

J. W. BROOKS.
THILL COUPLING.

(Application filed Jan. 30, 1900.)

(No Model.)

Fig. 1.

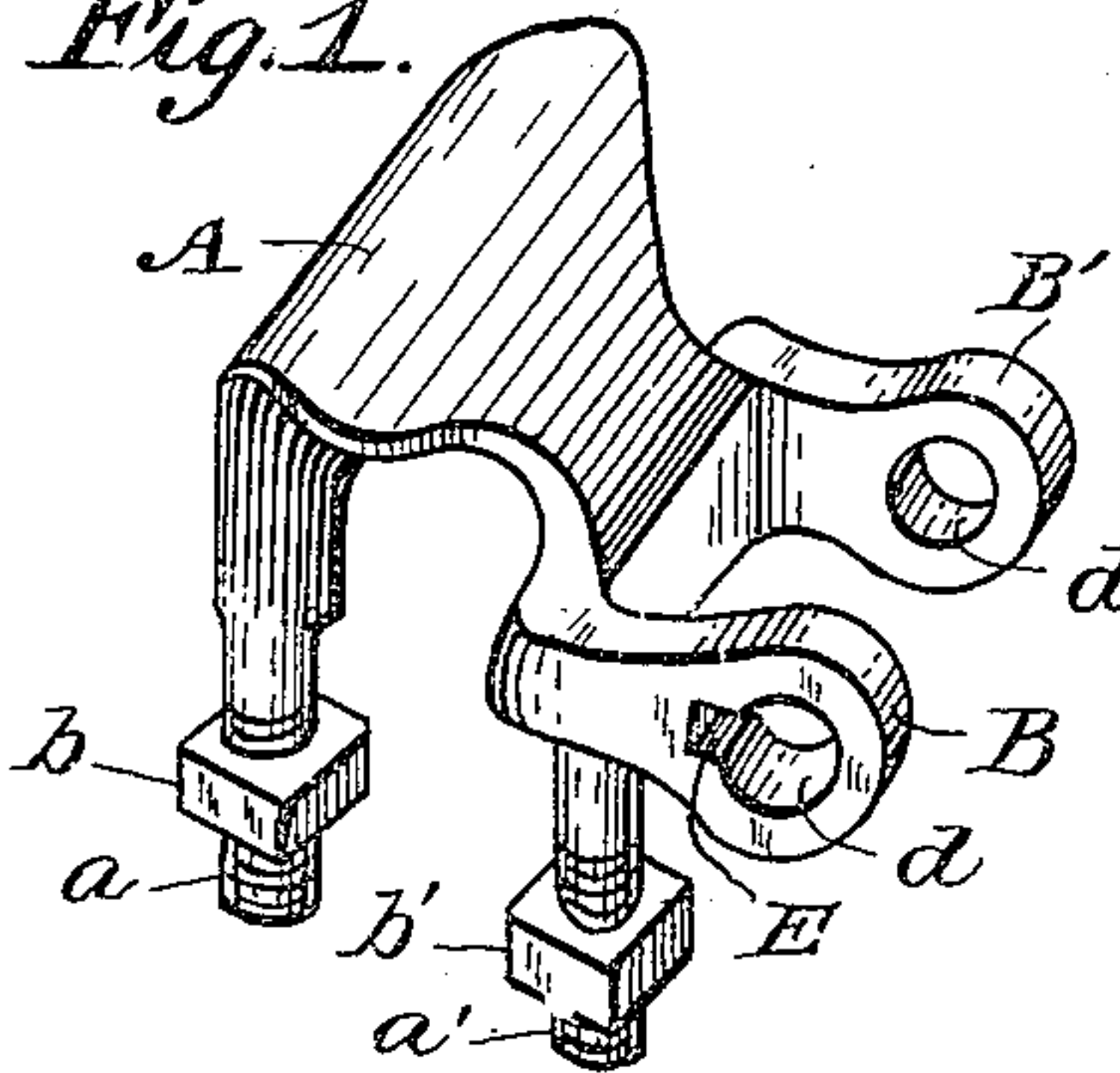


Fig. 2.

