

(No Model.)

W. HANNA.

MECHANISM FOR CONVERTING MOTION.

No. 246,128.

Patented Aug. 23, 1881.

Fig. 1.

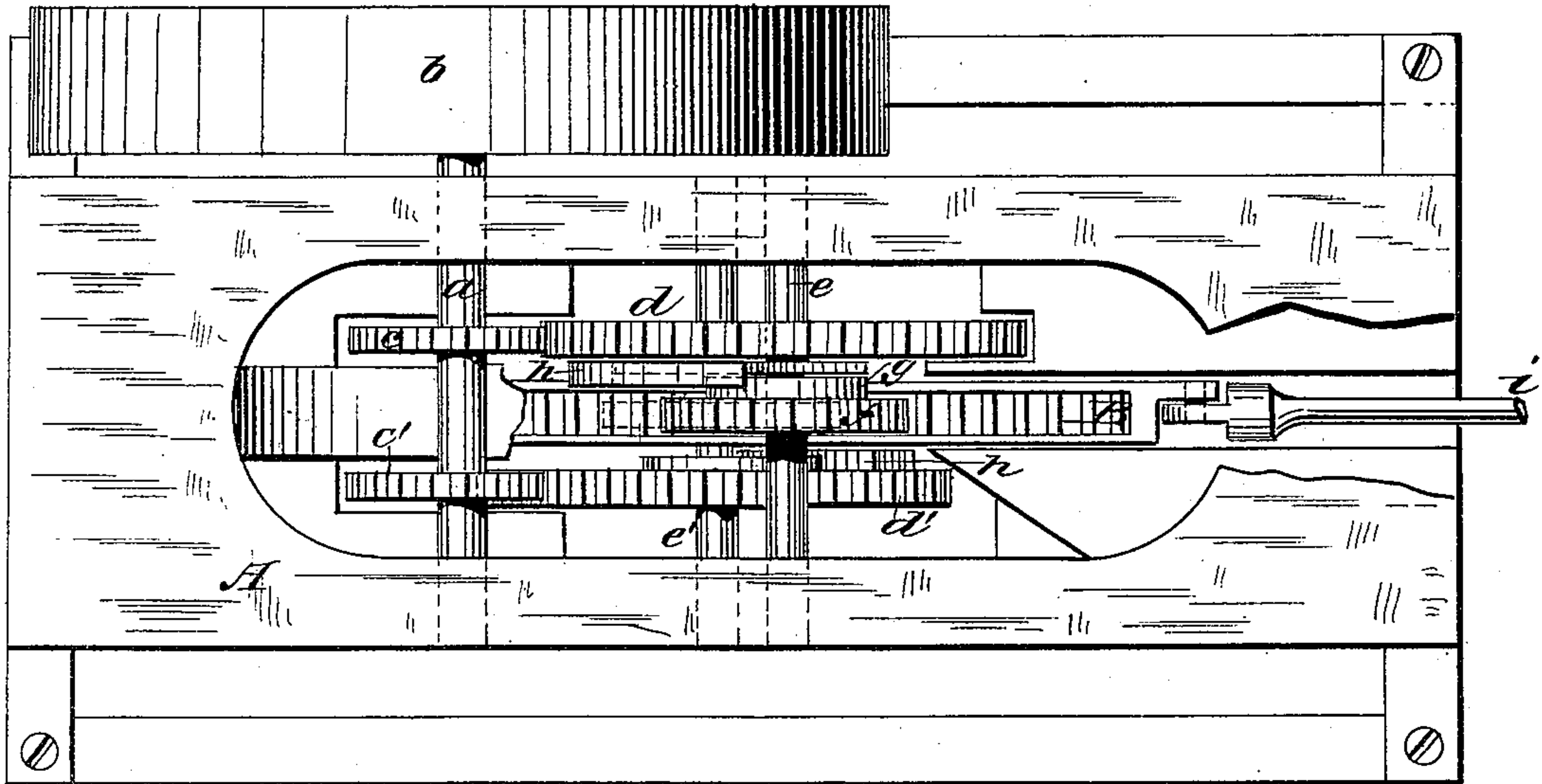
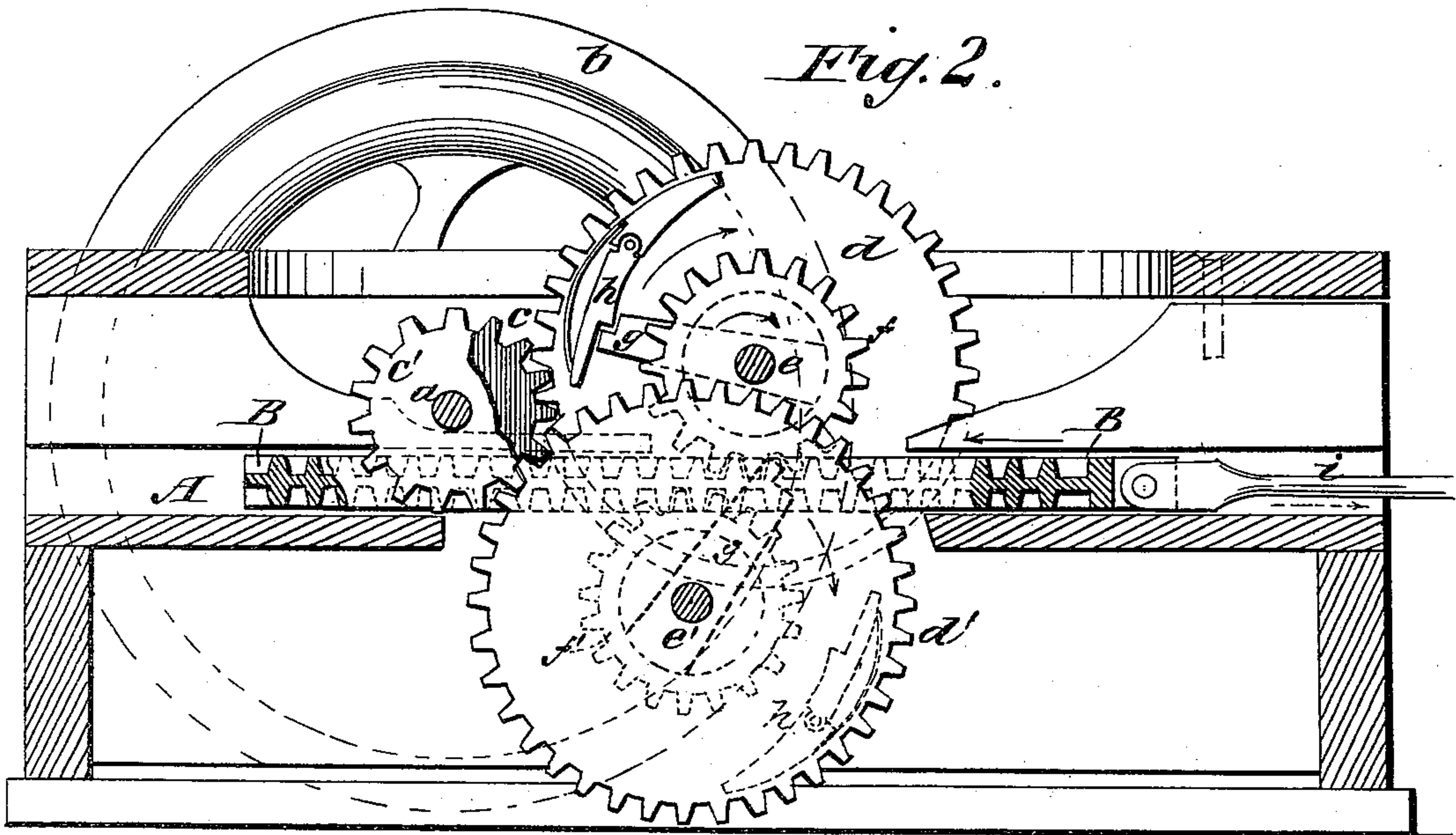


Fig. 2.



