

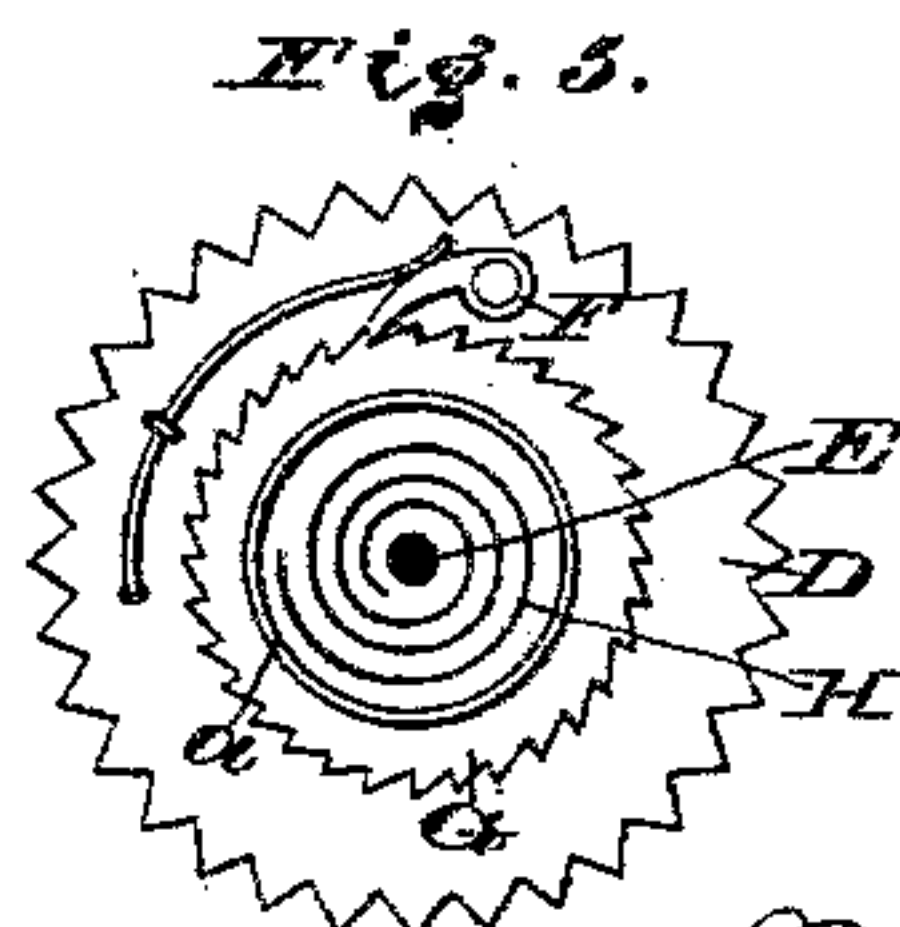
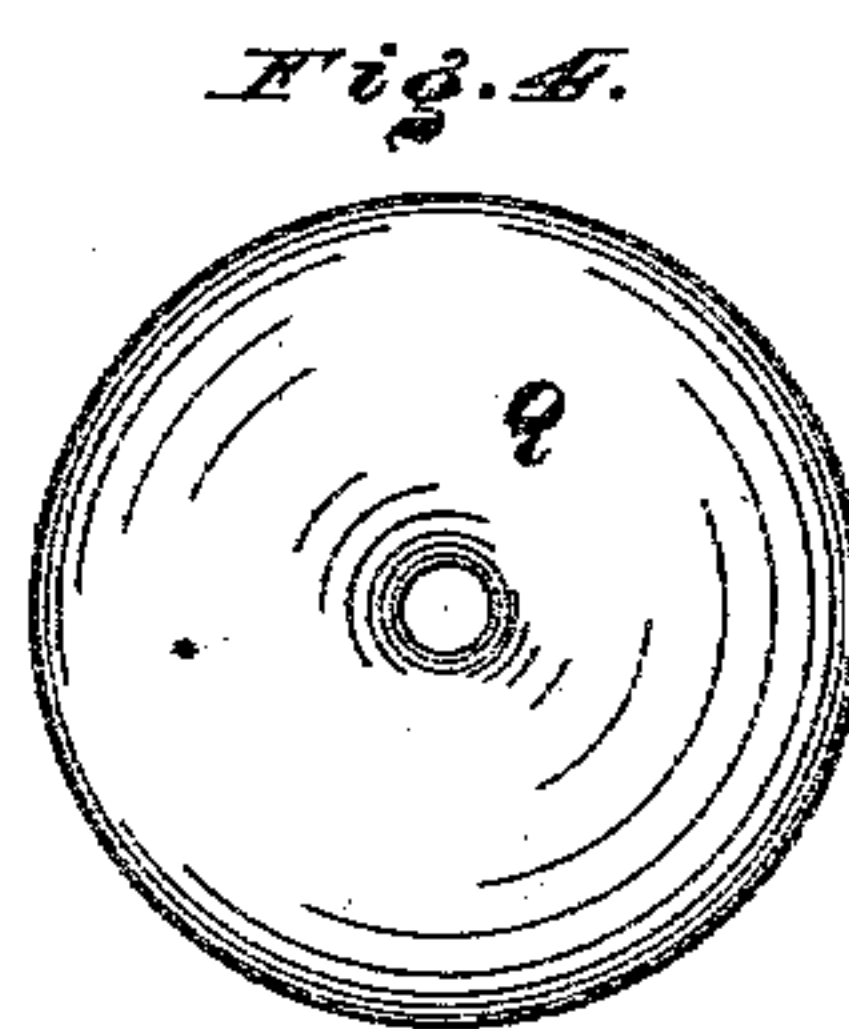
