

L. B. HALLOCK & G. T. KEEN.
ENGINE STARTING DEVICE.
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990,730.

Patented Apr. 25, 1911.

Fig. 2.

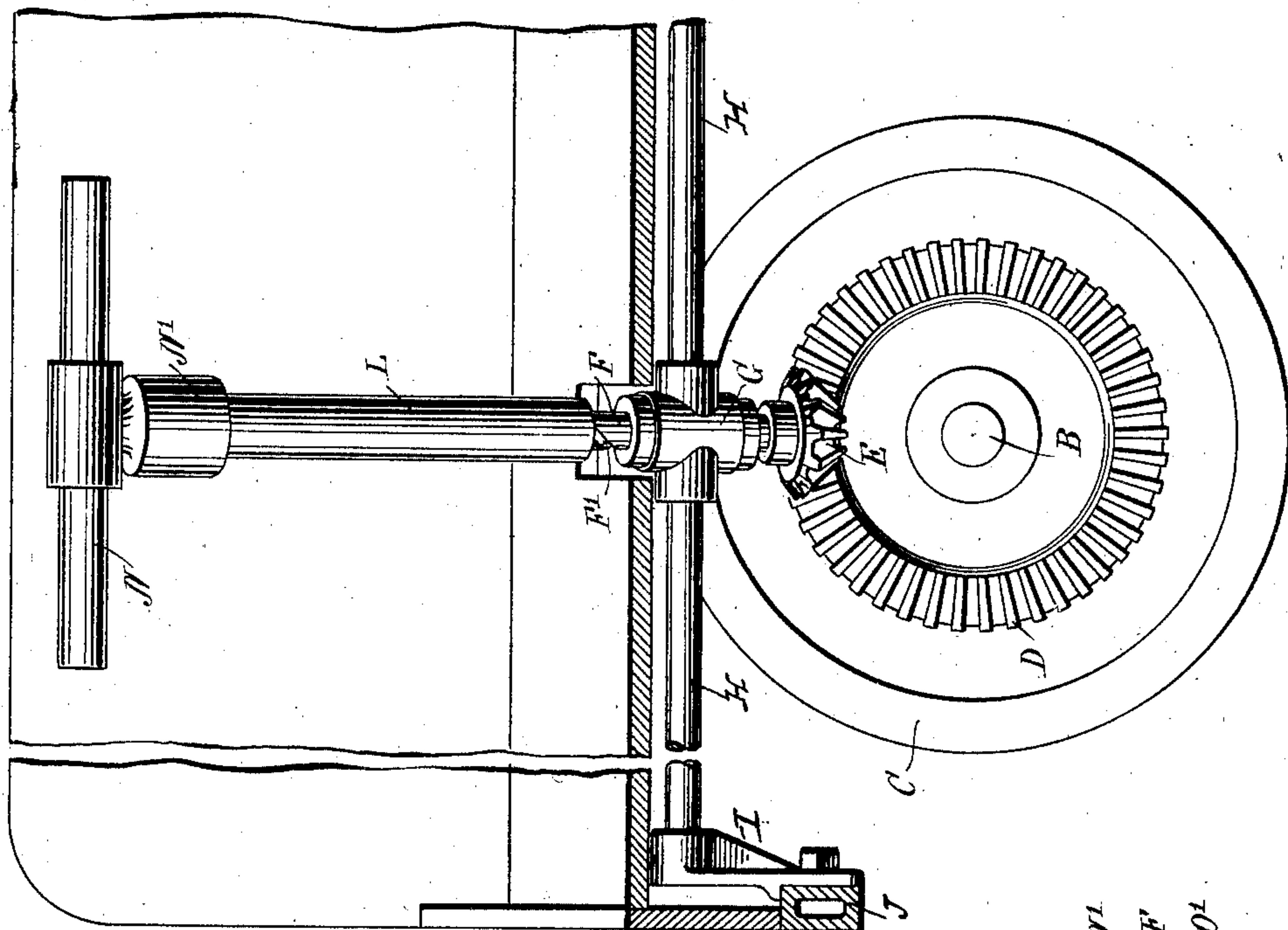


Fig. 1.

