

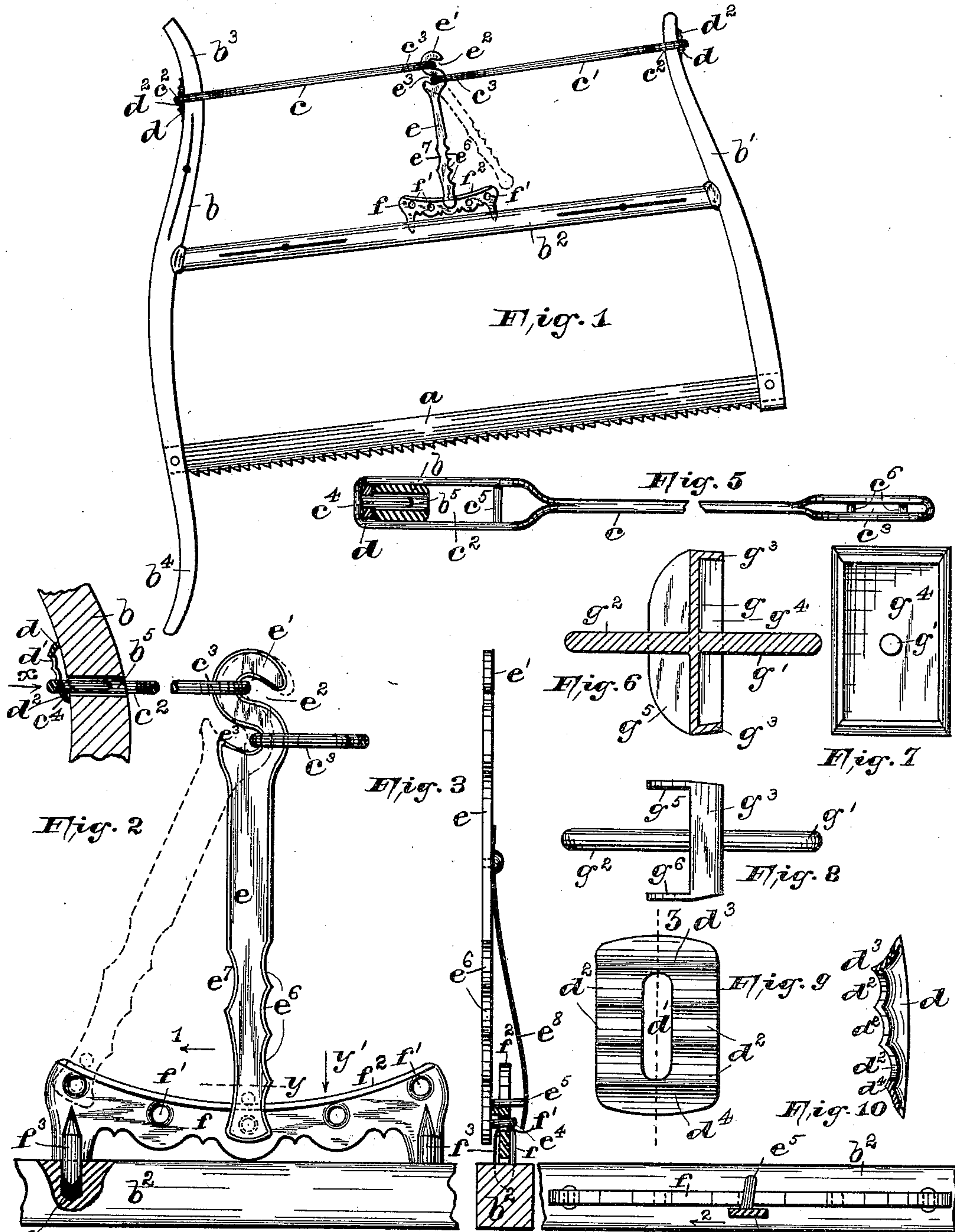
(No Model.)

2 Sheets—Sheet 1.

S. HALE.  
ADJUSTABLE SAW FRAME.

No. 424,927.