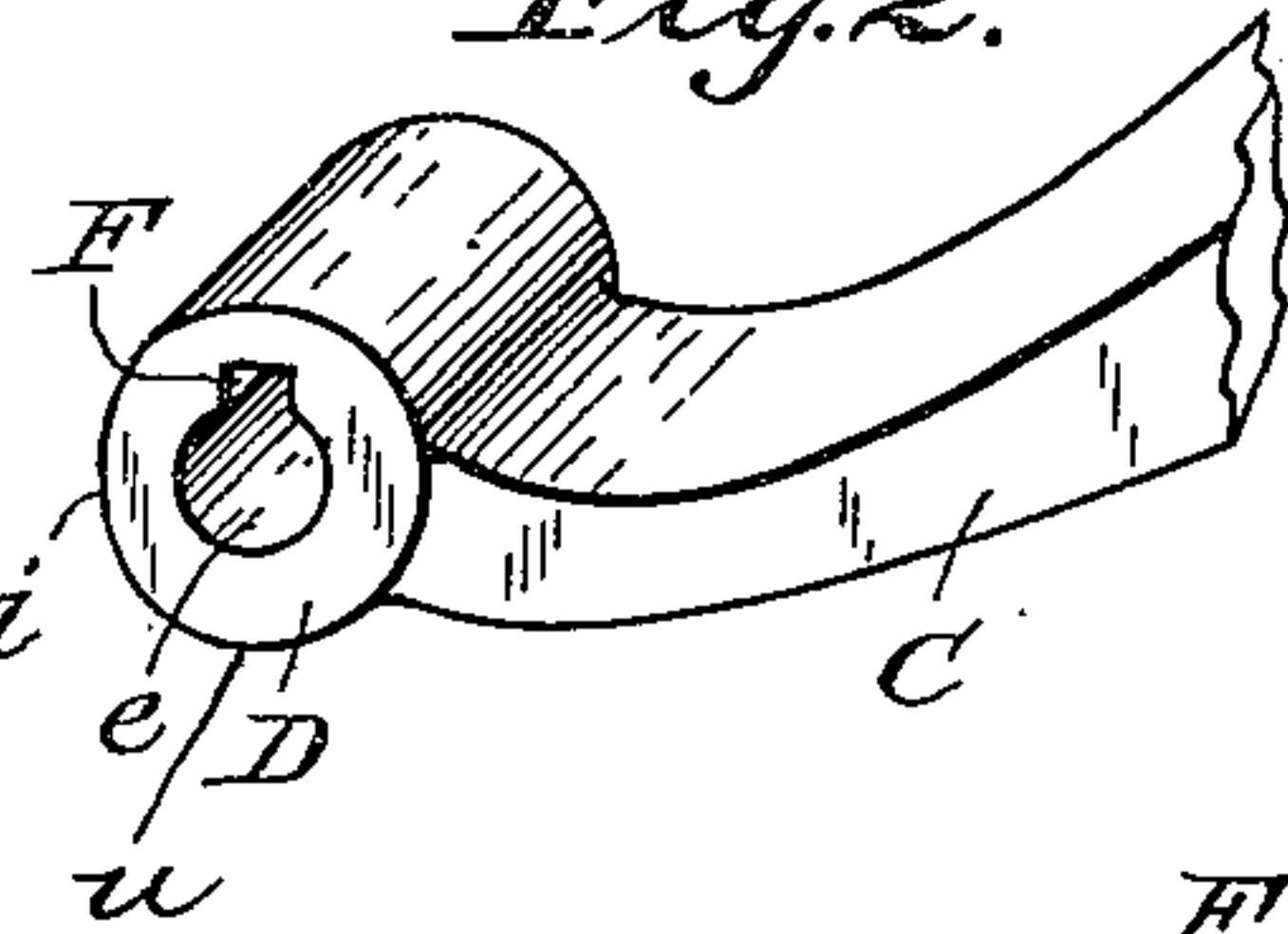


Fig. 3.

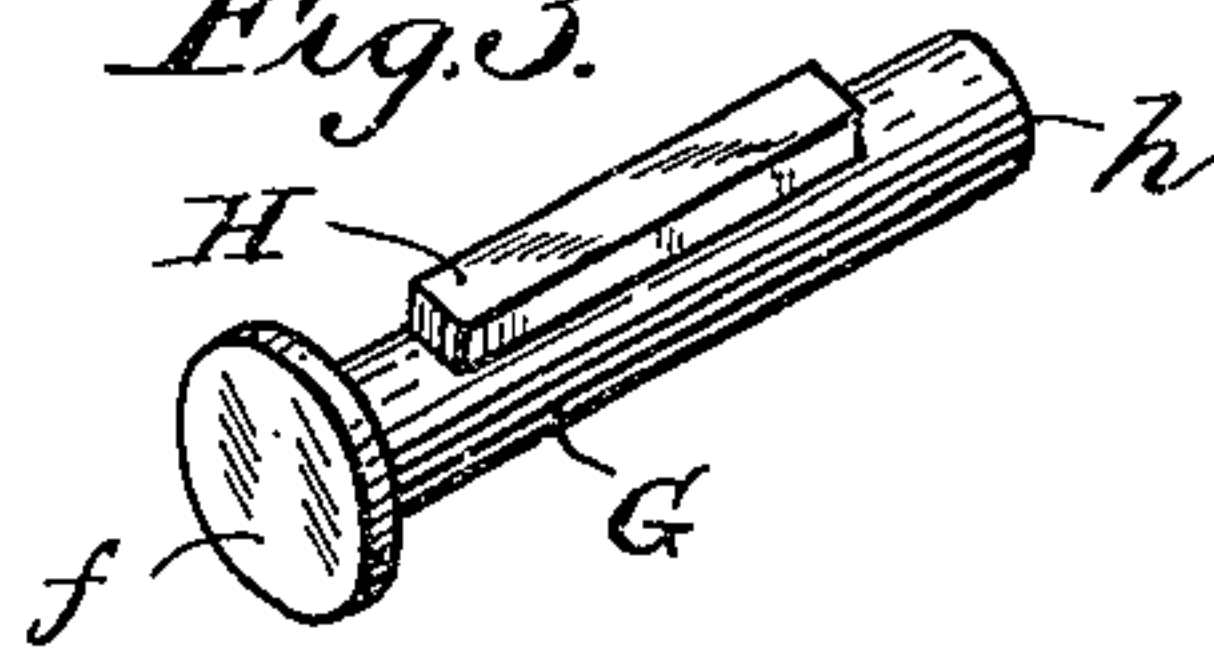


Fig. 4.