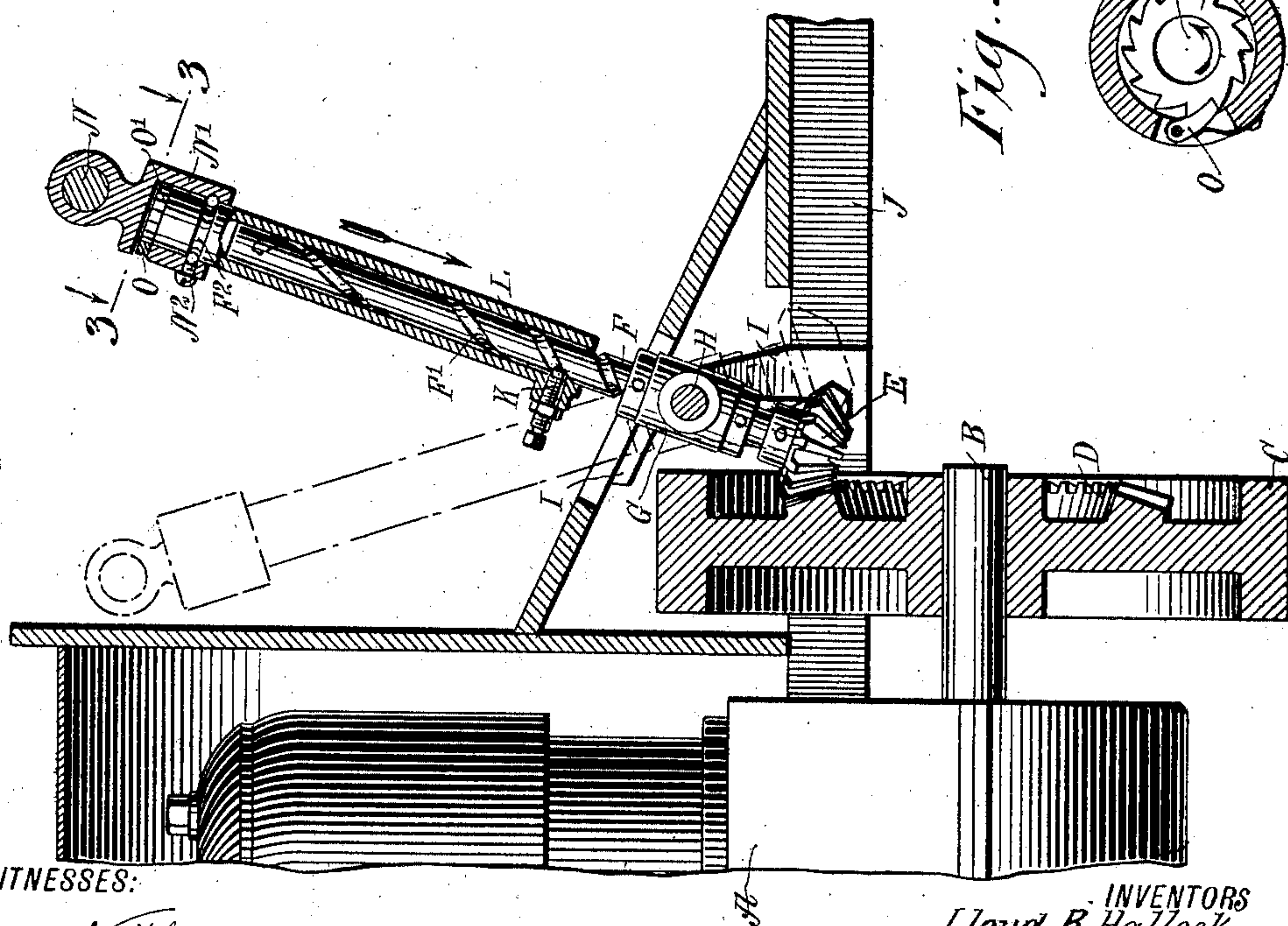
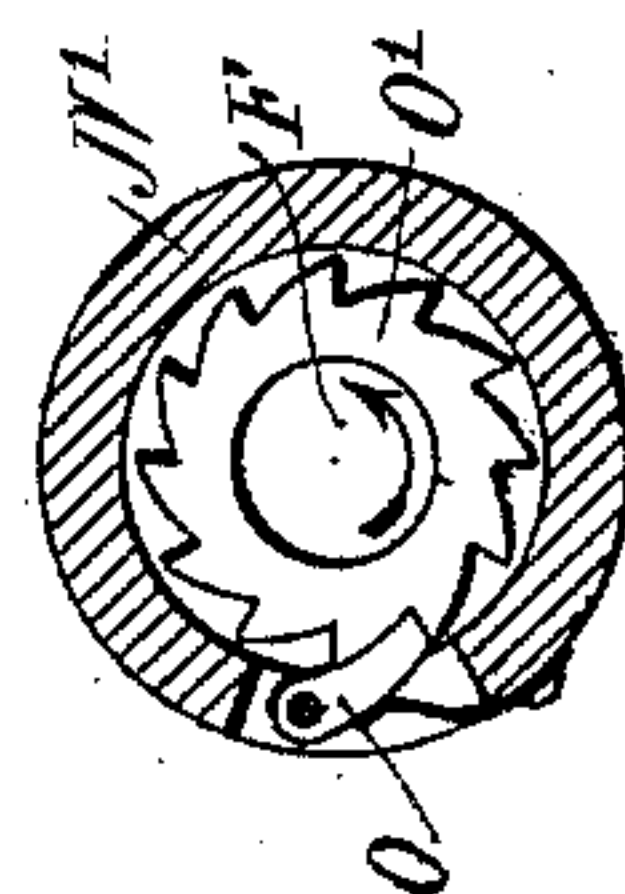