WITNESSES:

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MECHANISM FOR CONVERTING MOTION.

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Application filed February 11, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HANNA, of Gilroy, in the county of Santa Clara and State of California, have invented a new and useful
5 Improvement in Mechanism for Converting Motion, of which the following is a full, clear, and exact description.

My improved mechanism is intended for use as a substitute for cranks in converting recti-
10 linear reciprocating to continuous rotary motion, the special object being to increase the extent of rotary motion from a given length of stroke, while at the same time avoiding dead-centers. I make use of a double rack and dou-
15 ble set of pinions and clutches geared to a common shaft; and my invention consists in novel pawl devices and a novel arrangement of the parts, whereby the desired motion is obtained without undue strain or wear on the parts, as
20 hereinafter described and claimed.

In the drawings, Figure 1 is a plan view of mechanism embodying my invention. Fig. 2 is a vertical longitudinal section of the same.

Similar letters of reference indicate corre-
25 sponding parts.

A is a bed-plate, of any suitable character, on which the shaft *a* that is to be driven is carried, and on shaft *a* is a fly-wheel, *b*. In case the primary motion is rotary, shaft *a* represents the driving-shaft. On the shaft *a* are
30 two fast pinions, *c c'*, gearing respectively with gear-wheels *d d'*, that are fast on horizontal shafts *e e'*, supported in suitable bearing on bed-plate A. The pinions *c c'* are alike in size,
35 and are proportioned to the wheels *d d'*, to give shaft *a* two or more revolutions at each revolution of shafts *e e'*. On the shafts *e e'* are loose pinions *f f'*, each of which carries a radial arm, *g*, and upon each wheel *d* or *d'* is a
40 spring-pawl, *h*, that is engaged by the arm *g* of the loose pinion *f* or *f'*. The loose pinions *f f'* are between the gear-wheels *d d'*, one above the other, and the pawls *h* are on the contiguous faces of the gear-wheels. The pinions *f f'*
45 are in the same plane of revolution; but their shafts *e e'* are out of line vertically, so that the pinions may be brought closer together for operation by the same rack, as next described.

B is a rack-bar extending between the pin-

ions *f f'*, and fitted to move horizontally in a
50 suitable slideway provided on bed-plate A. The bar has cogs formed both on its upper and lower side, and such cogs are between side flanges, by which the bar bears on its supports.

i is a pitman connected with the outer end
55 of the rack, for reciprocating the same by connections with suitable power.

In operation the reciprocation of the rack B gives revolution to the loose pinions *f f'* in
60 opposite directions, and the arm *g* of one pinion moves one gear-wheel, *d* or *d'*, by contact with the end of one pawl *h*, the arm *g* of the other pinion passing beneath the other pawl *h* and moving it outward without further ef-
65 fect. The shaft *a* is thus revolved at each reciprocation of the rack. Preferably the rack will give one revolution to pinions *f f'* at each movement, with the result of two revolutions to shaft *a*, and consequently this shaft work-
70 ing back through the pinion *c* or *c'* will reverse the wheel *d* or *d'*, so that when the rack starts back the arm *g* and pawl *h* will be in position to act immediately.

This construction is compact, and the movements are obtained without uneven strain or
75 wear. The rack applies the power nearly on its center line at each reciprocation.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The mechanism for converting motion, con-
80 sisting of the fast gear-wheels *d d'*, shafts *e e'*, loose pinions *f f'*, shaft *a*, fast pinions *c c'*, spring-pawls *h*, fixed arms *g*, and reciprocating double rack B, combined for operation substantially as shown and described. 85

2. In mechanism for converting motion, the gear-wheels *d d'*, fitted with spring-pawls *h* and geared to a common shaft, the pinions *f f'*, carrying arms *g* and loose on the shafts of the wheels *d*, and the double rack B, fitted for re-
90 ciprocation between the loose pinions, substantially as shown and described, combined for operation as specified.

WILLIAM HANNA.

Witnesses:

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