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O. LAUBER & H. KANONENBERG.
ELEVATING MECHANISM FOR GUNS.

APPLICATION FILED MAR. 12, 1907.

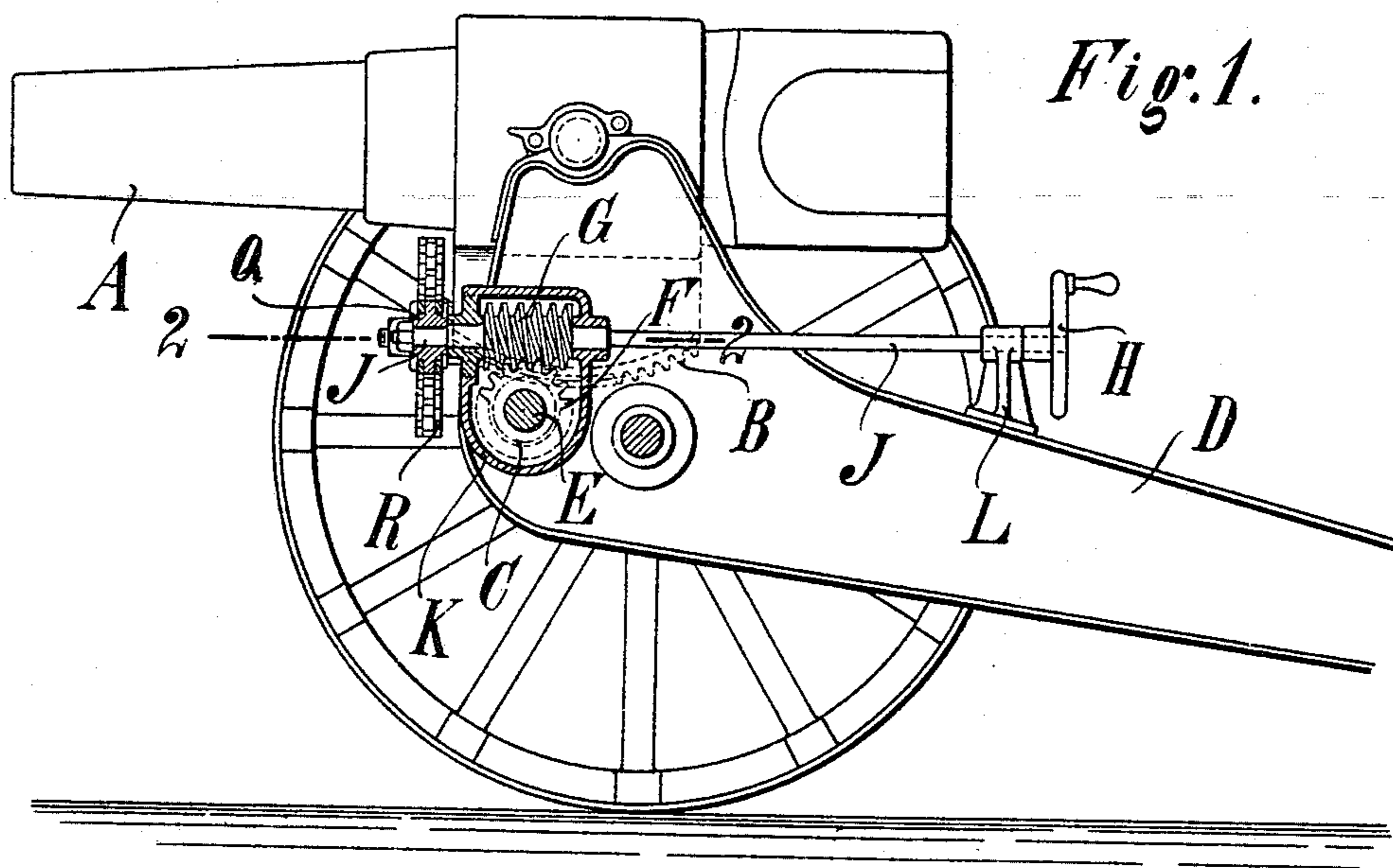


Fig. 2.