Patented Apr. 1, 1890.



WITNESSES:

Fred<sup>h</sup> S. Rice.  
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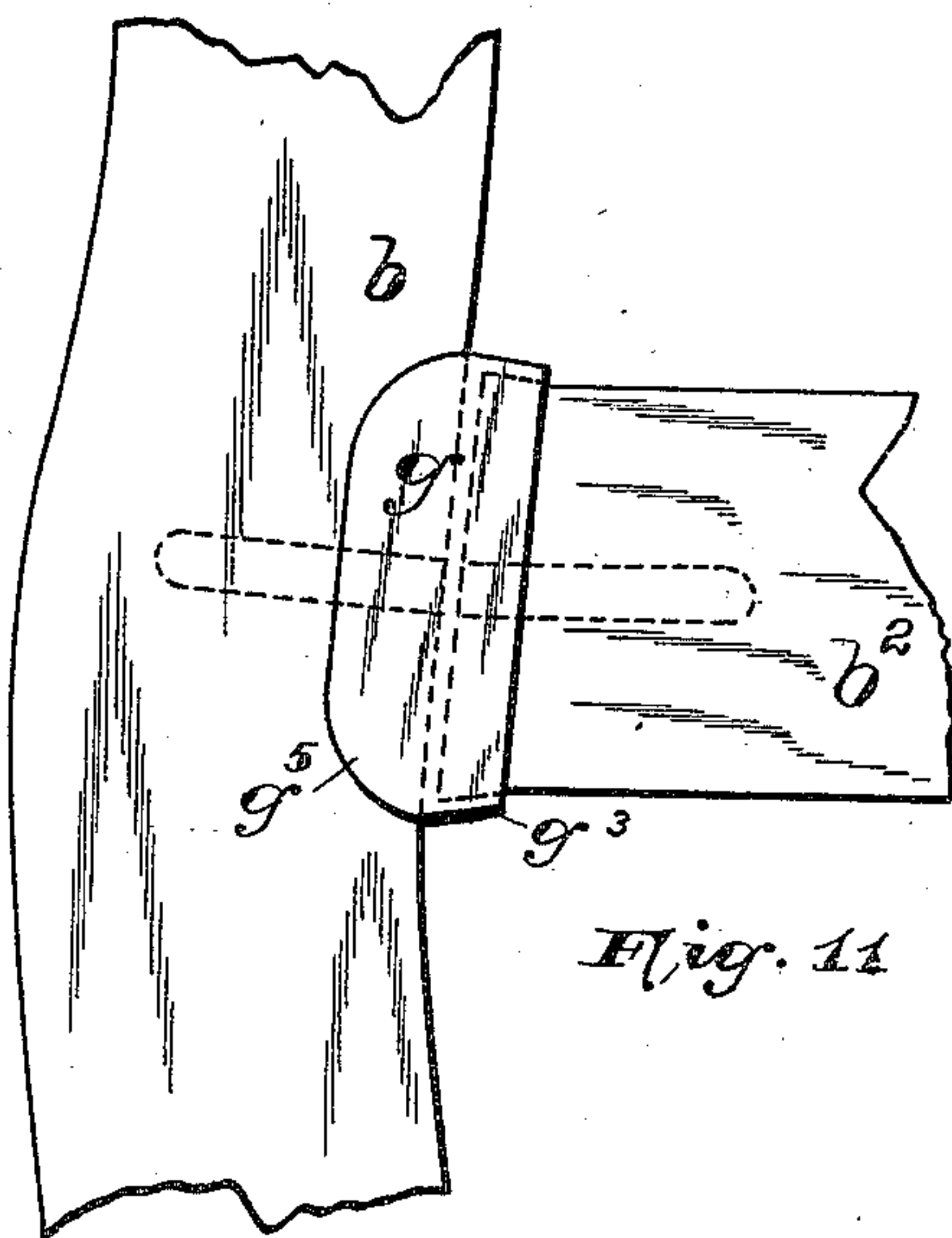


