

(No Model.)

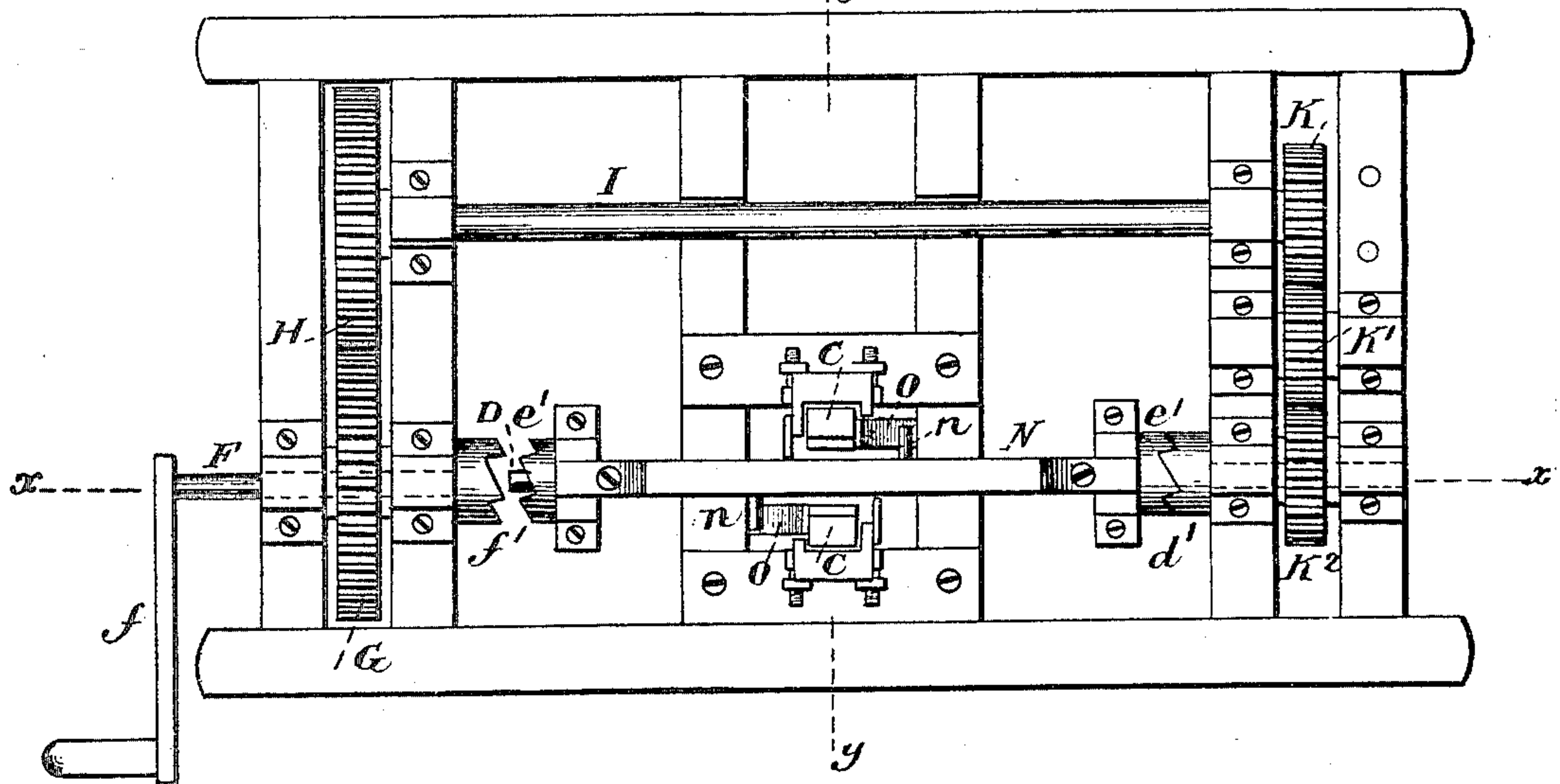
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C. F. ALLEN.  
PUMP.

