

No. 625,498.

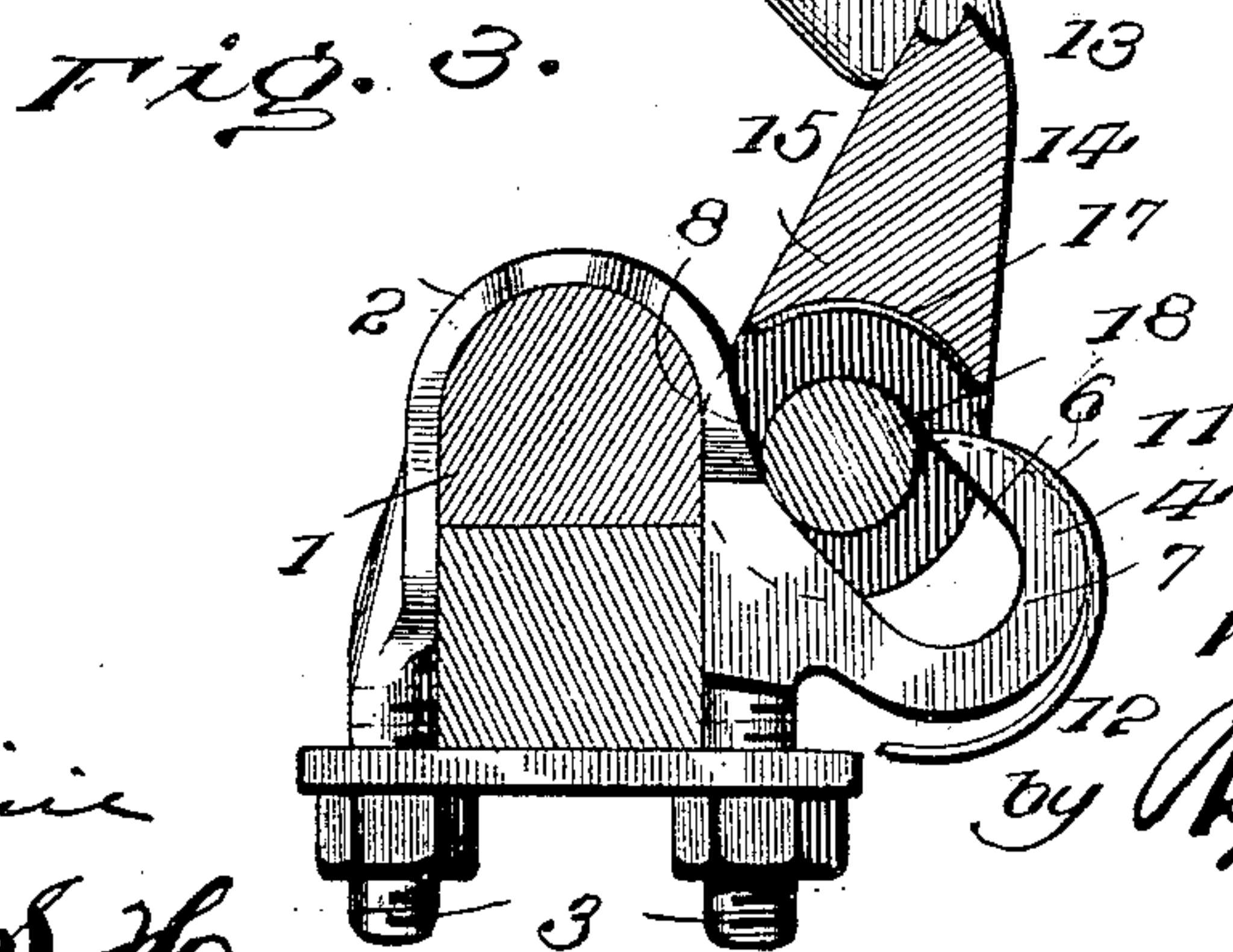
