

No. 715,057.

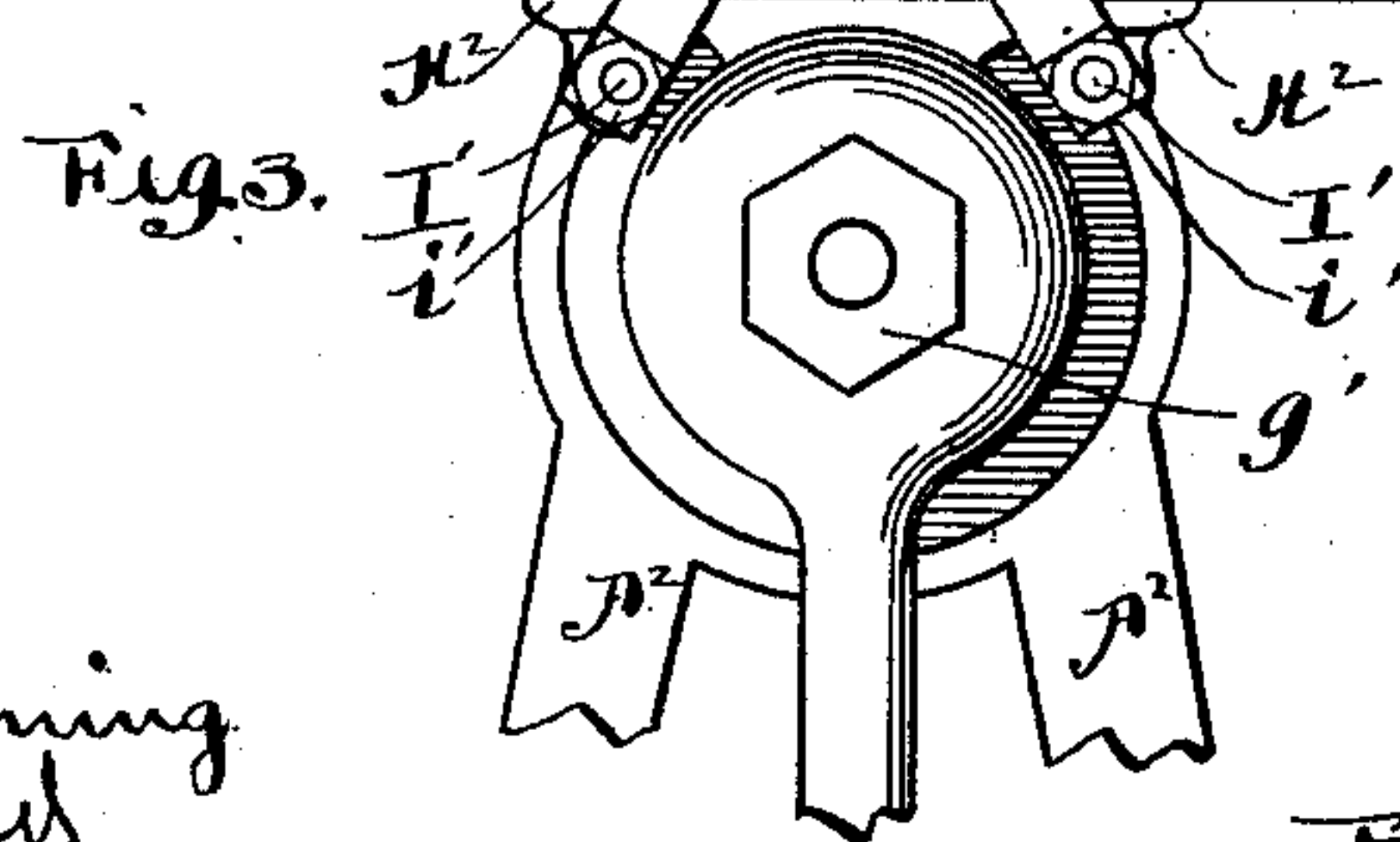
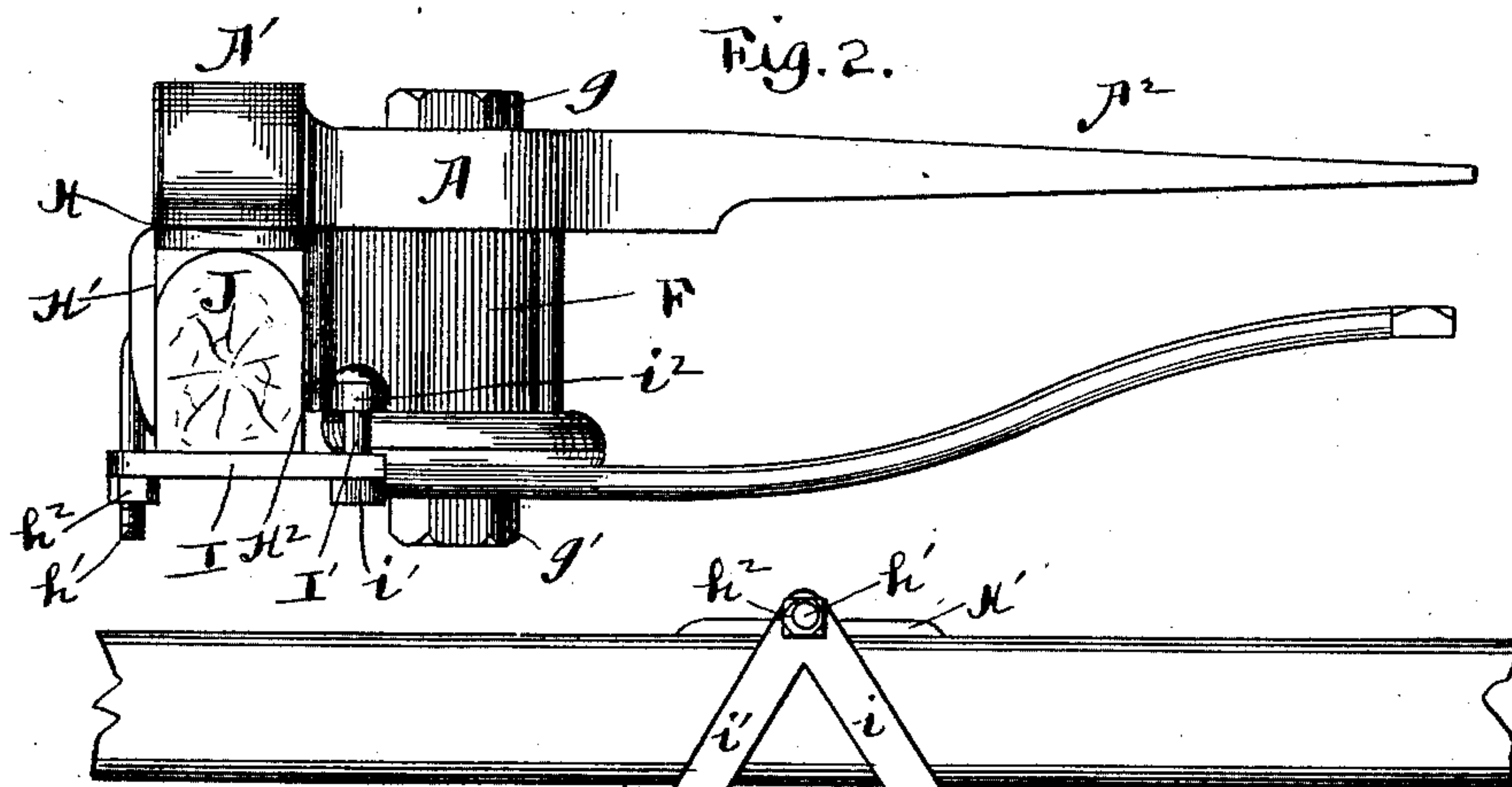
