(No Model.)

J. WORMALD & J. WORMALD, Jr.

LOCK FOR BOLTS OF PISTONS.

No. 365,218. Patented June 21, 1887.

Fig: 1.

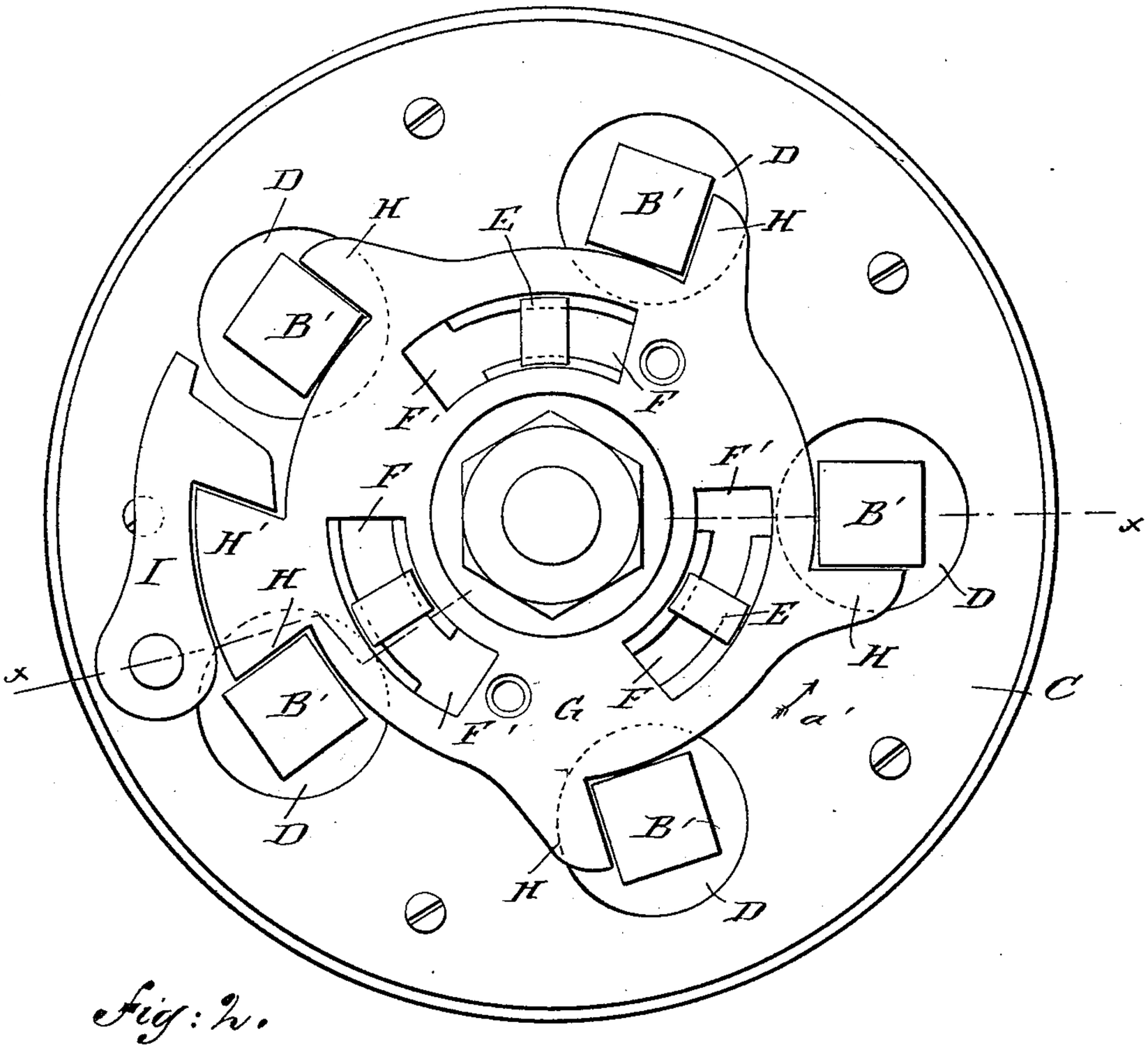
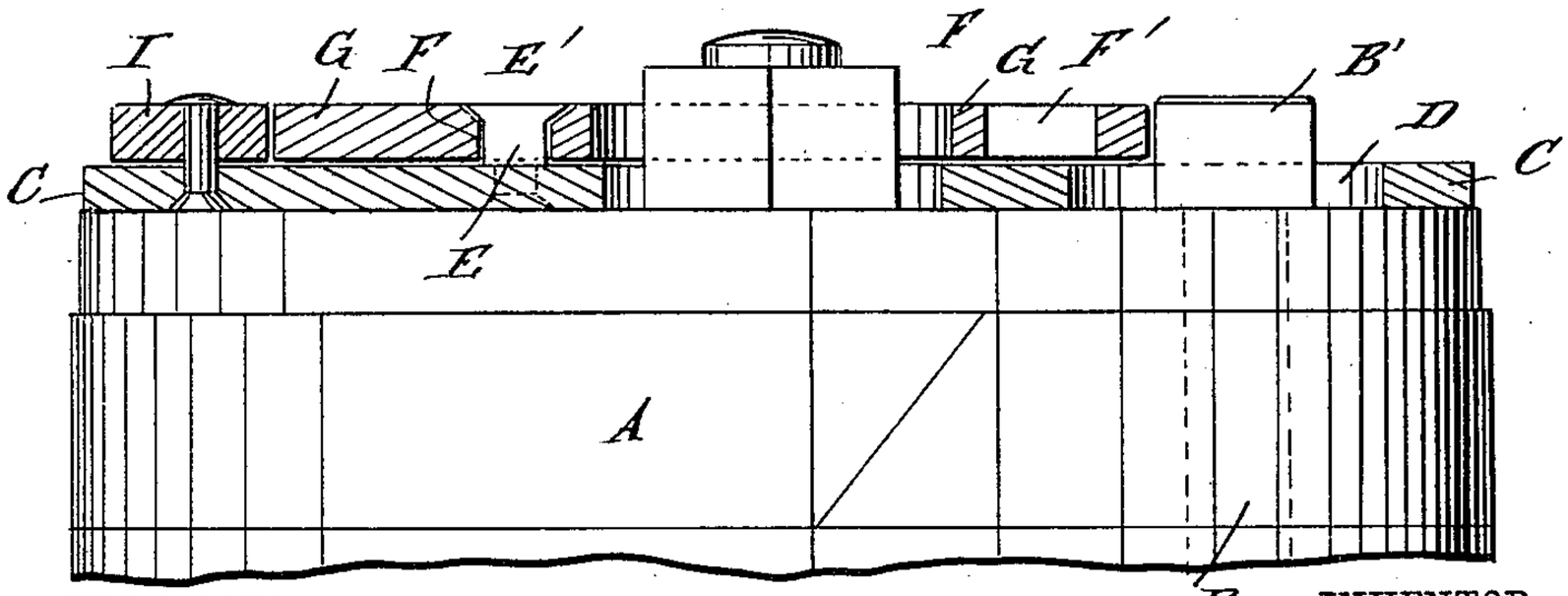