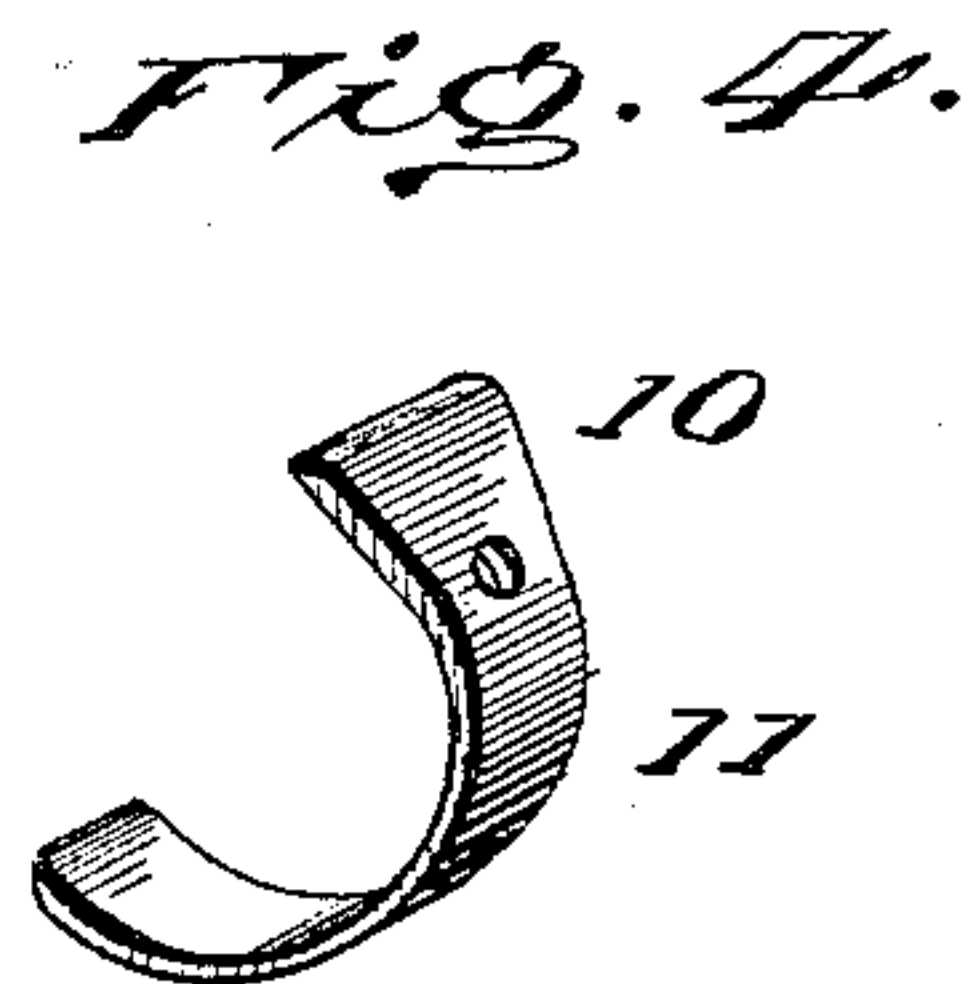
