

No. 622,604.

Patented Apr. 4, 1899.

E. F. COLVIN.  
THILL COUPLING.

(Application filed Jan. 28, 1899.)

(No Model.)

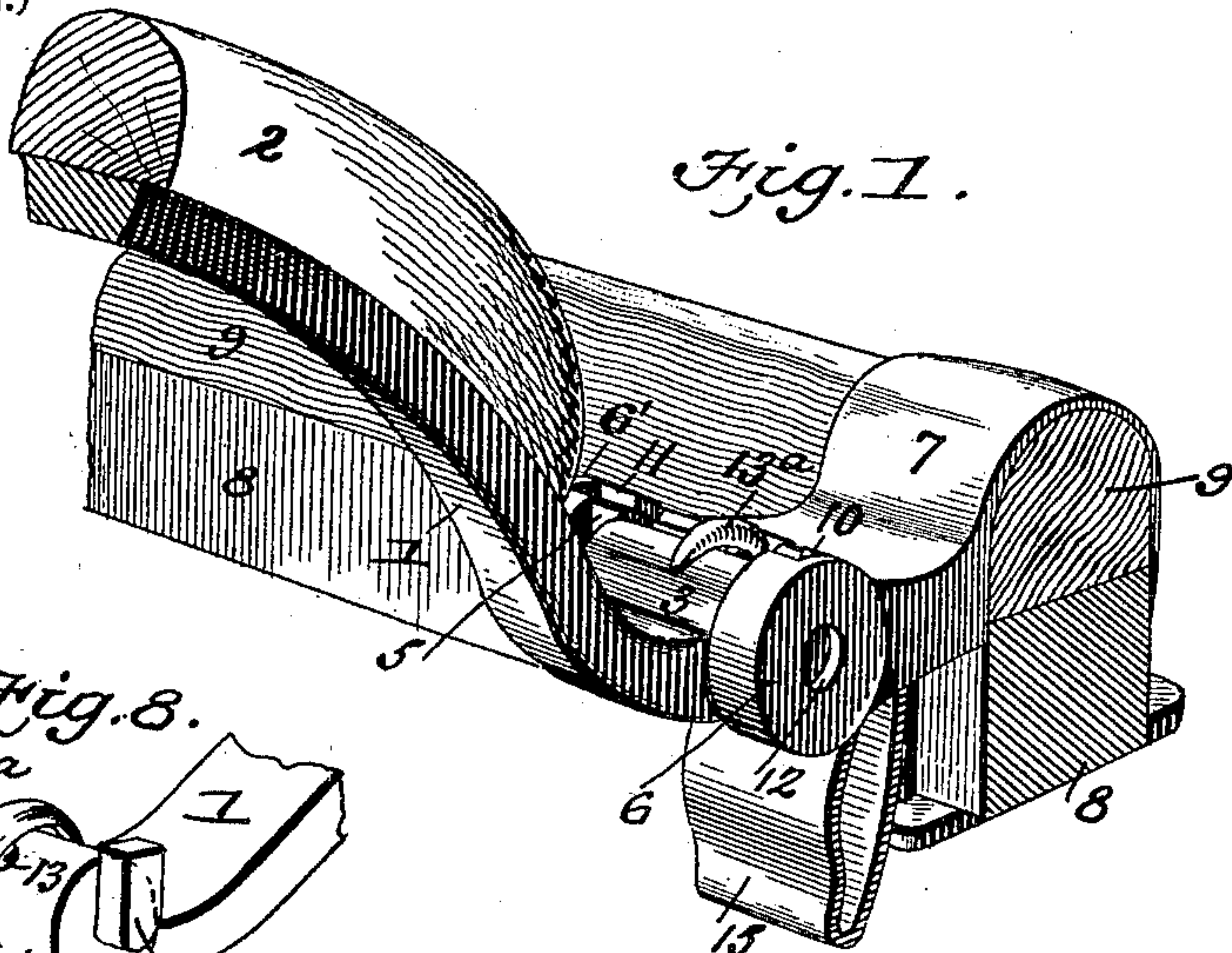


Fig. 1.



Fig. 9.

