

(No Model.)

R. P. GARSED.  
PNEUMATIC BELL.

No. 401,341.

Patented Apr. 16, 1889.

Fig. 1.

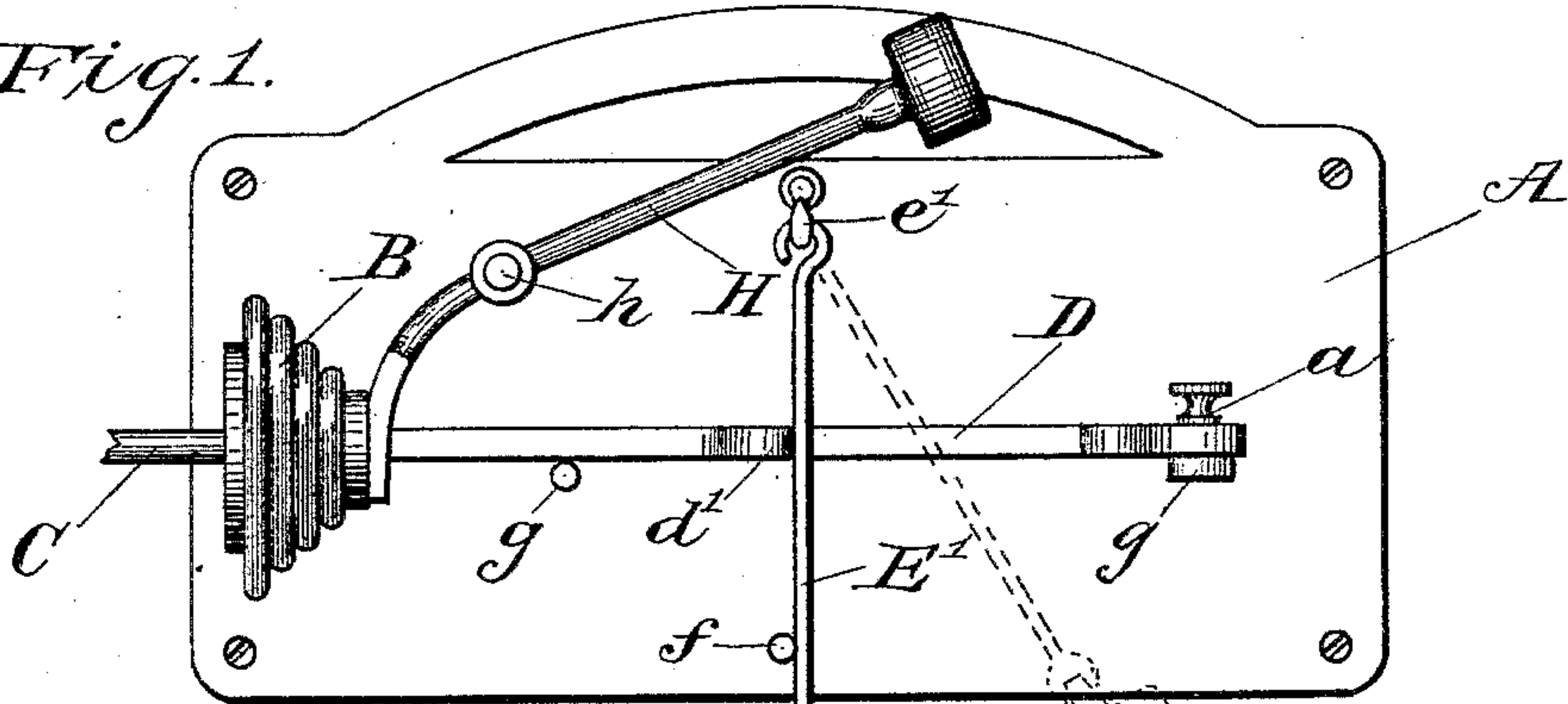


Fig. 4.

