

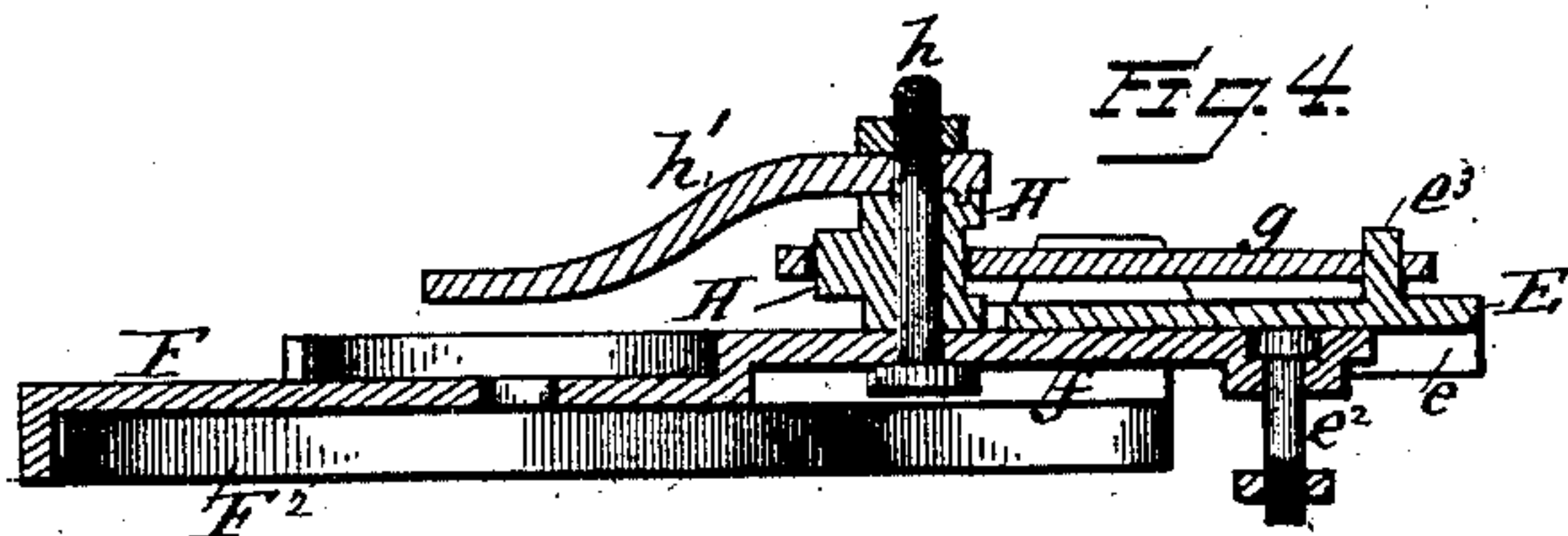