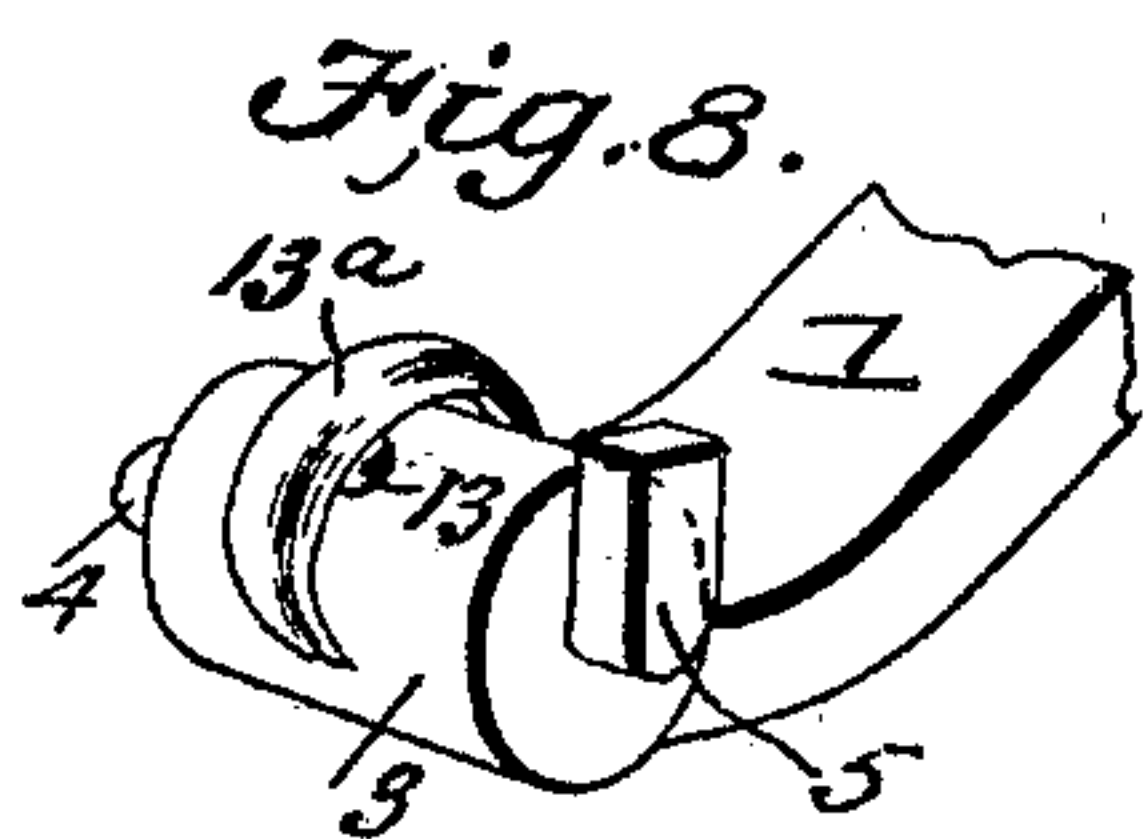


Fig. 8.

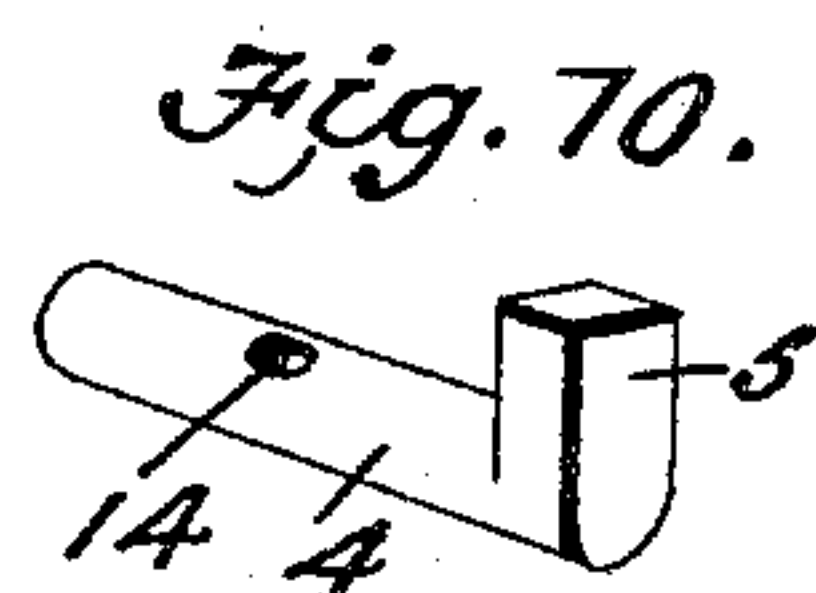


Fig. 10.