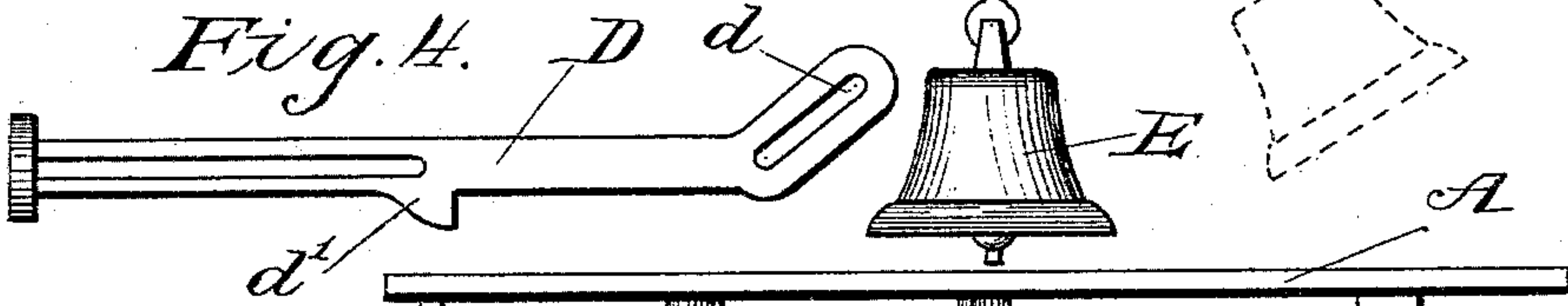


Fig. 2.

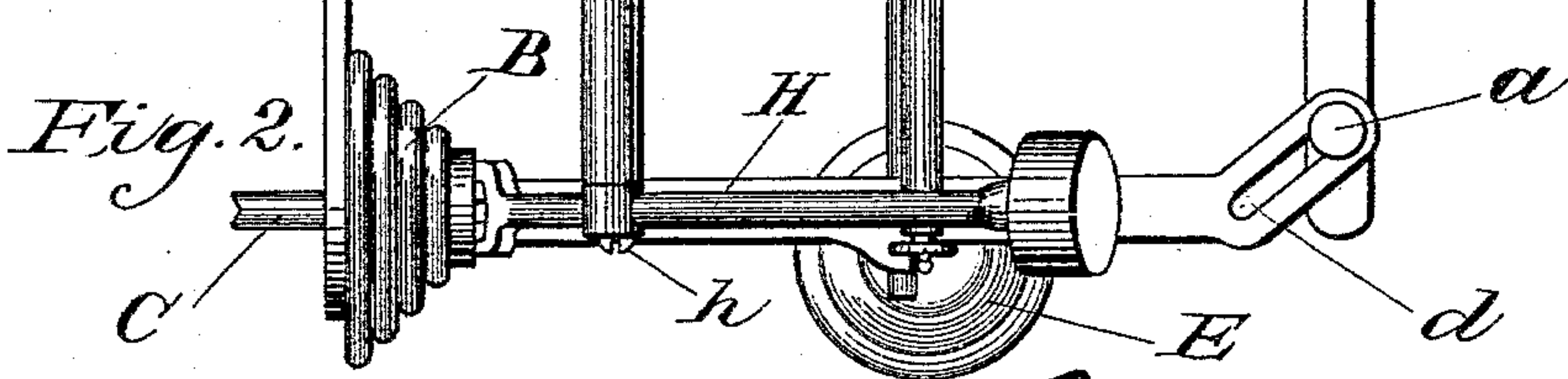


Fig. 6.