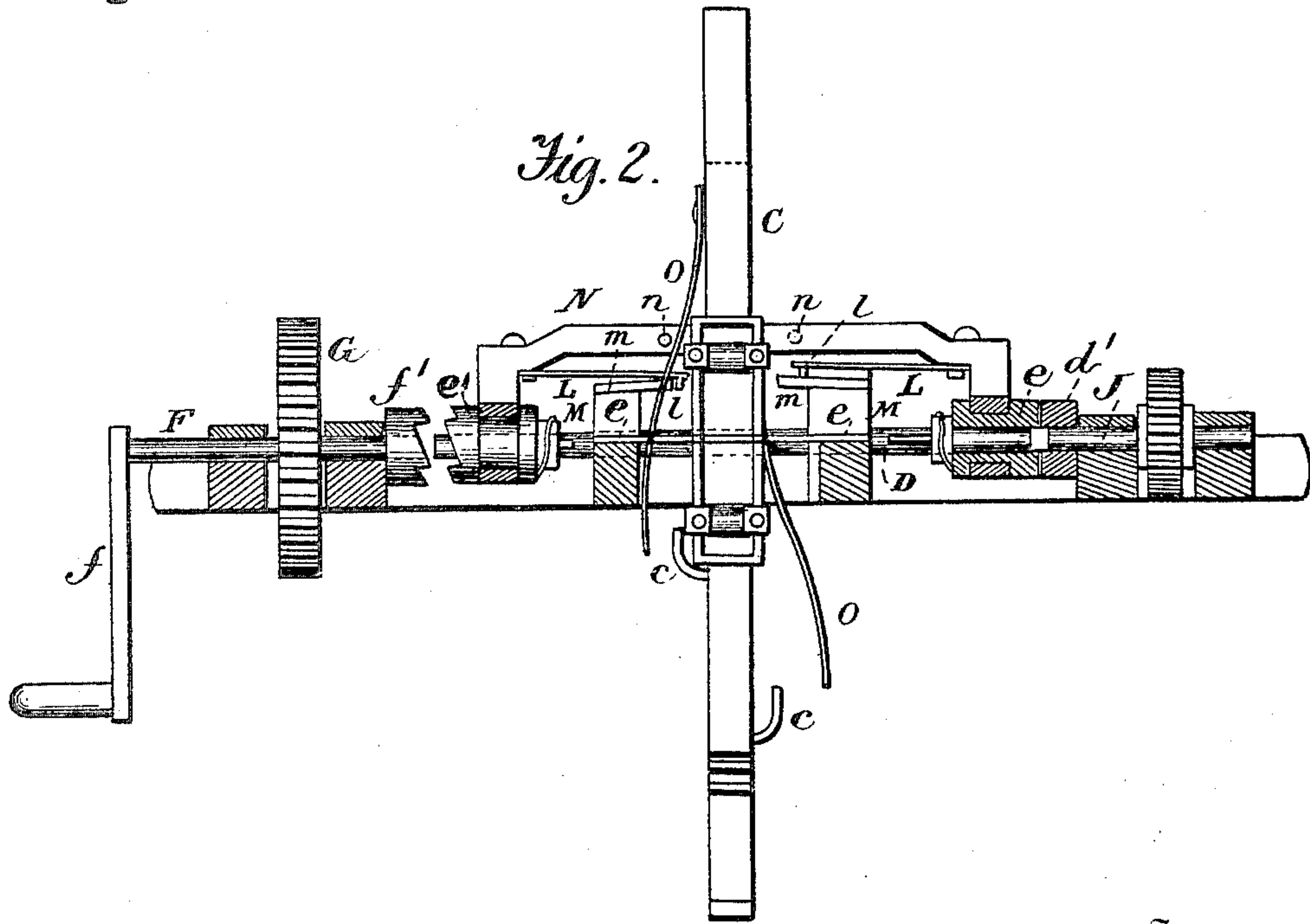
No. 453,781.

