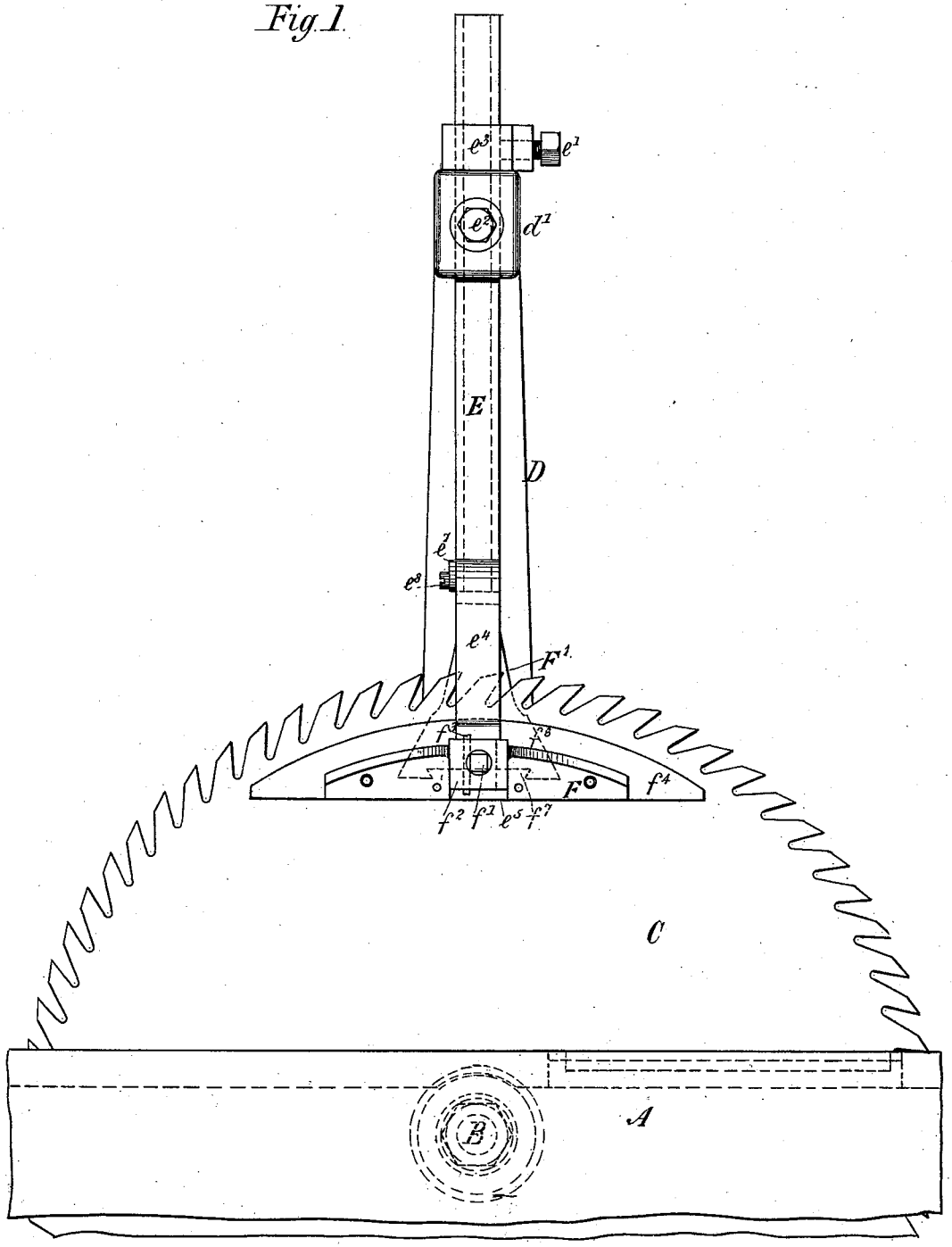
4 Sheets—Sheet 1.

J. CASSON.

Circular Saw-Guides.

No. 210,403. **Patented Dec. 3, 1878.**

Fig. 1.