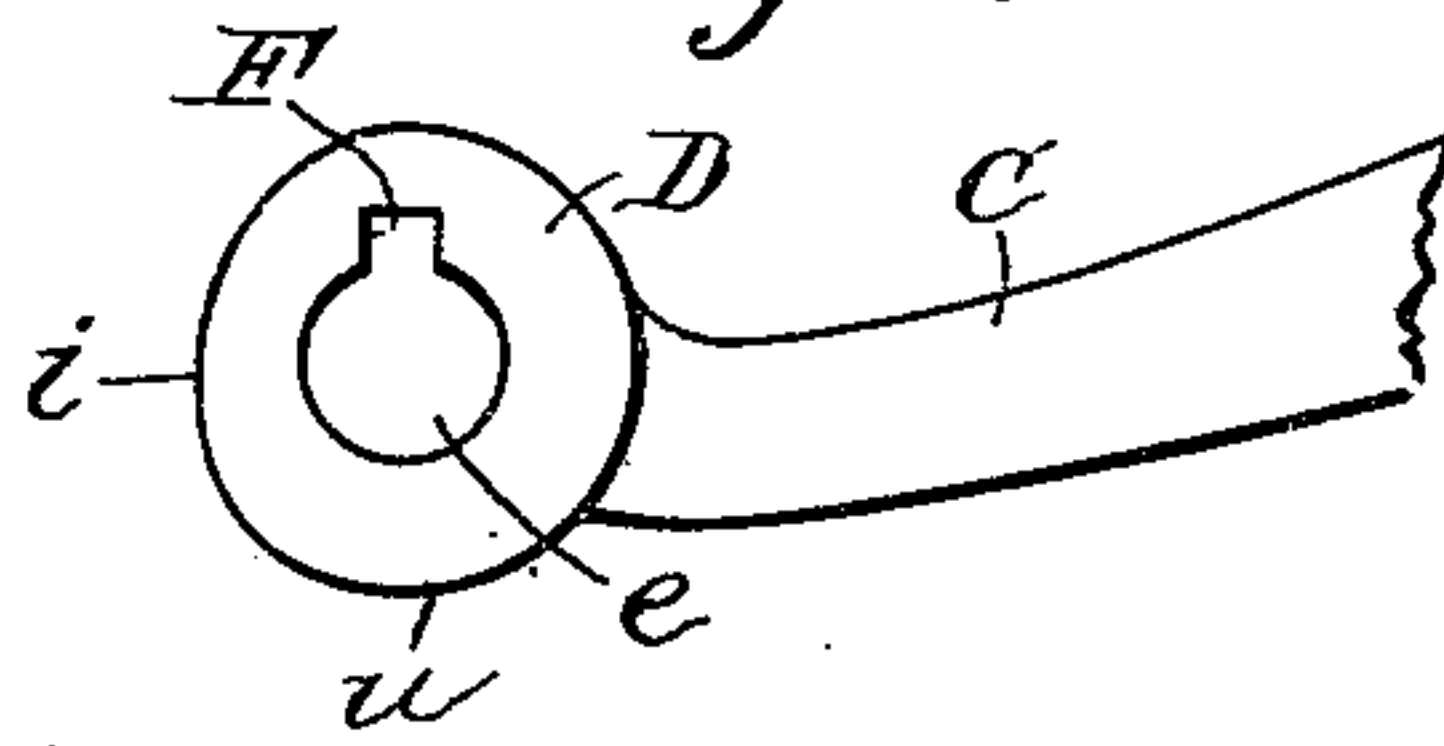


Fig. 5.

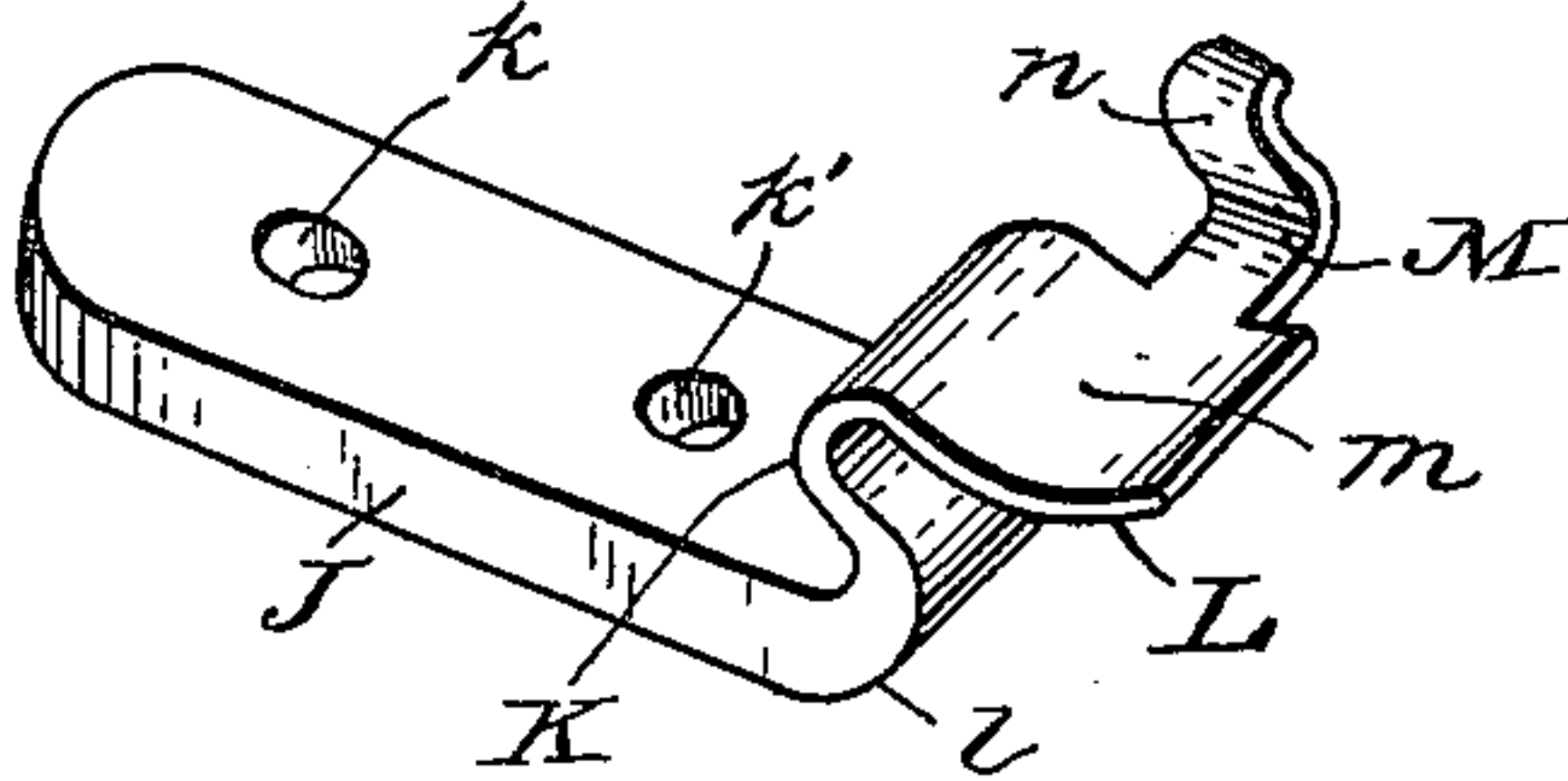


Fig. 6.