Fig. 11

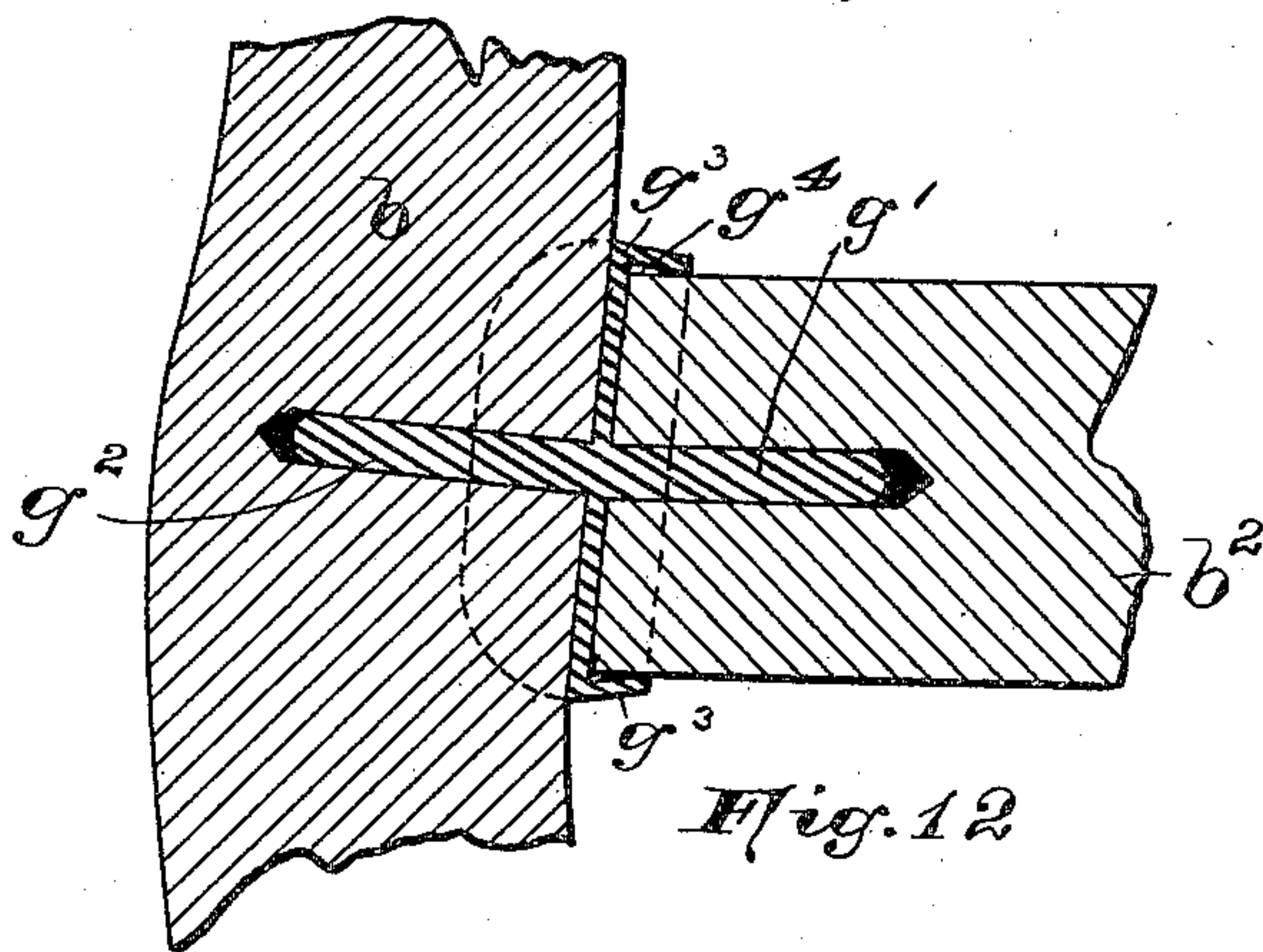


Fig. 12

WITNESSES:

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# UNITED STATES PATENT OFFICE.

