

(No Model.)

2 Sheets—Sheet 1.

G. KRATZ.

REVERSING GEAR FOR ENGINES.

No. 259,402.

Patented June 13, 1882.

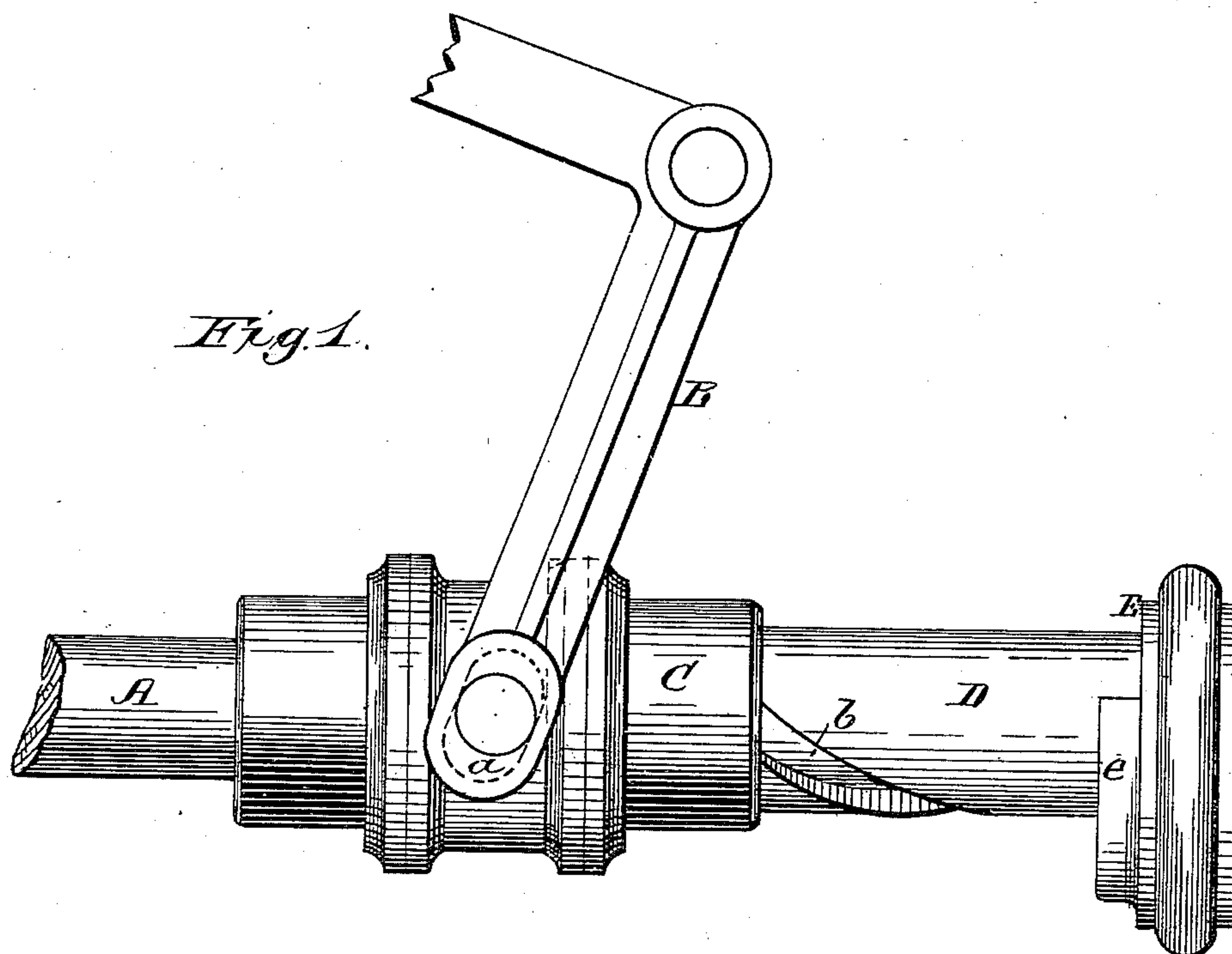
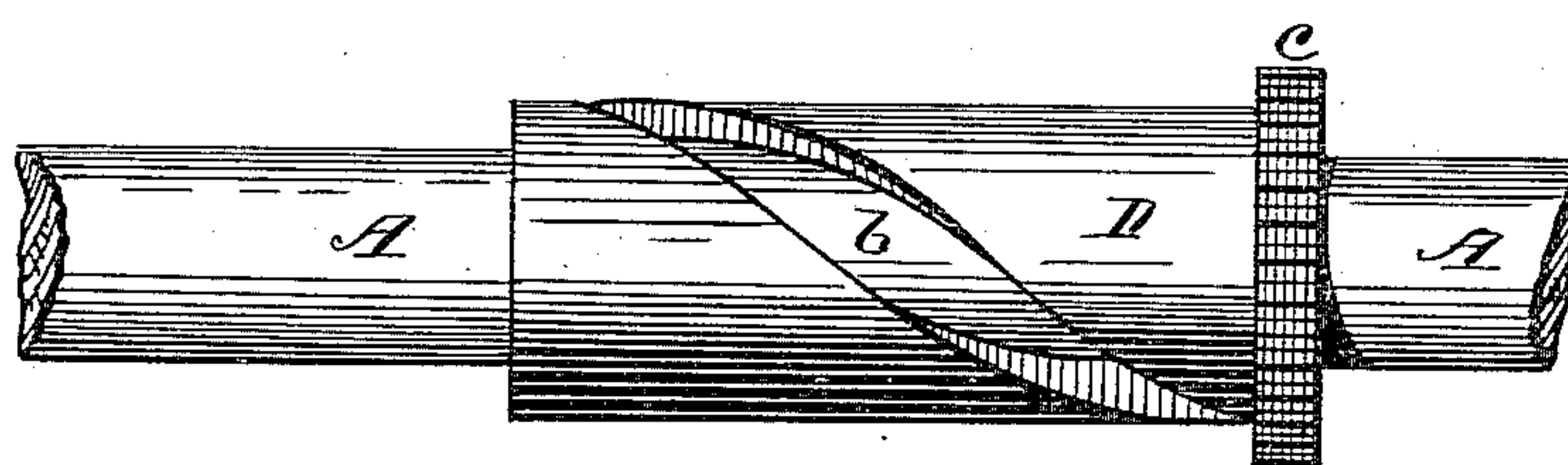