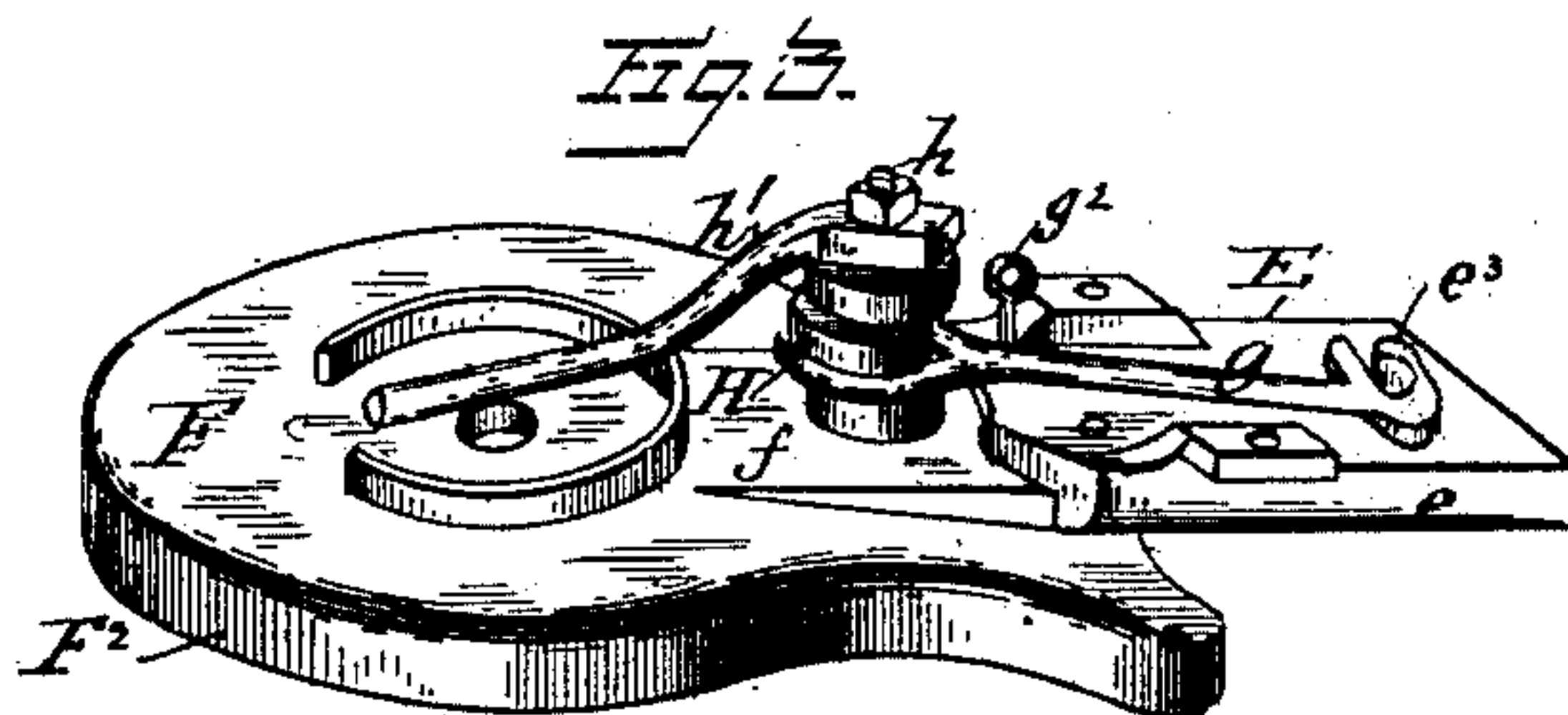
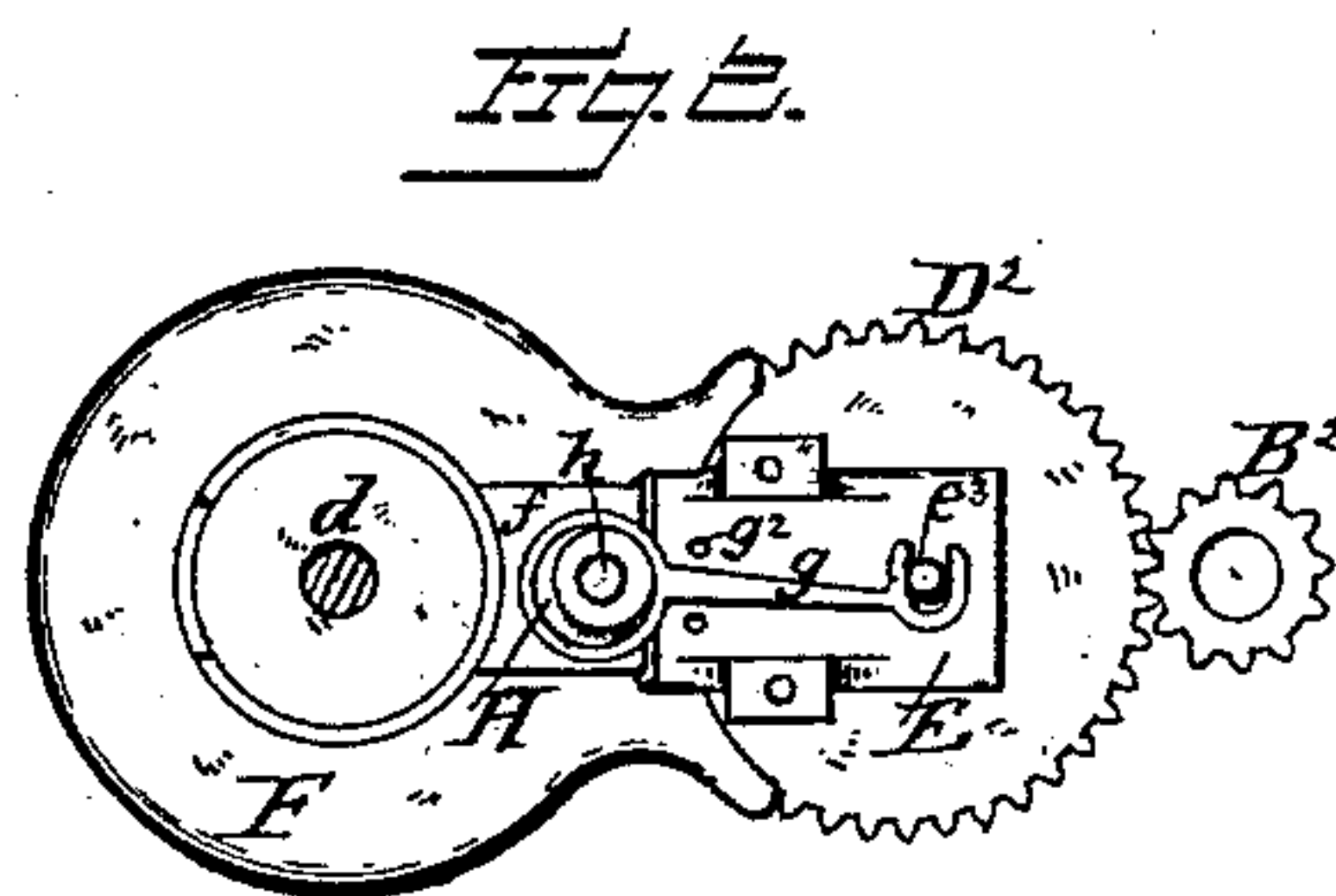