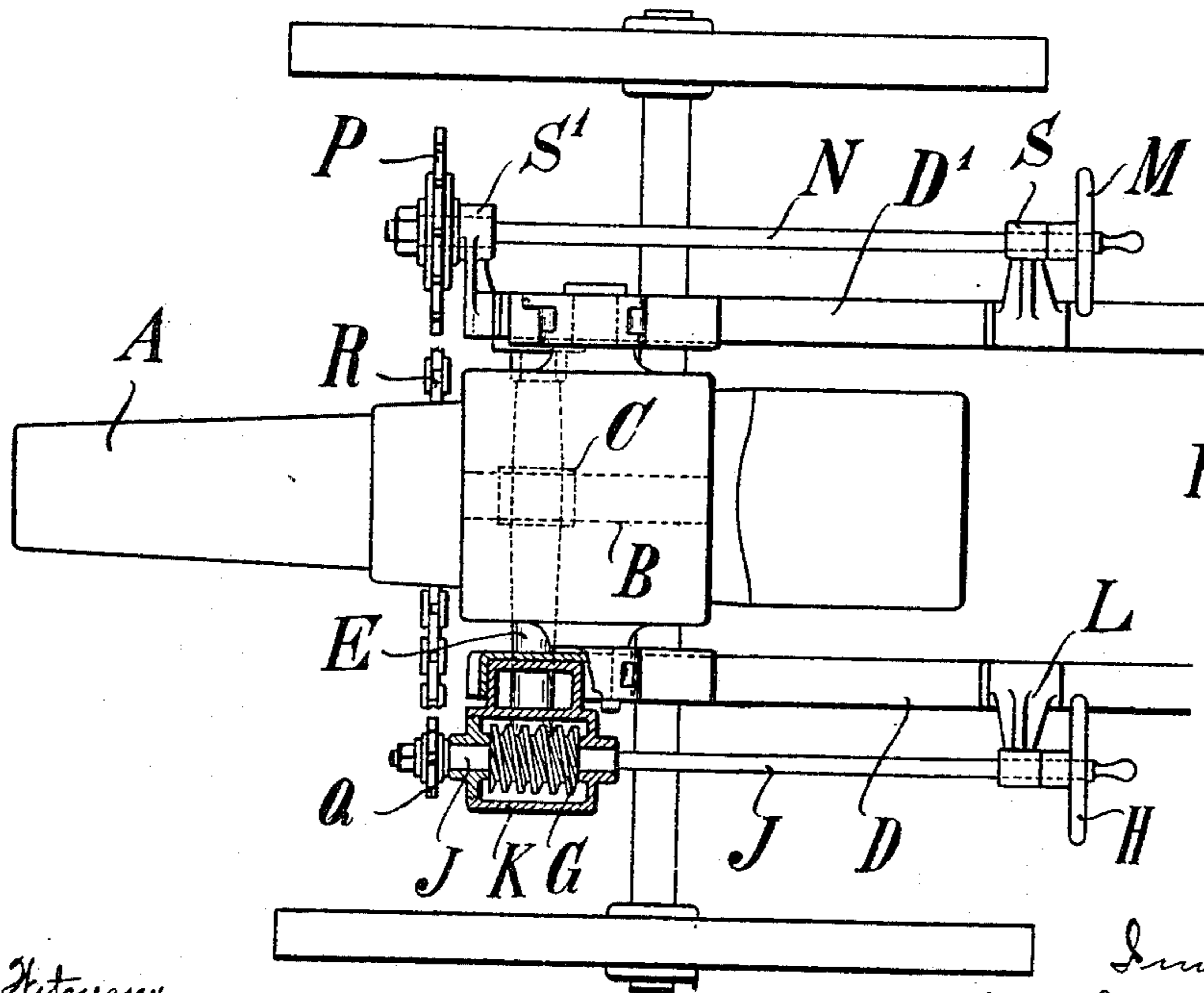
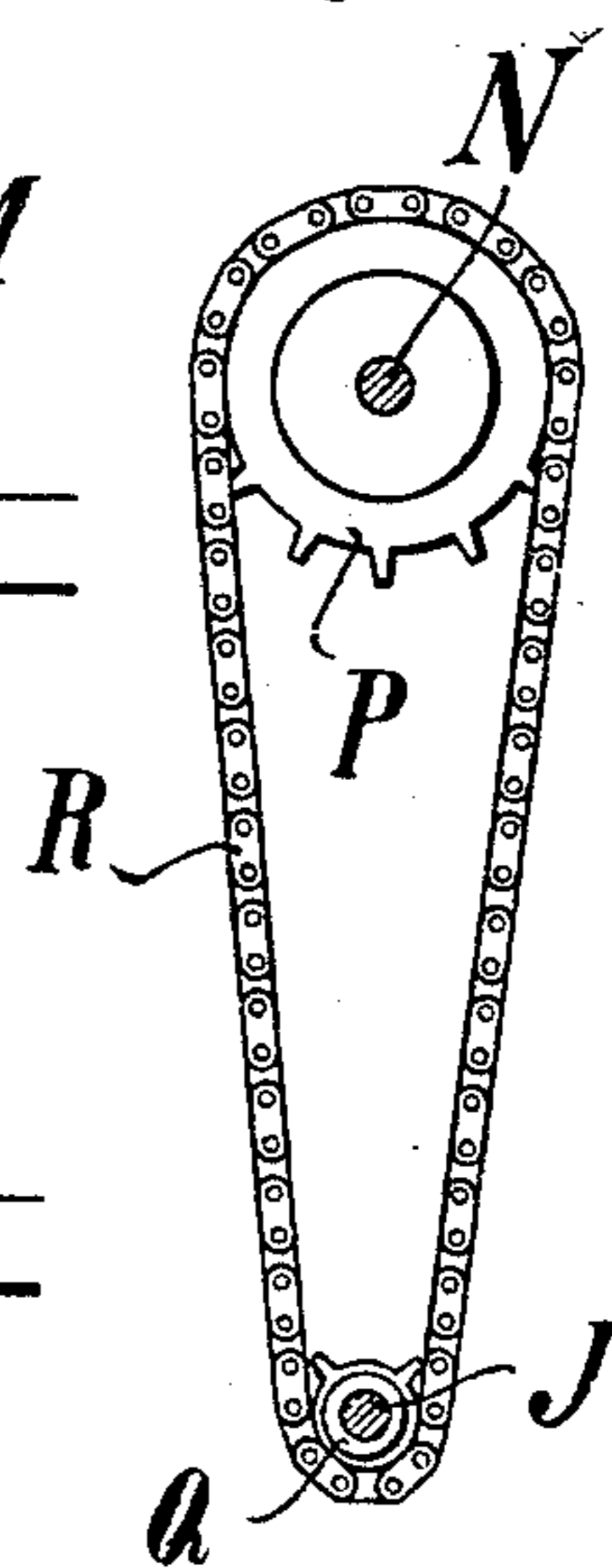


