

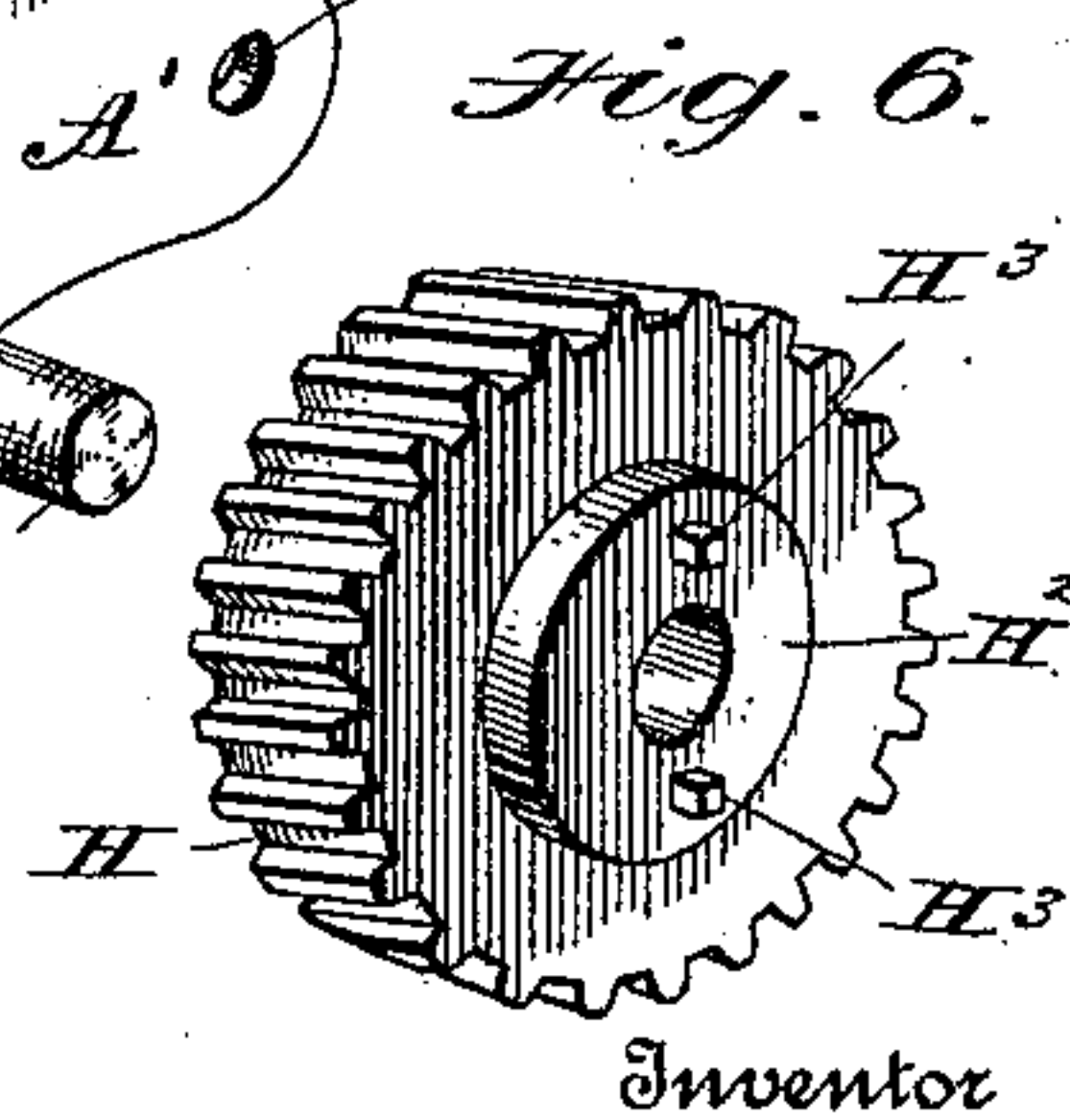