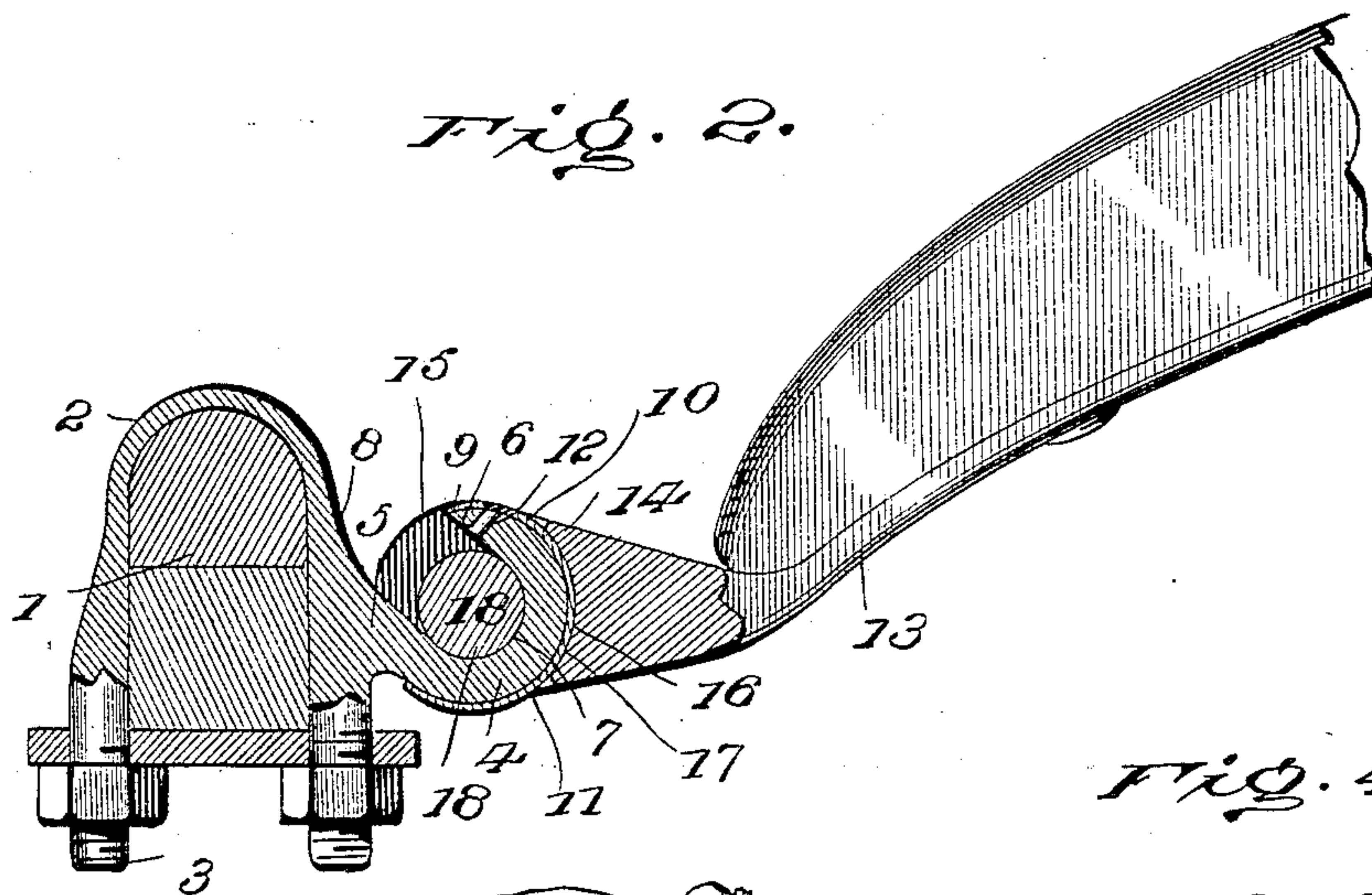
