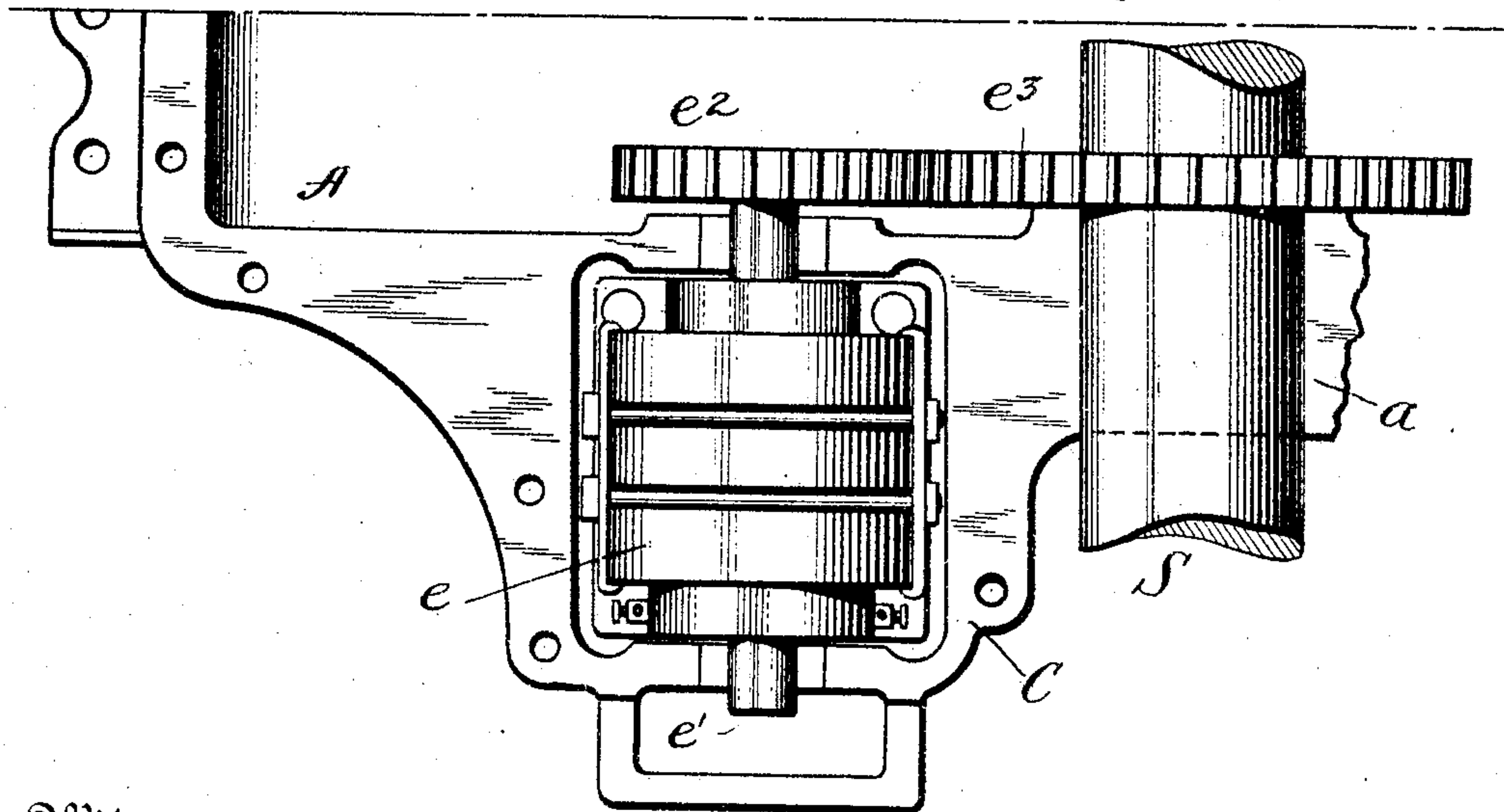
