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S. LÖFFLER.

MECHANISM FOR CHANGING A FOUR STROKE CYCLE MOTOR INTO
A TWO STROKE CYCLE MOTOR.

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Fig. 1.

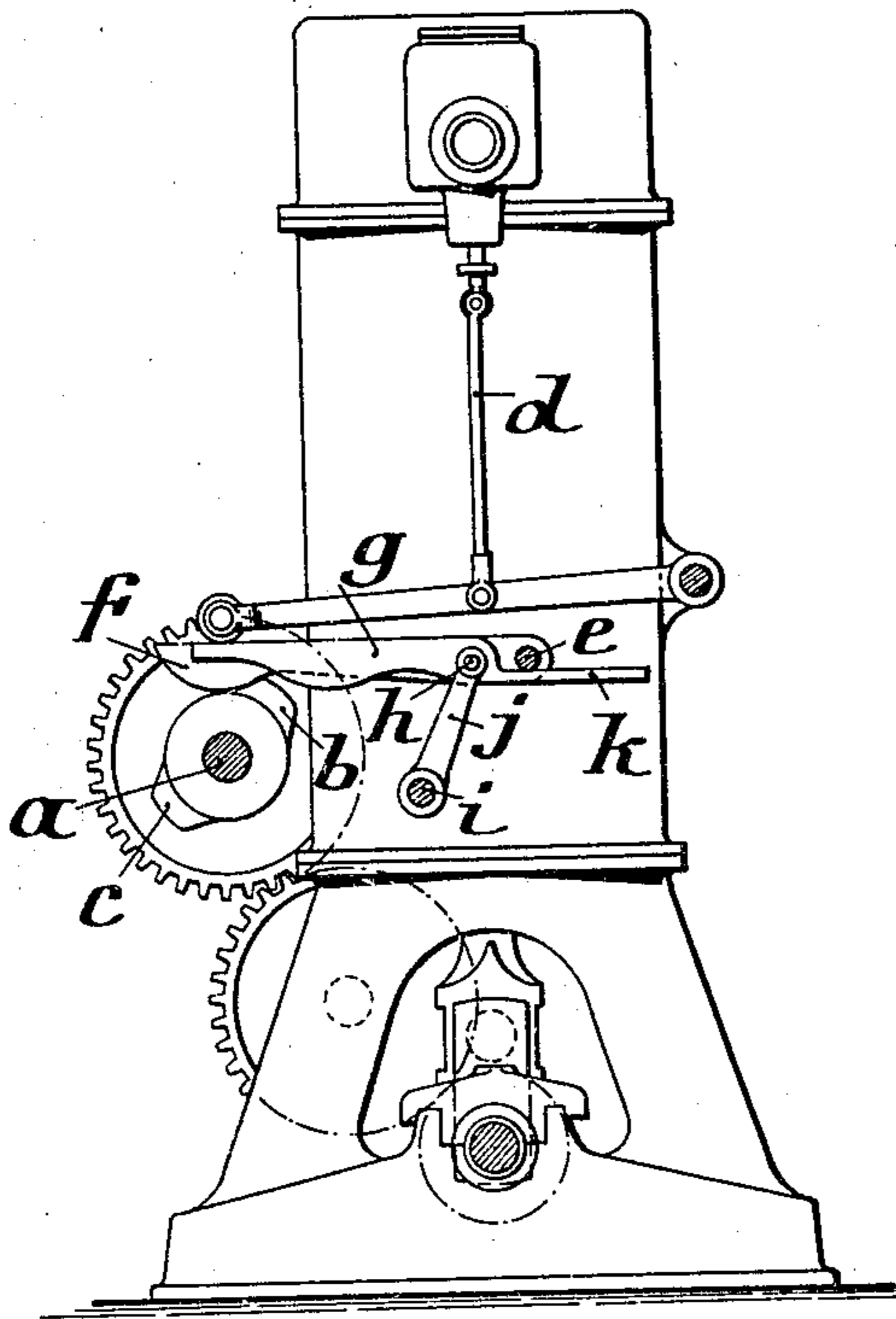


Fig. 2.