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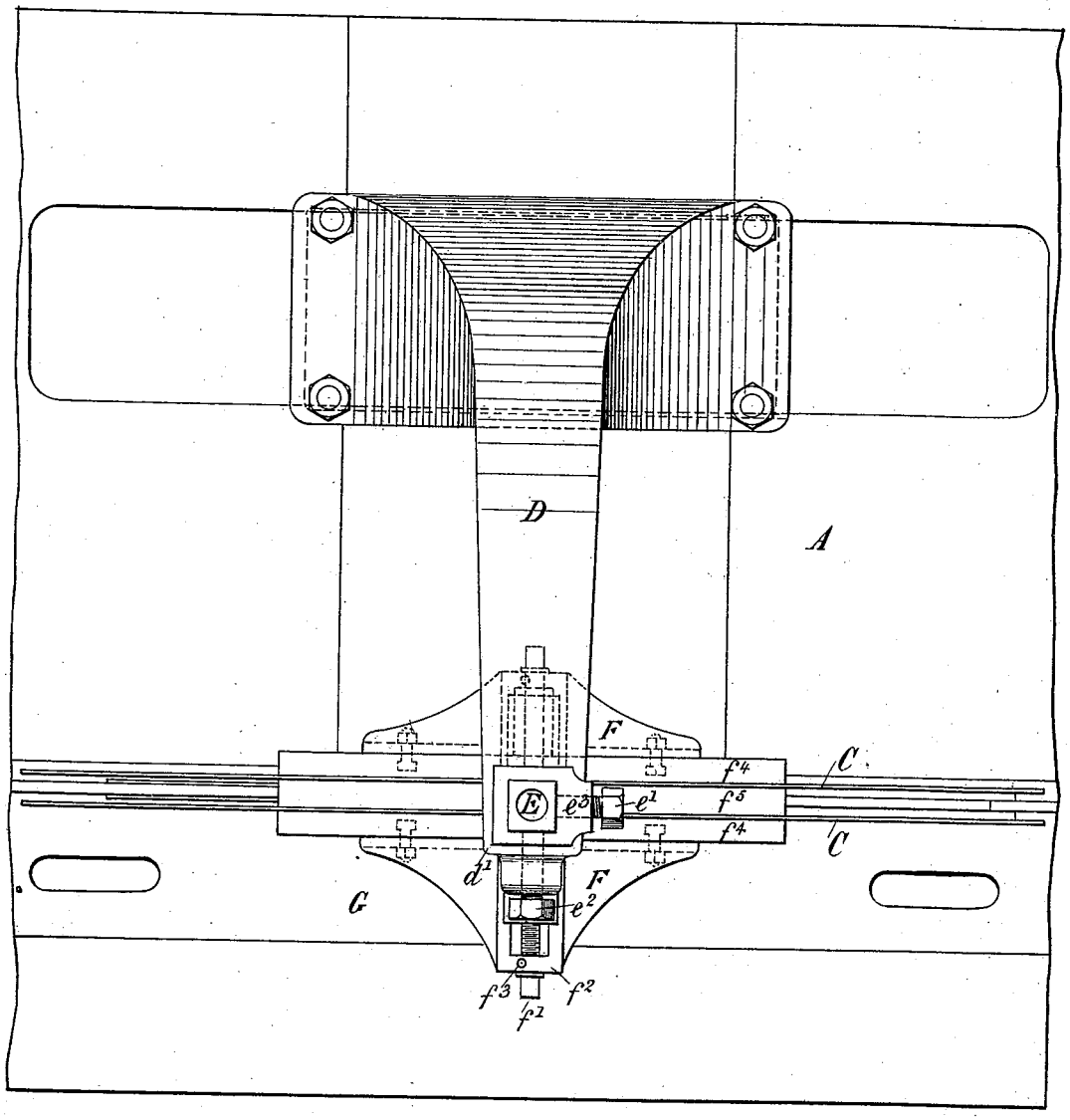
Circular Saw-Guides.

No. 210,403. Patented Dec. 3, 1878.

Fig. 2



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Circular Saw-Guides.

No. 210,403. **Patented Dec. 3, 1878.**

Fig. 3.