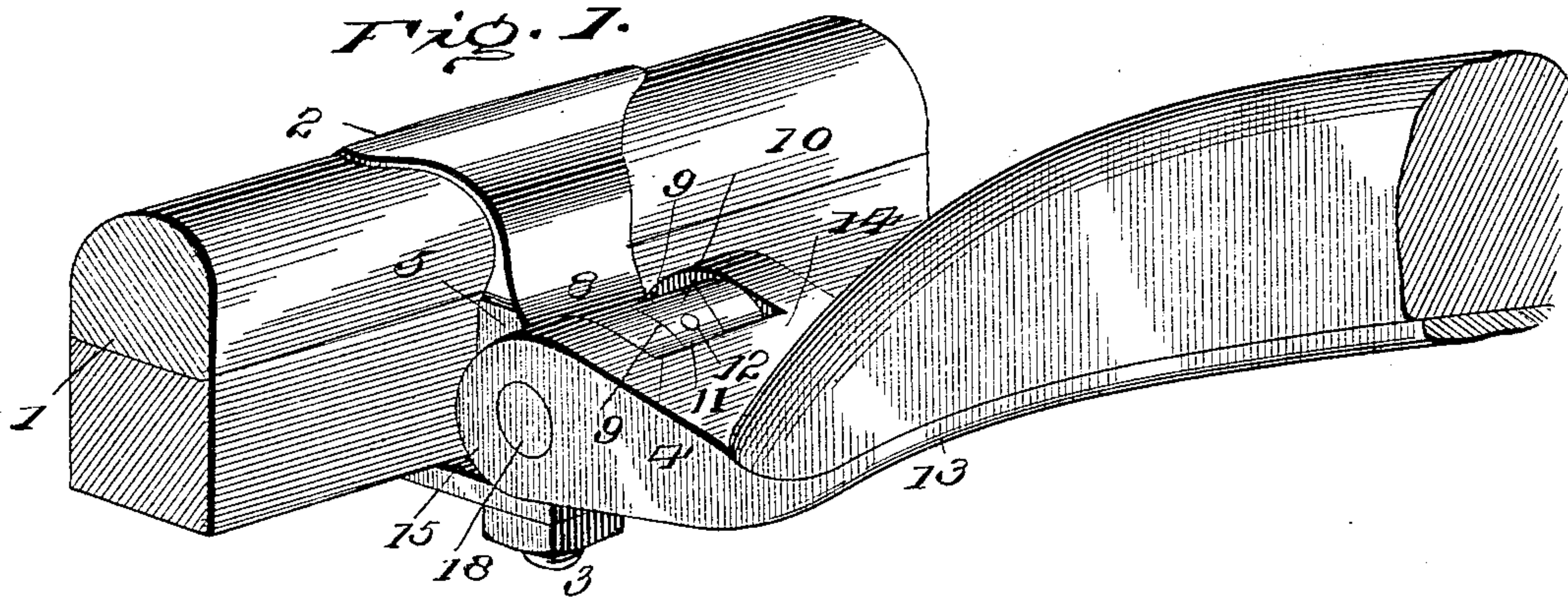
Patented May 23, 1899.