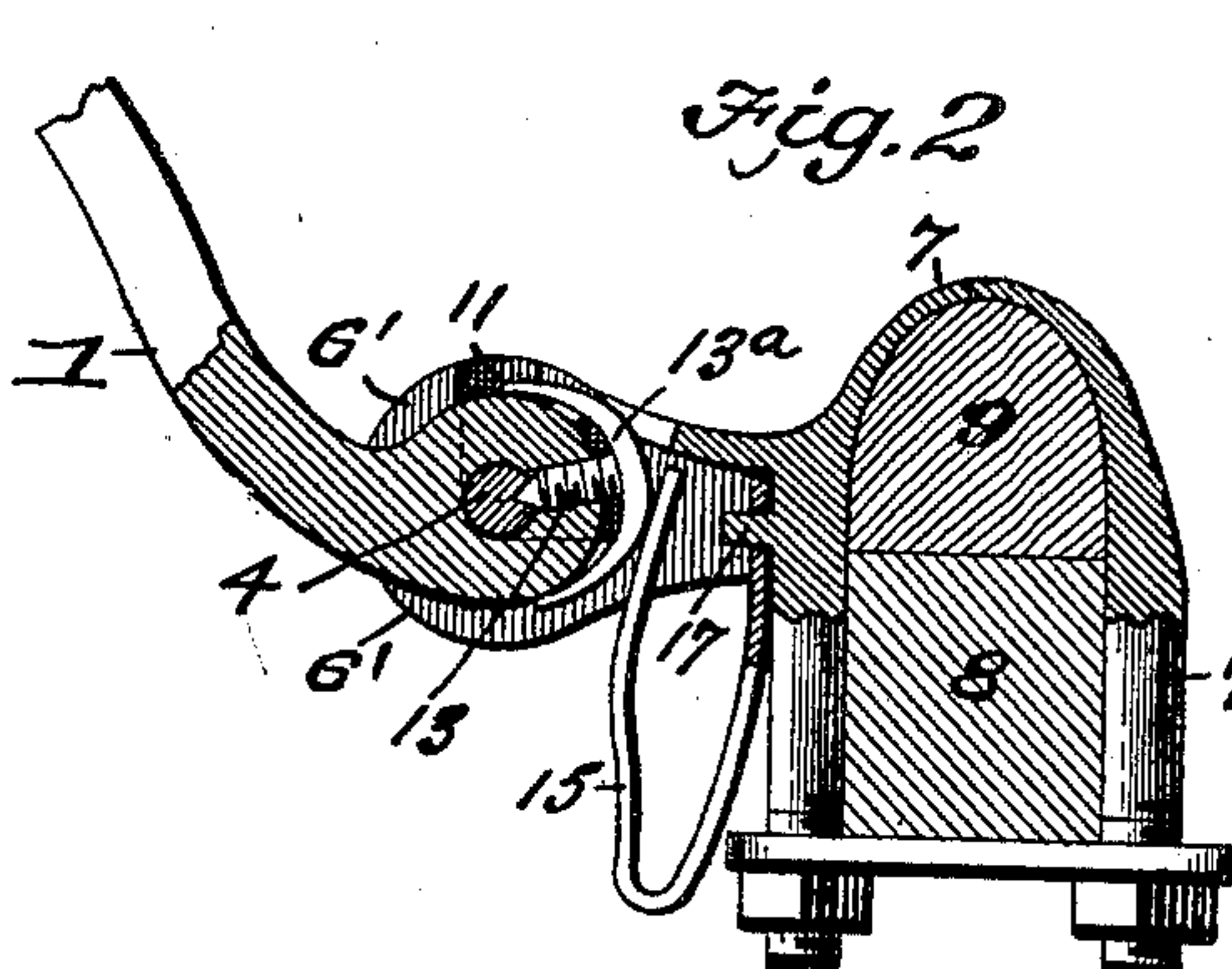


Fig. 2.