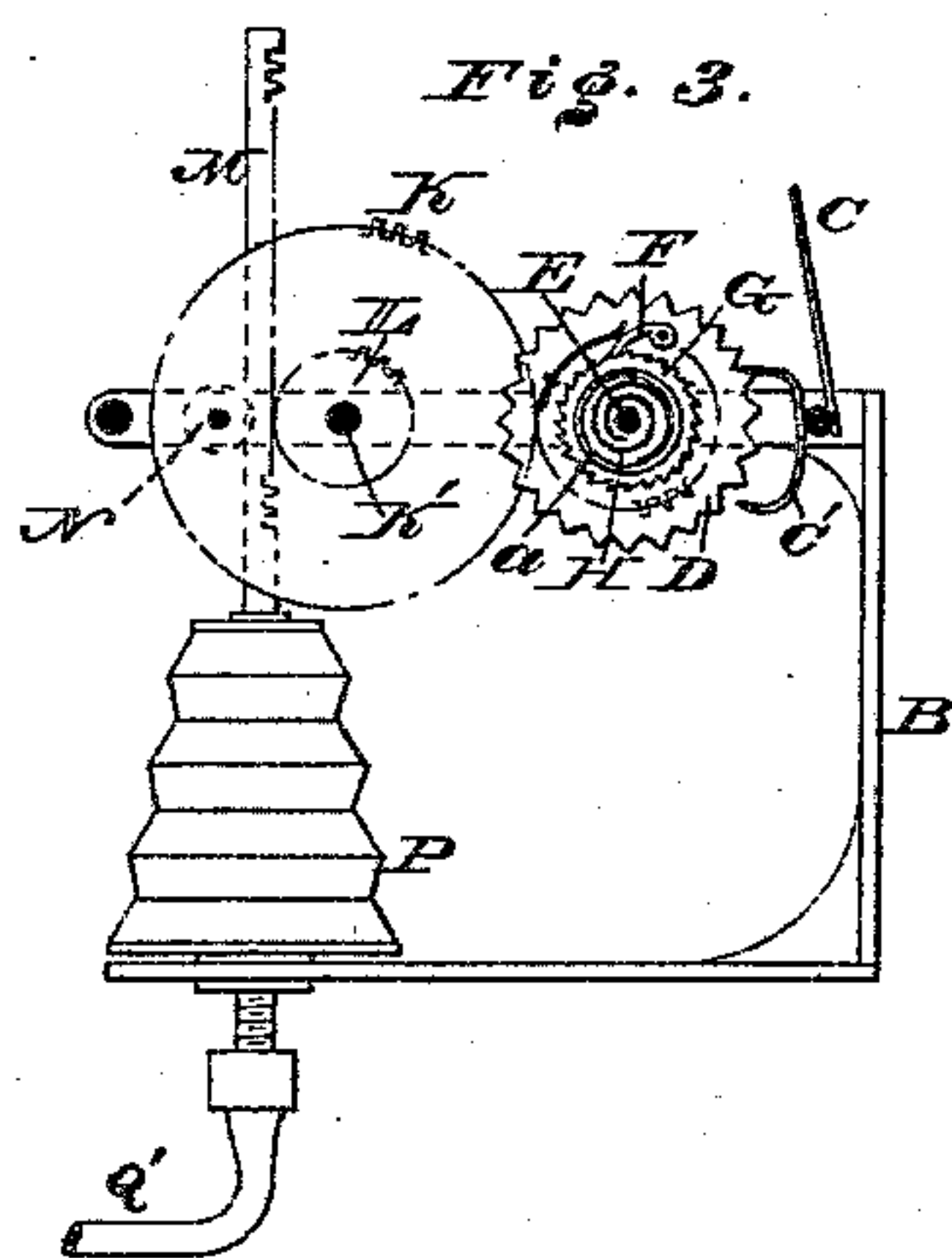
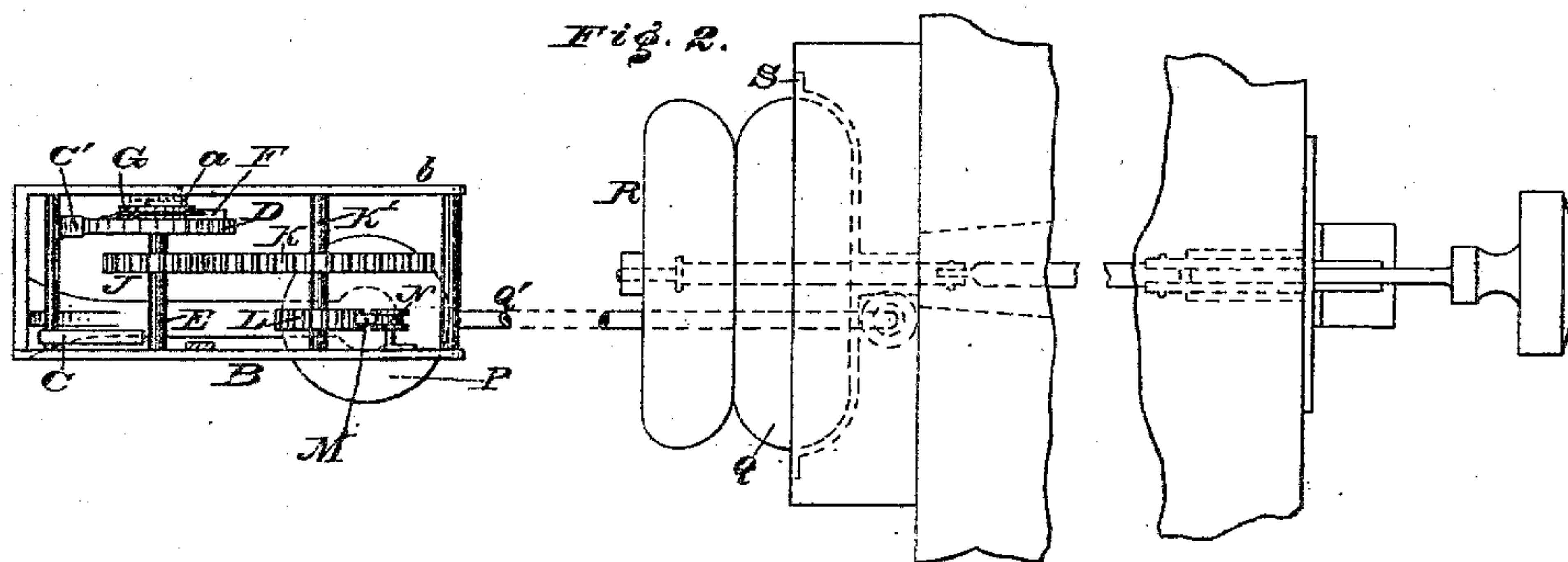