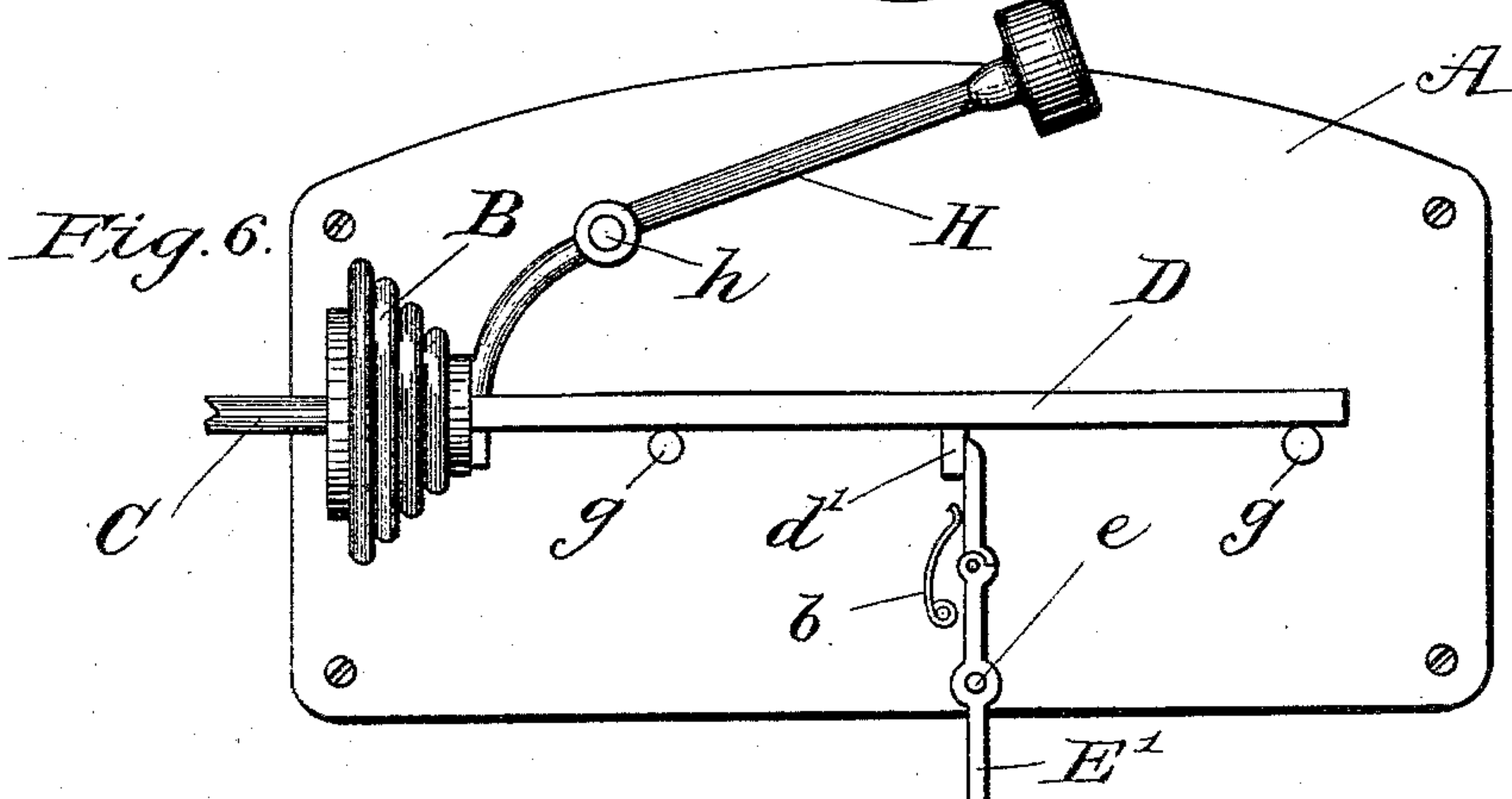


Fig. 5.

