

(No Model.)

M. BRAUN.

PAWL AND RATCHET MECHANISM.

No. 265,745.

Patented Oct. 10, 1882.

Fig. 1.

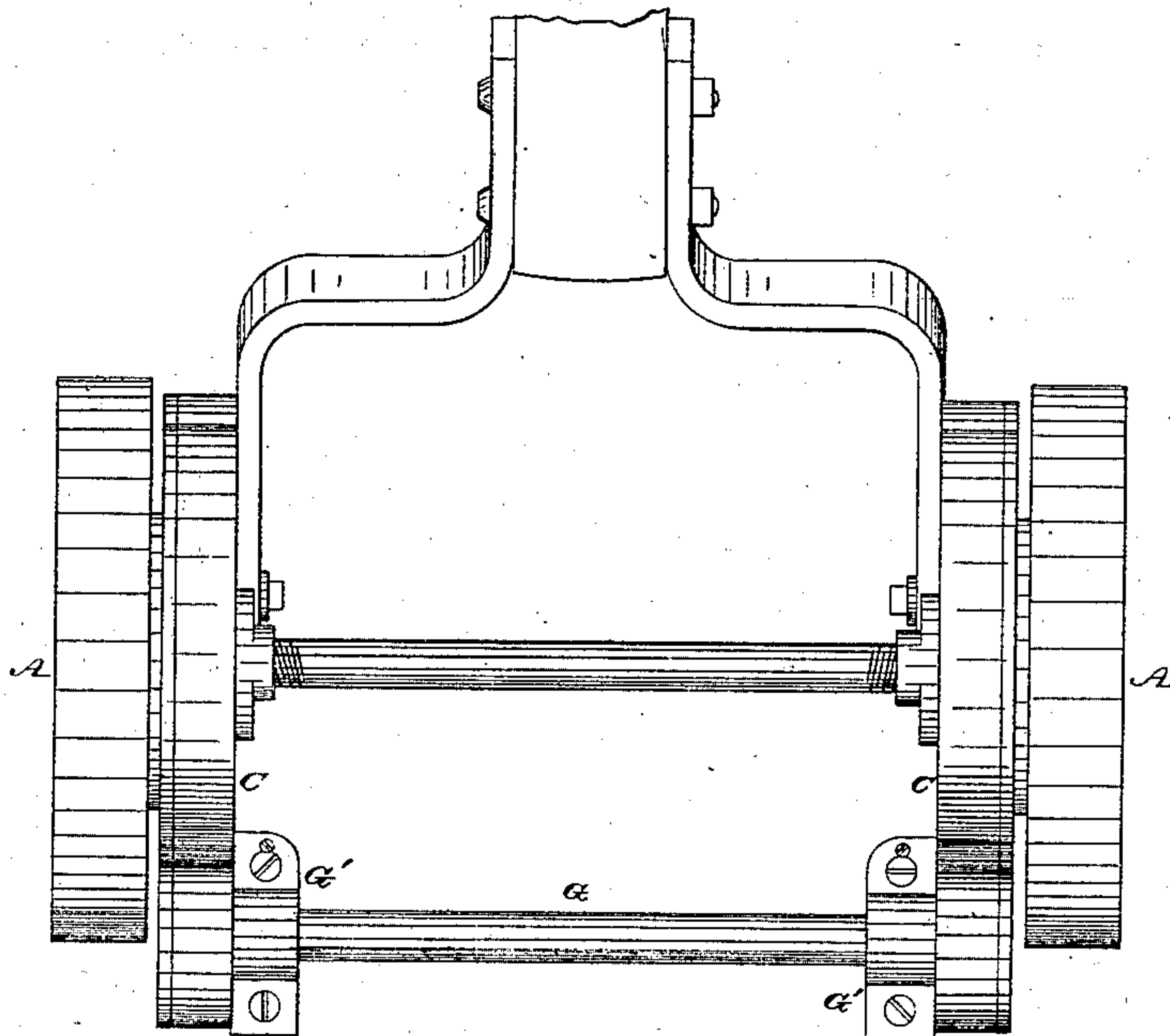


Fig. 2.