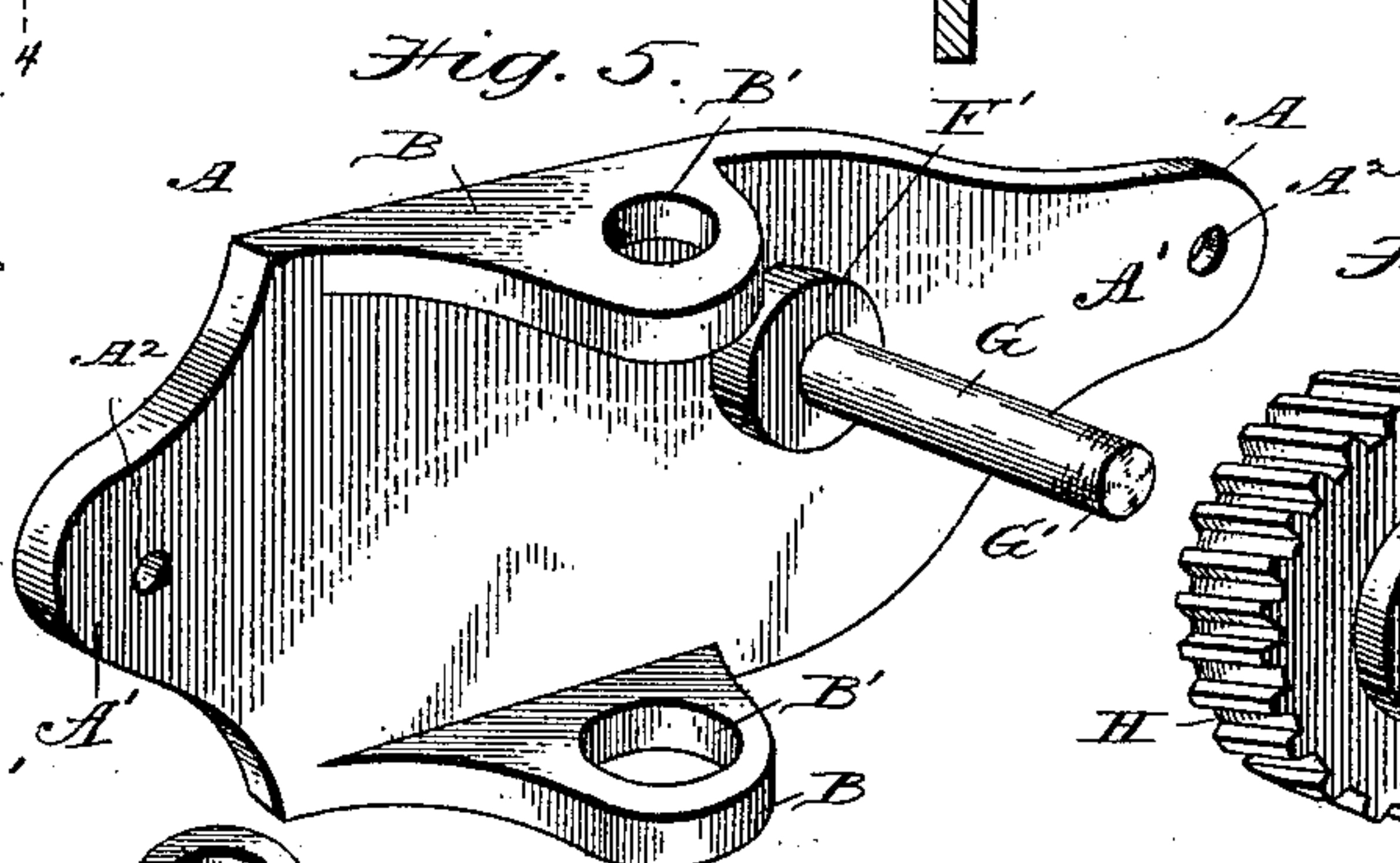
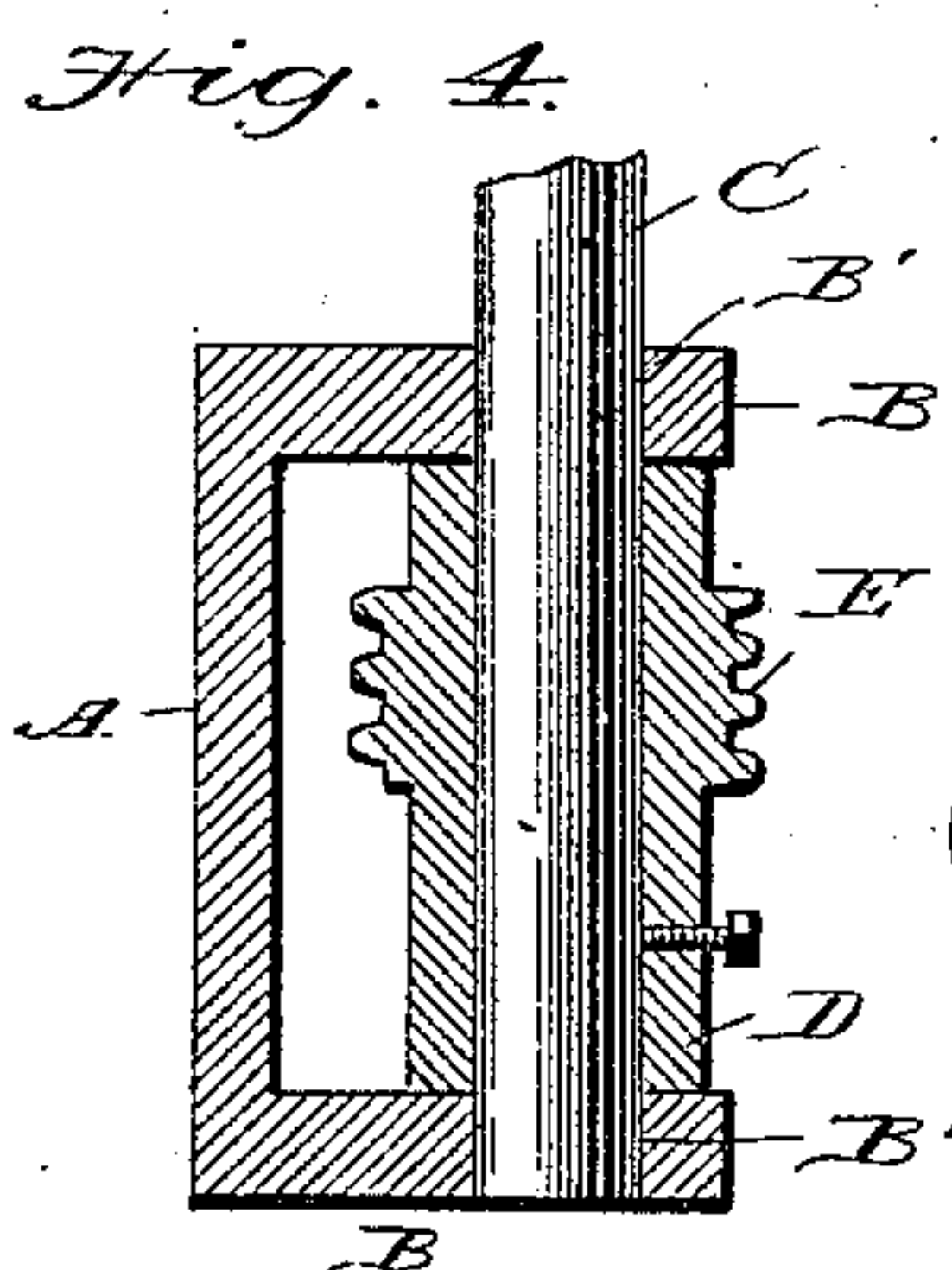