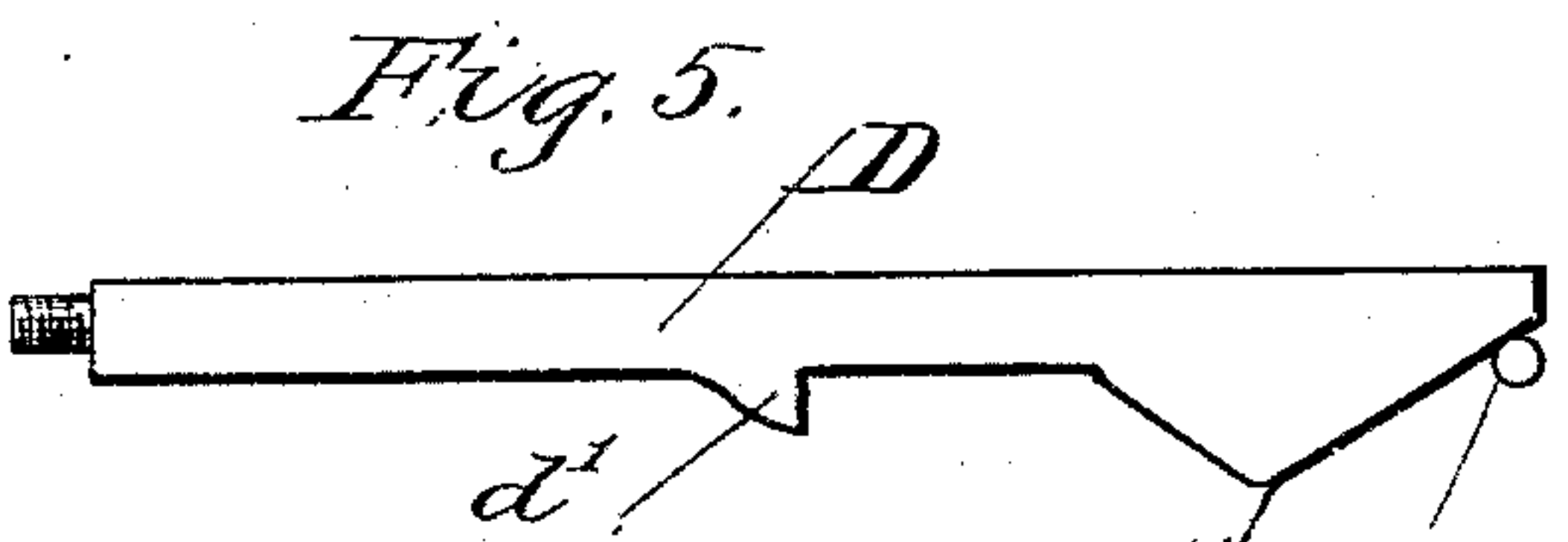


Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## PNEUMATIC BELL.

SPECIFICATION forming part of Letters Patent No. 401,341, dated April 16, 1889.

Application filed December 18, 1888. Serial No. 294,020. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT P. GARSED, a citizen of the United States, residing at Norristown, in the county of Montgomery and State of Pennsylvania, have invented a new and useful Improvement in Pneumatic Bells, of which the following is a specification, reference being had to the accompanying drawings to more clearly set forth the device.

The object of my invention is to furnish a cheap and durable device which can be operated from a long distance and through a small pipe and yet ring whether from slow or rapid influx of air, thus having an advantageous feature over one of my former inventions, to which it is allied, and, with its other advantages, meeting the demands of the public for simplicity and easy adjustment of the parts of bell-ringing apparatus.

Referring to the drawings, Figure 1 represents a front view of the device and Fig. 2 a top view; Fig. 3, a view of the bellows-collapsing arm or lever; Fig. 4, a top view of the bell-actuating rod, and Fig. 5, a modification thereof, showing in lieu of slot *d* a projecting side, *K*, for engagement with pin *a*, which may be used, as will be further set out; and Fig. 6, a modification with the projection to trip the bell underneath the push-rod.

A represents a back plate or frame suited for attachment to a wall or other suitable place.

B represents a bellows secured to an arm of said frame and having an air-pipe, *c*, leading into it, through which air passes to distend said bellows.

D is the actuating or sliding rod or arms, having a diagonal or slanted slot or part, *d*, through which a pin, *a*, passes to guide it in its motions, and also having a projection, *d'*, on one side shouldered at the forward edge and slanted at the rear.

E represents a bell suspended by the rod *E'* from a hook, *e'*, attached to the frame A.

*f* is a stop-stud for the bell, and *g g* are supporting-studs for the sliding rod D, the rear one also serving to gage the outward movement of the bellows B, and also stopping the weighted end of lever H from going too far backward when the device is being operated by preventing the other end of said lever from going too far forward.

H is the collapsing arm or lever for the bellows B, and is supported on the frame A by the pin *h*, which serves as a pivot. This arm can either be a spring or weighted lever; but it is preferable to use the latter, as were a spring used it would become heavier as the bellows distended, and so absorb the force of bellows in operating the bell, whereas the lever gets lighter upon the advance of the bellows, and its lower end may either surround or pass through the rod D in bearing against the outer face of said bellows.

In Fig. 6 the bell-rod is hinged to bend only one way, and the flat spring M thereon restores it to its straight position, as will be understood. The projection *d'*, both in its advance and retreat, engages the bell-rod *E'*, as in the other case.