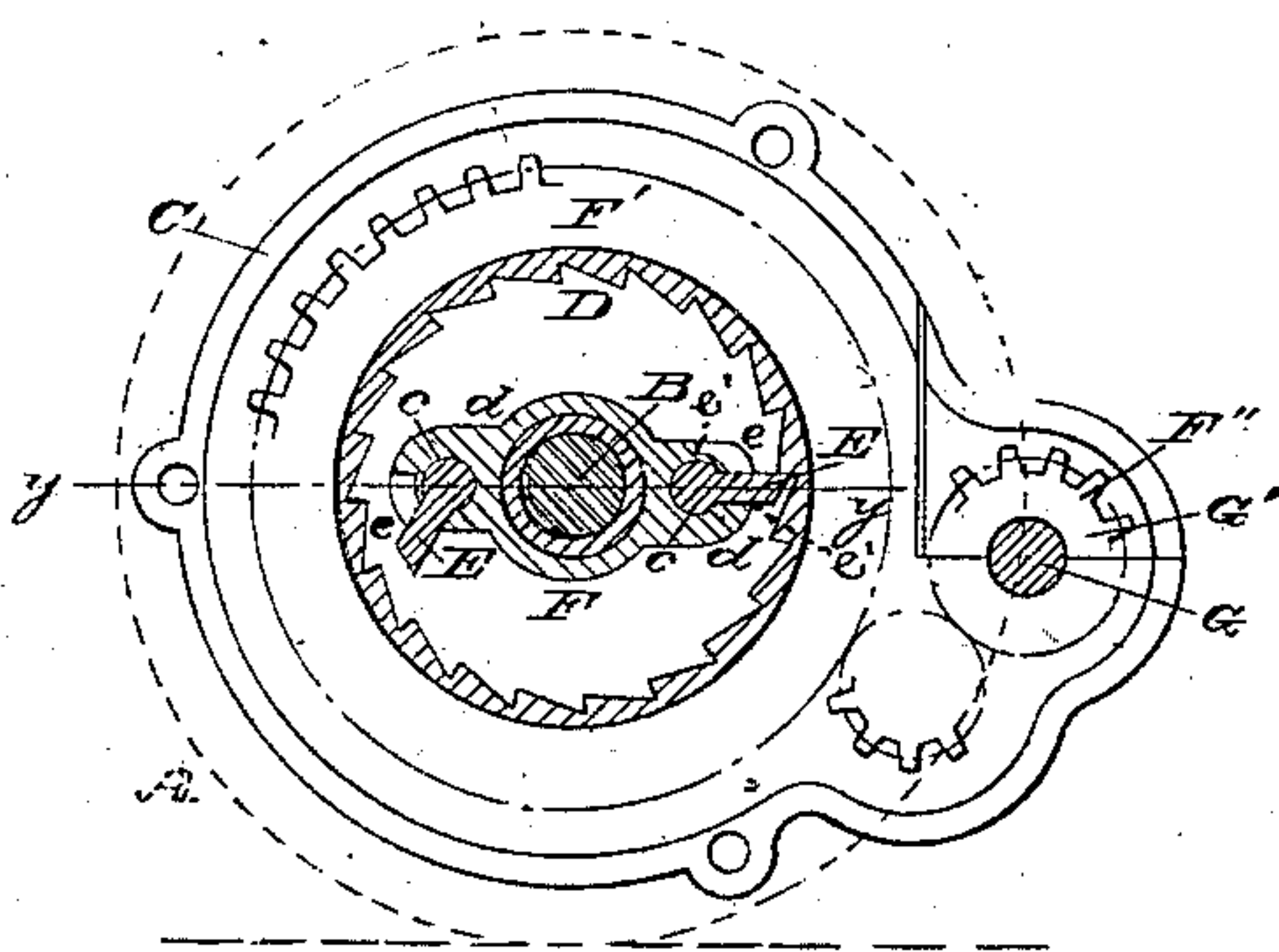


Fig. 3.