Fig: 2.



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JOSEPH WORMALD AND JOSEPH WORMALD, JR., OF MISSOULA, MONTANA TERRITORY.

LOCK FOR BOLTS OF PISTONS.

SPECIFICATION forming part of Letters Patent No. 365,218, dated June 21, 1887.

Application filed March 30, 1887. Serial No. 233,023. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH WORMALD and JOSEPH WORMALD, Jr., of Missoula, in the county of Missoula and Territory of Montana, have invented a new and Improved Lock for Bolts of Pistons, of which the following is a full, clear, and exact description.

The object of our invention is to provide a new and improved lock to prevent the bolts of pistons from becoming loose, and thus avoiding injury to the engine.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a face view of a piston provided with our improvement; and Fig. 2 is a sectional plan view of the same on the line *x x* of Fig. 1, with part of the piston in elevation.

The piston A, of any approved construction, is provided with the usual bolts, B, having the heads B′ for holding the several parts of the piston together. On the face of the piston A is secured by suitable means the follower-plate C, having recesses D, through which project the heads B′ of the bolts B.

On the plate C are secured a number of studs, E, each having a flat head, E′, and adapted to engage circular grooves or slots F, formed in the lock-plate G, and provided on one end with an enlarged opening, F′, for the passage of the said studs E, so as to permit of placing or removing the said lock-plate G onto or from the plate C of the piston.

The lock-plate G is circular in form and of such diameter as to fit freely on the inner sides of the bolt-heads B′. On the rim of the lock-plate G are formed the projections H, corresponding in number to the number of bolt-heads B′, and adapted to engage with their straight edges on one side of the said heads B′. One of the projections H is provided with an inclined straight edge, H′, onto which fits the pawl I, pivoted on the plate C.

The operation is as follows: When the several parts of the piston A are screwed together by the bolts B, then the lock-plate G is placed upon the fixed plate C so that the enlarged apertures F′ fit over the studs E. The lock-plate G is then turned, whereby the studs E enter the grooves F, and the lock-plate G is held by the heads E′ of the studs E on the fixed plate C. The lock-plate G is turned sufficiently in the direction of the arrow *a′*, so that the straight edges of the projections H come in contact with one side of the bolt-heads B′. The pawl I is then driven by the blow of a hammer into contact with the straight edge H′ of the lock-plate G, which is thus held in position and prevented from turning in the inverse direction of the arrow *a′*. The bolt-heads B′ are now prevented from turning, being held in position by the fixed projections H, and thus the bolts B cannot become loose and cause injury to the cylinder in which the piston A travels.

It will be understood that the follower-plate C may be a fixed part of the piston A.

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

1. In a bolt-lock, the combination, with a fixed plate and studs secured to the same, of a lock-plate having circular slots adapted to engage the said studs to hold the lock-plate on the said fixed plate, and projections formed on the rim of the said lock-plate and adapted to engage one side of the bolt-heads to be held in place, substantially as shown and described.

2. In a bolt-lock, the combination, with a fixed plate and studs having heads and secured to said fixed plate, of a lock-plate having circular slots adapted to engage said studs, so that the said heads of the latter hold the said lock-plate on the said fixed plate, projections formed on the rim of the said plate and adapted to engage one side of the bolt-heads to be held in place, and a pawl pivoted on the said fixed plate and adapted to prevent the said lock-plate from turning on the said fixed plate, substantially as shown and described.

JOSEPH WORMALD.
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Witnesses:
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