The operation of the device is as follows: Air being displaced through the pipe *c* in any of the well-known ways—preferably by pump—distends the bellows B, with the result that the actuating-rod D advances and, through the shoulder of the projection *d'*, pushes the bell-rod, which hangs within this shoulder, with it. During this advancement of the rod D the slot *d* and pin *a*—the latter being stationary upon supporting-stud *g*—give it a lateral motion, and when near the end of its throw the bell E, which would naturally hang perpendicularly, slips from within the shoulder and has a free movement to strike the pin or stud *f* to cause its ringing. In the meantime the air in the bellows B somewhat cushions and retards the retreat of arm D, which gives a sufficient time for swing of bell E in its ringing. Immediately thereafter said bellows and arm are forced to their first position by the action, due to gravity, of the collapsing-lever H. Near the end of this collapsing of bellows the slanted side of projection *d'* forces the bell somewhat outwardly by bearing on its rod, after which the bell-rod naturally falls again within the shoulder of the projection *d'*, and so the parts are again in position for operation. These results take place whether the device is operated slowly or quickly, and were it not for the allowed disengagement of the bell E and rod D the device could not be operated except by rapid motion, and then only the lower part of the bell-rod could vibrate, as the rapid distention



of bellows would press said rod against the outer stud, *g*, and the vibratory motion then given said bell-rod would only be exercised by the part below said stud during the short  
 5 period between such impact and the commencement of collapsion of bellows, and then during this collapsion the bell-rod could not continue its vibrations, as when naturally assuming its perpendicular position it would be  
 10 cushioned by bearing upon the actuating-arm D as said arm retreated slowly to its first position, it being understood that the displacement of air from the bellows B to the pipe *c* is slower than from the pump to the pipe at  
 15 its other end, because of greater force being used in operating such pump.

In lieu of the diagonal slot *d* in the arm D, a projecting side or part, K, as shown in Fig. 5, may be used to bear against pin *a*. The  
 20 former, however, is preferable.

It will be seen that the hook *e'* for supporting bell E is preferable to a pivot through said bell-rod, as the hook allows the bell to hang loosely and permits of easy lateral move-  
 25 ment to be given it.

Another advantageous feature of the device is that while the suspended bell is being pushed outwardly it exerts heavier pressure on the bellows the farther it goes, the collaps-  
 30 ing-lever becomes lighter and almost reaches equilibrium at the end of its rise, and so in the reverse movement of these elements the collapsing-lever is heaviest at a desired time to fully collapse the bellows and allow the  
 35 bell to drop in position.

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

1. The combination, in a pneumatic bell, of  
 40 the frame A, with a suspended bell, E, having a rod, E', supported by hook *e'*, attached to said frame, bellows B, attached to frame A, and having a pushing-rod, D, with a slant and shoulder on its side adapted to move  
 45 back and forth with the motions of said bellows, an air-pipe, *c*, leading to said bellows, and the rod E' of said bell adapted to engage and disengage itself from the rod D, whereby

a jingling of the bell E takes place, substantially as and for the purposes set forth. 50

2. The combination, in a pneumatic bell, of the air-conveying pipe *c*, the frame A, with supported bellows B, and a suspended bell with its rod E', and an actuating-arm, D, adapted to move back and forth, attached to  
 55 said bellows, said arm D having a projection, *d'*, on its side, with a slant and shoulder adapted by the movement of said arm to engage and disengage the bell-rod E', and the collapsing-lever H, pivoted to the frame A by  
 60 the pivot *h*, and having a weight on one end and at the other adapted to engage the bellows B to collapse the same, substantially as and for the purposes set forth.

3. The combination, in a pneumatic bell, of 65 the air-conveying pipe *c*, the frame A, with the suspended bell E, and a supported bellows, B, carrying an actuating-arm, D, with a projecting part adapted by the movement of said arm to engage and disengage the rod E' 70 of said bell, said arm also having a diagonal slot, *d*, to give lateral motion to it when engaging pin *a*, the pin *a*, supported by the stud *g*, and passing through said slot, and the stud *g*, supported on said frame A, substan- 75 tially as and for the purposes set forth.

4. The combination, in a pneumatic bell, of the air-conveying pipe *c*, a frame carrying a sus- 80 pended bell, E, and bellows B therefor, which is provided with an actuating-arm, D, said arm formed with a projection, *d'*, on its side with a slant and shoulder, and an inclined end, *d*, to give lateral motion to it when en- 85 gaging the pin *a*, said pin *a* and the studs *f* and *g* each secured to the frame, and the collapsing-lever H, pivoted intermediate of its length on the stud *h*, the outer long arm being weighted and the inner and shorter arm engaging the actuating-rod D to collapse the bellows and restore the parts to their normal 90 position, substantially as set forth.

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Witnesses:

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