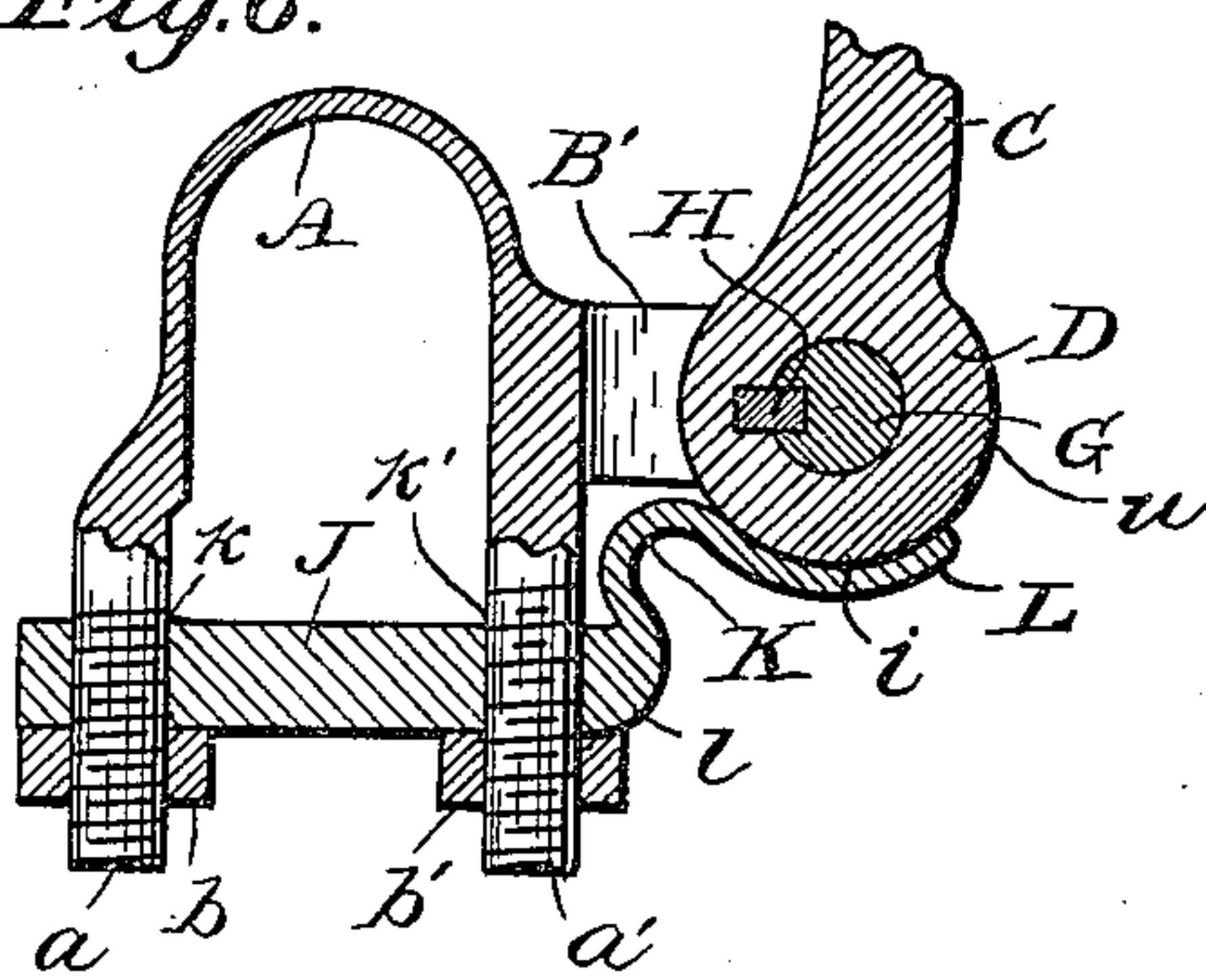


Fig. 8.