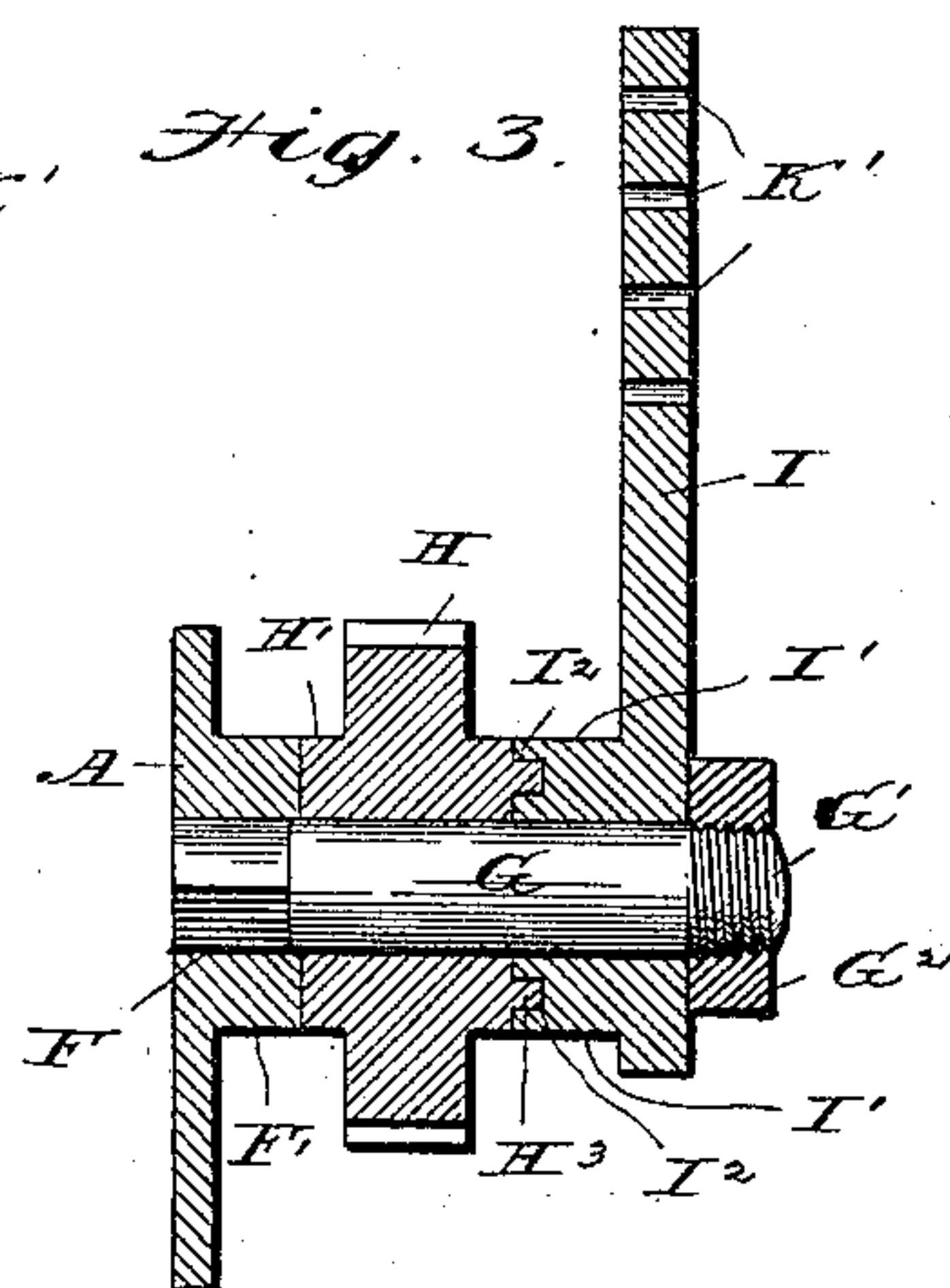