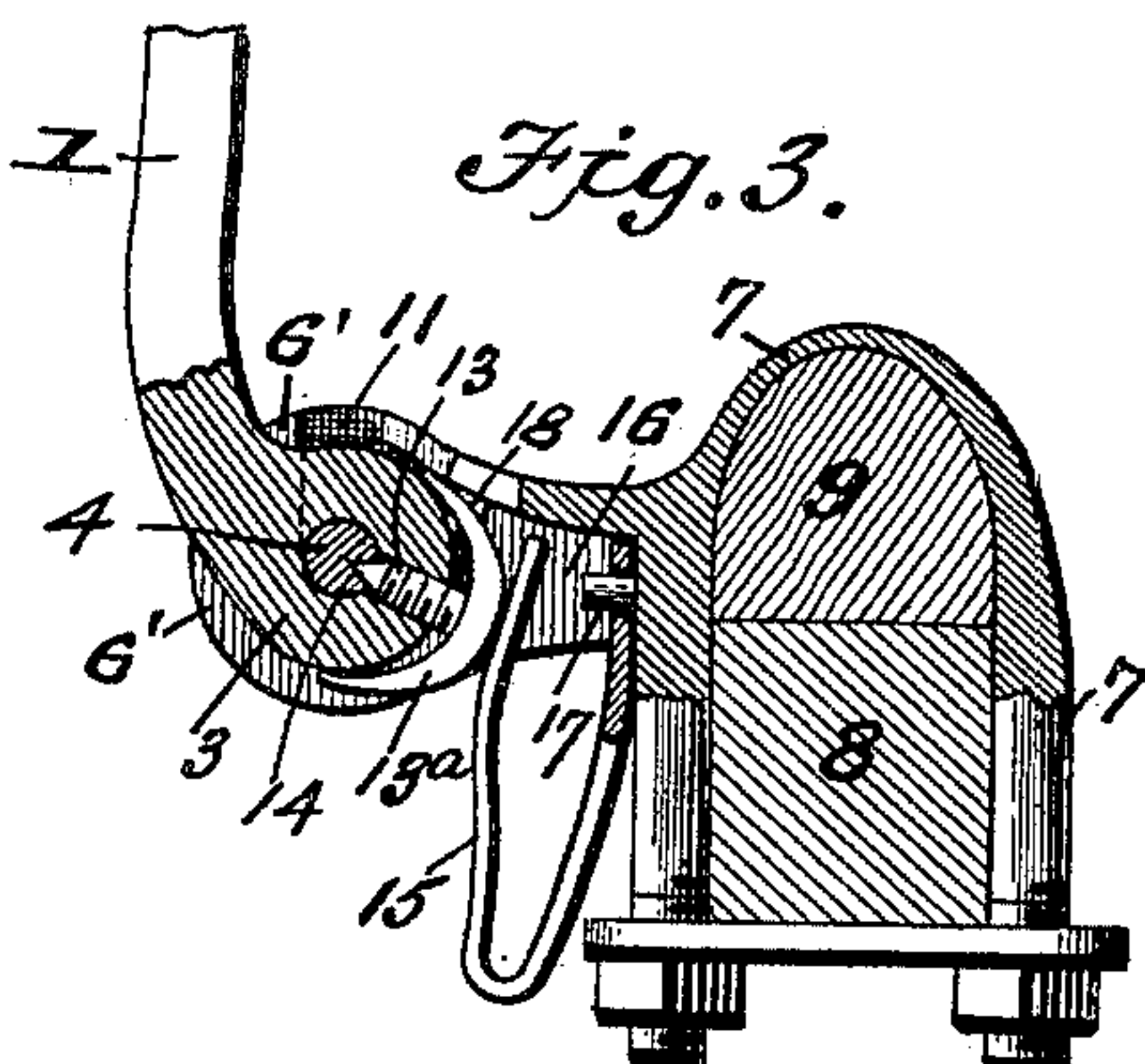


Fig. 3.

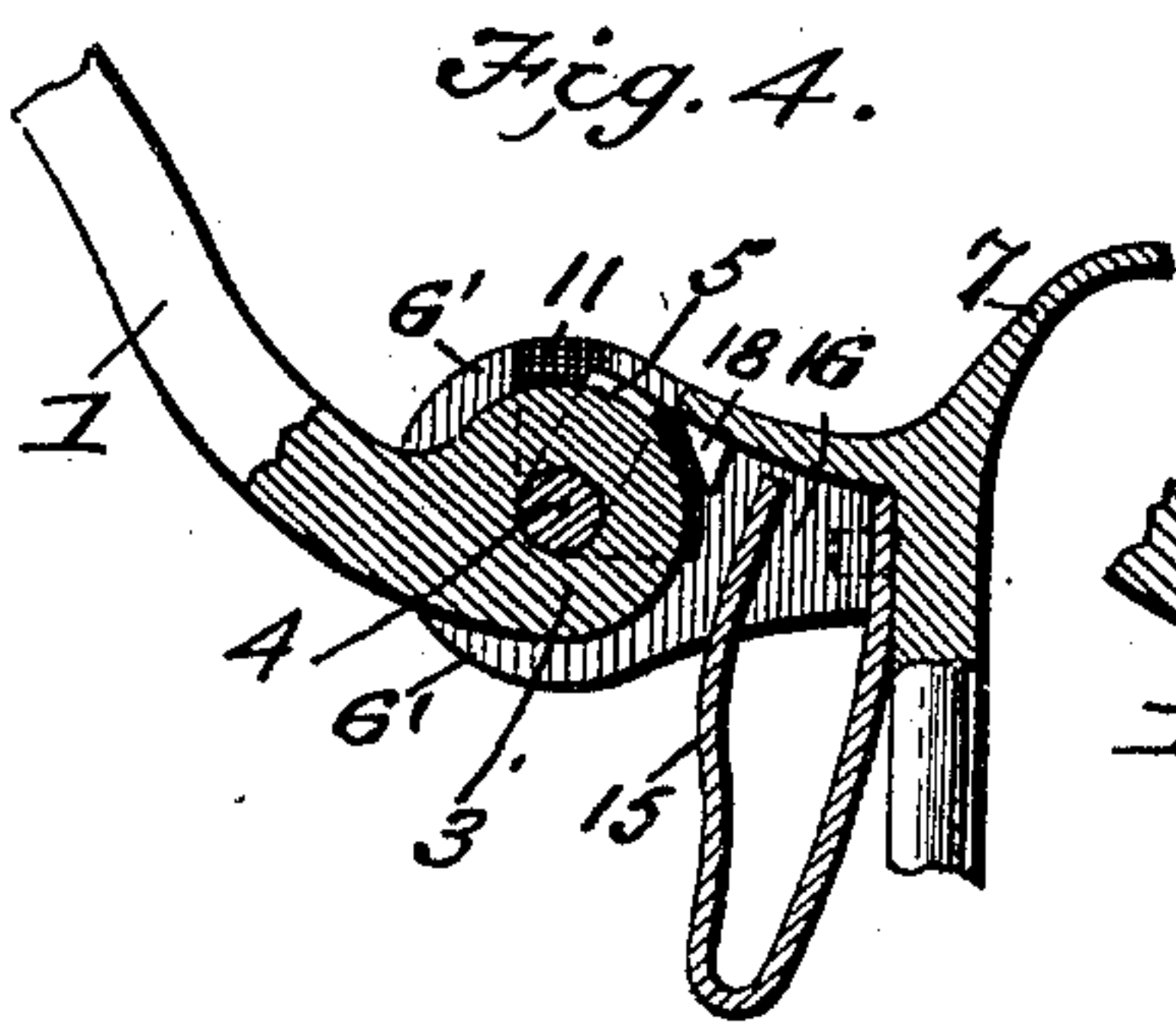


Fig. 4.