Patented June 9, 1891.

*Fig. 1.*



*Fig. 2.*



Witnesses  
*A. Ruppert*  
*H. A. Daniels*

Inventor  
*Charles F. Allen*  
By his Attorney *Thomas S. Simpson*

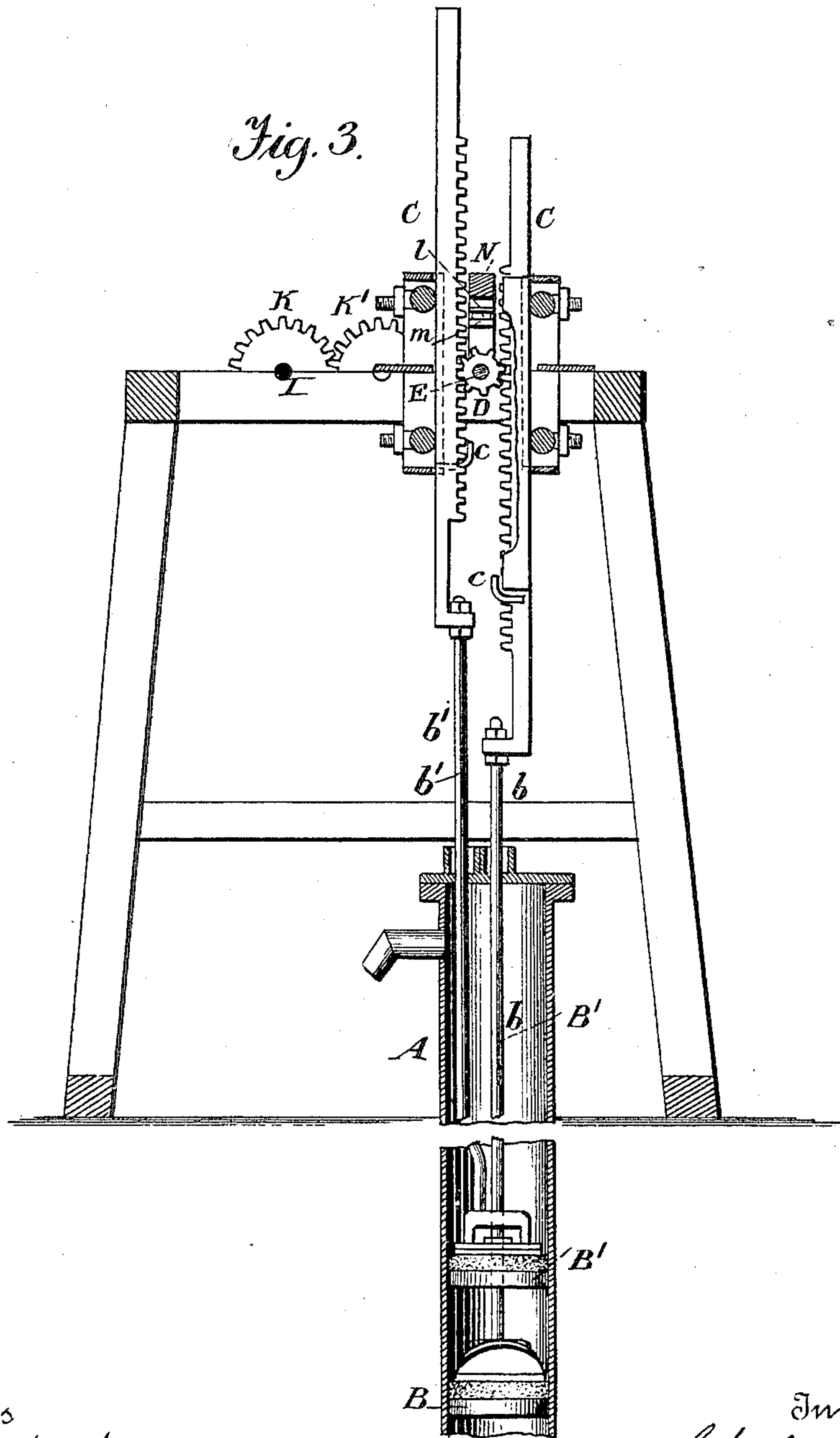
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Per  
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*Attys*



# UNITED STATES PATENT OFFICE.

CHARLES F. ALLEN, OF DEMING, TERRITORY OF NEW MEXICO.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 453,781, dated June 9, 1891.