Fig. 3.



WITNESSES:

Edward Thorpe.
Rev. J. H. Hooten.

INVENTORS
Lloyd B. Hallock
George T. Keen
BY

Mumford
ATTORNEYS

UNITED STATES PATENT OFFICE.

LLOYD BELLEMONT HALLOCK AND GEORGE THOMAS KEEN, OF NEW YORK, N. Y.

ENGINE-STARTING DEVICE.

990,730.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed June 29, 1910. Serial No. 569,465.

To all whom it may concern:

Be it known that we, LLOYD B. HALLOCK and GEORGE T. KEEN, citizens of the United States, and residents of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Engine-Starting Device, of which the following is a full, clear, and exact description.

10 The object of the invention is to provide a new and improved engine starting device, more especially designed for use on internal combustion engines employed in automobiles, motor boats and other power-driven
15 vehicles, and arranged to enable the operator in charge to conveniently reach the device and to actuate the same for turning the engine shaft without much physical exertion or leaving the seat.

20 For the purpose mentioned use is made of a grooved shaft and provided with a sleeve for turning the shaft in one direction to rotate the engine shaft.

25 A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

30 Figure 1 is a sectional side elevation of the starting device as applied; Fig. 2 is a rear elevation of the same, part of the flooring of the vehicle being shown in section; and Fig. 3 is an enlarged sectional plan view of the improvement on the line 3—3 of
35 Fig. 1.

40 A combustion engine A, of any approved construction, is provided on its shaft B with a fly wheel C, having a bevel gear wheel D secured or formed thereon, and a pinion E is adapted to mesh with the said bevel gear wheel D, and the pinion is secured on the lower end of an upwardly-extending shaft F mounted to turn in a bearing G, held on a rock shaft H, journaled in suitable bearings
45 I mounted on the chassis or frame of the motor vehicle on which the device is used.

50 The shaft F is provided on its peripheral face with a spiral groove F', into which projects the inner end of a screw K, secured on the lower end of a sleeve L, mounted to slide on the upper end of the shaft F. In order to move the sleeve L lengthwise on the shaft F, use is made of a handle N, provided with a bearing N' loosely engaging the upper
55 end of the shaft F, and on the said bearing N' is arranged a screw N² extending into an

annular groove F² formed on the shaft F. Thus by the arrangement described, the sleeve L can be moved up or down on the shaft F. On the bearing N' is fulcrumed a
60 spring-pressed pawl O, engaging a ratchet wheel O' secured to or formed on the upper terminal of the shaft F, so that the sleeve L is held against turning when sliding it down on the shaft F by the operator moving the
65 handle N in a downward direction, and the sleeve L is free to rotate on the shaft F when moving the sleeve upward on the said shaft.

By reference to Fig. 1, it will be noticed that the spiral groove F' has its pitch gradually decreasing from the top downward, so that when the sleeve L is in an outermost position and is pushed downward by the operator bearing down on the handle N, then the shaft F is turned, and its pinion E in mesh
70 with the gear wheel D rotates the shaft B to start the engine A. When the sleeve L is drawn upward it rotates on the shaft F, as the pawl O and the ratchet wheel O' now permit such movement, while the handle N
75 is held against turning by the operator.