SAMUEL HALE, OF NEWARK, ASSIGNOR TO THE SIP-HALE MANUFACTURING COMPANY, OF JERSEY CITY, NEW JERSEY.

## ADJUSTABLE SAW-FRAME.

SPECIFICATION forming part of Letters Patent No. 424,927, dated April 1, 1890.

Application filed August 26, 1889. Serial No. 321,963. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL HALE, a citizen of the Dominion of Canada, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Adjustable Saw-Frames; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as 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 letters of reference marked thereon, which form a part of this specification.

The herein-described invention relates to improvements in saws, and has for its object to provide a simple and effective means for straining the saw-frame and the blade secured therein.

The invention furthermore consists in details of constructions, as described in the accompanying specification, and as finally embodied in the claims.

My device is designed to provide a straining device which can be secured to the saw-frame with but comparatively little labor and which also can be made economically.

In the accompanying sheet of drawings, in which similar letters of reference indicate corresponding parts in each of the views, Figure 1 is a front elevation of a saw to which is attached my improved straining device. Fig. 2 is an enlarged front elevation of the straining device, illustrating the manner of securing the sector to the center bar of the frame, and showing the connecting links or rods arranged to the top of the straining-lever and to the saw-frame at the opposite ends of the links. Fig. 3 is a side elevation of Fig. 2, the sector being shown in cross-section and illustrating the manner of securing the straining-lever thereto when strained to the desired limit. Fig. 4 is a section of Fig. 2 through  $y$ , looking in the direction of arrow  $y'$ . Fig. 5 is a section through  $x$ , Fig. 2, and illustrating one of the links and the manner of attaching the same to the saw-frame in plan. Fig. 6 is a vertical section, Fig. 7 a front elevation, and Fig. 8 a top view, of a mortise-and-tenon plate for securing the opposite ends of the center bar to the side pieces of the saw-frame.

Fig. 9 is a front elevation of a slotted regulating-plate; and Fig. 10 is a section of said figure, taken through line  $z$  in said figure. On Sheet 2 of the drawings, Fig. 11 is an enlarged view of the mortise-and-tenon plate in position on the parts of the saw-frame; and Fig. 12 is a vertical section of said figure, illustrating more particularly the manner of connecting the parts of the frame by means of said mortise-and-tenon plate.

In said views,  $a$  represents the saw-blade attached to the arms  $b$  and  $b'$ , which are connected together by a cross-bar or center bar  $b^2$  in the usual manner or in the manner to be described hereinafter, and which constitute the frame of the saw, the arm  $b$  being of the proper length, so as to form handles  $b^3$  and  $b^4$  at the opposite ends of said arm, as shown. The arms  $b$  and  $b'$  are provided near their upper ends with perforations  $b^5$ , as shown more especially in Figs. 2 and 5.

Rods or links  $c$  and  $c'$ , provided with link portions  $c^2$  and  $c^3$  at their extremities, are arranged on the arms  $b$  and  $b'$ , respectively, said link portions  $c^2$  embracing and extending around the arms  $b$  and  $b'$ , respectively, as illustrated in Fig. 1, and a pin  $c^4$ , cast or otherwise secured within the link portion  $c^2$ , passing and extending into the above-mentioned perforations in the arms  $b$  and  $b'$ , as will be seen from Figs. 2 and 5. Within said link portions and on the outside of the arms  $b$  and  $b'$  may be arranged, if desirable, regulating-pieces  $d$ , provided with a longitudinal slot  $d'$  and curved portions or recesses  $d^2$ , said plates being arranged as will be described hereinafter, and by means of which the rods or links can be lengthened or shortened as necessity requires in putting the frame together before the saw-blade is strained to its maximum limit by means of the straining-lever  $e$ . The opposite ends of the links or rods  $c$  and  $c'$ , as has been stated, are provided with a link portion  $c^3$ , and these portions are hooked or secured in the S-shaped portion  $e'$  of the straining-lever  $e$ , said portion thus forming the recesses  $e^2$  and  $e^3$ , into which said link arms or rods are hooked, as shown in Figs. 1 and 2.