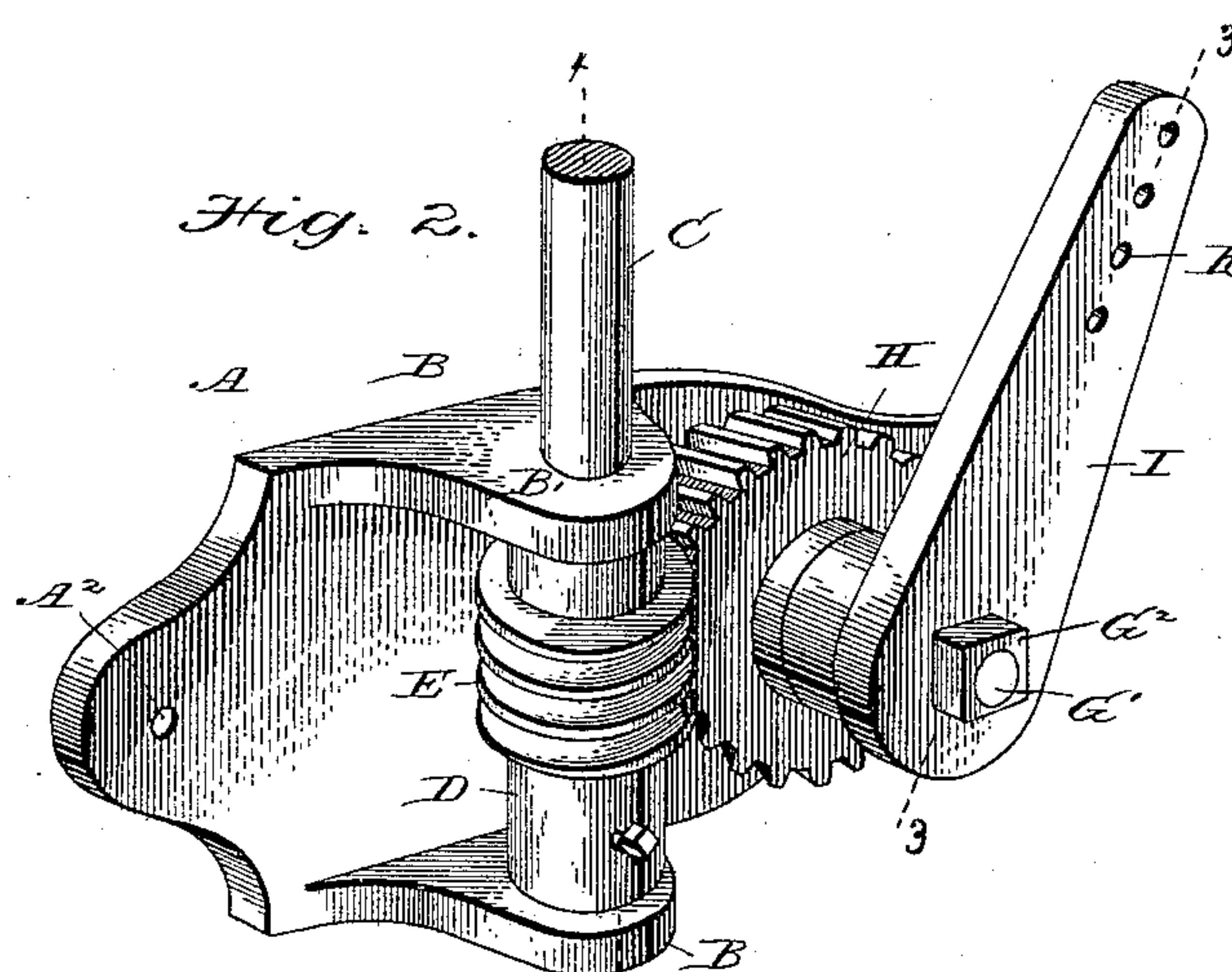