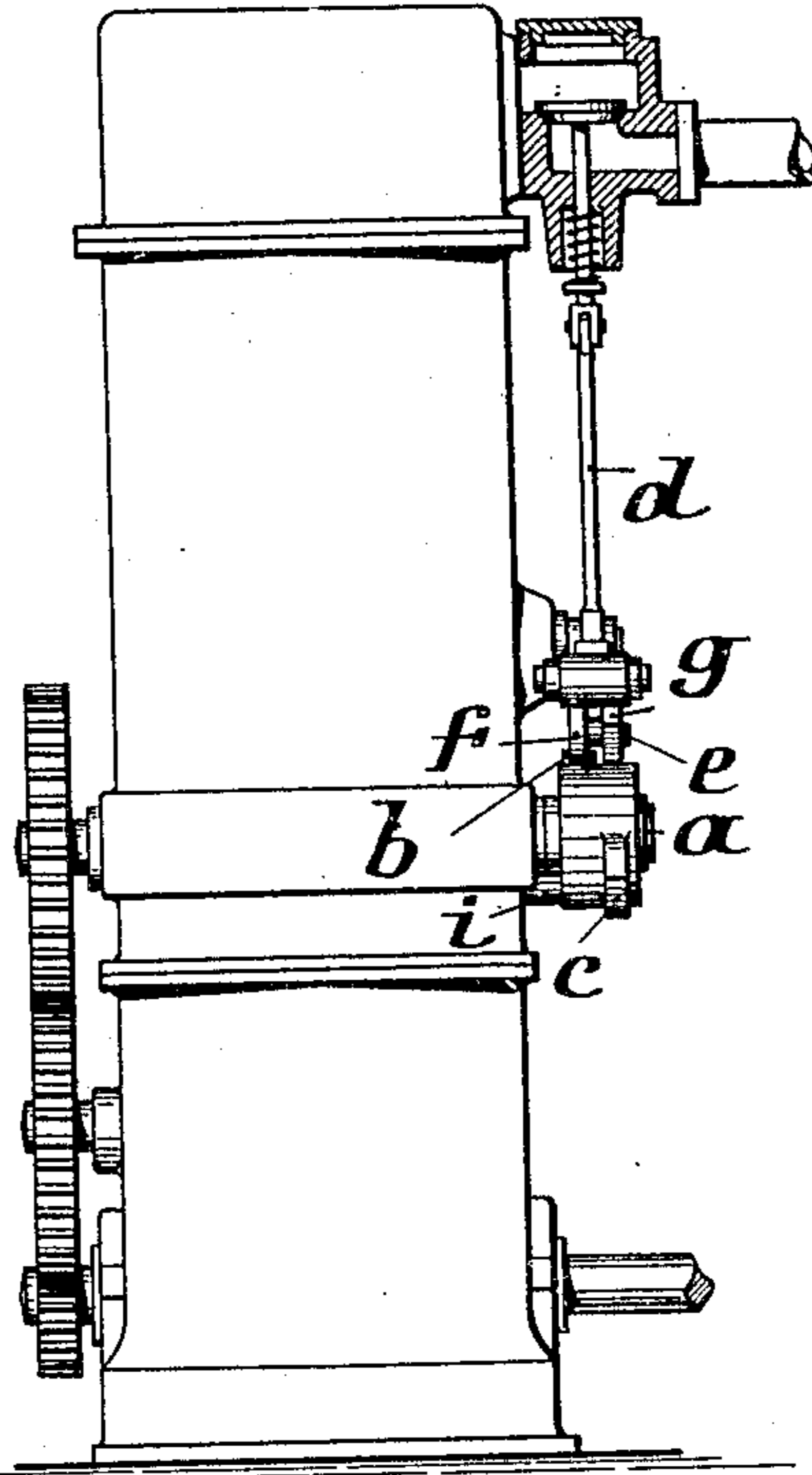