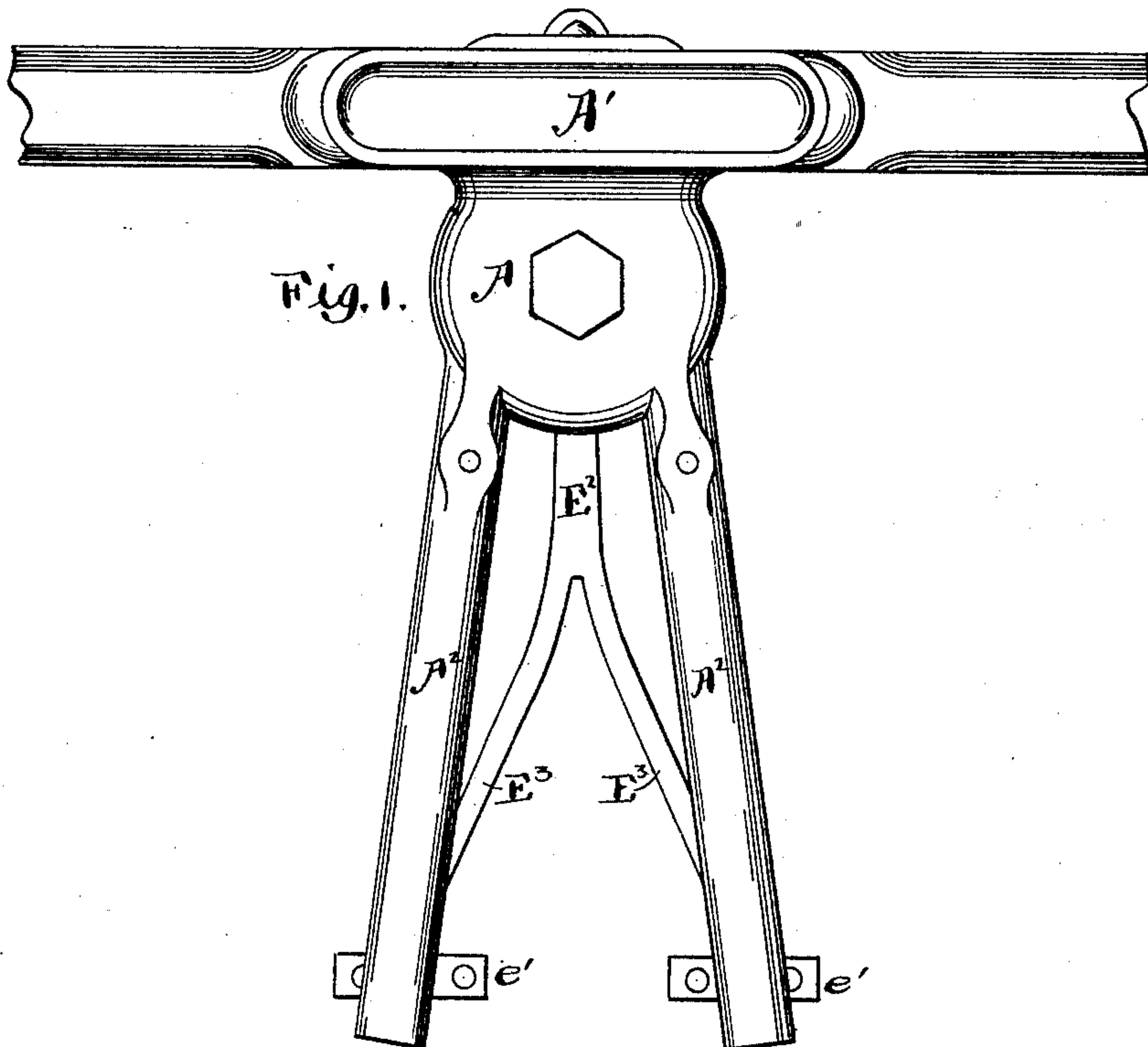
Patented Dec. 2, 1902.