W. H. GROW.  
THILL COUPLING.

(Application filed Oct. 18, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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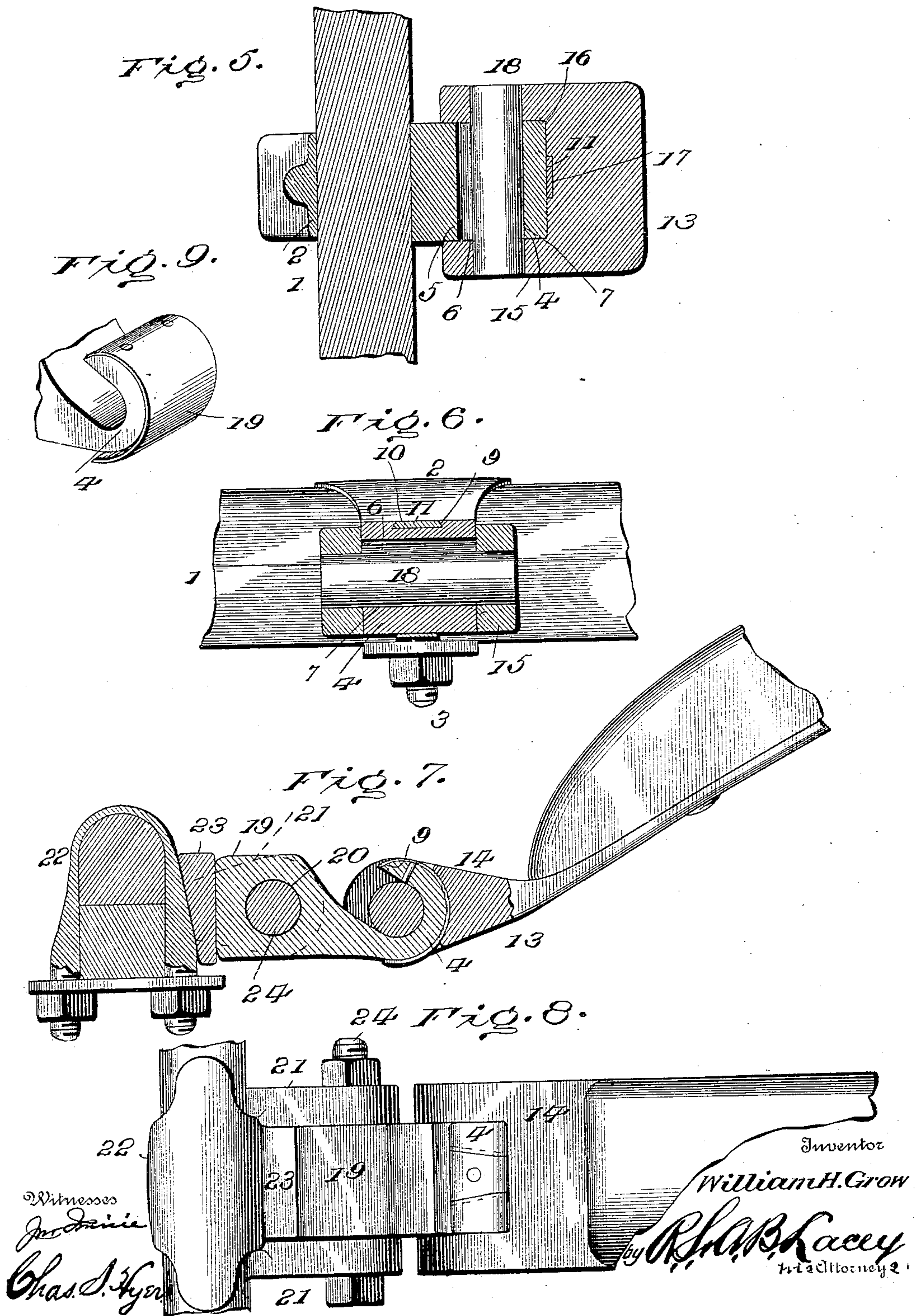
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2 Sheets—Sheet 2.

(No Model.)





# UNITED STATES PATENT OFFICE.

WILLIAM H. GROW, OF WINFIELD, KANSAS, ASSIGNOR OF ONE-HALF TO  
GEORGE EMERSON, OF SAME PLACE.

## THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 625,498, dated May 23, 1899.

Application filed October 18, 1898. Serial No. 693,922. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. GROW, a citizen of the United States, residing at Winfield, in the county of Cowley and State of Kansas, have invented certain new and useful Improvements in Thill-Couplings; 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.

This invention relates to thill-couplings; and the purpose of the same is to produce a snugly-fitting easily-operated device of this character having an antirattling attachment which is completely inclosed when the parts are articulated, and thereby avoids the formation of exterior projections and also effectually obviates any tendency of looseness of the members by automatically absorbing the slack movement primarily existing and also due to wear and at the same time permits the thills to have free pivotal action.

By the use of a simple attachment comprising a part of the coupling application of the invention to old forms of clips already in position on the running-gear of vehicles can be attained, and, further, the improved coupling is adapted to be used with either thills or poles.