Fig. 2.



WITNESSES

Frauck L. Oisand,
L. L. Miller

INVENTOR

George Kratz,
per Cha. H. Fowler
Attorney

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Fig. 3.

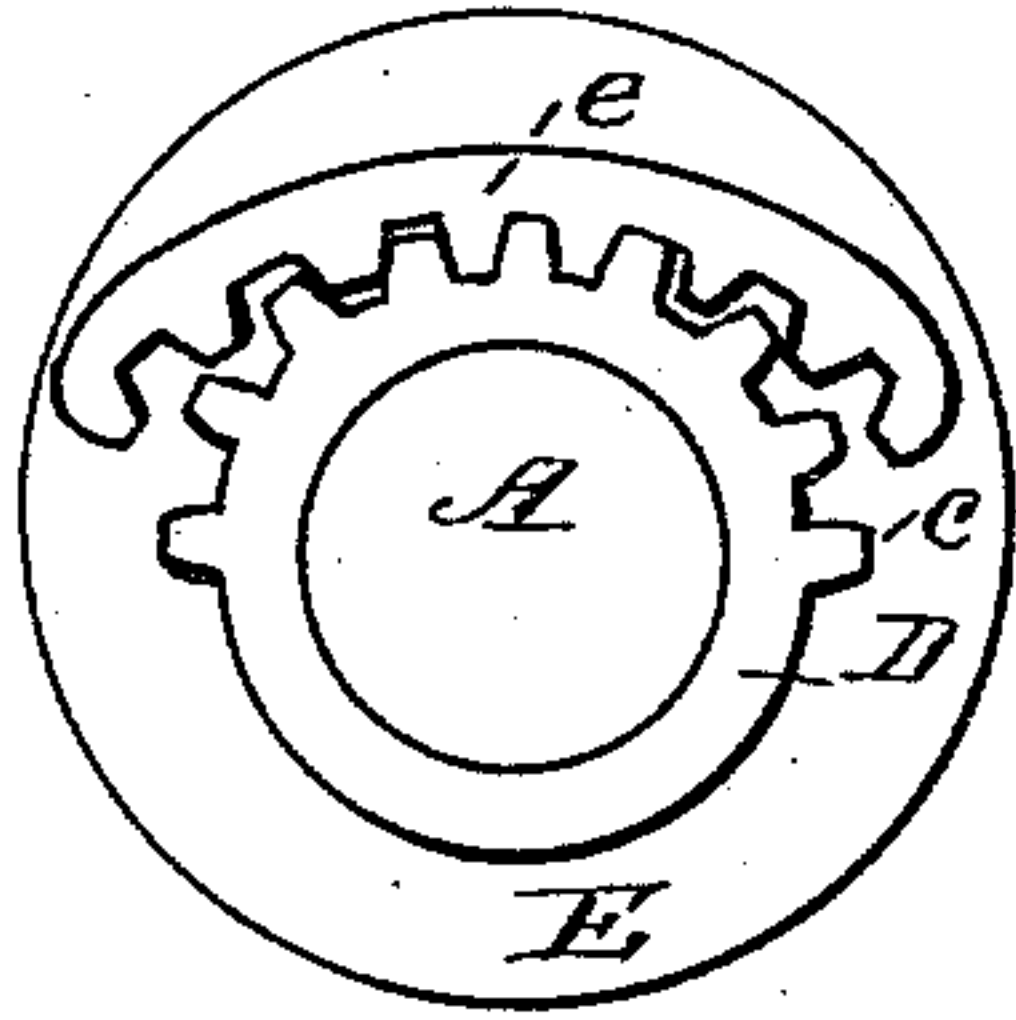


Fig. 4.