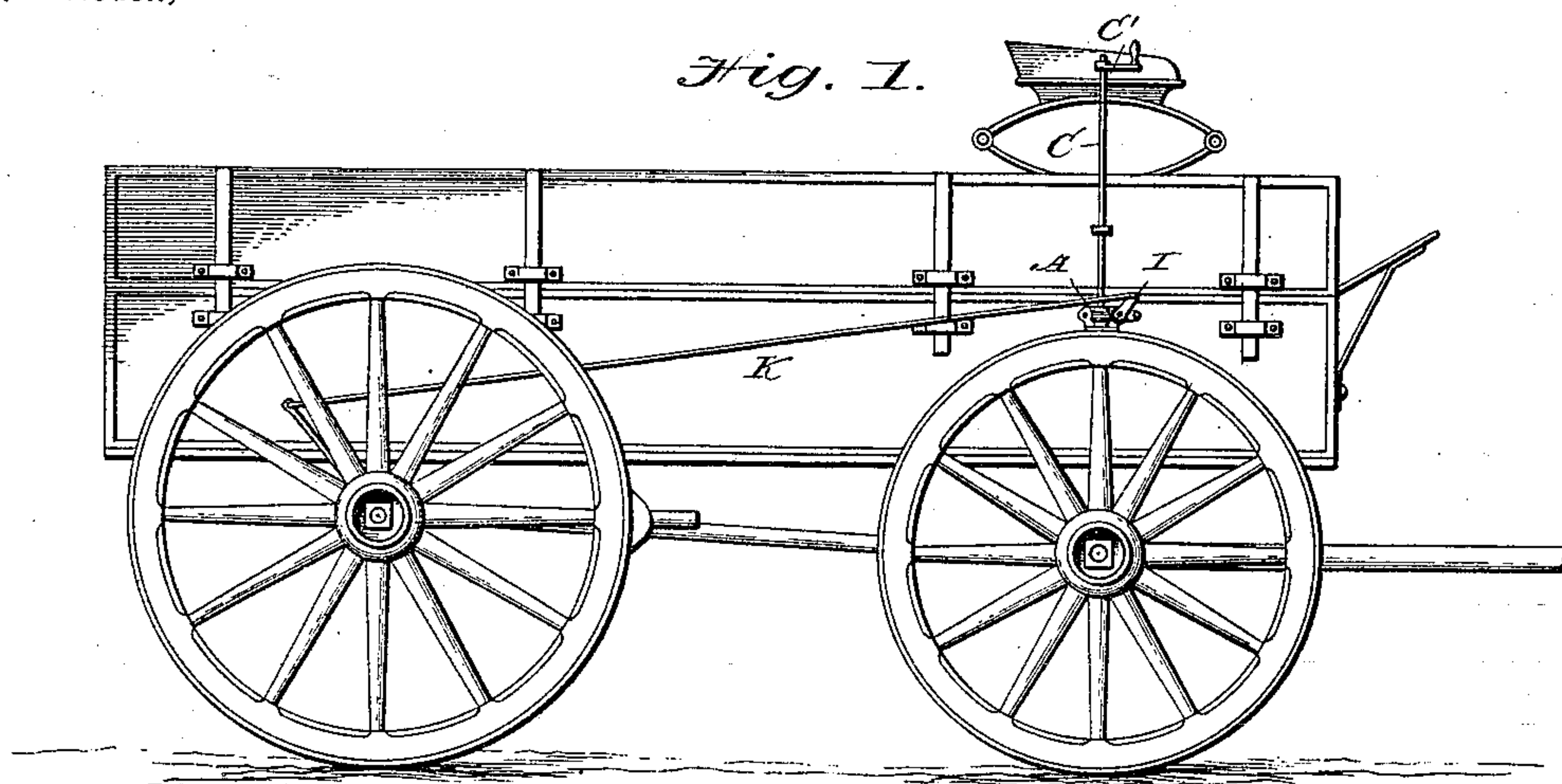
No. 607,558.