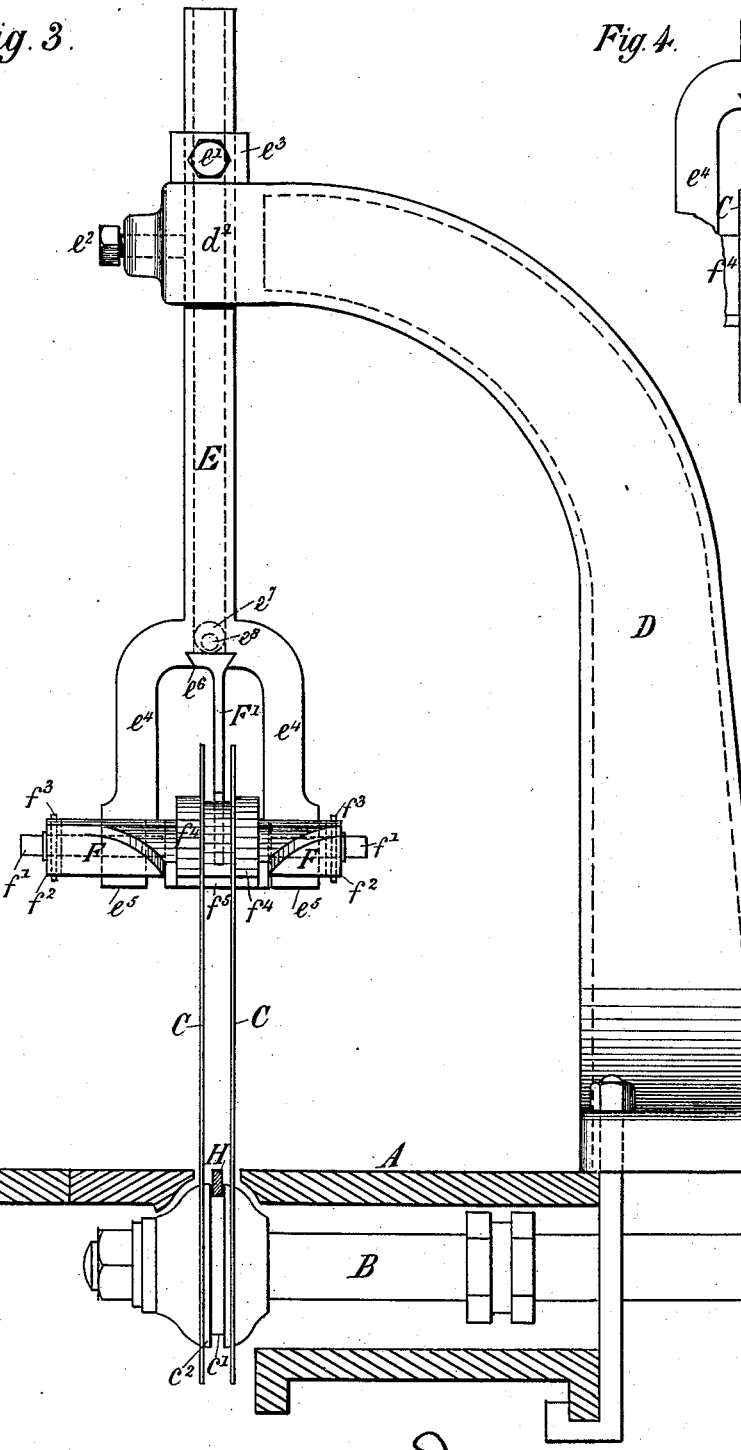
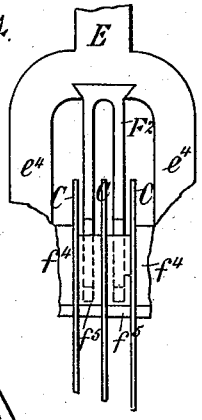


Fig. 4.



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No. 210,403. Patented Dec. 3, 1878.

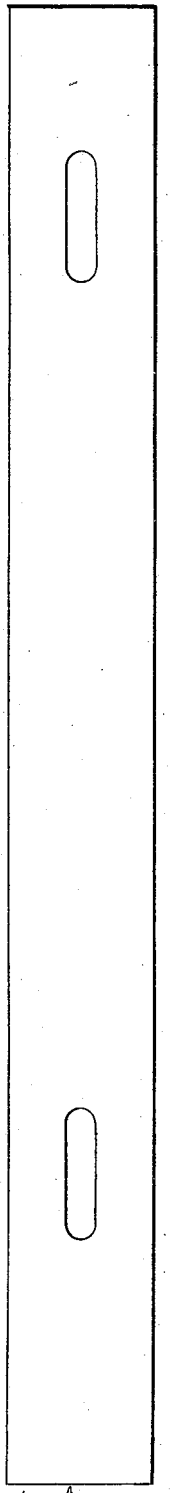

Fig. 5.