The invention consists of the construction and arrangement of the several parts which will be more fully hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a thill-coupling embodying the invention and showing a portion of a clip-support and thill to illustrate the application. Fig. 2 is a central longitudinal vertical section of the parts shown by Fig. 1. Fig. 3 is a sectional elevation of the coupling, showing the position of the parts thereof for uncoupling the same. Fig. 4 is a detail perspective view of the antirattling spring. Fig. 5 is a horizontal section of the coupling. Fig. 6 is a transverse vertical section of the coupling. Fig. 7 is a longitudinal section of the improved thill-coupling embodying an attachment for application to old forms of clips. Fig. 8 is a top plan view of the device shown by Fig. 7. Fig. 9 is a detail perspective view of a modification.

Referring to the drawings, wherein similar numerals are utilized to indicate corresponding parts in the several views, the numeral 1 designates an axle and bolster having thereon a clip 2, secured by means of screw-threaded legs 3 in the ordinary manner. At the lower part of the front of the clip 2 a hook 4 projects forwardly, and at the point of juncture with the body of the clip the metal is widened, as at 5, to form a strong connection and insure a rigidity of support sufficient to overcome shocks or jars. The opening 6 in the hook 4 is inclined rearwardly and stands at about an angle of forty-five degrees to a vertical line drawn centrally through the axle and bolster and the clip 2. The opposite walls of the said opening 6 are straight and run to a semicircular seat 7, and the lowermost wall gradually merges into the adjacent front face 8 of the clip, which is concave opposite the opening or throat of the said hook 4. The outer edge of the hook 4 is circular in contour, and in the upper termination or adjacent the point of the hook the said edge is formed with a dovetailed recess 9, as clearly shown in Fig. 6, which tapers forwardly from the point of the hook, and therein is fitted the upper broadened end 10 of an antirattling spring 11, which is held continuously in connection with the said hook by means of a rivet 12 or analogous fastening. The spring 11 is curved in circular form; but the arc of the same is greater than that of the outer edge of the hook and normally stands away from the greater portion of the said hook, as shown by Fig. 3; but when the parts of the coupling are articulated or connected the said spring is closed against the outer edge of the hook, as illustrated in the several sections. The pressure of the spring can be varied by increasing or decreasing the arc of the same. The end 10 of the spring, which fits in the recess 9, has surrounding beveled edges, and in applying said spring the free end of the same is first gradually moved around through said recess and down over the front edge of the hook and until the end 10 is snugly positioned and driven into the said recess 9. From this construction it will be seen that the downward drag or pull on the spring is materially resisted by the end 10 and a greater



part of the strain is relieved from the rivet or fastening 12, which, in reality, resists a loosening of the spring by an upward force or frictional contact of the remaining portion of the coupling, as will be presently described, and which is very much less than the downward pull on said spring. The thill or pole, as the case may be, has a suitable iron 13 secured thereto, with a rear yoke 14, gradually diverging from the point of attachment of the said iron and having a bifurcation 15, with a front concave wall 16, having a central groove 17 therein, as clearly shown by Fig. 3. Extending across the bifurcation 15 is a bolt 18, which stands in such relative position to the concave wall 16 that when the said yoke and hook are articulated the spring 11 is forced closely into the groove 17, and a resilient pressure is not only brought to bear at a point intermediate of the two parts of the coupling by the said spring, but the latter is held centrally on the hook and prevented from having lateral movement by the groove 17, and breakage is thereby avoided. In coupling the yoke with the hook the thills or pole attachments carrying the said yokes are elevated, as shown by Fig. 3, and until the bearing-bar 18 stands in line with the throat or opening of the hook 4, and after this position is acquired a downward pull on the yoke will seat the bolts in the hooks, and when the circular seats 7 are reached the thills or poles can be drawn downwardly and the concave walls 16 of the yokes freely ride over the springs 11.

In coupling the yokes they must be made to assume the same position as in uncoupling, and in either operation the concave portion 8 of the face of clip serves as a guide to the throat or opening of the hook in seating the bearing-bar in said hook, and said face allows the bar to be withdrawn in the uncoupling operation. The interposition of the spring 11 prevents the parts from having loose movement, and the annoyance occasioned by the vibration of loosely-connected thills or poles is completely overcome, and at the same time the said spring is protected from injury. Furthermore, the curvature and inclosure of this spring does not in the least, so far as exterior view is concerned, change the appearance of the coupling; nor is the eye attracted by irregular or unsightly projections, so common in devices of this character where interposed antirattling springs are employed.