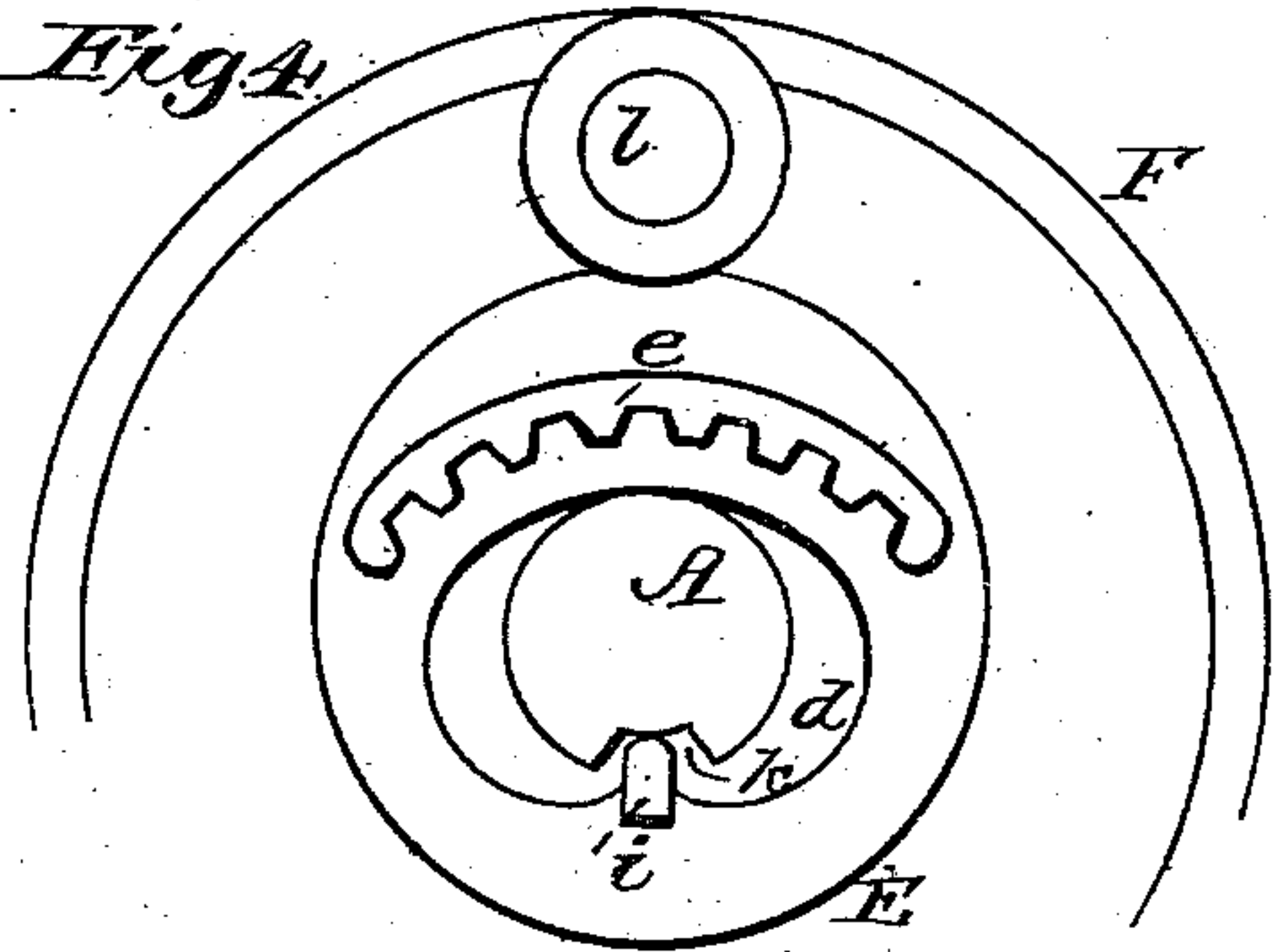


Fig. 7.