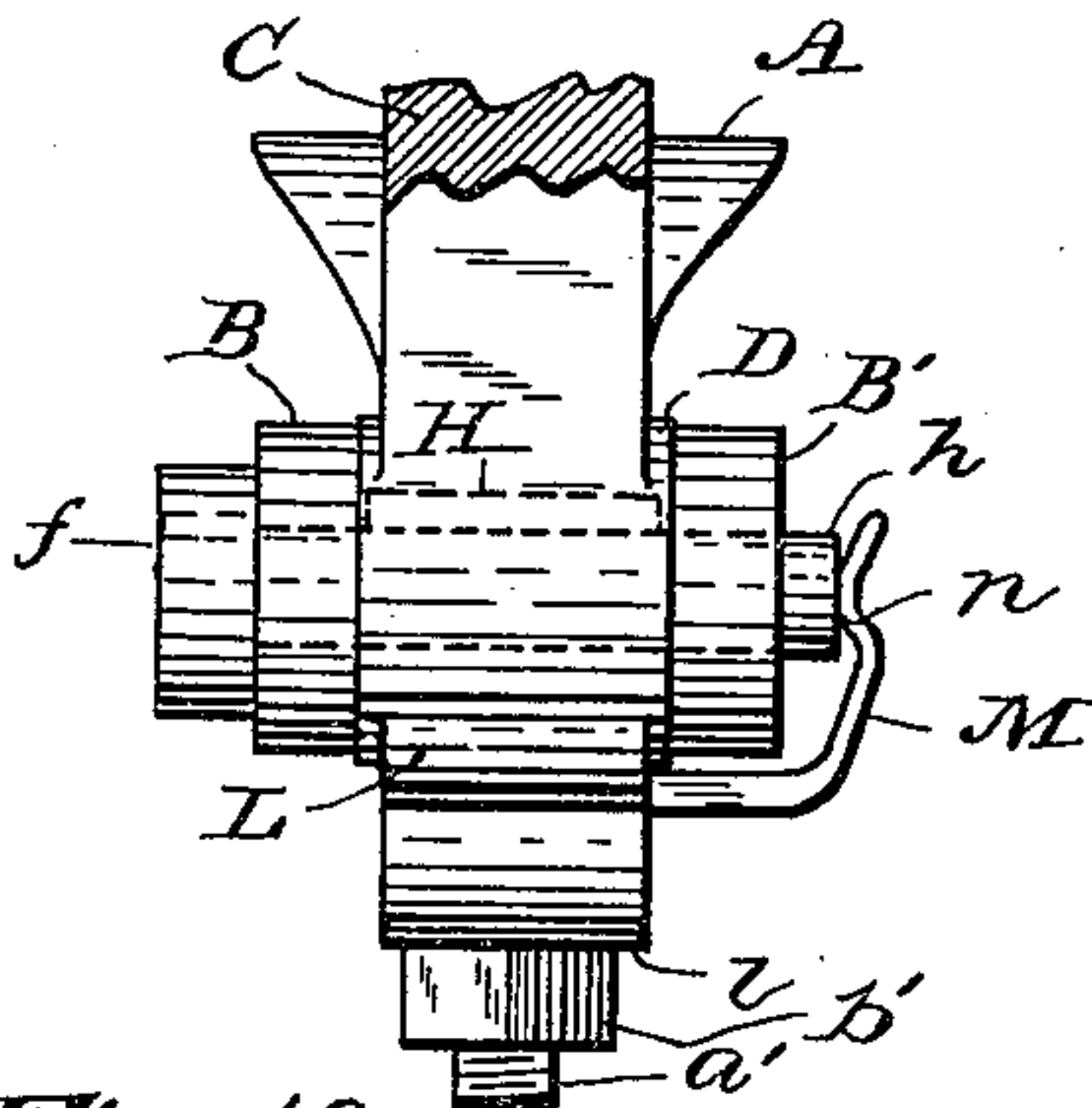


Fig. 7.

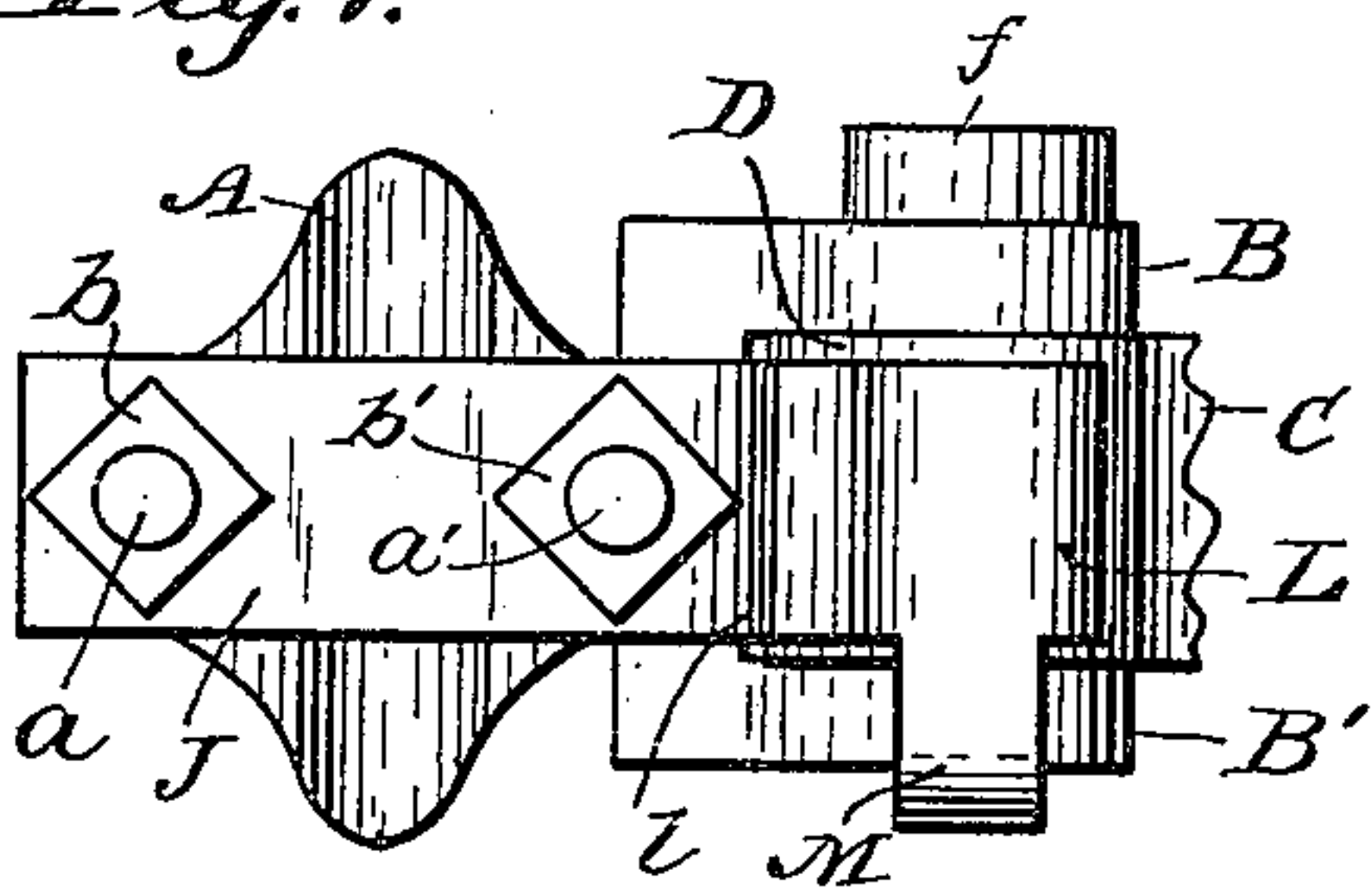


Fig. 10.