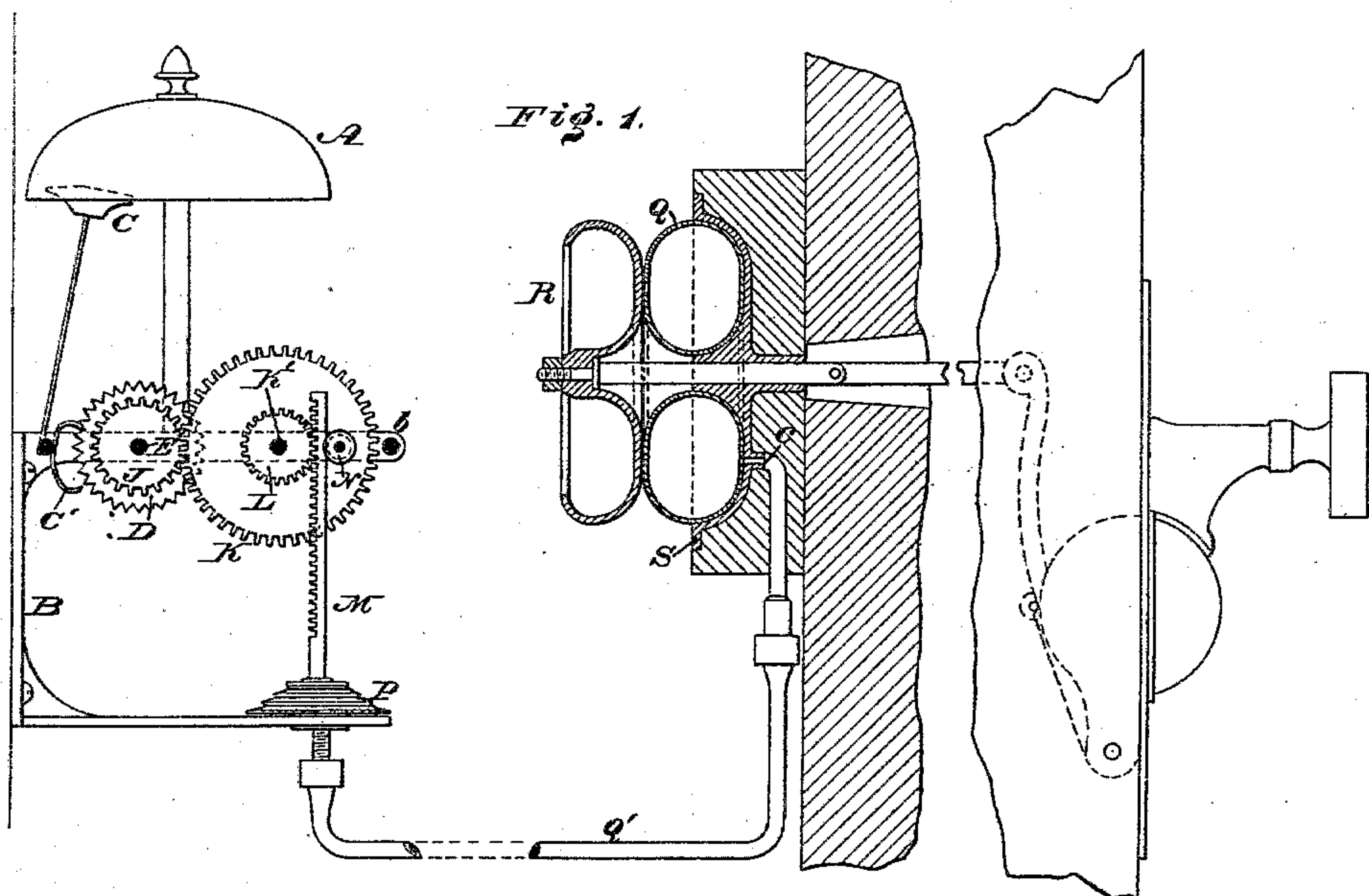
(No Model.)