A. GUSTAFSON.  
FIFTH WHEEL.

(Application filed June 25, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.  
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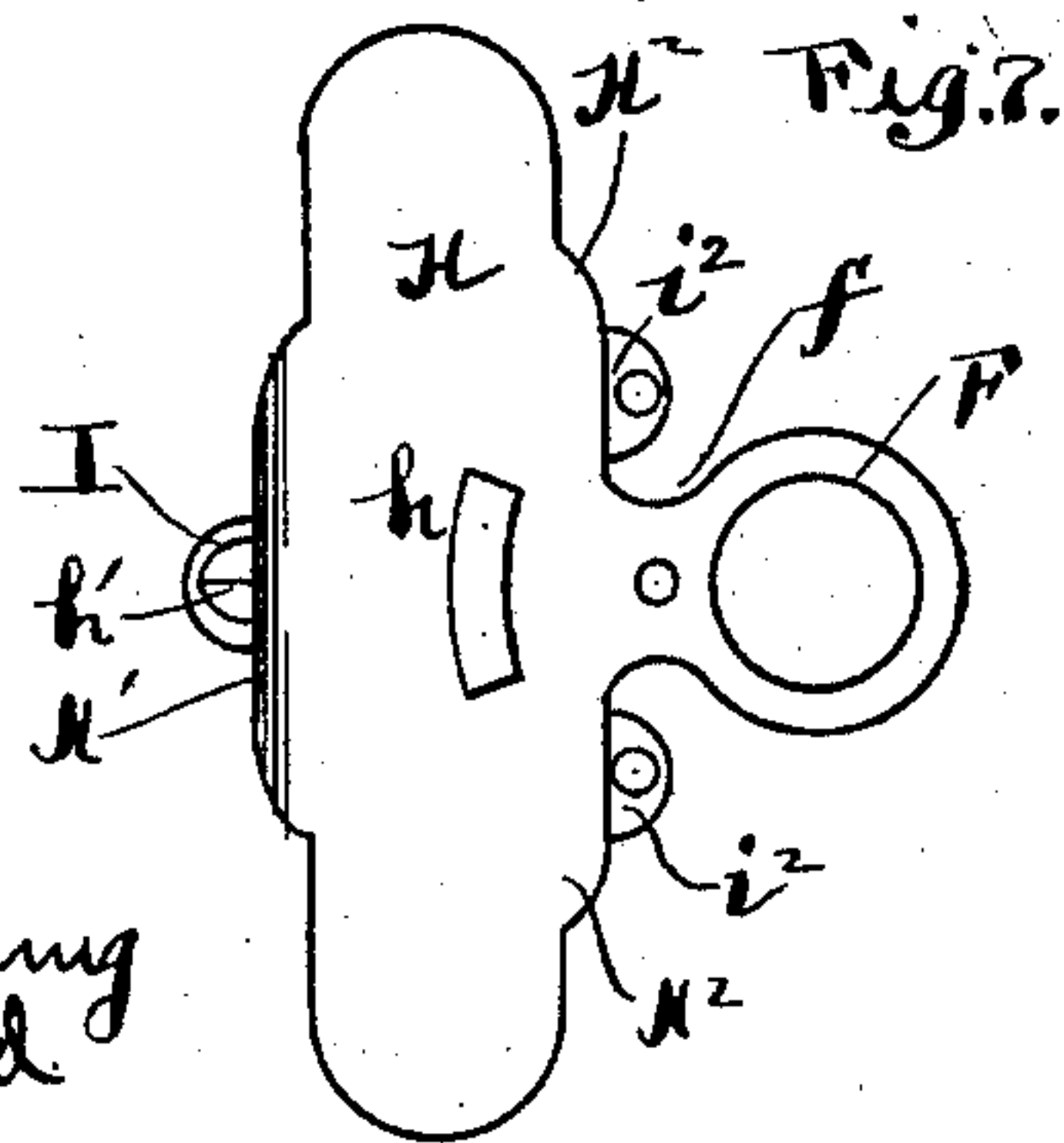
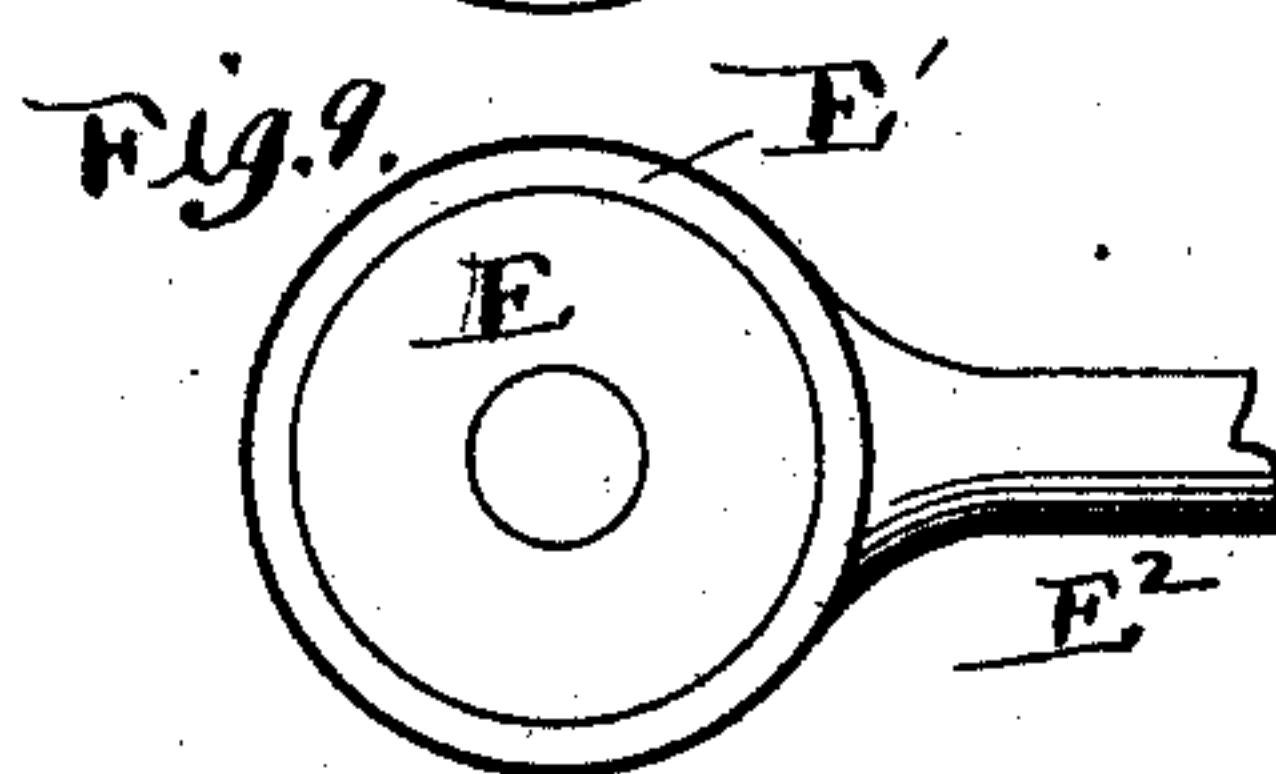
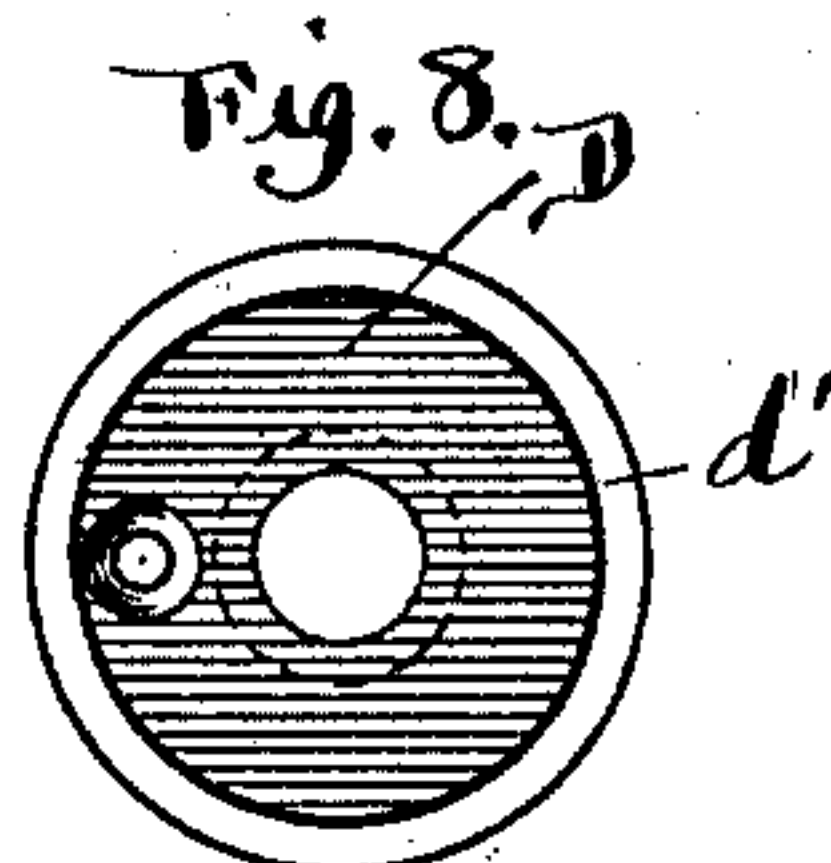