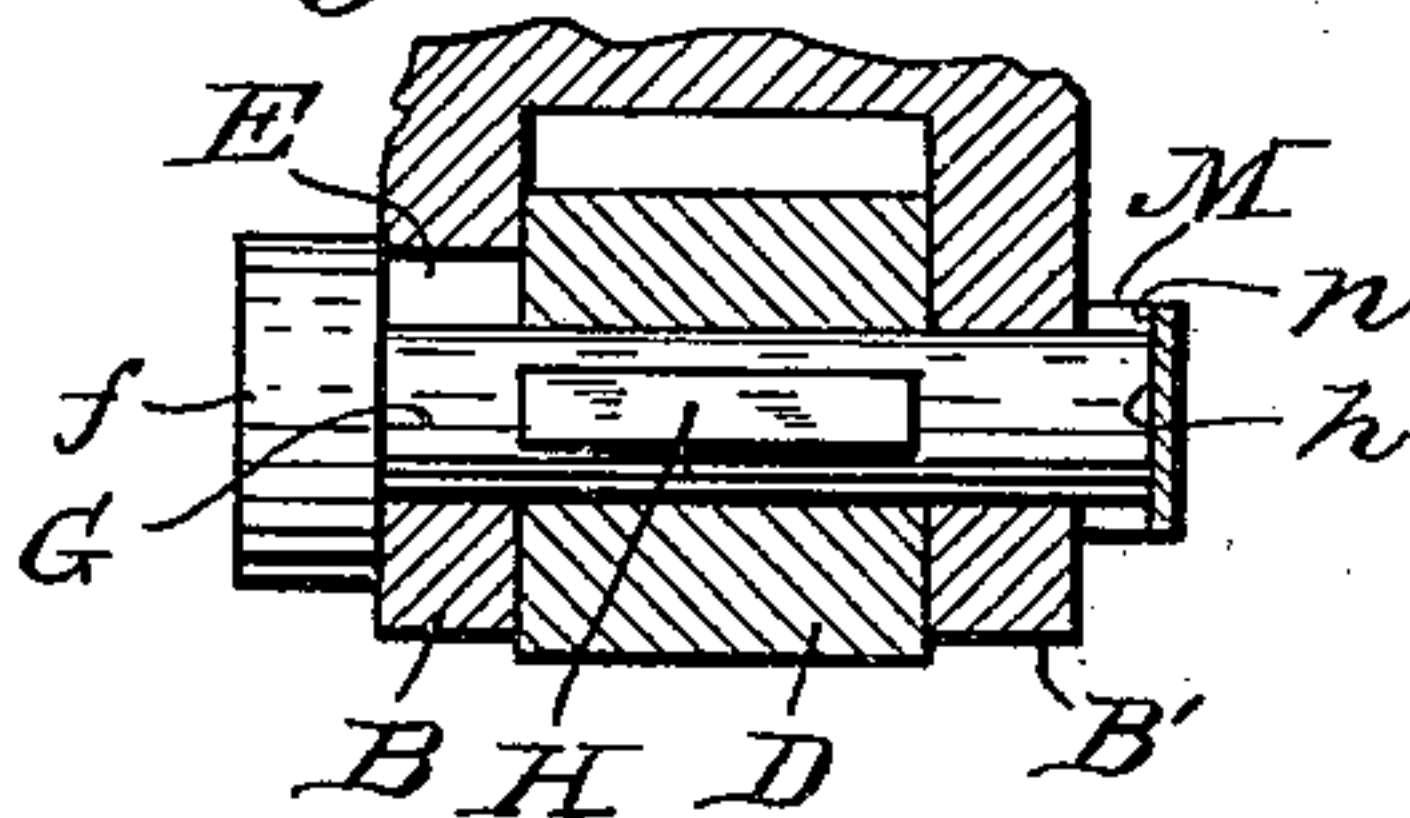
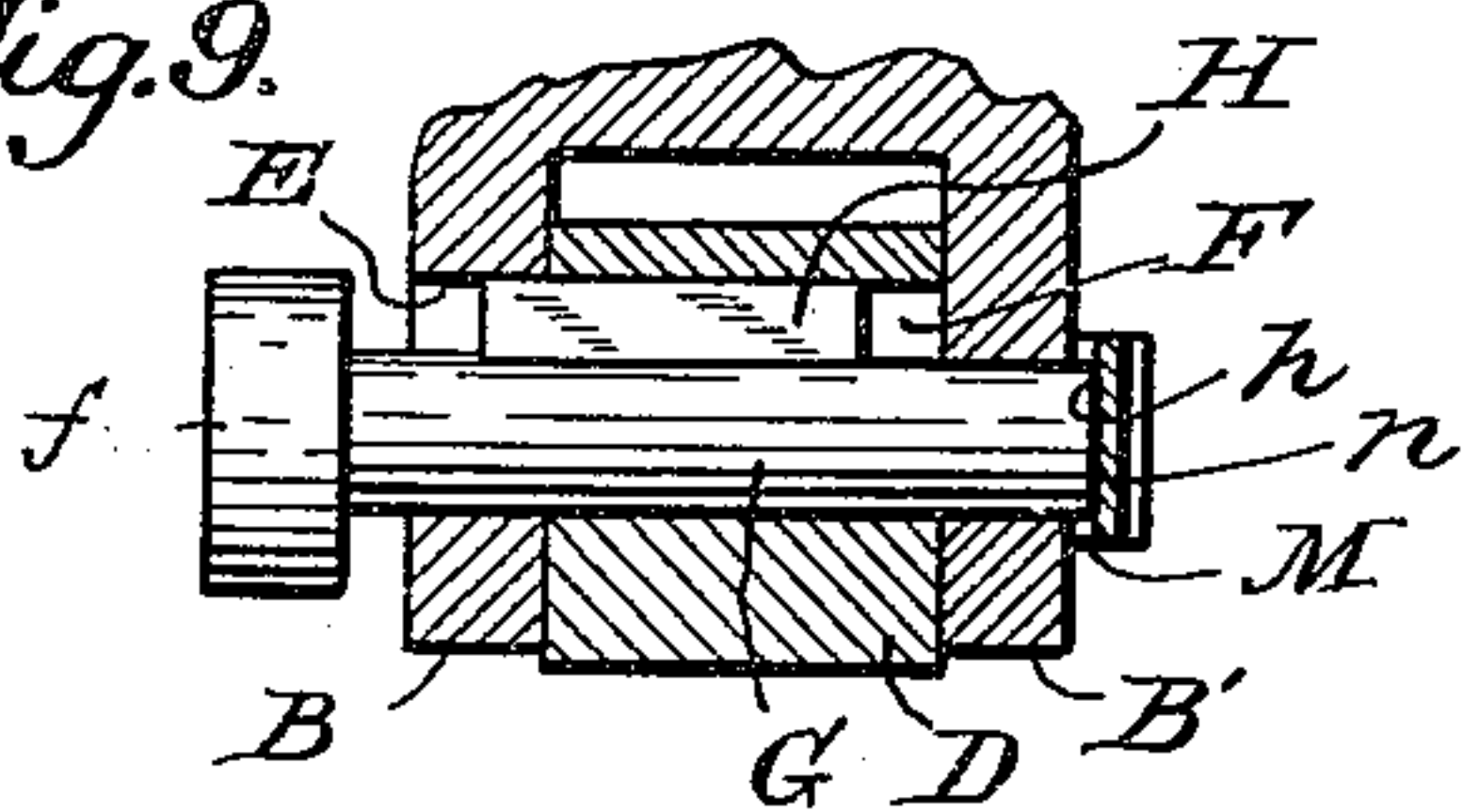