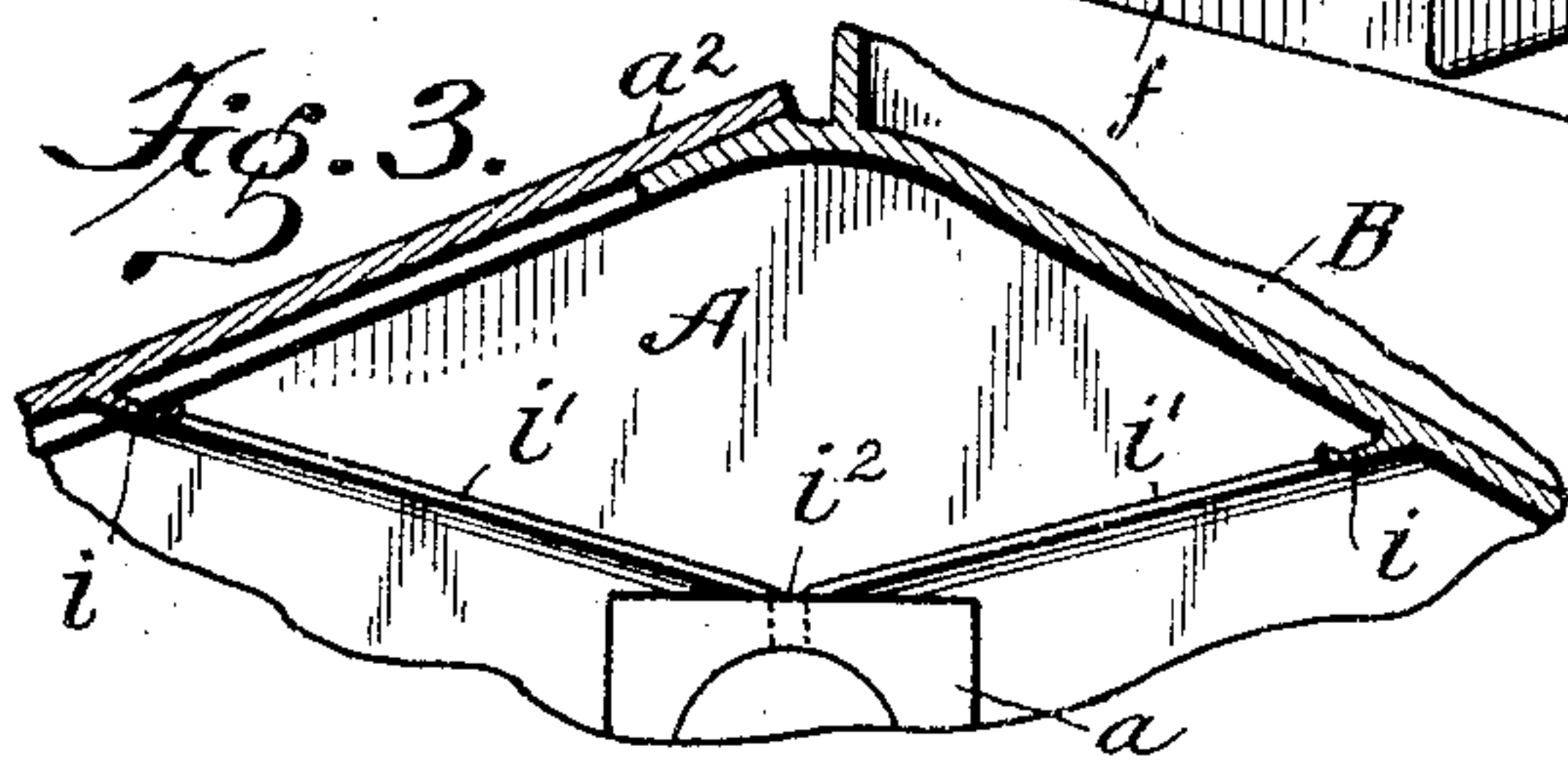