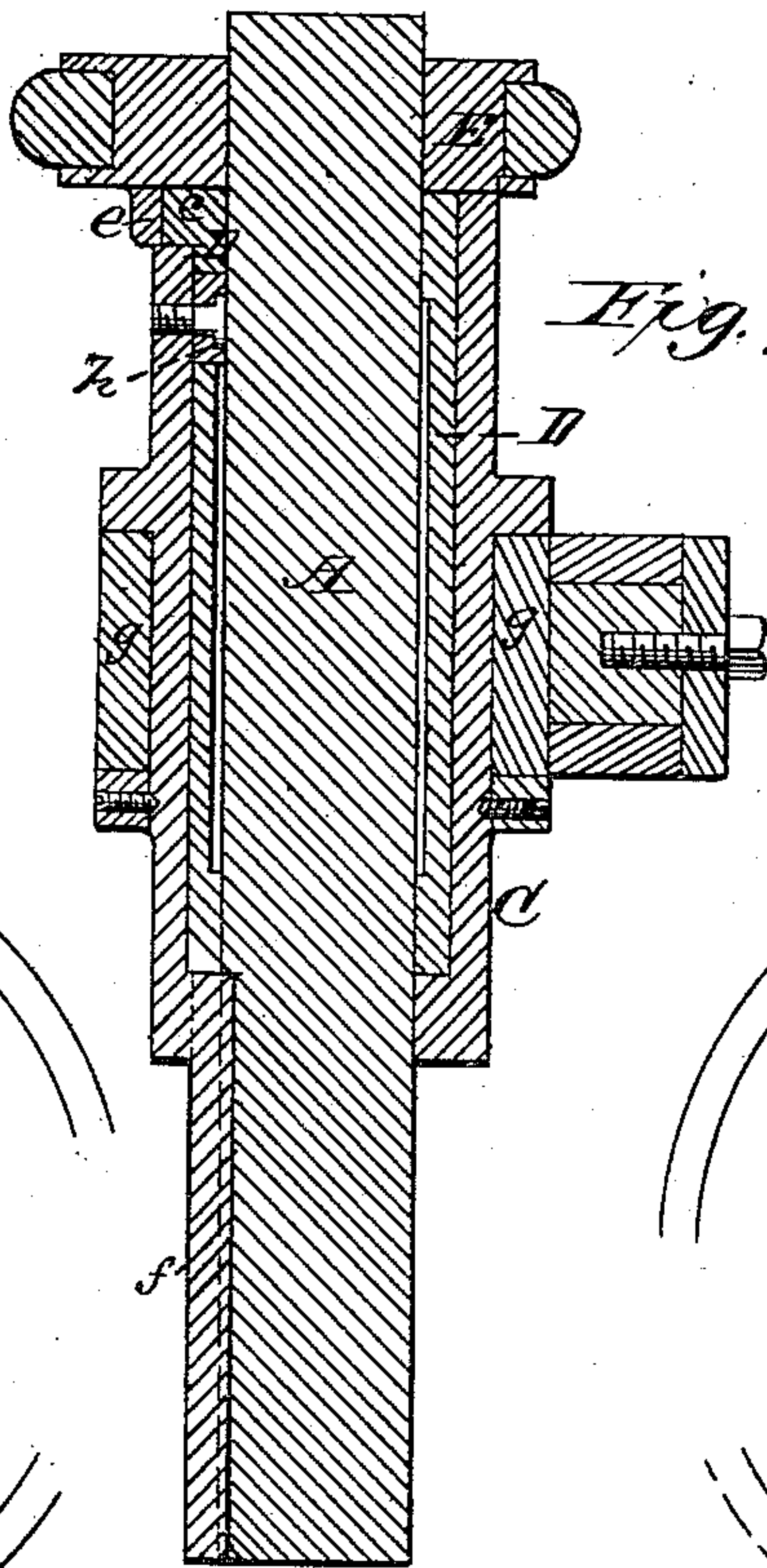


Fig. 5.