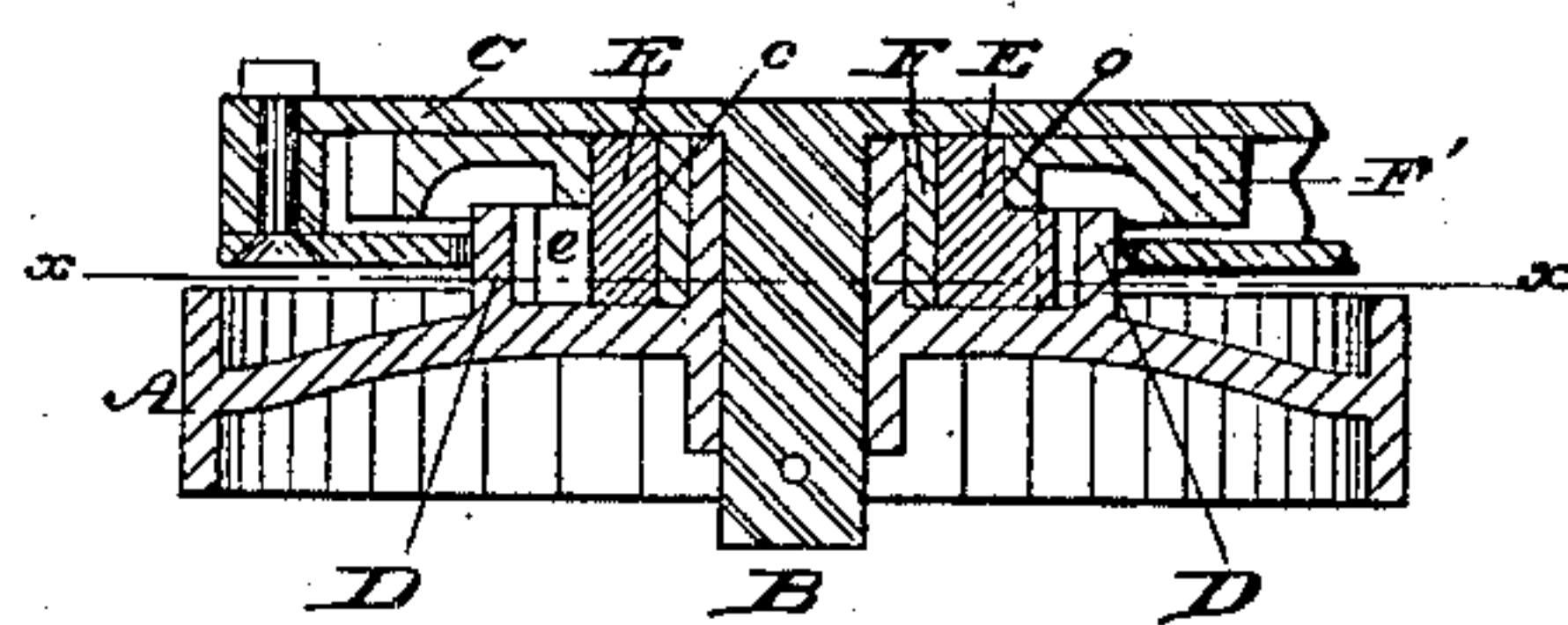


Fig. 4.



WITNESSES:

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## PAWL-AND-RATCHET MECHANISM.

SPECIFICATION forming part of Letters Patent No. 265,745, dated October 10, 1882.

Application filed December 30, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, MATHIAS BRAUN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Pawl-and-Ratchet Mechanism, which improvement is fully set forth in the following specification and accompanying drawings, in which—

10 Figure 1 is a top or plan view of apparatus to which the mechanism is applicable. Fig. 2 is a vertical section in line *x x*, Fig. 3. Fig. 3 is a horizontal section in line *y y*, Fig. 2. Fig. 4 is a perspective view of a detached part.