Fig. 3.



Witnesses
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ELEVATING MECHANISM FOR GUNS.

No. 864,175.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed March 12, 1907. Serial No. 362,073.

To all whom it may concern:

Be it known that we, OTTO LAUBER, residing at Essen-on-the-Ruhr, Germany, and HEINRICH KANONENBERG, residing at Essen-on-the-Ruhr, Germany, both subjects of the Emperor of Germany, have invented a certain new and useful Improvement in Elevating Mechanisms for Guns, of which the following is a specification.

The present invention relates to elevating mechanisms for guns and particularly to those which are provided with a toothed sector elevating mechanism having a gearing consisting of a worm and a worm-wheel, the object of the invention being to provide such guns with a device for rapid elevation and lowering of the gun-barrel, which device is little sensitive to shock and consequently reliably acting.

In the accompanying drawing: Figure 1 is a side view, partly in section, of one embodiment of the invention, Fig. 2 is a top view, partly in section on line 2—2, Fig. 1, and Fig. 3 is a detail view.

The toothed sector B, which is secured to the gun barrel A, meshes with the toothed wheel C which is mounted on the shaft E journaled in the walls D D' of the mount. The shaft E carries the worm-wheel F which, together with the worm G, forms the gearing of the elevating mechanism. The shaft J of the worm G carries a hand-wheel H and is journaled in a bearing block L and in a casing K of the gearing F G. The block L and the casing K are secured to the wall D of the mount.

The above-described arrangement is well-known.

A second operating device for the worm G is provided in addition to the operating device, consisting of the hand-wheel H and shaft J. This second operating device consists of a hand-wheel M, a shaft N, two sprocket-wheels P, Q and a chain R positively connecting the sprocket-wheels. The shaft N is journaled in two bearing blocks S S' mounted on the wall D' of the mount. The hand-wheel M and the sprocket-wheel P are carried by the shaft N, while the sprocket-wheel Q is mounted on an extension of the worm-shaft J. The ratio of transmission of the chain-gear P, R, Q, is, for instance, 3 to 1, reckoned from the shaft N.

The above arrangement permits of the gun-barrel being elevated or lowered either by means of the hand-

wheel H or by means of the hand-wheel M. When the hand-wheel M is used, the movement of the gun-barrel is, however, much more rapid than when the hand-wheel H is used, as in the first-named instance, the operating device for the worm G acts with triple increase of transmission while in the latter instance there is no change of transmission.

The invention, therefore, provides a means for rapidly bringing the gun-barrel from firing position into loading position and vice versa, which is of particular importance in those guns, such as high-elevation guns, in which it is very difficult or entirely impossible to load the gun in the firing position. The device according to the present invention is in permanent operative engagement with the ordinary operating device and is much more simple and less sensitive than the old arrangements for the same purpose, in which a coupling is inserted in the elevating mechanism or in its operating device.

Without departing from the scope of our invention, we may select a ratio of transmission that is smaller or greater than 3 to 1 and any other like means may be substituted for the chain-gear P, R, Q.

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

1. The combination with a gun elevating mechanism and its operating device, of a second operating device positively connected with the elevating mechanism.
2. The combination with a gun elevating mechanism and its operating device, of a second operating device in permanent positive engagement with said first named device.
3. The combination with a gun elevating mechanism and its operating device, of a second operating device, and a speed increasing gear connecting said second device to said first-named device.
4. The combination with a gun elevating mechanism and the operating shaft therefor, of a second operating shaft, and a speed increasing gear connecting said shafts.
5. The combination with a gun elevating mechanism and the worm shaft for operating the same, of a second operating shaft and speed increasing means providing permanent positive engagement between said shafts.

The foregoing specification signed at Düsseldorf, Germany, this twenty-ninth day of January, 1907.

OTTO LAUBER.
HEINRICH KANONENBERG.

In presence of—
M. ENGELS,
ALFRED POHLMAYER.