Fig. 9.



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UNITED STATES PATENT OFFICE.

JAMES W. BROOKS, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF
TO JUSTIN BENTON, OF SAME PLACE.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 663,487, dated December 11, 1900.

Application filed January 30, 1900. Serial No. 3,303. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. BROOKS, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Thill-Couplings; and I do 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 the letters of reference marked thereon, which form a part of this specification.

My invention relates to devices for connecting the thills or shafts of carriages and like vehicles to the forward axle thereof and which also are adapted to support the thills when not in use in upright positions, so as to take up the minimum amount of floor-space and which are also adapted to prevent rattling of the connecting parts when in use.

The object is to provide simple, inexpensive, and reliable devices of this character which may be used by the most inexperienced persons and also be adapted as well to permit the shafts to be quickly disconnected without the aid of tools, and this is fully attained in my invention, which is, furthermore, durable and economical in use.

The invention consists substantially in providing new and novel parts which operate in conjunction with the old and well-known form of coupling, some of which parts are attached thereto, and in certain improvements in the details of construction of such couplings; and it consists, further, in the parts and combination and arrangement of parts hereinafter described and claimed.

Referring to the drawings, Figure 1 represents a perspective view of an axle-clip to which thills may be coupled and embodying my improvement; Fig. 2, a perspective view of a portion of the shank and coupling end or boss of the thill-iron and showing my improved boss; Fig. 3, a perspective view of my improved coupling-pin, showing the pin-retainer, which is also employed in supporting the thills; Fig. 4, a side elevation of the part illustrated in Fig. 2, but showing more clearly the improvements in the details of construc-

tion of the boss; Fig. 5, a perspective view of my improved and combined antirattling and uncoupling spring and which is employed as an element in automatically putting the shaft-supporting elements into operation and which also may be adapted to be employed as a clip-plate; Fig. 6, a vertical longitudinal central sectional view of the coupling complete; Fig. 7, a bottom plan view; Fig. 8, a front elevation; Fig. 9, a horizontal sectional view, taken through the center of the pin-holes, showing the pin approximately in a proper position for supporting the shafts and also as when being inserted and removed; and Fig. 10 a view similar to that in Fig. 9, but showing the pin in its normal position when the shafts may be in use.

Similar letters of reference in the several figures of the drawings designate similar parts.

In the drawings, A designates the clip-band, having bolt ends *a* and *a'* and screw-nuts *b* and *b'*, all of ordinary and well-known construction, and B and B' designate a pair of well-known forms of clip-ears attached to the band A and having each a pin-hole *d* therein of uniform diameter and in alinement horizontally, as is customary. In the pin-hole *d* of one of said ears I cut or form in making the ear a keyway E therethrough, preferably at the rear side of the hole, where there is usually the maximum amount of stock and strength in the ear.