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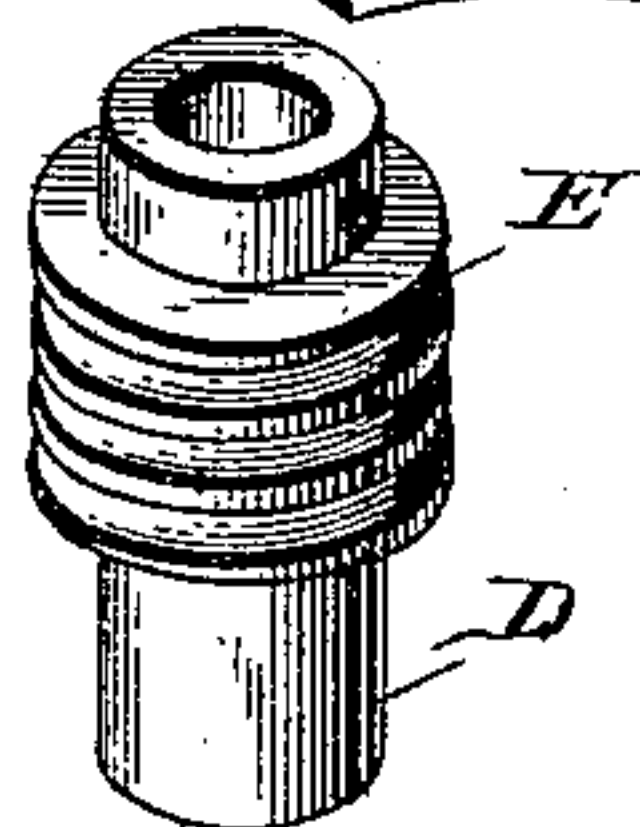
R. F. WALLS.
BRAKE OPERATING MECHANISM.