Application filed October 17, 1890. Serial No. 368,388. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. ALLEN, a citizen of the United States, residing at Deming, in the county of Grant and Territory of New Mexico, have invented certain new and useful Improvements in Pumps for Irrigation Purposes; 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.

The special object of the invention is to improve the operative mechanism of that class of pumps wherein two valved plungers are employed, the lower one receiving the water from the well and the upper one letting the water pass therethrough and carrying it up to the discharge-spout. One cylinder only is used, the upper plunger being made to surround and slide upon the piston-rod of the lower plunger.

The invention will first be described in connection with the drawings, and then pointed out in the claims.

Figure 1 of the drawings is a plan view of my pump mechanism; Fig. 2, a longitudinal vertical section on dotted line *xx* of Fig. 1, and Fig. 3 a vertical cross-section on dotted line *yy* of Fig. 1.

In the drawings, A represents a pump-cylinder, in which work two plungers B B' by means of the rods *b b'*, to which the operative mechanism is attached. The upper plunger B' is moved by the rod *b'* and slides upon the rod *b*, which passes through its center.

On the upper end of each of the rods *b b'* is attached the lower end of a rack C, the teeth of the racks being made to face each other and mesh with the intermediate pinion D on the shaft E, so as to be moved alternately up and down. The shaft E turns in the bearings *e e*, and is provided at each end with a half-clutch *e'*.

F is a shaft having the hand-crank *f* at its outer end, the half-clutch *f'* at its inner end, and the intermediate spur-wheel G, the latter meshing with a corresponding spur-wheel H on the counter-shaft I. The other end of the shaft I is connected by spur-wheels K K'

K<sup>2</sup> with the short shaft J, carrying a half-clutch *d'*. After the pinion D has rotated sufficiently to raise one rack C to its proper height and to depress the other to its proper depth the direction of said shaft must be reversed in order to make the next stroke. In order to accomplish this, I make a corresponding stud *c* on each of the racks C. This stud as it rises strikes the front end *l* of a spring-catch L, which engages a projection *m* on the cross-bars M, while the rear ends of the catches are made fast to and under the movable bar N, whose ends are secured about the half-clutches *e' e'*.

O O are two side springs, one on the outside of each rack, so as to throw the clutch-bar N from one side to the other whenever an end *l* of a spring-catch is raised from a projection *m*. This is done after every stroke of the plungers, the spring O bearing against a stud *n* on the bar. The shaft E of the pinion D is therefore alternately carried by the opposite clutches and in opposite directions.

I claim—

1. In a pump mechanism, substantially as described, the bar N, movable longitudinally and carrying half-clutches *e' e'* on the pinion-shaft E, and the fixed shafts F J, carrying similar half-clutches *f' d'*, in combination with two rack-bars C C, having the springs O, which throw said shaft alternately in connection with the half-clutches *f' d'* to reverse its direction at each stroke of pump-plungers, as set forth.

2. In a pump mechanism, the combination of the clutch-shafts E F J, spur-wheels G H K K' K<sup>2</sup>, pinion D, racks C C, having inside studs *c c* and outside springs O O, the bar N, carrying the half-clutches *e' e'* to the fixed half-clutches *d' f'*, and the fastening device consisting of springs L *l* and cross-bars *m m*, all arranged substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of witnesses.

CHARLES F. ALLEN.

Witnesses:

A. RUPPERT,  
R. J. BEALL, Jr.