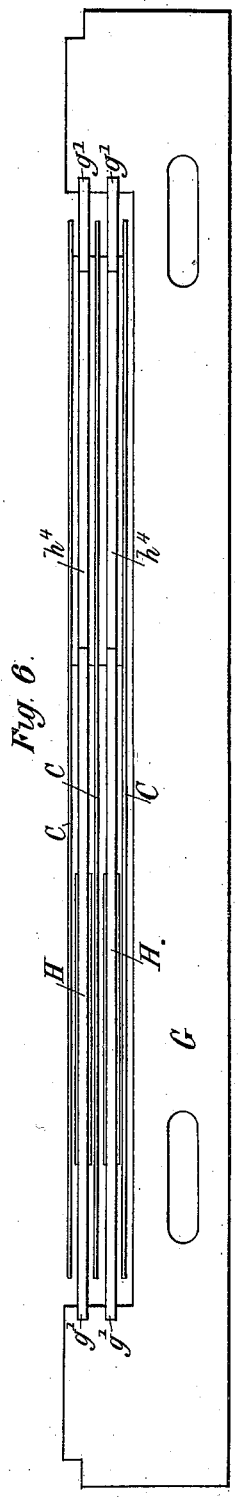

Fig. 6.

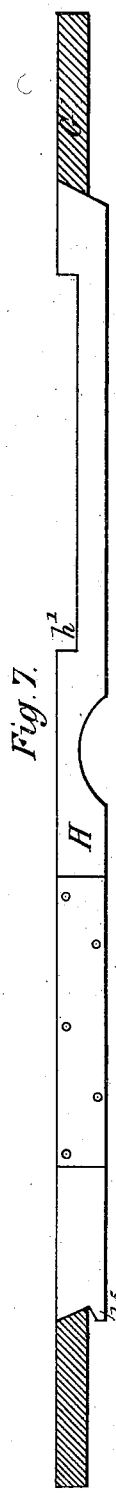

Fig. 7.

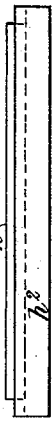

Fig. 9.

Fig. 8.

Fig. 10.

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UNITED STATES PATENT OFFICE.

JOHN CASSON, OF SHEFFIELD, ENGLAND.

IMPROVEMENT IN CIRCULAR-SAW GUIDES.

Specification forming part of Letters Patent No. **210,403**, dated December 3, 1878; application filed October 22, 1878.

To all whom it may concern:

Be it known that I, JOHN CASSON, of Arundel Buildings, in the parish of Sheffield, in the county of York, England, engineer, have invented new and useful Improvements in Apparatus to be used with Circular-Saw Benches for Steadying the Saws, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

The apparatus ordinarily used for steadying circular saws consists of a standard screwed to the bench-top, which standard carries jaws which are provided with bosses of leather or screws, which, when the apparatus is in use, are caused to nearly bear on the sides of the saw, and tend to prevent lateral motion of the said saw at the upper part thereof. This apparatus is difficult of adjustment, acts very imperfectly, and is applicable only to the steadying of one saw.

My invention consists of the improvements hereinafter described in the said apparatus, by which it is rendered more efficient, easily adjustable, and capable of being used for steadying one saw, or two or more saws affixed to the same spindle.

I will first describe my apparatus as arranged for one saw.

I prefer to make the standard hollow and of cast-iron, by which means great lightness and rigidity are obtained, and I bolt it to the bench-top in such a position that its free end shall overhang the saw-slot in the said bench-top. In the said free end is a socket, through which passes a bar or rod capable of being adjusted in a vertical direction, and of being fixed in the said socket by a set-screw. The lower end of this bar is forked, so as to form a pair of jaws, in each of which a sliding jaw is mounted, which sliding jaws may, by means of screws, be caused to advance toward or retire from each other in a line at right angles to the plane in which the saw works. To the inner faces of these sliding jaws strips or blocks of wood or other suitable material may be secured, which strips, when the apparatus is in use, prevent lateral motion of the saw. Holes or recesses may be formed in the said strips or blocks for the reception of a suitable lubricant, in order to reduce as much as possible the friction on the saw when it bears against the said strips or blocks.