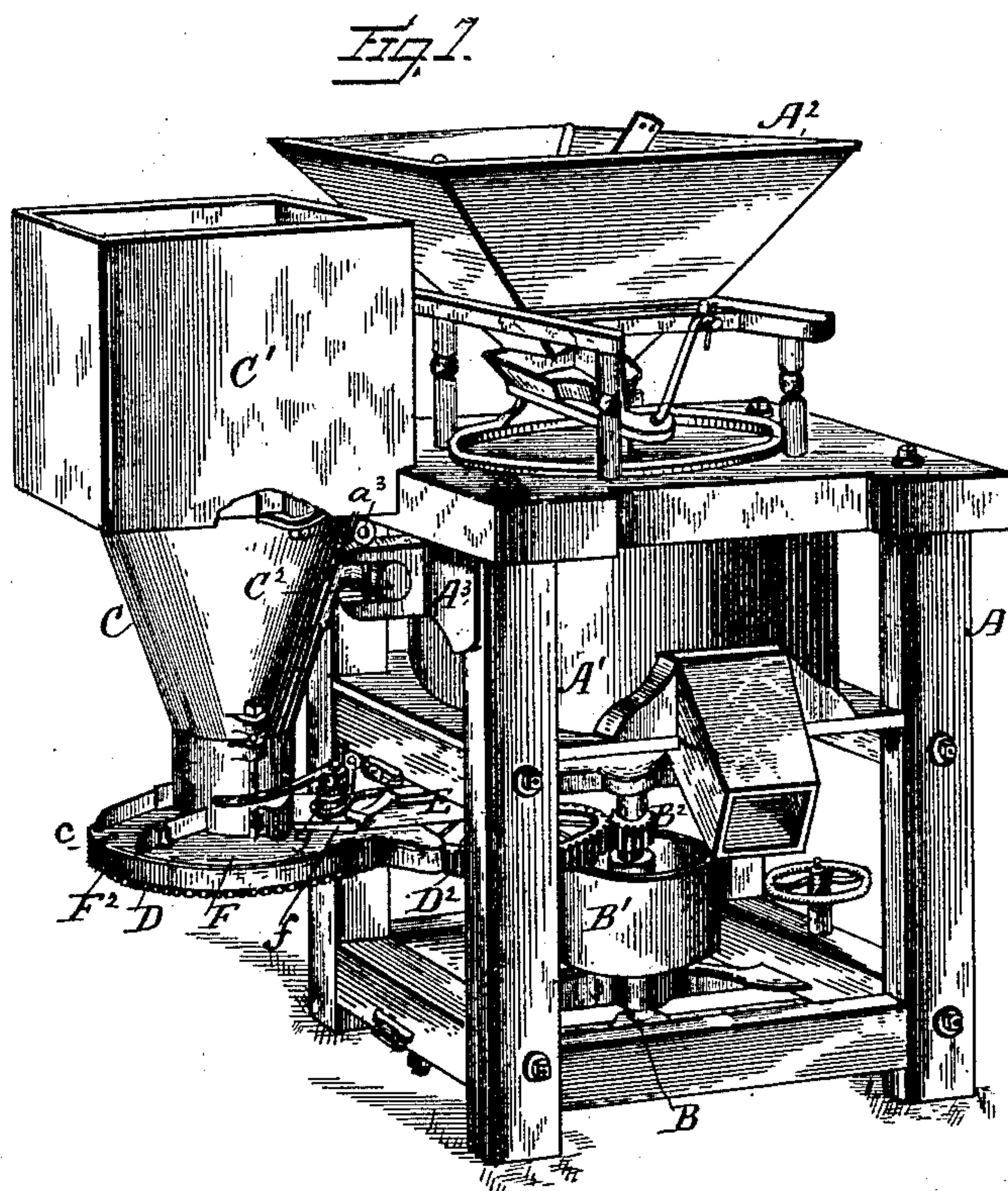
(No Model.)