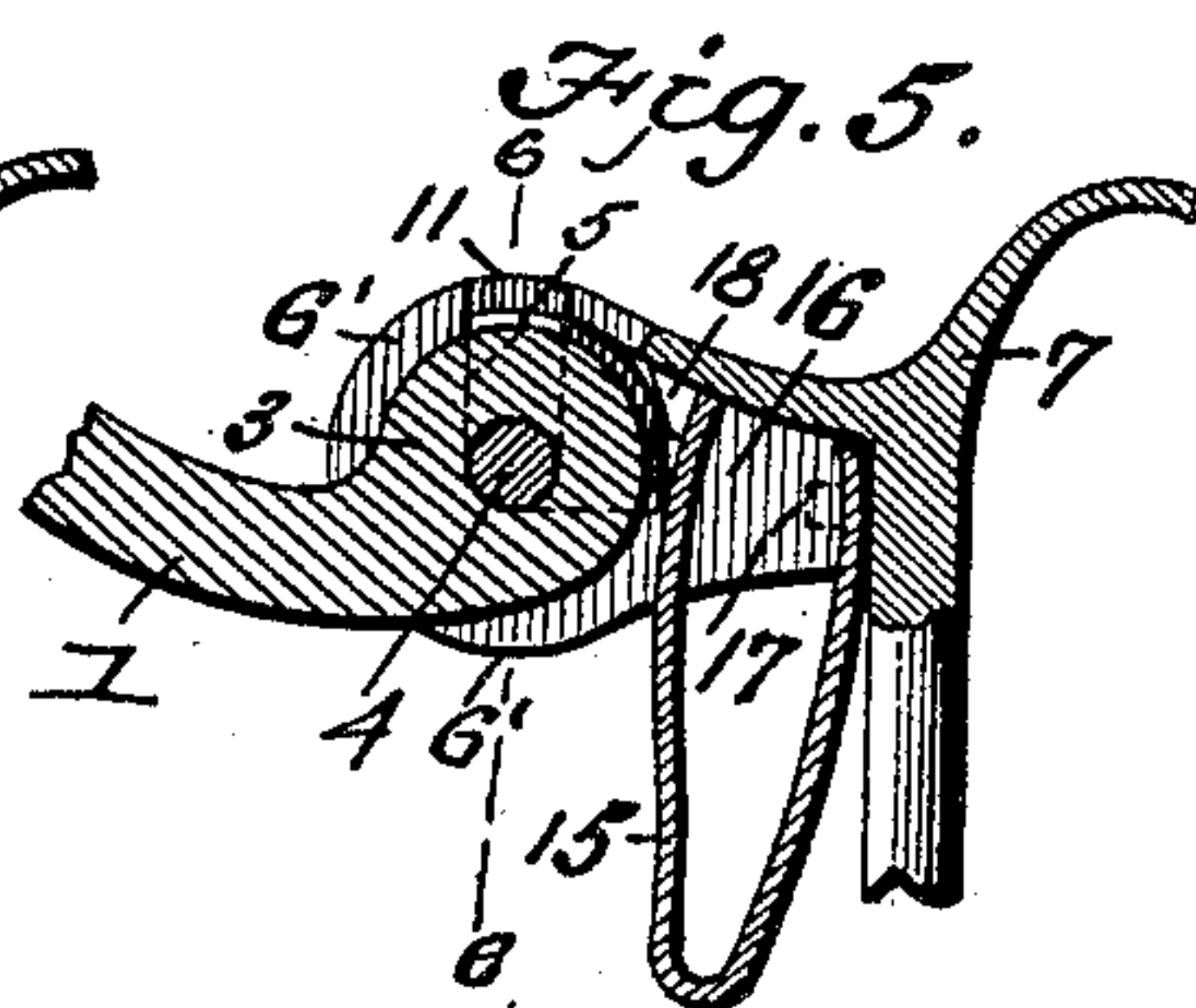


Fig. 5.