When the device is not in use, it is swung forward into the position shown in dotted lines in Fig. 1, so that the pinion E is out of mesh with the gear wheel D, but when-
80 ever it is desired to make use of the device for starting the engine, then the operator takes hold of the handle N and swings the same forward and with it the shaft F, so that the pinion E moves into mesh with the
85 bevel gear wheel D. The operator now pulls the sleeve L outward and then bears down on the handle N, so that the shaft F is turned to rotate the pinion E, the gear wheel D, fly wheel C and shaft B, to start
90 the engine A in the usual manner. By having the spiral groove F' decreasing in pitch from the top downward, it is evident that a gradually increased speed is given to the shaft F at the time the sleeve L is pushed
95 downward, so that the operator can easily start the rotation of the engine shaft B.

100 It is understood that the device is mainly used on internal combustion engines having multiple cylinders, so that it requires but
105 a partial rotation of the shaft B to bring the engine into starting position, and by giving the spiral groove F' a number of convolutions, it is evident that the shaft F is turned several times during the down-
110 ward movement of the sleeve L, to cause the pinion E to turn the gear wheel D, fly

wheel C and the shaft B the desired distance for starting the engine. Thus the pinion E can be made comparatively small relative to the gear wheel D, and hence but
 5 little physical exertion is required on the part of the operator to properly start the engine.

The device is very simple and durable in construction, is composed of comparatively
 10 few parts, not liable easily to get out of order.

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

15 1. An engine starting device, comprising a gear wheel on the engine shaft, a pinion adapted to mesh with the said gear wheel, a pinion shaft carrying the said pinion, a manually controlled member slidably connected with the said pinion shaft for rotating the latter, and a rocking bearing in which the pinion shaft is mounted.

2. An engine starting device, comprising a spirally grooved shaft mounted to turn
 25 and to rock, a gearing for connecting the said shaft with the engine shaft, and a manually controlled sleeve mounted to slide on the said spirally grooved shaft and having a member projecting into the spiral
 30 groove of the said spirally grooved shaft.

3. An engine starting device, comprising a gear wheel on the engine shaft, a pinion adapted to mesh with the said gear wheel, a pinion shaft carrying the said pinion, a
 35 manually controlled member slidably connected with the said pinion shaft for rotating the latter, and a rock shaft on which the said pinion shaft is mounted to turn and to rock for throwing the said pinion
 40 in and out of mesh with the said gear wheel.

4. An engine starting device, comprising a gear wheel on the engine shaft, a pinion adapted to mesh with the said gear wheel, a pinion shaft carrying the said pinion, a
 45 sleeve slidably connected with the said pinion shaft to rotate the latter, a handle, and a pawl and ratchet mechanism connecting the said handle and sleeve to hold the latter against rotation when moving it lengthwise

of the pinion shaft in one direction and to
 50 allow the sleeve to rotate during the return movement.

5. An engine starting device, comprising a shaft having a spiral groove, a sleeve
 55 mounted to slide on the said shaft and having a member engaging the said spiral groove, a handle for moving the said sleeve lengthwise on the said shaft, a gearing for connecting the said spirally grooved shaft with the engine shaft, and a bearing
 60 mounted to rock and in which the spirally grooved shaft is mounted to turn.

6. An engine starting device, comprising a shaft having a spiral groove, a sleeve
 65 mounted to slide on the said shaft and having a member engaging the said spiral groove, a handle for moving the said sleeve lengthwise on the said shaft, a pawl and ratchet mechanism connecting the said
 70 handle with the said spirally grooved shaft, a pinion on the said shaft, a gear wheel on the engine shaft and adapted to be engaged by the said pinion, a shaft mounted to rock, and a bearing held on said rock shaft and in which the said spirally grooved shaft is
 75 mounted to turn.

7. An engine starting device, comprising a shaft having a spiral groove, a sleeve
 80 mounted to slide on the said shaft and having a member engaging the said spiral groove, a handle for moving the said sleeve lengthwise on the said shaft, a pawl and ratchet mechanism connecting the said
 85 handle with the said spirally grooved shaft, a pinion on the said shaft, a gear wheel on the engine shaft, and a bearing mounted to rock and in which the said shaft is mounted to turn for throwing the said pinion in and out of engagement with the said
 90 gear wheel.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

LLOYD BELLEMONT HALLOCK.
 GEORGE THOMAS KEEN.

Witnesses:

VAN D. MACUMBER,
 OSCAR W. RICHARDS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."