A. W. STEVENS.

GRINDING MILL.

No. 354,445.

Patented Dec. 14, 1886.



Witnesses:

*E. Murdeman*  
*W. B. Masson*

Inventor:

*Abram W. Stevens*

*by E. E. Masson*  
*att'y.*



# UNITED STATES PATENT OFFICE.

ABRAM W. STEVENS, OF AUBURN, NEW YORK.

## GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 354,445, dated December 14, 1886.

Application filed June 30, 1886. Serial No. 206,673. (No model.)

*To all whom it may concern:*

Be it known that I, ABRAM W. STEVENS, a citizen of the United States, residing at Auburn, in the county of Cayuga, State of New York, have invented certain new and useful Improvements in Grinding-Mills, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in mills for grinding corn and other grain; and the objects of my improvements are, first, to provide peculiar means for connecting with a horizontal-disk mill a cone-and-shell mill; second, to particularly control the connection between said mills at their lower ends; third, to pivotally support the cone-and-shell mill upon the frame of the disk mill and retain its lower end between parallel guides secured to the frame of the disk mill. I accomplish these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 represents in perspective a horizontal-disk mill and a conical cob and corn crusher connected in accordance with my invention. Fig. 2 is a top view of the gear-covering and retaining plates of the corn and cob crusher and its operating-gears and connecting-link. Fig. 3 is a perspective view of the gear-covering and retaining plates, connecting-link, and hand-lever. Fig. 4 is a vertical section of the plates and means for uniting the lower end of the cone-and-shell mill with the disk mill.