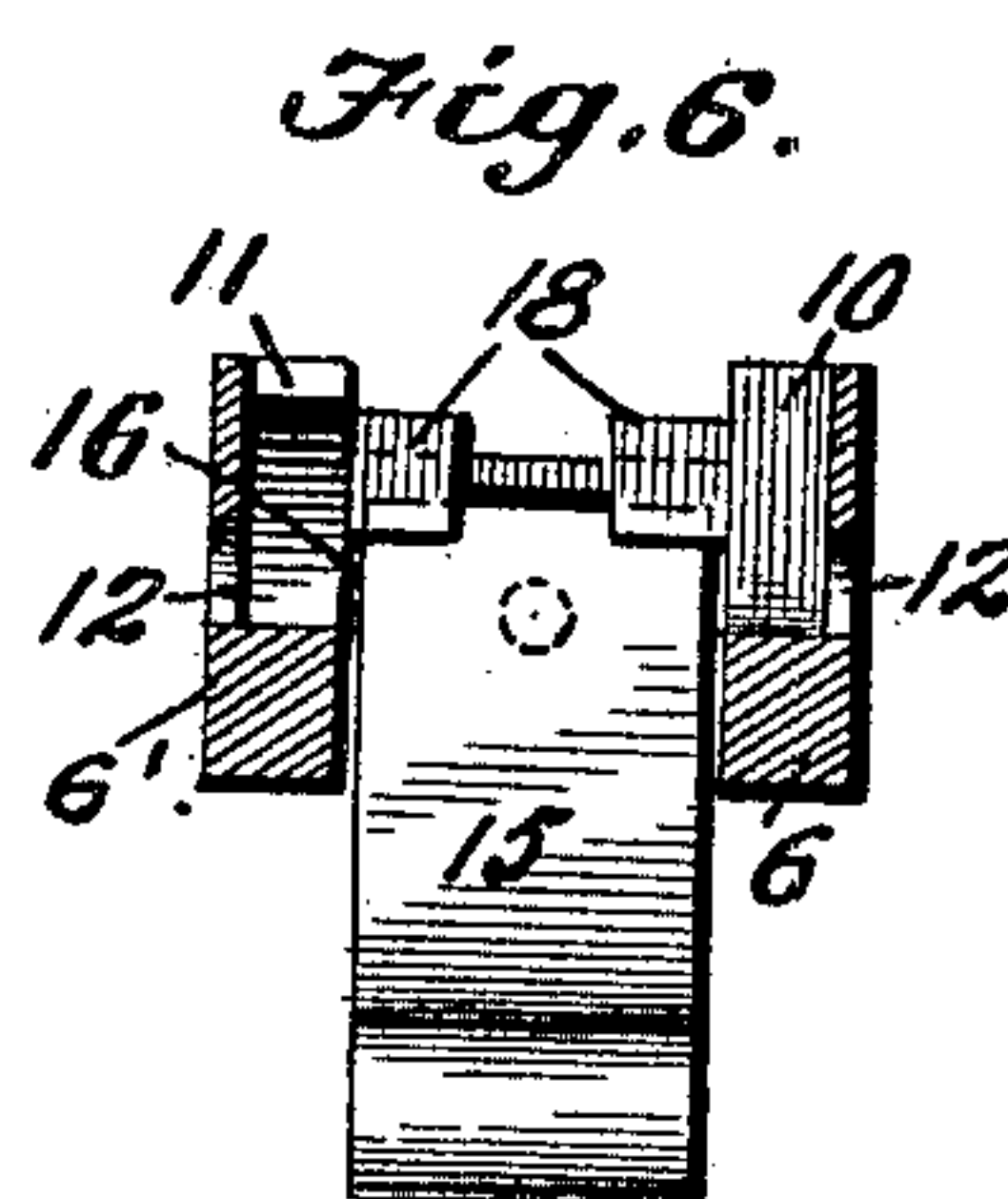
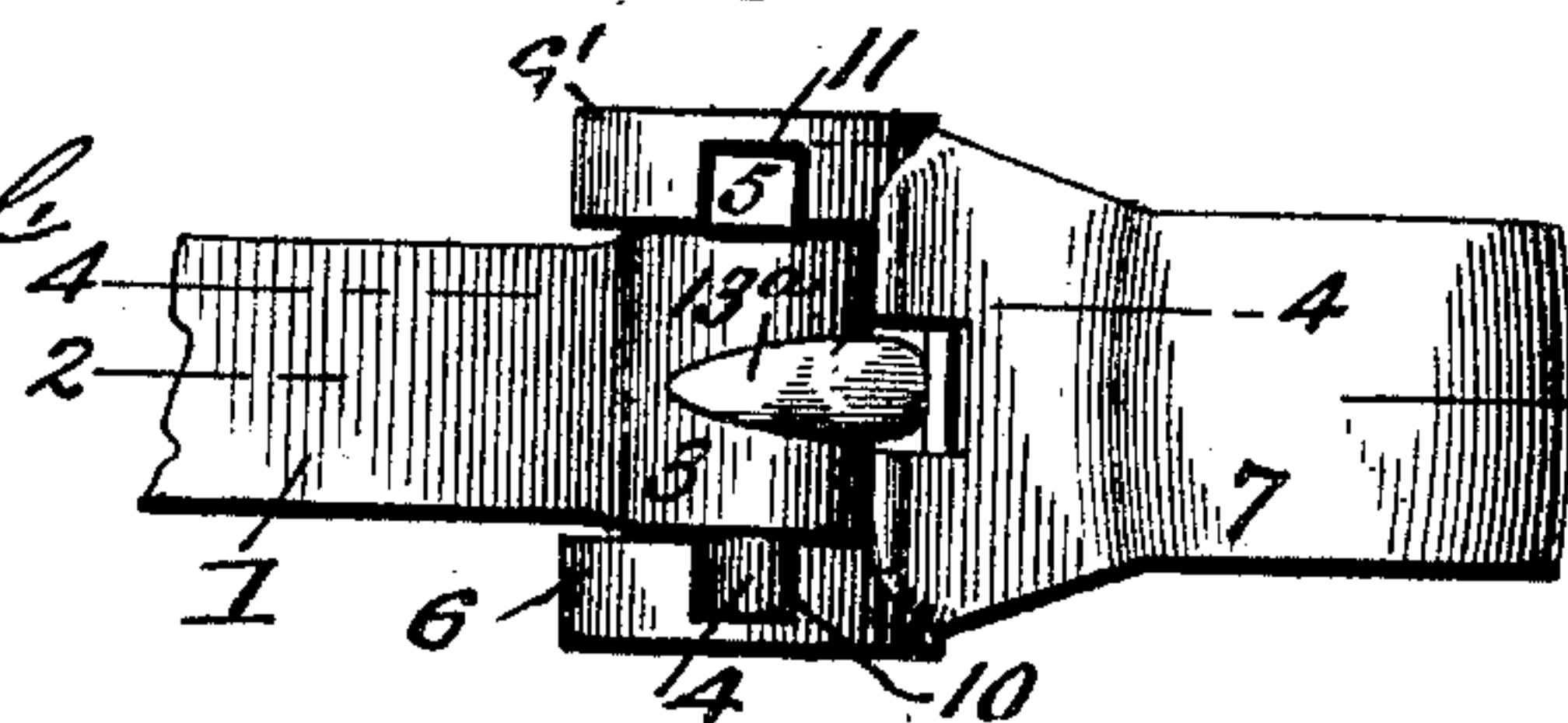