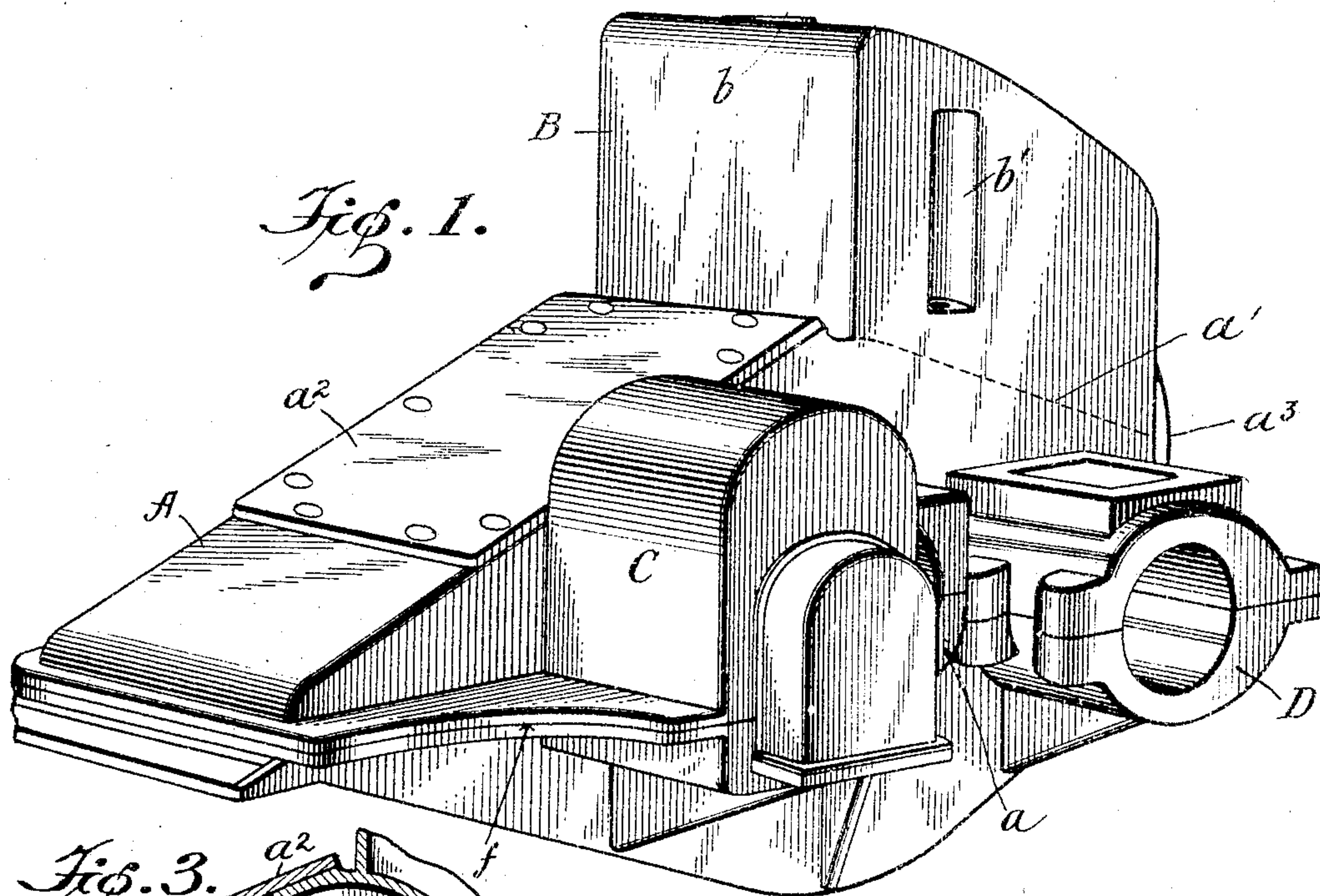