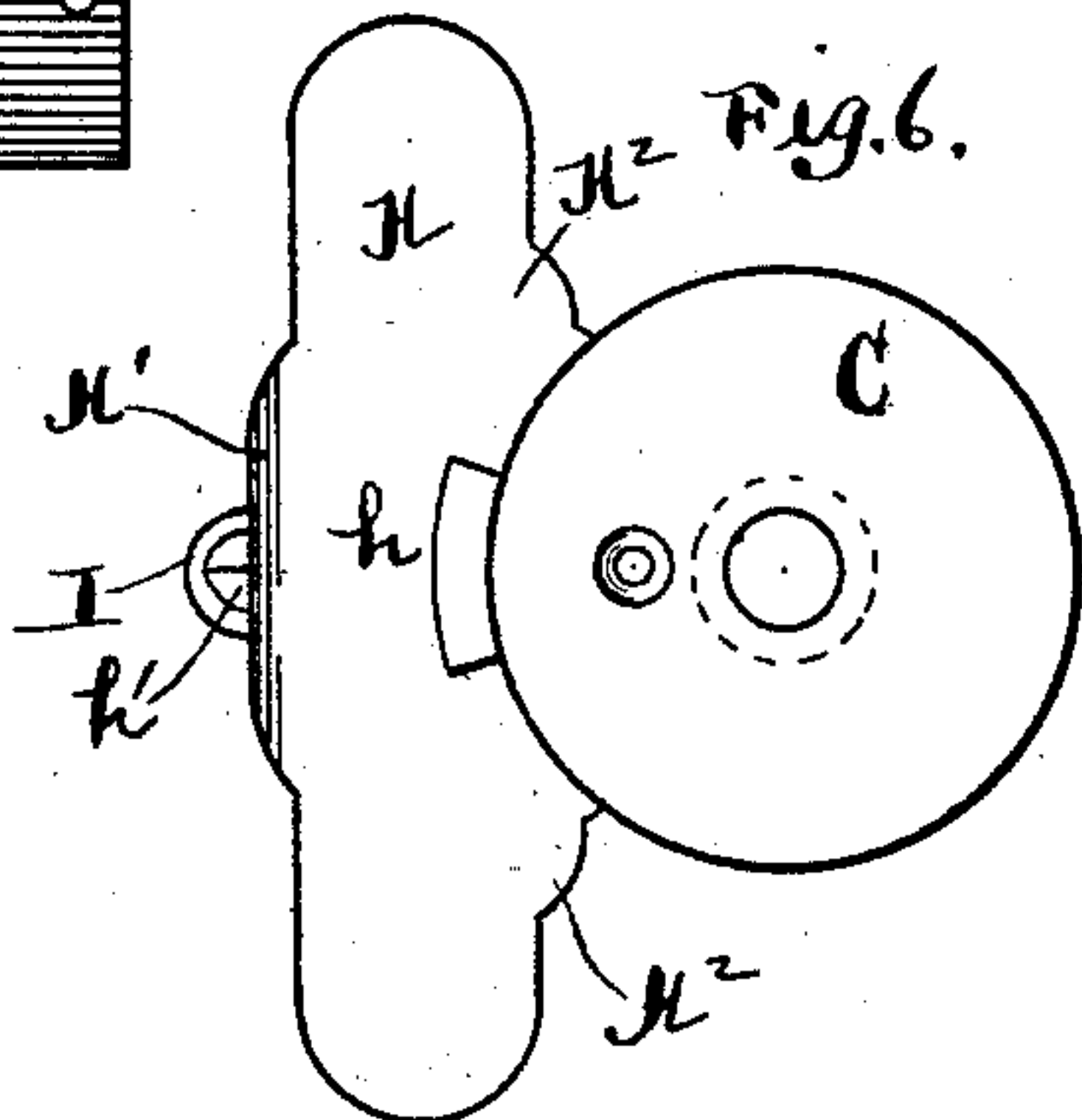
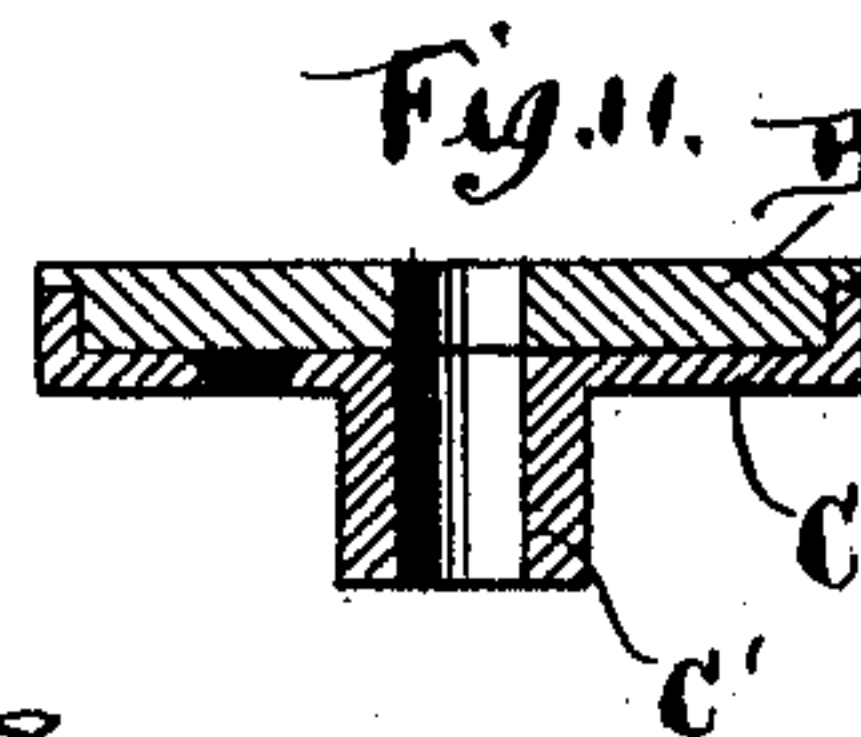
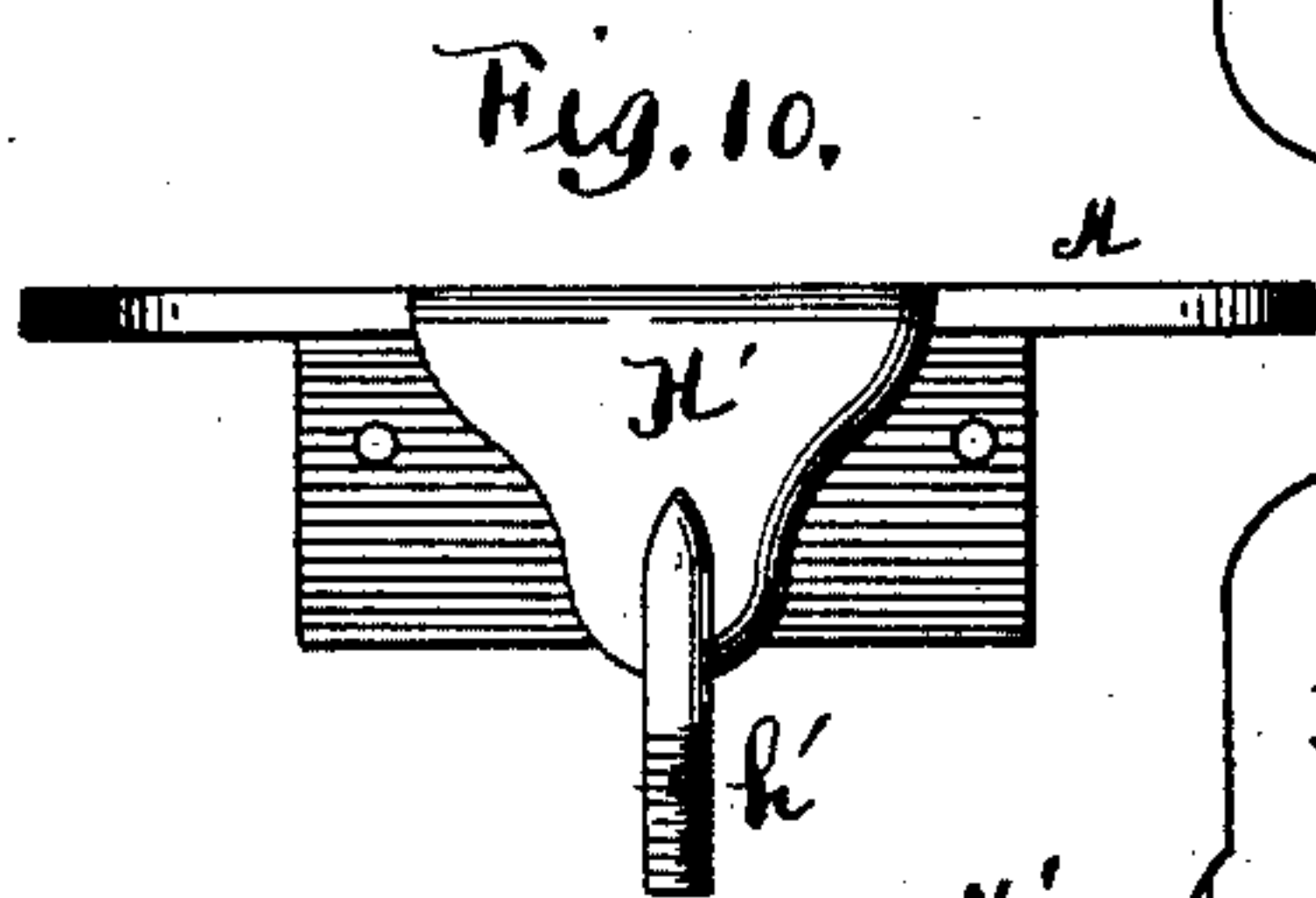
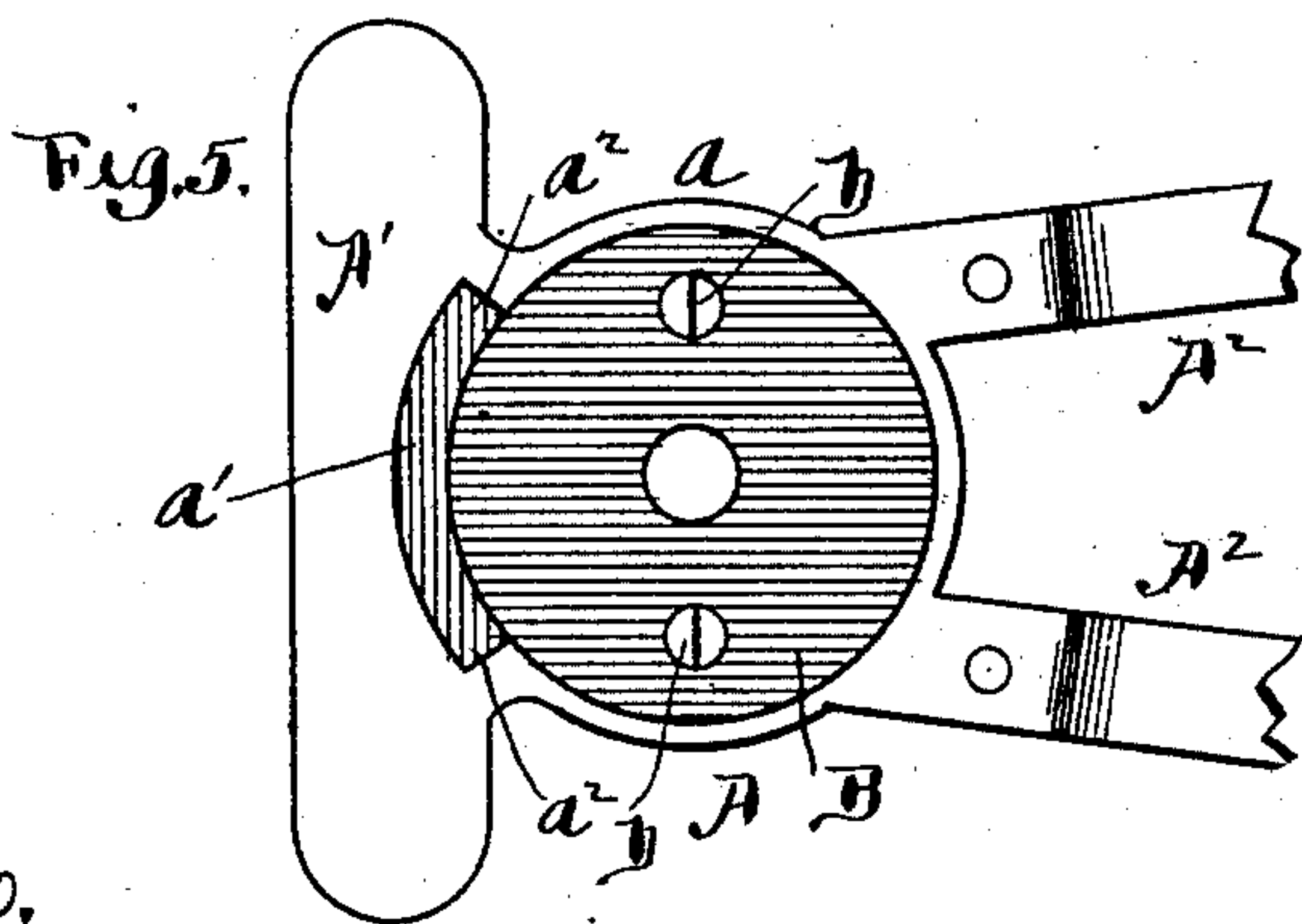