This apparatus is used as follows: The saw having been fixed on the spindle in the bench, the sliding bar carrying the jaws aforesaid is lowered, and the screws in the jaws are turned until the strips of wood on the faces of the sliding jaws nearly touch the sides of the saw. By this arrangement the saw is caused to work very steadily, and a very thin saw may be used.

When my apparatus is to be used for steadying two saws mounted on the same spindle, I fix between the jaws on the sliding bar a piece of metal, which forms a third or intermediate jaw, in or on which is mounted loosely a block, the thickness of which corresponds with the space between the saws, and I place between the saws a bar, which rests in the saw-slot in the loose plate of the bench-top, and is prevented from being displaced when the saw is revolving by a pin or shoulder at the back end of the said bar, which pin or shoulder engages with the under side of the said loose plate; or any other suitable means may be used for fixing the said bar, which is provided with blocks of a thickness corresponding with the space between the saws. These blocks I term "distance-blocks." The sliding fork-bar having been lowered into position, and the intermediate jaw having been fixed in its place, the screws in the outer jaws are turned until the faces of the sliding jaws, or the strips of wood affixed to them, are nearly in contact with the outer sides of the saws. The apparatus is then ready for use.

When my apparatus is to be used for steadying three or more saws on the same spindle, I remove from the pair of jaws carried by the sliding bar aforesaid the piece of metal forming the intermediate jaw, and I fix in its place a fork having two or more branches, according to the number of saws, each of which branches constitutes an intermediate jaw, and carries a distance-block of a width equal to the distance apart of the saws between which such block will lie, and I remove from the saw-slot the bar hereinbefore described and substitute two or more bars, according to the number of saws, each of which bars is provided with a distance-block of the necessary

thickness. I then close the sliding jaws until the strips of wood affixed to them nearly bear on the outer saws, and the apparatus is ready for use. By thus varying the number of the jaws or forks carried by the sliding bar aforesaid, and the number of bars in the saw-slots, and by furnishing the said jaws and bars with distance-blocks of the required thickness, the apparatus may be used with any required number of saws set at any required distance apart.

Having now described the nature of my invention, I will proceed to describe the manner in which it is to be performed, reference being had to the accompanying drawings, and to the letters and figures marked thereon.

I will describe my improvements as applied to a saw-bench in which two saws are mounted.

Figures 1 and 2 of the drawings represent, in side elevation and in plan, respectively, part of the said saws and part of the bench in which they are mounted, and my improved apparatus for steadying the said saws. Fig. 3 represents in section that part of the bench to which the steadying apparatus is fixed, the said apparatus and the saws being represented in end elevation. Fig. 4 represents a detail hereinafter referred to.

The same letters of reference indicate the same parts in all the said figures.

A is the saw-bench, B is the saw-spindle, and C C are the saws mounted thereon. D is a standard bolted to the bench A, at the upper end of which standard is a socket, d', through which passes the bar E, which can be moved up and down in the said socket, as required, it being fixed at any height at which it may be adjusted by means of set-screws e^1 e^2, the screw e^1 serving to affix upon the said bar a collar, e^3, which limits the descent of the said bar, and the screw e^2 serving to hold the said bar firmly in position. e^4 e^4 are jaws formed on the forked bar E, on which jaws are mounted jaws F F, which slide in recesses formed in the said jaws e^4 e^4. e^5 e^5 are plates which are affixed to the lower parts of the jaws e^4 e^4 and support the jaws F F. f^1 f^1 are screws which pass through the parts f^2 f^2 of the jaws F F, and are kept in position therein by pins or keys f^3 f^3, fixed in the said parts f^2 f^2, which pins engage in annular grooves formed around the said screws, which engage in female screws formed in the jaws e^4 e^4. f^4 f^4 are strips or blocks of wood which are bolted to the jaws F F, and which I prefer to make of the form shown, in order to obtain as long a bearing-surface as possible.

