guide, as set forth.

2. The bearing-piece and guard, consisting of downward and inward curved sides provided with the bearing-notches, and separated by a slot or opening at the bottom, for the purpose set forth.

3. In combination with the saw-guiding wheel and its shaft, the supporting-frame having notches to receive the shaft, and hollow rubber blocks located in said notches and surrounding the shaft, whereby the shaft may yield and the guide adjust itself to the saw, as set forth.

4. In combination, in a band-saw guide, the hub and the washers G G', reversible thereon, and provided with the beveled edges *g g'*, of different lengths, whereby by reversing the washers the guide is adapted to saws of different widths, as and for the purpose set forth.

5. In combination, the hub having flange F' integral therewith, the reversible washers G G' thereon, the interchangeable washers H between same, the flange F'', threaded on the hub, and a shaft upon which it turns, as set forth.

6. The combination, in an adjustable saw-guide having clamping-washers for securing the guide-wheel, of the hub supporting the same, and having recesses in its side, the central shaft-flange and nut having conical bearings on their inner faces, and the sleeve or bushing for locking said nut and flange, and

forming a bearing for the same, whereby the working parts are held loosely in position, as set forth.

7. The combination, in a saw-guide, of the hub having central recesses in its side, a central annular projection between said recesses, a shaft having flange and nut with inner conical bearings, a sleeve by which said parts are secured in position, and anti-friction rolls, upon which the hub turns, as set forth.

8. In a band-saw guide, the hub having an annular flange on one of its sides, and a central bearing, a screw-thread on its opposite side, and annular recesses in its center, in combination with two reversible washers and a central washer carried by frictional contact, the said parts being constructed and arranged to operate on anti-friction rollers and conical bearings, as set forth.

9. The combination, in a saw-guide, of the central washer or saw-bearing with the reversible beveled washers, the latter being arranged to hold the former in position by frictional contact, and the hub carrying the same, the whole being mounted to rotate, substantially as described.

In testimony that I claim the foregoing as my own I hereto affix my signature in presence of two witnesses.

WAYNE KRATZER.

Witnesses:
J. C. MOORE,
E. W. NAGLE.