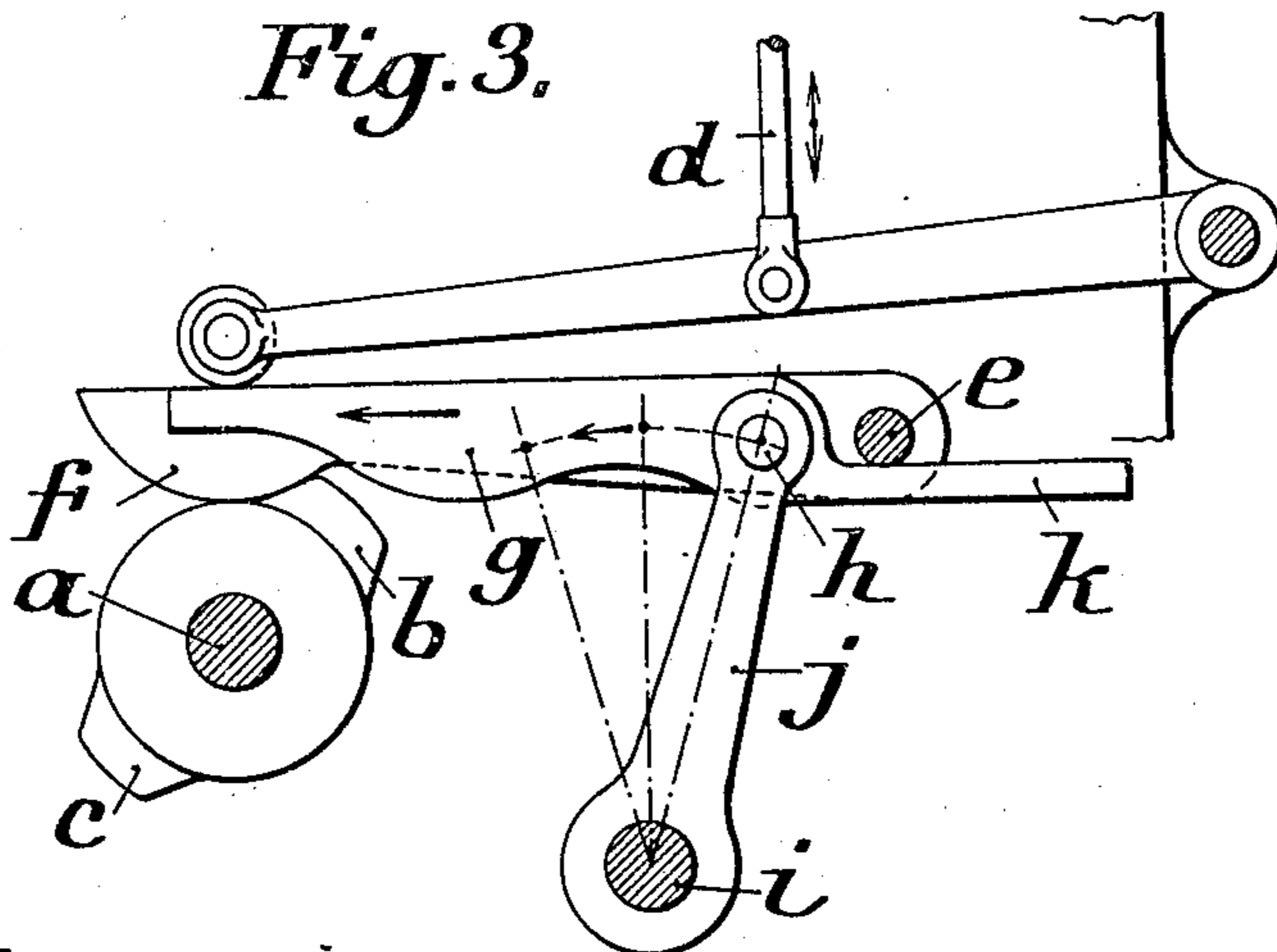