R. P. GARSED.

PNEUMATIC BELL RINGING APPARATUS.

No. 296,828.

Patented Apr. 15, 1884.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ROBERT P. GARSED, OF NORRISTOWN, PENNSYLVANIA.

## PNEUMATIC BELL-RINGING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 296,328, dated April 15, 1884.

Application filed August 15, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT P. GARSED, a citizen of the United States, residing in Norristown, county of Montgomery, State of Pennsylvania, have invented a new and useful Improvement in Pneumatic Bell-Ringing Apparatus, which improvement is fully set forth in the following specification and accompanying drawings, in which—

10 Figure 1 is a partial side elevation and partial vertical section of pneumatic bell-ringing apparatus embodying my invention. Fig. 2 is a top or plan view thereof. Fig. 3 is a view of a portion opposite to that shown in Fig. 1.

15 Fig. 4 is a plan view of a pump. Fig. 5 is an enlarged view of the escapement-wheel and connections.

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

20 My invention consists in causing the operation of a bell-hammer by the uncoiling of a spring, whereby the ringing of the bell is of increased duration.

It also consists of means for preventing displacement of the coils of the spring.

It also consists of the train with which the bell-hammer is connected, having an operating rack and pinion, said rack being attached to an inflatable bellows-like body, and having

30 means whereby it is retained in position and guided true in its motion.

Referring to the drawings, A represents a bell or gong, which is supported on a frame, B, the latter being properly secured in position within an apartment or place where the ringing of the bell is desired.