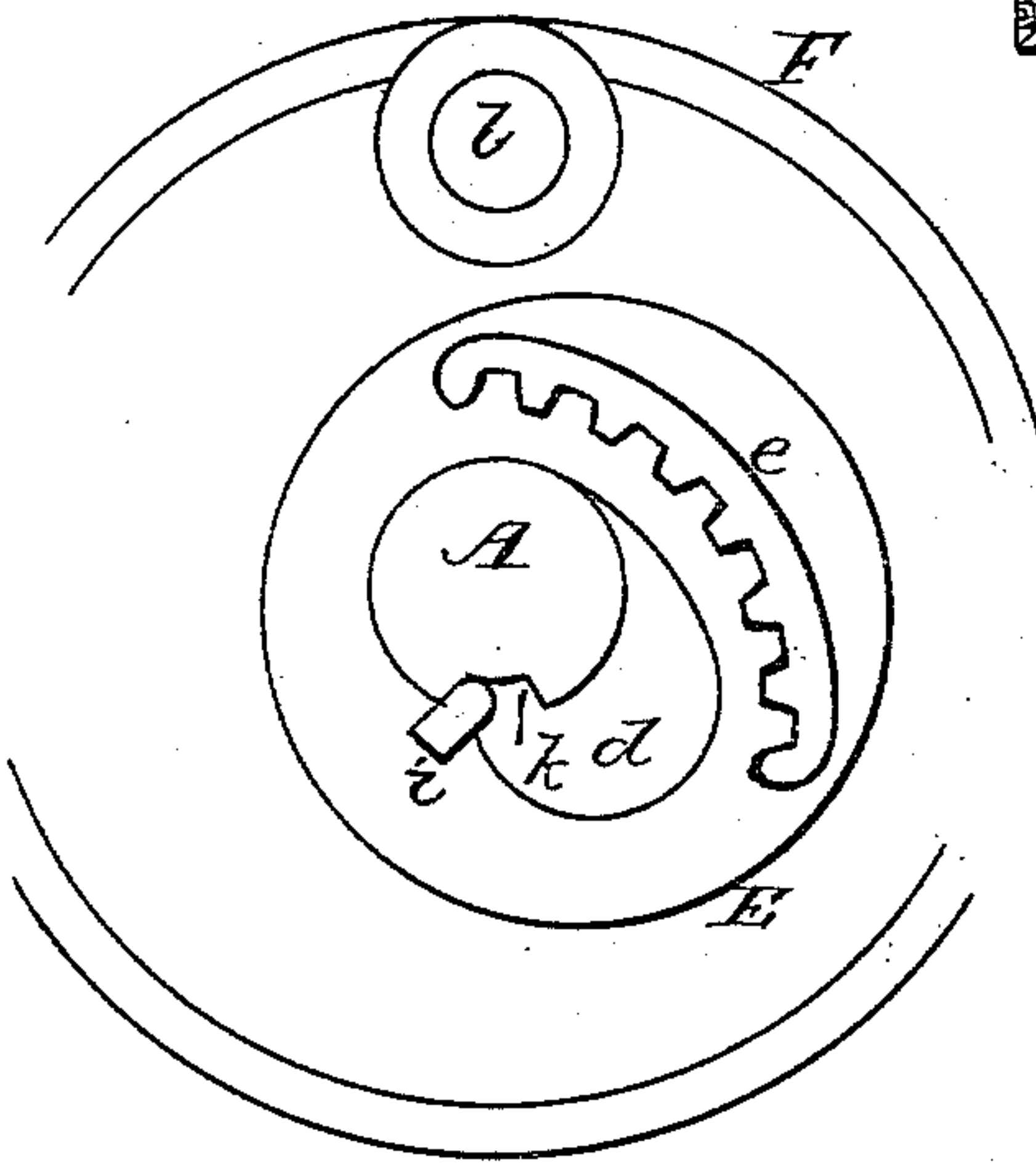