A further advantage of the present device is the comparatively small expense incurred in applying the improvements, and with the exception of the cost of the spring the thill as an entirety will not have a materially-greater cost than those now commonly employed.

In Fig. 9 the hook 4 is of the same construction as previously described and embodies a similar front curved surface. A broad flat spring 19 is employed in this instance and is secured to the said front surface of the

hook at the upper portion of the latter. The recess 9 is dispensed with, but the differentiation of the arcs of the spring and said front surface of the hook is maintained, and when the parts are articulated the spring is inclosed, as in the construction already described. This form of the device may be found useful in some couplings and is a little less expensive than the main form shown.

It was immediately apparent in the arrangement of the improved form of coupling that it could not be applied directly to the old form of clip, and where such devices were used it would incur considerable expense to have the said old clips removed and the improved ones substituted therefor. Consequently an attachment was arranged and consists of the hook 4, as set forth, having a rear body or block 19, formed with a central transverse opening 20 and adapted to be fitted between the opposite ears 21 of the old form of clips 22, as clearly shown in Figs. 7 and 8. As just set forth, the hook is at the front of the said body or block and is in all respects, as well as the yoke, precisely like the devices heretofore set forth. To hold the body or block 19 firmly in position between the ears 21, a wedge 23 is inserted by the rear end of the body or block and the front face of the clip 22, the said wedge being also inserted between the ears 21 and forcibly driven downward. The body or block 19 is held between the ears 21 by means of the bolt 24, and by the use of this attachment the improved form of coupling may be readily applied to and used with the old style of clips.

The coupling set forth or the attachment used in connection therewith may be used for other purposes, if desired, and changes in the proportions, dimensions, and minor details of construction could be resorted to to accommodate various applications and uses without in the least departing from the nature or spirit of the invention.

Having thus fully described the invention, what is claimed as new is—

1. In a thill-coupling, the combination of a clip having a hook with an outer rounded edge provided with a recess in the upper portion thereof, a yoke formed with a bifurcation to fit over the hook and having a transverse bolt extending across the same and a front concave wall with a groove therein, and a curved spring interposed between the outer side or edge of the said hook and the concave wall of the yoke and having its upper end seated in the recess of the hook.

2. In a thill-coupling, the combination of a clip supporting a front hook having an outer circular or regularly-curved front edge, a curved spring having a greater arc than the front edge or side of the hook and attached to the upper portion of the latter, and a yoke to engage the said hook having a rear bifurcation with a bolt extending transversely across the same and a front concave wall.



3. In a thill-coupling, the combination of a clip supporting a hook at the front portion thereof having an outer regularly-curved edge, a curved spring having a greater arc than the said outer edge of the hook and secured thereto, and a yoke for attachment to a thill or pole having a rear bifurcation and a transverse bolt to fit in the hook and also formed with the front concave wall conforming in curvature to the front edge of the hook.

4. In a thill-coupling, the combination of a clip supporting a front hook having an outer regularly-curved edge provided with a dovetailed recess in the upper portion thereof, a curved spring having an upper broadened end with beveled edges to fit the said recess, and a yoke carried by a thill or pole having

a rear bifurcation with a transverse bolt to fit the hook and a front concave wall.

5. In a thill-coupling, the combination of a clip having a front hook with an outer regularly-curved edge having a dovetailed recess on the upper portion thereof, a spring having an upper broadened end with beveled edges mounted in said recess, and a yoke adapted to be attached to a thill or pole and having a rear bifurcation with a transverse bolt to fit the hook and a front concave wall with a groove therein to embrace the spring.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. GROW.

Witnesses:

A. B. FRENCH,

M. HAHN.