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C represents the bell-hammer, and C' the pallet-arm attached thereto, the latter engaging with an escapement-wheel, D, which is fitted loosely on a shaft, E, and carrying a pawl, F, said shaft having its bearings on the frame B. The pawl F is adapted to engage with a ratchet, G, which is fixed to said shaft E when said ratchet is rotated in one direction, and is inoperative when said ratchet is rotated in the opposite direction. The ratchet is recessed or formed with lugs or an annulus, *a*, within which is fitted a coiled spring, H, one end of which is connected with said ratchet, and the

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50 other end with the side bar or plate, *b*, of the frame B, whereby the rotation of the ratchet

G with the shaft E causes the coiling of said spring. The annulus *a* and plate *b* serve to guide the spring and prevent displacement of its coils. The shaft E also carries a spur-wheel, J, which meshes with a spur-wheel, K, the shaft K' whereof, mounted on the frame B, has secured to it a pinion, L, with which engages a rack or rack-bar, M. Bearing against the back of said rack is a grooved pulley, N, which, mounted on the frame B, serves to hold said rack firmly in position, causes it to move easy, and guides it true as it advances and returns. One end of the rack is secured to an inflatable bellows-like body, P, which is properly sustained on the frame B, and in communication with an air-pump, Q, the compression of said pump being occasioned by a plunger, R, with which a bell-pull is connected.

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It will be seen that when the pump is operated, the air forced through the pipe Q enters the body P and inflates the same, (see Fig. 3,) thus causing the advance of the rack-bar M and consequent rotation of the pinion L, spur-wheels K J, and ratchet G, the teeth of the latter being so disposed that the pawl F is not engaged therewith, whereby the escapement-wheel D and bell-hammer C remain inoperative, the rotation of the ratchet G causing the winding or coiling of the spring H. When the bell-pull is let go, the pump is permitted to expand, and as the body P is relieved the train is also relieved, so that the spring H is permitted to uncoil and become inoperative. This rotates the ratchet G in the reverse order, and as its teeth engage with the pawl F the escapement-wheel D is rotated, whereby the pallet-arm C' is tripped and the bell rung. Simultaneously with the rotation of the ratchet the wheels J K and pinion L are rotated, the power of the spring thus being exerted to lower the rack M and body P and restore the parts to their normal position. It will be seen that as the bell is rung by the power exerted by the uncoiling of the spring H the duration of the ringing is much greater than if occasioned by the ascent of the rack M, as the bell will ring when said rack and the train are at rest.

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The pump is constructed of a body of elastic material, preferably soft rubber, and is of annular form, thus having concentric or in-

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ner and outer peripheries, by which means the body possesses increased strength, and is enabled better to endure the strain to which it is subjected while being compressed and contracted. The body of the pump Q is set in a casing or cup, S, and communicates with the pipe as at c. The plunger R is connected with the bell-pull, as has been stated, the features of the pump, however, not being claimed in the present application.

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

1. In a bell-ringing device, a bell-hammer, in combination with an escapement-wheel fitted loosely on a shaft, and carrying a pawl, a ratchet and gear-wheel fixed to said shaft, a coiled spring connected with said wheel and the supporting-frame, gearing, and operating rack or bar, substantially as described, said spring being wound up on the advance of said bar, the subsequent uncoiling of the spring causing the ringing of the bell and restoring the parts to their normal position, as stated.
2. In bell-ringing apparatus, the combination of an operative pump, a bellows, and a pipe connecting the same and escapement mechanism, devices for operating the same, and a spring, the latter being coiled on the advance of said devices, leaving the bell-hammer inoperative, and uncoiling on the return of said devices, causing the operation of said

hammer and ringing of the bell, substantially as and for the purpose set forth.

3. In bell-ringing apparatus, escapement mechanism and operating devices therefor, in combination with a spring, substantially as described, the same being wound by the primary motion of said devices without affecting the bell, and uncoiling on the return motion of said devices, causing the ringing of the bell, as stated.

4. In a bell-ringing device, a hammer, in combination with an escapement loosely fitted on a shaft and carrying a pawl and ratchet, a spring, gearing, and means for operating said gearing, whereby said spring is wound on the advance motion of the gearing without affecting the bell, the subsequent uncoiling of the spring causing the ringing of the bell and restoration of parts to their normal position, as stated.

5. In a pneumatic bell-ringing apparatus, an inflatable body and operating pump, a rack connected with said body, a pinion, gearing, and a bell-hammer, in combination with the frame or support, having a roller or pulley which guides said rack, substantially as and for the purpose set forth.

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Witnesses:

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