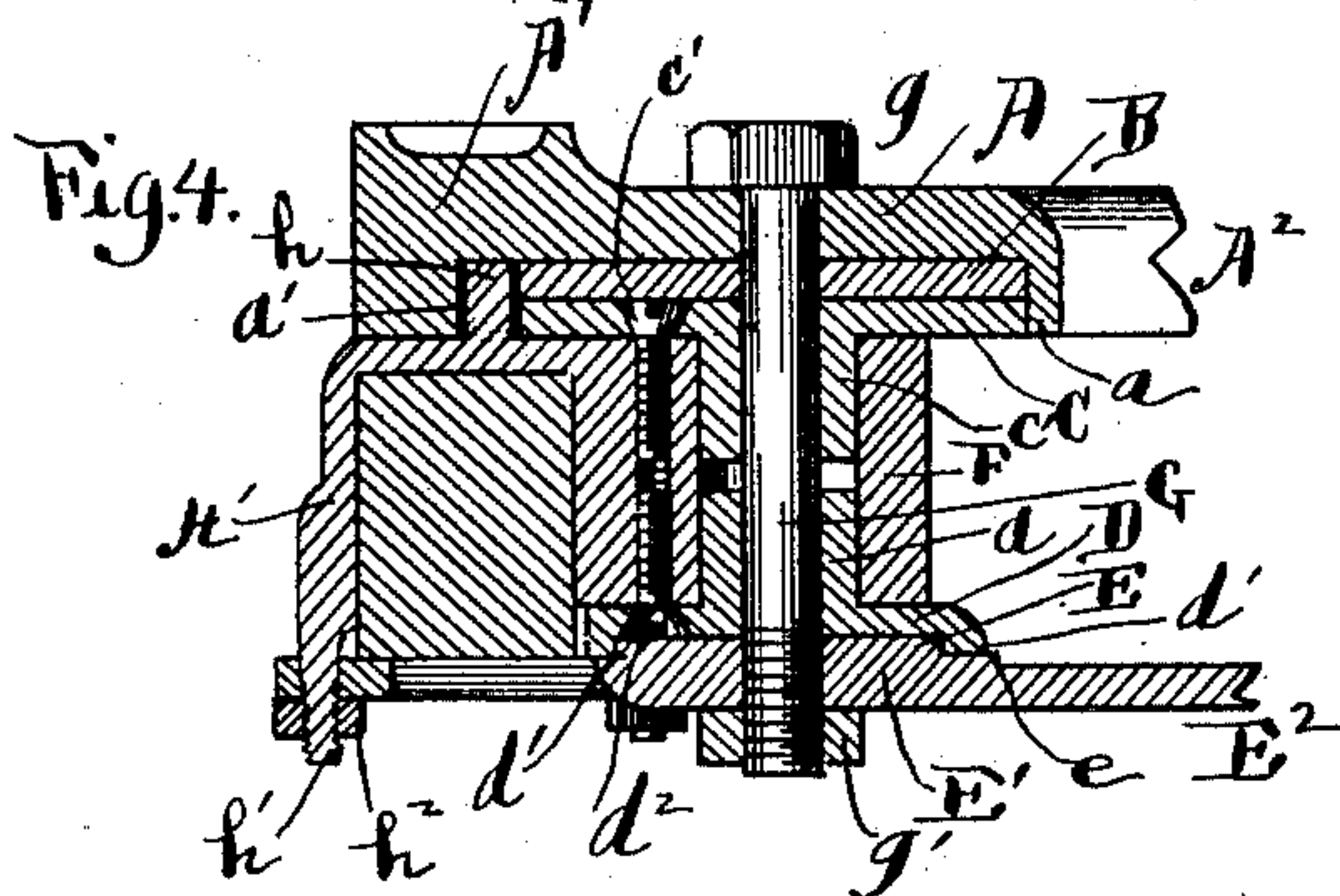
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**A. GUSTAFSON.  
FIFTH WHEEL.**