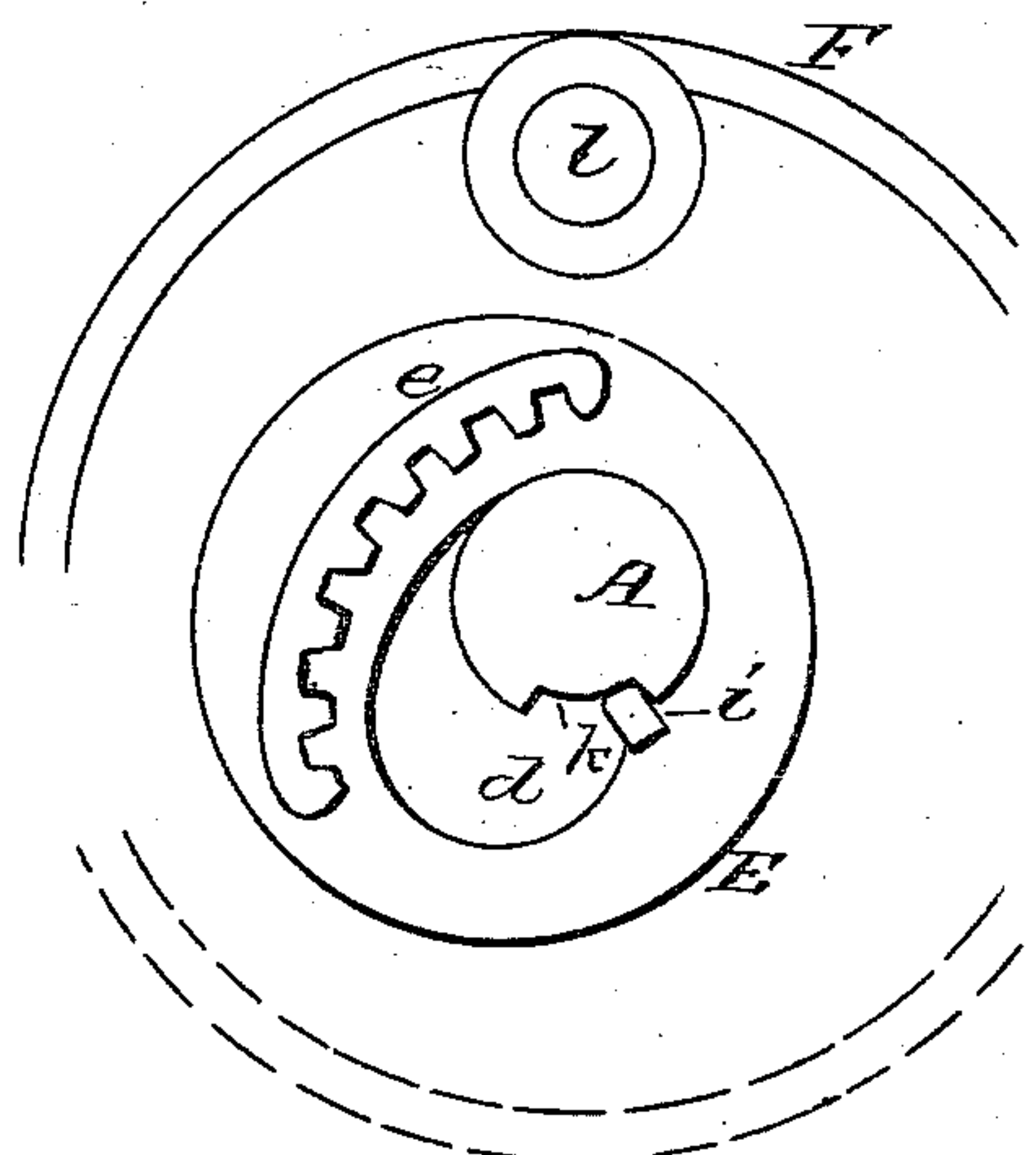


Fig. 6.