The thill-irons, which are usually bolted to the thills, may be of the usual form generally, the shank C having a boss D, in which is a pin-hole *e* at the free end thereof; but in carrying out my invention practically I cut a keyway F in said hole *e* in such position relatively that it shall not register with the keyway E when the thills are in operative positions, but shall register when they are raised to substantially vertical positions, so that if the keyway E is situated as shown at the rear part of the hole *d* the keyway F should be as shown at the top part of the hole *e* and extending through the boss. At the side *i* of the boss, substantially opposite the shank C, the curvature of the boss is somewhat flattened relatively, so that in effect the pin-hole *e* is situated closer to the pe-

riphery of the boss at that side than at the bottom *u*, this being for the purpose of permitting the pin *G* to enter freely when the shafts are elevated, while preventing it from rattling when in use, in connection with the spring *L*, provided for this purpose.

The coupling-pin *G* is cylindrical and preferably of uniform diameter (and necessarily so when the pin-holes are of equal diameter) and has a suitable head *f* at one end, preferably circular or of the "button" type. Extending along and projecting from the body of the pin *G* is a spline or "pin-retainer" *H*, which may be suitably formed integrally with the pin in forging it, the spline being equal to or of less length than the distance between the ears *B* and *B'*, and the pin itself is of such length from head to point to permit the point or end *h* to project slightly beyond the ear farthest from the head when inserted in the holes *d*. Between the head *f* and the adjacent end of the spline or retainer *H* is a space equal to the thickness of the ear *B* or *B'*, in which is the keyway *E*, so that when the pin is inserted entirely in the holes *d* it may be rotated and carry the retainer with it between the inner faces of the ears.

In order to prevent rattling of the coupling in use and to provide a convenient support for the shafts when inserting the coupling-pins and to provide a gage for the holes as well, a spring *L* is formed so as to fit partly around the boss *D*, the surface *m* conforming nearly to the curvature of the boss or concave. The spring is formed as a part of a base-plate *J*, having perforations *k* *k'* suitably located and adapted to receive the bolt ends of the clip and is a continuation of the plate from the forward end *l* thereof, and preferably has a "gooseneck" *K*, which may connect the base and spring proper either at the back part thereof, as shown, or at the front part as a return-bend. The plate *J* may, and preferably as shown, be of sufficient thickness and strength to comprise also the binding-plate for the clip, or when made too thin for such purpose it may be connected either at the top or at the bottom of the clip-plate, according to the amount of adjustment required. At one side of the spring *L* is an integrally-connected smaller spring *M*, having a return-bearing end *n*, adapted to press closely against the outer side of the ear, as *B'*, having the plain pin-hole *d* and at the front of the hole and engaging the end *h* of the pin when the latter is in working position. The spring *M* may, however, be separately formed and secured either to the shank *C* or to the adjacent ear, its function being to press the pin partially back, so that the spline may engage the keyway *E* automatically when the thills are elevated until the spline registers with the keyway. This also permits of the head *f* being firmly grasped when uncoupling the shafts.

In practical use the plate *J* is secured on the bolt ends of the axle-clip approximately

as shown in Fig. 6, so that the face *m* of the spring *L* is of proper height to support the weight of the thills when elevated and place the pin-holes in alinement. The pin *G* is then inserted until the head *f* bears against the adjacent ear *B* and held there while the thills are being lowered, the retainer then engaging the inner face of the ear and preventing the withdrawal of the pin until the thills are again elevated, until the spline or retainer again registers with the keyway *E*. When the shafts are in working positions, the fuller part *u* of the boss *D* bears hardest upon the spring-face *m*, thus preventing rattling of the connections, and also the spring *m* in constantly pressing the retainer against the ear tends to prevent rattling of the pin. In this construction connection and disconnection may be made with the greatest facility and ease and the pin cannot become lost when in operation and is therefore perfectly safe in use.

The "boss" above described is substantially an eccentric or a cam in which the axial hole is located closer to the periphery at one part of its operative surface than at another. The term "keyway" should be understood as referring to a suitable groove having sides adapted to be engaged by the sides of the spline or retainer, while the top of the spline clears the bottom of the groove. When desired, the spline may be welded upon the pin or it may be welded into the body thereof.

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

1. In a thill-coupling, the combination with an axle-clip having clip-ears, a thill-iron boss, and a coupling-pin, of the base-plate, the spring extending from the base-plate upwardly toward the bases of the clip-ears and then extending downwardly and forwardly below said boss, and the spring extending laterally and then upwardly from said first-described spring, said two springs being integral.

2. In a thill-coupling, the combination with the axle-clip having the bolt ends and the clip-ears, the thill-iron boss, and the coupling-pin adapted to have interlocking engagement with said ears and said boss, of the base-plate, the spring extending upwardly from the base-plate toward the bases of said ears and then extending forwardly, and the spring extending laterally and then upwardly from said first-described spring and having the return-bearing end pressing against the end of said pin, said base-plate being supported by said bolt ends, substantially as set forth.

3. In a thill-coupling, the combination with the axle, clip-ears, the thill-iron boss, and the coupling-pin, of the base-plate secured at the bottom of the axle and having the spring extending from the end thereof at the forward side of the axle and upwardly and then forwardly and then laterally and upwardly and terminating in a return-bearing pressing

against the coupling-pin end, substantially as set forth.

4. In a thill-coupling, the combination of the axle, the clip, the clip-ears having the keyway, the boss having the keyway, the pin having the head at one end, the pin-retainer on said pin, the base-plate, the spring extending from the base-plate upwardly toward the bases of the clip-ears and then extending forwardly and having the branching spring extending therefrom laterally and upwardly and having the return end bearing against the end of said pin opposite the head thereof, said springs and base-plate being integral, substantially as shown and described.

5. The herein-described device for thill-couplings, consisting of the base-plate, the spring extending from an end of the base-plate upwardly and backwardly toward the base-plate and then forwardly or oppositely, and having the lateral branching spring extending therefrom horizontally and then upwardly and having the return-bearing end at the top thereof, as shown.

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

JAMES W. BROOKS.

Witnesses:

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E. T. SILVIUS.