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(No Model.)

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# UNITED STATES PATENT OFFICE.

ALFRED GUSTAFSON, OF AURORA, ILLINOIS.

## FIFTH-WHEEL.

SPECIFICATION forming part of Letters Patent No. 715,057, dated December 2, 1902.

Application filed June 25, 1902. Serial No. 113,106. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED GUSTAFSON, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Fifth-Wheels, of which the following is a specification.

The objects of this invention are to enable the body of the wheel to be made of soft wearing metal and the bearing parts to be made of hard non-wearing metal, to furnish bearing disks or plates of hard metal which can be readily applied and held in place, to furnish the requisite contact for the operation of the wheel, to improve the attachment or connection of the wheel with the axle, and to improve generally the construction and operation of the several parts entering into the formation of the fifth-wheel as a whole.

The invention consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a top or plan view with the ends of the axle broken off; Fig. 2, a side elevation with the axle in section; Fig. 3, a bottom or underside view with the arms of the fifth-wheel broken off at the ends; Fig. 4, a detail in sectional elevation of the fifth-wheel and the axle with the arms of the fifth-wheel broken off at the ends; Fig. 5, a detail, being a bottom or underside view of the head of one section or division of the fifth-wheel, with the arms at the ends broken off and with the top disk or plate of the upper bearing in position; Fig. 6, a top or plan view of the other section or division of the wheel with the bottom or under disk or plate of the upper bearing in position; Fig. 7, a similar view to Fig. 6 with the bottom or under disk or plate of the upper bearing removed; Fig. 8, a detail, being an under face or bottom view of the top plate of the lower bearing; Fig. 9, a detail, being a top or plan view of the bottom or under plate of the lower bearing; and Fig. 10, a front side elevation of the clip attaching the fifth-wheel as a whole to the axle.

The fifth-wheel is constructed of an upper section or division, an intermediate section or division, and a lower section or division, as usual. The upper section or division is made

of soft metal, cast or otherwise, and formed with a central body A, a front head A', and rearwardly-extending and outwardly-spreading arms A<sup>2</sup>, as shown in Figs. 1 and 2. The central body A has therein on its under face an annular depression or recess *a*, and the head A' on its under face in juxtaposition with the depression or recess *a* is cut out to form a semicircular groove or recess *a'* with end walls *a''*, as shown in Fig. 5. The annular depression or recess *a* has entered therein and secured therein the top disk or plate B, made of hardened steel or other suitable hard metal having pronounced wearing qualities and of an approximately frictionless nature. The disk or plate B abuts against the face of the center A in the depression or recess *a* and is secured thereto by rivets or screws *b*, so as to be permanent with the center and furnish the bearing and wearing face for the upper section or division of the fifth-wheel. The companion disk or plate C for the upper bearing is of the same diameter as the disk or plate B, and when the parts are together the two disks or plates B and C are in contact and furnish the bearing for the upper section or division of the wheel, and the plate C has depending from its center a sleeve or tubular wall *c* to guide and hold the plate in position in connection with a fastening rivet or screw *c'*, as shown in Fig. 4, and while a screw *c'* is shown it is preferred to use a fixed rivet or stud the end of which can be upset into the countersink of the disk or plate, and this is also true of the screws *b* for attaching the disk or plate B in place.

The lower bearing of the fifth-wheel is formed of a disk or plate D, having at its center an upwardly-extending sleeve or wall *d*, coinciding with the sleeve or wall *c* of the disk or plate C, and having on its under side a circumferential ridge or rim *d'*, leaving a central depression or recess in the under face of the disk or plate, and this disk or plate D, like the plates B and C, is to be made of hard steel or other suitable metal having pronounced wearing quality and but little friction. The disk or plate D is centered and held in place by the sleeve or wall *d* and a suitable rivet or screw *d''*, and though a screw is shown a fixed rivet or stud is preferred,



with its end upset into the countersink of the disk or plate. The companion disk or plate E for the lower bearing has a wearing and bearing center of the same diameter as the diameter of the depression or recess in the under face of the disk or plate D for the adjacent faces of the two disks or plates to be in contact when the parts are assembled, as shown in Fig. 4. The bottom or under disk or plate of the lower bearing has a body E', integral with the center E, and rearwardly-extending arms E<sup>3</sup>, terminating in cross-ears e', for attaching purposes, and, as shown, the body E', circumferentially around the center E, has a bearing ledge or face e, engaging the under face of the rim d' when the parts are assembled.

The sleeves or walls c and d of the respective disks or plates C and D enter into a socket F for the adjacent faces of the disks or plates and the sockets to abut against each other and have the socket furnish a firm support for the disks or plates. A king-bolt G is passed through the center A, the bearing-plates B, C, D, and E, and through the sleeves or walls c and d and through the body E' of the lower section or division of the fifth-wheel, as shown in Fig. 4, with the head g of the bolt abutting against the outer face of the center A and the nut g' abutting against the under face of the body E', holding the parts of the fifth-wheel together when assembled and at the same time not interfering with the turning of one section or division, as required in use.

A clip for attaching the fifth-wheel to the axle is formed integral with the socket F in the arrangement shown in Fig. 6. This clip consists of an upper plate H, having side wings or extensions and integral with the neck f of the socket, as shown in Fig. 7, and this plate H has on its upper face, formed therewith or fixedly secured thereto, a stop h, which enters the groove or recess a' in the under face of the head A' and is of less length than the recess and limits the turning of the sections or divisions of the fifth-wheel in either direction by the ends of the stop striking the end walls a<sup>2</sup> of the slot or recess. Extending downwardly from the front edge of the plate H is a plate H', terminating in a stem h', which is screw-threaded and receives a nut h<sup>2</sup>, and this plate H', in connection with wings H<sup>2</sup>, extending laterally from the neck f of the socket, forms the side plates or walls of the clip, and the plate H forms the upper plate or wall of the clip. A strap I underlies the axle J to complete the fastening of the stirrup or clip onto the axle, and this strap, as shown, consists of two arms i, joined together at the front end and outwardly spread at the rear end for the front end to be entered onto the stem h' and be there secured by the nut h<sup>2</sup> and for each end to enter on a bolt I', having a nut i', each bolt having its stem passing through an ear i<sup>2</sup> on the rear face of the wings or back plate H<sup>2</sup> of the

clip, as shown in Fig. 2, so that by tightening the nuts h<sup>2</sup> and i' the clip will be drawn and held on the axle.