15 Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to improvements in pawl-and-ratchet mechanism, the construction and operation thereof being hereinafter fully set forth. The invention is especially serviceable for lawn-mowers, to which the description will now be limited.

20 In the Letters Patent granted to me for improvement in lawn-mowers the present construction of the pawl-and-ratchet mechanism is shown and described, but not claimed.

Referring to the drawings, A represents one of the driving-wheels of a lawn-mower, and B represents the shaft on which the wheel is loosely fitted, said shaft being cast with or connected to the plate C of the frame of the mower.

30 D represents an internally-toothed ratchet rim or wheel, which is cast with or secured to the driving-wheel A on the inner side thereof, and adapted to be engaged by pawls E E, which are fitted to the hub of the gear-wheel F', the latter being freely fitted on the hub of the driving-wheel A and communicating motion by means of an idler to a wheel, F'', to which the shaft G of the rotary cutter of the mower is connected, the bearing of said shaft being shown at G', Figs. 1 and 2. The pawls E are L-shaped, one portion of each being the tooth *a*, which engages with the teeth of the ratchet D, and the other portion being the journal *b*, which, continued beyond the side of the tooth, enters an opening or bearing, *c*, formed in a box, *d*, the latter projecting radially from and being formed with the circumference of each hub F of the wheel F'. The outer end of

the box *d* is cut away, as at *e*, forming two shoulders, *e' e'*, at or about an angle to each other, whereby rotary play is permitted to the tooth portion of the pawl as the latter turns 55 on the journal *b*, and while one wall or shoulder of the cut-away portion limits the play of the pawl when it is inoperative the other wall holds the pawl in operative position when engaged by or engaging with the ratchet D, it 60 being noticed that the openings *e* of the two boxes *d* face in opposite directions. When the mower is run forward the ratchet D, carried by the driving-wheel A, engages with the pawls, whereby motion is imparted to the gear-wheel F', and thus to the rotary cutter. When 65 the mower is run back the ratchet-teeth ride freely over the ends of the pawls, and the latter give or yield, so that there is no engagement of the ratchet and pawls. Consequently 70 the wheel F' remains stationary and the rotary cutter is inoperative.

By my construction of the ratchet-and-pawl mechanism the pawls may be formed of cast metal and the boxes made integral with the 75 hub of the wheel F', or cast therewith. The journal portions of the pawls are readily applied to and removed from the boxes, and form increased bearings and strength for the pawls. The pawls retain their positions in the boxes 80 without fastenings other than the walls of the boxes and the face of the ratchet-rim, the journal portions of the pawls being readily removable from the openings in the boxes and easily applied thereto. Should the pawls be so situated that when the mower is run back and they 85 drop from the teeth of the ratchet, they afterward quickly right themselves and promptly engage with the ratchet when the mower is run forward, no springs being employed for 90 such purpose, and their whole construction is such that they are strong and durable and occupy but little space. Furthermore, when the mower is run back there is less clicking noise, as ordinarily but one pawl is lifted by 95 the ratchet.

If an apparatus is so constructed that it may be run forward and backward on the wheel F', provision is made for rotating the wheel A on the forward motion of the apparatus and 100 causing it to remain inactive on the backward motion thereof, or vice versa, the same result

being produced when the wheel F' is operated by a reciprocating rack-bar or other connection which rotates said wheel in opposite directions.

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

10 1. The pawl consisting of the tooth *a* and journal *b*, in combination with the box *d*, formed with an opening, *c*, for the journal and cut-away portion *e* for the tooth, the shoulders *e'* *e'* of said portion *e* being at or about a right angle to each other, substantially as and for the purpose set forth.

2. The hub of the gear-wheel, having a box, 15 *d*, with an opening, *c*, and cut-away portion *e*, leaving shoulders *e'* *e'* at or about a right angle to each other, and the L-shaped pawl E, formed of a tooth, *a*, and journal *b*, the latter being continued beyond the side of said tooth, 20 substantially as and for the purpose set forth.

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Witnesses:

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