The straining-lever  $e$  is provided at its lower end with pins  $e^4$  and  $e^5$ , preferably inclined,



as in Figs. 3 and 4, one of which, as  $e^4$ , is adapted to fit into any one of the perforations  $f'$  in the sector  $f$ , thus holding the lever  $e$  in its desired position on the sector, and, by means of the links or rods at the top of the straining-lever, thereby drawing the upper ends of the arms  $b$  and  $b'$  toward each other, and thereby straining the saw-blade to any desirable degree. The pin  $e^5$  on the lever  $e$  serves as a guide and rides on the upper edge  $f^2$  of the sector during the act of straining the parts of the saw-frame.

The sector  $f$  may be secured to the cross-bar  $b^2$  in any well-known manner, or, as illustrated more especially in Fig. 2, lugs or pins  $f^3$  may be cast on the bottom of the sector, which are driven into holes  $b^6$  in the cross-bar  $b^2$ , and thus firmly hold the sector in place on said bar.

The handle portion of the straining-lever  $e$  is provided with curved portions  $e^6$  and  $e^7$  on its opposite edges, into which recesses the fingers and the thumb of the operator are placed when pulling the lever into its desired position, thus serving as a convenient means for catching hold of the said lever. As will be seen from Fig. 3, said lever may be provided with a spring  $e^8$ , which engages with the ends of the pins  $e^4$  and  $e^5$  to retain the lever in position on the sector. This spring, however, is not essential to the successful working of the parts, and may be dispensed with, if desirable.

As has been stated in the above, when the parts of the frame are put together and before the saw-blade is strained to its maximum limit by means of the straining-lever, &c., any undue slack of the blade may be taken up by the regulating-plates  $d$ , which fit on the arms  $b$  and  $b'$  and in the link portions  $c^2$ , as is illustrated in Fig. 2. Said regulating-plates are provided with any desirable number of curved recesses or notches  $d^2$ , and the plate is inclined from the upper edge or side  $d^3$  toward the edge  $d^4$ , as shown in Fig. 10, and by placing the ends of the links or rods  $c$  and  $c'$  into any one of said notches in the plates  $d$  the said links may be desirably lengthened or shortened and the saw-blade strained to its desired extent before applying an additional strain by means of the lever  $e$ .

The advantages of the present construction will readily be seen, thus making both a simple and effective means for straining the saw-frame equally on all sides.

The facility with which my improved straining device may be attached to the frame will be apparent to those skilled in the state of the art.

By my improved links or connecting-rods the cost of manufacture has been considerably reduced, as all of the parts are obtained from the foundry ready to be put on the frame, and there is no trouble of cutting screw-threads on the links or rods and tapping thumb-screws for said rods.

If desirable to give elasticity to the arms and cross-bar of the saw-frame, the same may be provided with saw-cuts  $b^7$  and  $b^8$ , as shown in Fig. 1.

It will be noticed from the drawings that I contemplate using a mortise-and-tenon plate for securing the ends of the cross-bar  $b^2$  to the arms  $b$  and  $b'$ . To do this, the said parts of the saw-frame are provided with holes or perforations, and into the same are forced the pins or arms  $g'$  and  $g^2$  of the mortise-and-tenon plate  $g$ , as illustrated more especially in Figs 11 and 12, which is provided with a flange  $g^3$  on one side of the plate, thus forming a recess  $g^4$ , Fig. 7, into which the ends of the cross-bar are forced. This flange  $g^3$  around the edge of the plate  $g$  prevents the splitting of the cross-bar  $b^2$  when the pin or arm  $g'$  is forced into the perforation in the end of said cross-bar. The opposite side of the plate  $g$  is provided with two projecting flanges  $g^5$  and  $g^6$ , which lap over on the opposite sides of the arms  $b$  and  $b'$ , and the pin  $g^2$  between said flanges is forced into a hole or perforation in said arm. This is a very cheap and effective construction, as is evident, and by this method the parts of the saw-frame are firmly secured together, and the expense and loss of time in making the ordinary mortise and tenon, as heretofore, are thereby avoided.