(Application filed Aug. 25, 1897.)

(No Model.)



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BRAKE-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 607,558, dated July 19, 1898.

Application filed August 25, 1897. Serial No. 649,513. (No model.)

To all whom it may concern:

Be it known that I, RICHARD F. WALLS, residing at Pisgah, in the county of Preston and State of West Virginia, have invented a new and useful Brake-Operating Mechanism, of which the following is a specification.

This invention relates generally to a vehicle-brake, and more particularly to an improved means for operating the brake-rod which connects with the beam and applies the shoes.

The object of this invention is to provide a cheap, simple, durable, and efficient form of brake-operating mechanism which can be applied to any of the forms of brakes now in use.

Another object is to provide a brake-operating mechanism which will easily and effectively apply the brake in a steady and even manner, thereby avoiding the sudden jerk or jar incident to the application of the ordinary brake-lever.

A still further object is to provide a brake-operating mechanism in which there is always sufficient friction between the operating parts to hold them in any desired position, thereby avoiding the use of pawls and ratchets or the thumb-latch and tooth-segment now so commonly used in connection with brake-operating levers.

A still further object is to provide a brake-operating mechanism in which a maximum throw of the brake-rod can be obtained with the expenditure of a minimum cost.

A still further object is to provide a brake-operating mechanism which is simple and durable in the detail construction of its parts, so that there is no danger whatever of the device getting out of order, and a still further object is to provide a device which can be quickly and easily adjusted to the throw of the brake-rod.

With these various objects in view my invention consists in the peculiar construction of the various parts and in their novel combination and arrangement, all of which will be fully described hereinafter and pointed out in the claims.

In the drawings forming a part of this specification, Figure 1 is a view showing the invention as applied and used upon a wagon.

Fig. 2 is an enlarged detail perspective view of the brake-operating mechanism detached from the wagon. Fig. 3 is a sectional view on the line 3 3 of Fig. 2. Fig. 4 is a sectional view on the line 4 4 of Fig. 2. Figs. 5, 6, and 7 show details of the various parts detached.

In carrying out my invention I employ a flat base-plate A, having extensions A' at each end, which are perforated at A² for the passage of the bolt A³, which connects the base-plate to the side of the wagon or other vehicle. Parallel horizontal lugs or ears B are formed at the upper and lower edges of the base-plate upon the forward face thereof, said lugs being perforated, as shown at B', to permit the insertion of an operating-shaft C, which passes through a tubular shaft D, mounted between the ears or lugs B, said tubular shaft having a worm-screw E formed thereon, said tubular shaft D and operating-shaft C being connected by means of a suitable key or gib, so that by rotating the shaft C the worm will be operated, and in order to so rotate said shaft I provide a crank C' at the upper end thereof, which is within easy reach of the driver.

A short distance to one side of the lugs B is formed an aperture F, surrounded by a boss F' upon the forward side of the plate A, and fixed in said aperture and boss is a stub-shaft G, upon which is mounted a worm-gear H, said worm-gear having a collar H', and upon the opposite side is a collar H², having laterally-projecting lugs H³.

The collar H and the annular boss F' hold the worm-gear in such a position that it will always positively engage the worm-shaft, so that by rotating the crank and shaft the worm-shaft will be rotated, and likewise the worm-gear H. A lever-arm I is also loosely mounted upon the stub-shaft G and has a collar I' upon the side adjacent to the worm-gear, which collar is formed with recesses I², adapted to receive the projecting lugs H³, and thereby form a rigid connection between the worm-gear H and lever-arm I, so that upon movement of the worm the lever-arm will also be operated to throw the brake-operating rod K either forward or backward, as desired, said rod K being attached to the upper or outer end of the lever-arm, said lever-arm having a series

of perforations K', by means of which the lever-rod can be adjustably connected in order to increase or decrease the throw of the rod.