The disks or plates for both the upper and lower bearings, made of steel tempered or case-hardened or otherwise treated so as to be hard, furnish a mounting for the fifth-wheel which is practically frictionless and which will wear for a great length of time, and by making these disks or plates separate and independent of the bodies of the fifth-wheel sections or divisions and attaching them to their respective bodies in operative relation it will be seen that the requirement of hardening the bodies to present a wearing-face is dispensed with, enabling the bodies to be made of soft metal, which is desirable in the construction of fifth-wheels, reducing the expense of manufacture and enabling the fitting of the disks or plates to be performed independent of the body.

The parts are readily united and assembled, the bearing disk or plate B is entered and secured within the depression or recess in the center A, the disks or plates C and D are located on and secured to the socket F for the disk or plate C to properly coact with the disk or plate B in the operation of the wheel, the disk or plate E is entered into the depression or recess therefor in the under face of the disk or plate D for the two disks or plates to coact in the operation of the wheel, and the several parts are united and held in operative relation by the king-bolt G assembling the parts ready for use. The fifth-wheel in use is attached to the axle by the clip formed of the plates H, H', and H<sup>2</sup> by entering the axle into the space between the plates, applying the retaining-bar I, and entering the nuts onto the stems, clamping the clip to the axle.

It is a requisite for fifth-wheels that the bearing-faces should be hard and practically frictionless, which is a difficult undertaking to accomplish where the upper and lower bearings have one of the disks or plates formed with the bodies of the sections or divisions; but by making the bearing-plates separate from the bodies it will be seen that these plates can be hardened as required without any difficulty, thus enabling hardened bearing-faces to be furnished for use in fifth-wheels.

It is only necessary for the fifth-wheel of this invention to use hard material for the bearing-plates, leaving the bodies of the sections or divisions to be made of cheaper metal or material without in any way impairing the efficiency of the wheel as to the wearing quality, reduction of friction, and operativeness of the parts.

The top and bottom disks or plates of the upper bearing instead of having flat faces, as shown in Figs. 4, 5, and 6, could have a recess or depression formed in the upper face of the bottom or under plate into which the top disk or plate enters, as shown in the ar-



rangement of Fig. 11. This construction  
 while furnishing the same wearing-faces forms  
 a safeguard against the ready admission of  
 dust and dirt, the same as the rim *d'* and the  
 5 raised face E of the lower bearing. The disks  
 or plates constituting the upper and lower  
 bearings in either form of construction and  
 arrangement are separable plates and distinct  
 10 from the bodies of the upper and lower sec-  
 tions or divisions and the intermediate socket  
 or division of the fifth-wheel, and this feature  
 of separable bearing disks or plates is an es-  
 sential one in carrying out my invention, as  
 the wear in use is on the plates, and when  
 15 worn to an extent to be useless the disks or  
 plates can be removed and the sections or  
 divisions be supplied with new disks or plates,  
 enabling the fifth-wheel to be repaired by re-  
 placement of the worn disks or plates, leav-  
 20 ing the bodies of the sections or divisions in-  
 tact.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a fifth-wheel consisting of an upper,  
 25 an intermediate and a lower section or divi-  
 sion, the combination of an upper bearing  
 formed of a hardened top disk or plate and a  
 hardened bottom disk or plate with the top  
 disk or plate entered into and secured in a  
 30 depression on the under face of the upper  
 section or division of the wheel and with the  
 bottom disk or plate mounted on and secured  
 to the upper end of the intermediate section  
 or division of the wheel, a lower bearing  
 35 formed of a hardened top disk or plate and a  
 hardened bottom disk or plate with the top  
 disk or plate mounted on and secured to the  
 lower end of the intermediate section or di-  
 vision of the wheel and the bottom disk or  
 40 plate on the upper face of the lower section  
 or division of the wheel, and a pivot-bolt  
 common to the three sections or divisions and  
 the upper and lower bearings, substantially  
 as described.

45 2. In a fifth-wheel consisting of an upper  
 section or division, a lower section or division  
 and an intermediate socket, the combination  
 of an upper bearing formed of a hardened top  
 disk or plate and a hardened bottom disk or  
 50 plate with the top disk or plate entered into

and secured in a depression on the under face  
 of the upper section or division of the wheel  
 and the bottom disk or plate mounted on and  
 secured to the socket, a lower bearing formed  
 of a hardened top disk or plate and a har- 55  
 dened bottom disk or plate with the top disk  
 or plate mounted on and secured to the lower  
 end of the socket, and the bottom disk or plate  
 on the upper face of the lower section or di-  
 vision of the wheel, and a pivot-bolt common 60  
 to the three sections or divisions and the two  
 bearings, substantially as described.

3. In a fifth-wheel, the combination of an  
 upper and lower bearing each composed of  
 two hardened disks or plates, an upper sec- 65  
 tion or division to the under face of which  
 one of the disks or plates composing the up-  
 per bearing is attached, an intermediate sec-  
 tion or division to which the inner disks or  
 plates are fixedly connected to lie separate 70  
 from each other, and a pivot-bolt common to  
 both bearings and to the sections or divisions  
 of the wheel, substantially as described.

4. In a fifth-wheel, the combination of a  
 socket having formed therewith the body of 75  
 a clip for securing the socket to an axle, two  
 interior hardened disks or plates of the bear-  
 ing secured one at each end of the socket,  
 two exterior disks or plates one contacting  
 with each of the interior disks or plates, and 80  
 means for holding the disks or plates in con-  
 tact, substantially as described.

5. In a fifth-wheel, an upper head or plate  
 having in the under face a stop groove or  
 recess, a hardened disk or plate secured to 85  
 the upper head, an intermediate section or  
 socket, a clip formed therewith, a hardened  
 disk or plate secured to the intermediate sec-  
 tion and contacting with the disk or plate in  
 the upper head, a lug on the head or top wall 90  
 of the clip entering into the stop groove or  
 recess and limiting the turning of the fifth-  
 wheel in either direction, and a pivot-bolt  
 for holding the disks or plates of the bearing  
 in coöperative relation, substantially as de- 95  
 scribed.

ALFRED GUSTAFSON.

Witnesses:

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