Fig. 6.

Fig. 7.



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# UNITED STATES PATENT OFFICE.

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## THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 622,604, dated April 4, 1899.

Application filed January 28, 1899. Serial No. 703,681. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD FRANKLIN COLVIN, residing at Milton, in the county of Northumberland and State of Pennsylvania, have made certain new and useful Improvements in Thill-Couplings, of which the following is a specification.

My invention is an improvement in the class of detachable thill and pole couplings and also in those which are provided with attachments for preventing rattling.

The invention includes the several novel features hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of my improved coupling applied to a carriage-axle, the thills being shown raised, as when in use. Fig. 2 is a central longitudinal section of the same parts. Fig. 3 is a view similar to Fig. 2, save that the thills are shown raised and supported vertically. Fig. 4 is a section on line 4 4 of Fig. 7, the thills being in the same position as in Figs. 1 and 2. Fig. 5 is a section showing the thills lowered or in the position they occupy when not in use. Fig. 6 is a vertical cross-section on line 6 6 of Fig. 5, the thill-iron being omitted. Fig. 7 is a top plan view showing the thill-iron in the same position as in Fig. 5, whereby the thills are adapted for detachment. Fig. 8 is a perspective view of the head of the thill-iron with bolt and eccentric-headed clamp-screw attached. Fig. 9 is a perspective view of the clamp-screw in the form it possesses before being applied as required in use. Fig. 10 is a perspective view of the thill-pintle or pivot-bolt.

In the following description it will be understood that the words or terms "thills" or "shafts" apply to a tongue or pole as well, since there is practically no difference in the attachment of the same to axle-clips.

The thill-irons 1 (see Fig. 1) are bolted to the thills or shafts, proper, 2 in the usual way, and they have also the usual construction, save that a hole is tapped in the upper side of their cylindrical heads 3 at right angles to the horizontal bore that receives a pivot-bolt, as hereinafter described. (See especially Figs. 2, 3, and 8.)

The bolt 4 (see Fig. 10) has at one end a lateral rectangular projection or head 5, which is arranged at a right angle to its body. The jaws 6 of the axle-clip 7 are adapted to receive such bolt 4; but the body of said clip

is constructed and secured to the axle 8 and bolster 9 in the usual way. The said jaws 6 have vertical slots or sockets 10 and 11 in their inner sides, the same leading down from the upper side or edge to the horizontal bores or eyes 12, which are the same as provided in clips of the usual construction. The cylindrical end of the bolt 4 passes down in the socket 10, and the rectangular head 5 is adapted to enter the other socket 11. The latter is extended rearward in the jaw of the clip (see Figs. 4 and 7) to allow the head 5 of pivot-bolt 4 to pass backward therein, and thus secure the thills from accidental detachment when their free ends are raised to the normal position required for use, as in Figs. 1, 2, and 4, in which case the said head assumes a rearwardly-inclined or oblique position and engages the overhead flange of the clip-jaw 6, as shown best in Fig. 4. The clamp-screw 13, which serves to secure the bolt in the thill-iron 3, with its head 5 at the proper angle, is constructed initially, as shown in Fig. 9, with a narrow elongated and pointed head 13<sup>a</sup>. The point of the screw enters a shallow socket 14 (see Fig. 10) in the bolt 4, so that the latter is held or locked securely against rotation in the thill-iron head 3.