By referring to the drawing, it will be seen that the screws f^1 f^1 serve merely to move the jaws F F toward and withdraw them from the saws, and do not either bear against the said saws, or take the whole strain of the parts which bear against the saws, as is the case with the screws used in some existing kinds of saw-steadying apparatus. e^6 is a dovetail groove, in which is fitted the intermediate jaw, F^1, the said groove being slightly tapered toward the front of the bar E, to prevent the said jaw F^1 from being drawn out in that direction. The said jaw is held in position by an eccentric, e^7, on a shaft, e^8. The lower part of the said jaw is formed with dovetails f^6 f^7, as indicated in dotted lines in Fig. 1, so as to be capable of having either a distance-block, f^5, of the same size as the blocks f^4 f^4, fitted on the dovetail f^6, or of having a smaller distance-block fitted into the dovetail f^7. In either case the distance-block is so fitted as to be capable of lateral motion on or in the jaw F^1.

Fig. 4 represents the modification of my invention which I use when more than two saws are mounted on the same spindle. In this case I remove the single intermediate jaw F^1, Fig. 3, from the jaws e^4, and substitute a piece of metal, F^2, formed with several such intermediate jaws, which are furnished with the distance-blocks f^5 f^5, one of which jaws is interposed between each two adjacent saws. When only one saw is used, the intermediate jaw and distance-block herein described are not required.

Fig. 5 is a plan of the loose plate used with a single saw. Fig. 6 represents, in plan, the loose plate and intermediate bars to be used when several saws are mounted on the same spindle. Fig. 7 is a section of the said plate, showing one of the said bars mounted therein. In this case I make grooves g^1 g^1 in the loose plate G, and insert therein the intermediate bars, H H, one of which is interposed between each two of the saws C C. These bars are formed with recesses at h^1, in which are fitted distance-blocks h^2 h^2, (see Figs. 8, 9, and 10,) preferably made of wood, of a width equal to the distance between two adjacent saws. Fig. 8 is a plan of the under side of one of these blocks. Fig. 9 is a side elevation of the said block, and Fig. 10 is a cross-section of the said block. Each block has a groove, h^3, in its under side, and a rib, h^4, on its upper side, between which rib and the adjacent saws a packing of greased hemp may be placed to warm and lubricate the said saws. h^5 is a shoulder, which engages under the loose plate G, and prevents the bar H from being displaced.

By this arrangement, when it is required to cut boards of different thicknesses, all that is necessary (after mounting the saws at the requisite distances apart on the spindle and adjusting the jaws hereinbefore described) is to remove from the bar or bars H the distance block or blocks last in use, and to substitute a thinner or thicker block, or thinner or thicker blocks, according to the thickness of the boards next to be cut, and the consequent distance of the saws from one another. The spaces between the saws being sufficiently closed by the said distance-blocks, no adjustment of the hemp packing is necessary, whereas the intermediate bars now in use have pieces of wood permanently fixed thereto, which are not wide enough to fill up the space be-

tween the saws, and the workman consequently has to pack the said bars with hemp or other packing, according to the best of his judgment.

I form an annular groove, c^1, around the washer c^2, between the saws, in order to admit the intermediate bar without reducing the diameter of the bearing-faces of the said washer.

Having now described the nature of my invention, and the manner in which the same is to be performed, I wish it to be understood that I do not limit myself to the precise details hereinbefore described, as they may be varied without departing from the nature of my said invention; but

I claim as my said invention—

1. The combination, with a forked bar sliding in a standard, of adjustable jaws or bearing-faces sliding on the jaws of said fork, essentially as and for the purpose described.

2. The herein-described steadying apparatus, adapted to steady two or more saws mounted on the same spindle, the same consisting in an intermediate jaw or jaws furnished with a distance block or blocks mounted in the fork of a bar, the jaws of which fork act to sustain the saws on the outside, and one of said intermediate jaws being interposed between every two saws, as set forth.

3. The improved construction and arrangement of the bars placed in the saw-slots of saw-benches in which several saws are mounted on the same spindle—that is to say, the said bars having recesses in the fore parts thereof, adapted to receive therein suitably-formed distance-blocks of a width equal to the distance between the adjacent saws, and being mounted in the saw-slots of the loose plates of the said bench, essentially as and for the purpose described.

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