As will be seen from Fig. 5, the link portions in the links may be provided with strengthening-ribs or cross-pins  $c^5$  and  $c^6$ .

As thus constructed, the parts of the saw can be packed separately ready for shipment and easily put together when reaching their destination.

Having thus described my invention, what I claim is—

1. In a saw-frame, the combination, with a straining-lever, of two links or rods pivoted thereto at their inner ends, and provided at their outer ends with link portions having a pin therein, said portions being adapted to embrace the arms of the frame, and said pin extending into a perforation in said frame-arms, for the purposes set forth.

2. In a saw-frame, the combination, with a straining-lever, of two links or rods pivoted thereto at their inner ends, and provided at their outer ends with link portions adapted to embrace the arms of the frame, strengthening-pins in said link portions, and wedge-shaped regulating-plates provided with curved recesses arranged on the arms of said frame and held thereon by said links or rods, for the purposes set forth.

3. In a saw-frame, the combination, with a straining-lever, of two links or rods pivoted thereto at their inner ends, and provided at their outer ends with link portions having a pin therein, said portions being adapted to embrace the arms of the frame, and said pins extending into perforations in said frame-arms, and regulating-plates provided with curved recesses and an elongated slot in said



plates, through which the pin in the link portions embracing the frame extends, as and for the purposes set forth.

4. In a saw-frame, in combination with the cross-bar of a saw-frame, a sector provided with perforations therein secured to said bar, a straining-lever provided at one end with pins, one of which extends into said perforations in said sector, the other pin engaging with the upper edge of said sector, the other end of said lever being hook form in the shape of an **S**, and links or rods hooked into said **S**-shaped lever and secured at their other extremities to the saw-frame arms, for the purposes set forth.

5. In a saw-frame, in combination with the cross-bar of the saw-frame, a sector provided with perforations therein and secured to said bar by means of pins or lugs formed integrally thereon and extending down into perforations in said cross-bar, a straining-lever provided at one end with pins, one of which extends into said perforations and the other of which engages with the upper edge of the sector, as set forth, the other end of said lever being hook form in the shape of an **S**, links or rods hooked into said **S**-shaped lever, and secured at their other extremities by means of a link and a pin on each rod to the arms of the saw-frame, for the purposes set forth.

6. In a saw-frame, the combination, with the cross-bar, of a mortise-and-tenon plate *g*, consisting, essentially, of said plate provided on its opposite sides with pins extending therefrom cast directly on said plate and bent out of line with each other, said plate having on one side thereof a flange or rim forming the recess *g*<sup>4</sup>, adapted to embrace the end of the cross-bar, and the other side of the plate being provided with two oppositely-arranged

flanges which lap over on each side of the arms of the saw-frame, all of said parts being arranged substantially as and for the purposes set forth.

7. In a saw-frame, in combination with the cross-bar of the frame, a sector provided with perforations therein secured to said bar, a straining-lever provided at one end with pins bent, as shown, one of which fits into said projections on the sector and the other of which engages with the upper edge of said sector, the other end of said straining-lever being hook form in the shape of an **S**, links or rods hooked into said **S**-shaped lever and secured at their other extremities by means of links and a pin in said link portions on each rod to the arms of the frame, and said arms being secured to said cross-bar by means of a mortise-and-tenon plate provided with pins and flanges on the opposite sides thereof for holding said parts together, substantially as and for the purposes set forth.

8. In a saw-frame, the combination, with a straining-lever provided on opposite edges of its handle portion with four curved portions *e*<sup>6</sup> on one side and one curved portion *e*<sup>7</sup>, as set forth, of two links or rods pivoted or hooked thereto at their inner ends, and provided at their opposite ends with link portions having a pin therein, said portions being adapted to embrace the arms of the frame, and said pin extending into a perforation in said arms, for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 23d day of August, 1889.

SAMUEL HALE.

Witnesses:

FREDK. C. FRAENTZEL,  
FREDK. S. RICE.