WITNESSES

F. L. Curand,
L. L. Miller

INVENTOR

George Kratz,
per Cha. H. Fowle
Attorney

UNITED STATES PATENT OFFICE.

GEORGE KRATZ, OF EVANSVILLE, INDIANA.

REVERSING-GEAR FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 259,402, dated June 13, 1882.

Application filed February 27, 1882. (No model.)

To all whom it may concern :

Be it known that I, GEORGE KRATZ, a citizen of the United States, residing at Evansville, in the county of Vanderburg and State of Indiana, have invented certain new and useful Improvements in Reversing-Gear for Engines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a side elevation of the reversing device complete as set for running the engine backward. Fig. 2 is a similar view in detail of the main engine-shaft with shifting-sleeve loosely placed thereon. Fig. 3 is an end view of the main engine-shaft, shifting-sleeve, eccentric, and toothed segment secured thereto. Figs. 4, 5, and 6 are detail views, showing the different positions of the eccentric and main engine-shaft with relation to the engine-crank and wrist-pin. Fig. 7 is a sectional view of the reversing device with the eccentric set to run the engine forward.

The present invention has relation to that class of reversing-gear for engines in which the eccentric is shifted on the shaft by a slotted sleeve and gear, and refers more particularly to the mechanism by which the eccentric is shifted across the shaft, substantially as shown in the drawings, hereinafter described, and claimed.

In the accompanying drawings, A represents the main shaft of the engine, and B the shifting-lever having an elongated slot, *a*, (shown in dotted lines, Fig. 1,) by which the lever is connected to the sleeve C.

Upon the shaft A is loosely placed the shifting-sleeve D, which has a spiral slot, *b*, and at one end cogs *c*, passing around only a portion of its circumference, as shown in Fig. 3. By means of the spiral slot *b* the sleeve D is caused or made to revolve partially around the shaft A.

At one end of the shaft A is an eccentric, E, formed with an elongated opening, *d*, through which the end of the shaft passes, the elongated form of the slot enabling the eccentric to be shifted across the shaft, which is considered an important feature in my invention. The eccentric has upon its side a toothed segment, *e*, into which gear the cogs *c* of the sleeve D, and by means of which the eccentric is shifted across the shaft in connection with

the elongated slot or opening and spiral slot, as hereinbefore described.

The outer sleeve, C, slides lengthwise of the shaft A, and is driven by said shaft through the medium of a spring key or feather, *f*. A loose collar, *g*, is placed between suitable collars on the sleeve C, onto which is attached the shifting-lever B. A small friction-roller, *h*, is connected to the inner side of the sleeve C, which slides back and forth in the spiral slot *b* of the sleeve D.

A key, *i*, or an equivalent device is rigidly attached to the eccentric E, and plays back and forth in the keyway *k*, formed on the periphery of the shaft A.

In Figs. 4, 5, and 6 the engine-crank is represented at F as having the usual wrist-pin, *l*.

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

1. In a reversing-gear in which the eccentric is shifted across the shaft, the combination, with a shaft provided with a keyway, of an eccentric having a suitable key, elongated slot, and toothed segment, constructed and arranged to operate substantially as and for the purpose set forth.

2. The sleeve C, having connected thereto the shifting-lever B, and carrying friction-roller *h*, in combination with the shaft A, sleeve D, having spiral slot *b* and teeth *c*, and the toothed eccentric E, arranged substantially as shown, whereby the eccentric is shifted across the shaft, substantially as and for the purpose described.

3. The sleeve D, having spiral slot *b* and cogs *c*, in combination with the eccentric E, having toothed segment *e*, and elongated slot or opening *d*, whereby the eccentric is shifted across the engine-shaft, substantially as and for the purpose set forth.

4. The shaft A, having keyway *k*, and the sleeve D, having spiral slot *b* and cogs *c*, in combination with the sleeve C, and eccentric E, having slot or opening *d*, key *i*, and toothed segment *e*, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEORGE KRATZ.

Witnesses:

CHARLES KRATZ,
WILLIAM KOCH.