In said drawings, A represents the frame of the disk mill, carrying the spindle B of one of the millstones contained in the casing A'. This mill is of ordinary construction, and does not need to be specifically described. To provide this mill with means to crush and grind cobs and corn fine enough to be admitted between the stones of a disk mill, there is attached to one side of the frame A a conical cob and corn crusher, C, the interior grinding-surfaces of which are of ordinary construction. The conical body is provided with a hopper, C', and a side delivery-opening, c, through which the ground feed escapes, and can be received in a box or basket to be emptied into the hopper A<sup>2</sup> of the disk mill. To transmit a positive motion of proper speed to the spindle d, Fig. 2, of the cone-and-shell mill from the spindle B of the disk mill, there is secured upon the latter, above its driving-pulley B', a spur-wheel

pinion, B<sup>2</sup>, that communicates motion to the spur-wheel D on the lower end of the spindle d by means of an intermediate gear-wheel, D<sup>2</sup>, that meshes with both the pinion B<sup>2</sup> and the gear-wheel D. To permit the cone-and-shell mill to be easily put out of gear with the disk mill, it is suspended on two trunnions, C<sup>2</sup>, projecting from the sides of the body C. The trunnions rest in slots in two brackets, A<sup>3</sup>, fastened to one side of the frame A, (but only one trunnion and one bracket are shown in the drawings.) These slots have their outer ends open to permit the cone-and-shell mill to be easily disconnected and removed from the disk mill for transportation or for other purposes. Pins a<sup>3</sup>, inserted vertically in the brackets across the slots, retain the trunnions in their bearings. To retain the lower end of the cone-and-shell mill securely connected with the frame A, there is attached to the under side of one of the middle cross beams of said frame a rectangular casting, E, having its under side grooved, or two of its sides provided with pendent flanges e, to receive and guide between them a rectangular rib, f, projecting from the upper surface of the plate F, forming the lower portion of the cone-and-shell mill. This plate F has around its periphery a pendent flange, F<sup>2</sup>, that surrounds the gear-wheel D of the cone-and-shell mill, and prevents persons from accidentally coming in contact with its cogs. The plate F carries a pendent spindle, e<sup>2</sup>, that serves as a journal for the intermediate gear, D<sup>2</sup>. The casting E has projecting from its upper surface a pin, e<sup>3</sup>, for engagement with the hooked end of a rod, g, that connects it with the plate F. To facilitate the rapid connection or the disconnection of the plate F from the casting E, or the disconnection of the gear D<sup>2</sup> from the pinion B<sup>2</sup>, there is mounted upon a bolt, h, projecting vertically from the surface of the rectangular rib f of the plate F, an eccentric, H, provided with a handle, h', by which it can be revolved, and the looped end of the rod g is made to encircle the eccentric, so that by turning the latter in the position shown in the drawings the lower end of the cone-and-shell mill or its bottom plate, F, is pulled toward the disk mill, and the cog-wheel D<sup>2</sup> is brought into gear with the pinion B<sup>2</sup>, and both mills are thus connected for operation, while, as will be readily understood, a reverse move-



ment of the handle will disconnect said gearing.

To prevent any accidental moving of the rod *g* laterally, a pin, *g*<sup>2</sup>, may be inserted vertically in the plate *E* alongside of said rod.

Having now fully described my invention, I claim—

1. The combination of a horizontal-disk mill, its frame, slotted brackets secured to the side of said frame, and a cone-and-shell mill provided with trunnions, and thereby suspended from said brackets, with means to connect them at their lower ends, substantially as described.

2. The combination of a horizontal-disk mill, the frame supporting said mill, brackets secured to the side of said frame, and a cone-and-shell mill having trunnions resting upon said brackets, with spur-wheels connecting the disk mill with the cone-and-shell mill, substantially as described.

3. The combination of a horizontal-disk mill,

the frame supporting the same, a cone-and-shell mill, means for connecting them at their upper ends, and spur-wheels connecting them at their lower ends, with a grooved or flanged plate secured to the frame of the disk mill, and a ribbed plate secured to the cone-and-shell mill, substantially as and for the purpose described.

4. The combination of a horizontal-disk mill, a cone-and-shell mill connected at their lower ends, and interlocked flanged and ribbed plates, with a pin projecting from the flanged plate, an eccentric mounted on the ribbed plate, and a rod uniting said pin with the eccentric, substantially as and for the purpose described.

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

ABRAM W. STEVENS.

Witnesses:

WALTER L. FAY,  
CHARLES B. MICK.