The screw 13 is screwed into the tapped hole in the said head 3, and then its head or arms 13<sup>a</sup> are bent inward so that they form a slightly-eccentric curve, as shown in Figs. 2 and 3, their points resting upon or being contiguous to the head 3 of the thill-iron, so that rotation and loosening of the screw are impossible. In short, this position of the screw-head locks both the screw and bolt immovably. Such form and position of the head 13<sup>a</sup> of the clamp-screw adapt the head to coact with the spring 15 for preventing rattling of the coupling. The spring is formed of a flat plate and has a V shape. Its free ends are held in a space provided for it in rear of the thill-head 3. One of such ends is provided with a hole to receive a stud or pin 17, which is cast integrally with the clamp 7, whereby the spring is held detachably in place; but the front end or leaf of the spring 15 bears directly upon the curved head 13<sup>a</sup> of the bolt-screw 13 when the thills are raised, as shown in Figs. 1, 2, and 3, whereby rattling is effectually prevented. It will be further observed that the same bearing or contact occurs when the thills are raised to the



vertical, as shown in Fig. 4, so that they are held in such position without extraneous aid. On the other hand, when the thills are lowered, as shown in Fig. 5, the free end or leaf of the spring 15 does not bear upon the screw-head 13<sup>a</sup>, but against lugs 18, Figs. 4, 5, and 6, which are cast integral with the clip proper, 7, and project downward at the front end of the recess 16. Hence the spring 15 applies no pressure or friction tending to prevent free insertion and removal of the thill-iron into and from the clip, and hence offers no obstruction to attachment and detachment of the thills from the axle. Such attachment and detachment can obviously be made only when the thills are lowered to the position indicated in Fig. 5, since then only is the head 5 of bolt 4 in vertical alinement with the slot or socket 11 in the clip-jaw 6. The manipulation is made in the one case by simply lifting the thills (while held at the downward inclination they normally assume with their free ends resting upon the ground) and then lowering them, and in the other case—*i. e.*, detachment—by lifting them until the bolt 4 passes out of the sockets 10 and 11. If the horse should accidentally get free of the vehicle and the thills drop upon the ground, they will instantly become detached, the same as if manipulated by hand.

It will be noted the eccentricity or curve of the screw-head 13<sup>a</sup> is greatest in its upper portion, and hence the pressure and friction of the spring 15 are increased as the thills are raised, which more effectually prevents rattling.

The spring 15 is easily insertible in place when compressed by pincers or other means. It will be further observed that if the spring should become cracked or broken such disability will have no effect upon the security of the coupling proper.

The clip-jaws 6 are provided with the eyes 12 for the purpose of permitting the application and use of an ordinary pivot-bolt if any emergency should require it.

The ordinary thill-irons—say those already in use—require no alteration save tapping the screw-hole in the head 3.

It will be understood that I do not propose the head 13<sup>a</sup> of the screw shall in all cases have a curve which is eccentric to itself; but in any case the said head, however it may be curved, necessarily always forms a cam-like projection on the thill-iron head 3.

What I claim is—

1. In a thill-coupling, the combination with the thill-iron, a pivot-bolt secured thereto and having a polygonal head, means for securing such bolt in place, and a clip having jaws provided with internal sockets adapted to receive the ends of such bolt, and one of said sockets having a rearward extension to receive the bolt-head and prevent accidental detachment, substantially as shown and described.

2. In a thill-coupling, the combination with an axle-clip having jaws provided with internal sockets of a thill-iron having a bolt provided with a rectangular head adapted to enter one of said sockets and to pass into a recess in rear thereof when the thill-iron is elevated or inclined at an upward angle substantially as shown and described.

3. In a thill-coupling the combination with an axle-clip having jaws provided with internal sockets, of a thill-iron and a detachable pivot-bolt therefor having a polygonal head projecting laterally therefrom and adapted to engage a flange in rear of one of said sockets, and means for locking the said bolt with its head at the angle required to adapt it for such engagement when the thills are elevated and to allow ready detachment of the same when the thills are lowered, substantially as shown and described.

4. In a thill-coupling the combination with a clip having jaws provided with sockets as specified, of a spring arranged in rear of said sockets and a thill-iron having lateral projections adapted to engage in the sockets, and a cam or curved projection on the thill-iron head which works in contact with the aforesaid spring when the thill-iron is elevated and is free from or out of contact with the same when the thill-iron is lowered, as and for the purpose specified.

5. In a thill-coupling, the combination, with an axle-clip having jaws provided with sockets, of a thill-iron having pivotal extensions for engaging said sockets, a spring arranged in rear of the latter, and an eccentric applied to the cylindrical portion of the thill-iron head and consisting of a screw having an elongated head whose points are bent down thereby forming an eccentric curve, substantially as shown and described.

6. In a thill-coupling the combination with an axle-clip having jaws provided with sockets, a spring arranged in rear thereof a thill-iron having a detachable pivot-bolt and a means for locking said bolt with its head at the required angle, the said means consisting of a screw having its head curved to act upon the spring when the thill-iron is elevated, as shown and described.

7. A thill-coupling, the combination, with clip-jaws having sockets one of which is open at the top, of a thill-iron having a detachable pivot-bolt provided with a rectangular head adapted to work in a socket and pass through the slot thereof, and a clamp-screw for securing the bolt in place, the same being inserted through the body of the thill-iron head on the rear side adjacent to the spring, and having a curved head extended above and below, substantially as shown and described.

EDWARD FRANKLIN COLVIN.

Witnesses:

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