The outer end of the stub-shaft is threaded, 5 as shown at G', and retainer-nut G² is screwed thereon in order to hold the worm-gear and lever-arm in their proper position, it being of course understood that the lever-arm and worm-gear are loosely mounted upon the shaft 10 in order to turn freely thereon when the crank-shaft is operated. It will also be noticed that the worm shaft and gear are comparatively small in size, and thereby operate in a quick manner to throw the lever-arm in either a 15 backward or forward position, and my improved form of brake mechanism can be connected with any construction of brake beam and rod, inasmuch as the lower arm is capable of being moved any desired amount in 20 either direction, and it is clear that the brake can be applied by either giving the rod a backward or forward movement or a push or pull, and in order to release said brake the operation will of course be the reverse. It will also 25 be noticed that the collar I' upon the inner face of the lever-arm is considerably larger than any of the other collars, the purpose being to throw the operating-lever as far outward as possible in order to give said lever-arm and brake-rod a free sweep without interfering in the least with any of the operating mechanisms. 30

Inasmuch as the mechanism herein described is attached to the side of the vehicle 35 at a point above the brake-beam, it is clear that the brake-rod will be inclined, and there will therefore be a tension or weight upon the lever-arm I, which tension, no matter whether a push or a pull, will always keep the worm-gear in close contact with the worm-shaft, so 40 that there will always be a positive engagement between the worm shaft and gear, thereby preventing any possible lost motion, as each turn of the hand-crank is bound to move 45 the worm-shaft, and consequently the worm-gear and lever-arm.

By making the worm shaft and gear comparatively small and compact and the lever-arm comparatively long or extended it will 50 be seen that by a slight rotation of the worm-shaft the lever-arm will be given considerable of a sweep, thereby applying the brake in the quickest manner possible. It is also clear that the application of the brake is steady 55 and certain, and it is not accompanied by any jerk or jar so common in the application of a brake operated by a lever, and in releasing the brake the action is equally as steady.

It will of course be understood that the stub-

shaft could be made integral with the main 60 or base plate, if so desired, and the worm-gear and lever-arm could also be made integral; but for the sake of cheapness and also to permit the parts to be readily replaced I 65 prefer to construct them as herein shown and described. It will also be understood that instead of the crank C', mounted upon the end of the shaft C, I can employ a hand-wheel 70 in case it should be more convenient, and it will also be understood that certain other details can be changed or modified without departing from the broad spirit of my invention. 75

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

1. An improved brake - operating means, comprising a base-plate adapted to be attached to the side of the vehicle, and having bearing-lugs, a stub-shaft, the worm-gear arranged between the lugs and having an operating-shaft and crank handle, the worm-gear 80 mounted upon the stub-shaft, and having laterally-projecting lugs, the lever-arm, mounted also upon the stub-shaft and having recesses to receive the laterally-projecting lugs 85 of the worm-shaft, all arranged substantially as shown and described.

2. An improved brake - operating means comprising a base-plate having bearing-lugs and a stub-shaft, the worm-shaft mounted between the lugs, the operating-shaft passing 90 through the lugs and worm-shaft and having a crank at its upper end, the annular boss formed upon the plate around the stub-shaft, the worm-gear having collars upon both faces, 95 the lever-arm having a collar upon its inner face, means for connecting the lever-arm and worm-gear, and the retaining-nut arranged upon the end of the stub-shaft, substantially as shown and described. 100

3. An improved operating means, comprising a base-plate having the bearing-lugs integral therewith, a stub-shaft mounted upon said plate and having an annular boss surrounding the same, the operating-shaft passing 105 through said lugs and the worm-shaft, the crank-handle at the upper end of said shaft, the worm-gear having collars upon both faces, the collar of the outer face having laterally-projecting lugs, the operating-lever having a 110 collar upon its inner face, which collar has recesses to receive the lugs of the worm-gear, and the retaining-nut, all arranged substantially as shown and described.

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