No. 781,064.

PATENTED JAN. 31, 1905.

E. R. HEWITT.  
EXPLOSIVE ENGINE CRANK CASING.  
APPLICATION FILED MAR. 23, 1904.



Witnesses  
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# UNITED STATES PATENT OFFICE.

EDWARD R. HEWITT, OF NEW YORK, N. Y.

## EXPLOSIVE-ENGINE CRANK-CASING.

SPECIFICATION forming part of Letters Patent No. 781,064, dated January 31, 1905.

Application filed March 23, 1904. Serial No. 199,657.

*To all whom it may concern:*

Be it known that I, EDWARD R. HEWITT, a citizen of the United States, residing at the city of New York, in the borough of Manhattan and State of New York, have invented certain new and useful Improvements in Explosive-Engine Crank-Casings, of which the following is a full, clear, and exact description.

10 This invention relates to improvements in engine crank-cases and in other apparatus used in connection with explosion-engines, the object in view being to assemble a crank-casing, an electric-generator casing, and a  
15 tank for lubricating material into a compact structure in such relative positions to each other and to the engine with which they are connected that certain advantages to be hereinafter enumerated will be obtained.

20 A further object of the invention is a provision of means for lubricating the crank-shaft bearings from the free oil in the bottom of the crank-shaft casing.

25 The invention consists of the constructions and combinations hereinafter particularly described, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a perspective view of the complete structure. Fig. 2 is a plan of a portion of  
30 the lower half of the structure, showing the electric generator in position and the manner in which it is driven. Fig. 3 is a vertical section through the upper part of the crank-casing, showing certain lubricating devices.

35 The essential idea of the invention is to assemble into a compact structure all the various casings, covers, or receptacles.

A indicates that portion of the structure known as the "crank-casing."

40 B is the tank for lubricating material.

C is the casing for the electric generator, and D is the casing for the cam-shaft which operates the valves of the engine.

The crank-casing is of diamond shape in  
45 longitudinal section, the main shaft-bearings being at the center of the widest part of the casing, as indicated at *a*. One of the inclines forming the top or roof of this casing at the same time forms the bottom of the oil-tank B,  
50 as indicated by the dotted line *a'*, while the

other incline may have a cover-plate *a''*, affording access to the interior of the crank-casing. The oil-tank is an integral formation on top of the crank-casing, it being provided with a filling-opening at *b* and with a recess *b'* for  
55 the accommodation and protection of a gage-glass to show the quantity of oil in the tank. The cylinder of the engine is supposed to be bolted to the end of the casing A, a portion of the rim to which the cylinder is to be fast-  
60 ened being shown at *a'''*. The casing C for the electric generator is also cast integral with the casing A. It is made of a shape to closely conform to that of the generator itself, which, as shown in Fig. 2 at *e*, is located there-  
65 in. The shaft *e'* of the generator projects into the interior of the crank-casing and carries a pinion *e''*, which is driven by a gear *e'''* on the main shaft S. The casing D is merely a  
70 cylindrical integral projection from the side of the casing A to accommodate a shaft which also extends into the interior of the crank-casing and is geared to the wheel *e'''* or another for the purpose of operating the valves of the en-  
75 gine, these valves being controlled by rods which lead into the side of the casing D.

This whole structure is made in two parts joined along the line *f*, portions of the casings A, C, and D being in each part, while the en-  
80 tire casing B is in one of the parts. This method of construction brings the several parts into close relation to each other for compactness. It protects the electric generator from injury, and it subjects the oil-tank to the heat of the engine, which is transmitted  
85 through the integral walls of the casing and tank to the oil, thereby maintaining the oil in a highly-fluid condition, so that it will flow easily to the various points to be lubricated.

The interior of the crank-casing usually con-  
90 tains a certain amount of free oil, which collects at the bottom and through which the crank on shaft S dashes at each rotation, taking up the oil and throwing it to various  
95 parts of the casing and into the engine-cylinder. To provide that a portion of this flying oil may reach the main bearings of the crank-shaft, I form integrally with the upper part of the casing four gutters or shelves. Two  
100 of these extend across the two inclined roof-

sections of the casing, as indicated at  $i$ , and connect with supplemental inclined shelves or gutters, one of which is shown at  $i'$ , the latter gutters being attached to the side walls of the casing and leading downward to holes  $i''$ , communicating with the bearings. The oil thrown against the roof of the casing above the shelves or gutters is caught by the latter and conducted to the bearings. The shelf  $i$  on one side is necessarily formed upon the cover-plate  $a^2$ .

Having described my invention, I claim—

1. A two-part casting forming a casing, one part thereof forming the cover, having a compartment for a shaft and having a separate compartment for a generator.

2. A crank-shaft casing made in a plurality

of parts, one part forming the cover, having an oil-tank formed integral therewith and also having an inclosing portion integral with it which forms the cover for an electric-generator casing.

3. A crank-shaft casing having laterally-extending shelves or gutters therein and a supplemental inclined shelf or gutter attached to one of its side walls and leading from the first shelves or gutters to the shaft-bearings.

In witness whereof I subscribe my signature in presence of two witnesses.

EDWARD R. HEWITT.

Witnesses:

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