Fig. 3.



WITNESSES

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[Signature]

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MECHANISM FOR CHANGING A FOUR-STROKE CYCLE-MOTOR INTO A TWO-STROKE CYCLE-MOTOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SAMUEL LÖFFLER, engineer, a subject of the Austrian Emperor, residing at 60 Mariengasse, Witkowitz, Moravia, Austria-Hungary, have invented certain new and useful Improvements in a Mechanism for Changing a Four-Stroke Cycle-Motor into a Two-Stroke Cycle-Motor; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a mechanism for changing a four-stroke cycle motor into a two-stroke cycle motor.

The mechanism is particularly adapted for starting motors used for instance with automobile cars which, as it will be known, are working in the four-stroke cycle for starting and then changed into a two-stroke cycle explosion motor.

I have shown in the accompanying drawings a mechanism by which a valve of the motor, as, for example, the air valve, may be opened on each stroke of the engine, thus giving the engine a two-stroke cycle, or it may be opened on each alternate stroke of the engine, thus giving the engine a four-stroke cycle, together with means for shifting the parts to change the engine from a four-stroke cycle to a two-stroke cycle, at will.

In the accompanying drawings, Figure 1 is an elevation of a motor showing a valve equipped with mechanism adapted to the purpose described. Fig. 2 is a view of Fig. 1 from the left, and Fig. 3 is a detail view showing the valve shifting mechanism in elevation.

The shaft *a* which is driven at one-half the speed of the main shaft through the reducing gears shown in Figs. 1 and 2, is provided with a cam having two projections *b* and *c* arranged in different planes and working on a rod *d*, which operates the valve of the engine as shown in Fig. 2. Between the cam projection *b* and a roller fixed at the lower end of the rod *d* is a lever *f*, which is pivoted on an axis *e* and rests on the surface of the cam, in the path of movement of the projection *b*. Each rotation of the cam, there-

fore, will lift the lever *f* and the rod *d* supported by the said lever. Thus the motor will work as a four-stroke cycle engine.

Independently of the lever *f* a second lever *g* is arranged under the rod *d* in the plane of the cam projection *c* and supports also the rod *d*. The lever *g* is pivotally connected at *h* with the outer end of an arm *j* which can be rocked round the axis *i*. The lever *g* is provided with a prolongation *k* by which the lever is held against the axis *e* so that it cannot be depressed by the rod *d* under the position shown in the drawing: If this lever *g* by rocking the arm *j* is shifted in the direction of the arrows shown in the drawing it will come into the way of the rotating cam projection *c*. It is obvious, that in such a position of the parts the rod *d* is lifted not only when the cam projection *b* strikes the lever *f* but also if the cam projection *c* strikes the lever *g*, that is to say two times in each revolution of the shaft *a*. Thus the motor works as a two-stroke cycle engine. As it will be seen the part producing the working of the motor in a two-stroke cycle is independent of the part causing the motor to work as a four-stroke cycle engine. The changing of the mode of working can be effected by simply shifting a lever. The mechanism is simple and cheap in construction and easy to be operated.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. In a mechanism for changing a four-stroke cycle motor into a two-stroke cycle motor the combination with a rod adapted to operate a valve of the machine, of two cam projections arranged in different planes, a lever arranged between the said rod and one of the cam projections, a second lever arranged in the plane of the other cam projection and means for shifting this second lever between the last mentioned cam projection and the said rod, substantially as described and for the purpose set forth.

2. In a mechanism for changing a four-stroke cycle motor into a two-stroke cycle motor the combination with a rod adapted

to operate a valve of the machine, of two
cam projections arranged in different planes,
a lever arranged between the said rod and
one of the cam projections, a second lever
5 arranged in the plane of the other cam pro-
jection and having a prolongation, with
which it is held against a fixed part, and of
means for shifting this second lever between
the last mentioned cam projection and the

said rod, substantially as described and for 10
the purpose set forth.

In testimony whereof I have affixed my
signature, in presence of two witnesses.

SAMUEL LÖFFLER.

Witnesses:

CHYSIR WILLKAU,
ADOLF SCHWACHULEN.