

(Model.)

H. LEWRY.

DOOR SPRING.

No. 356,001.

Patented Jan. 11, 1887.

Fig. 1.



Fig. 2.

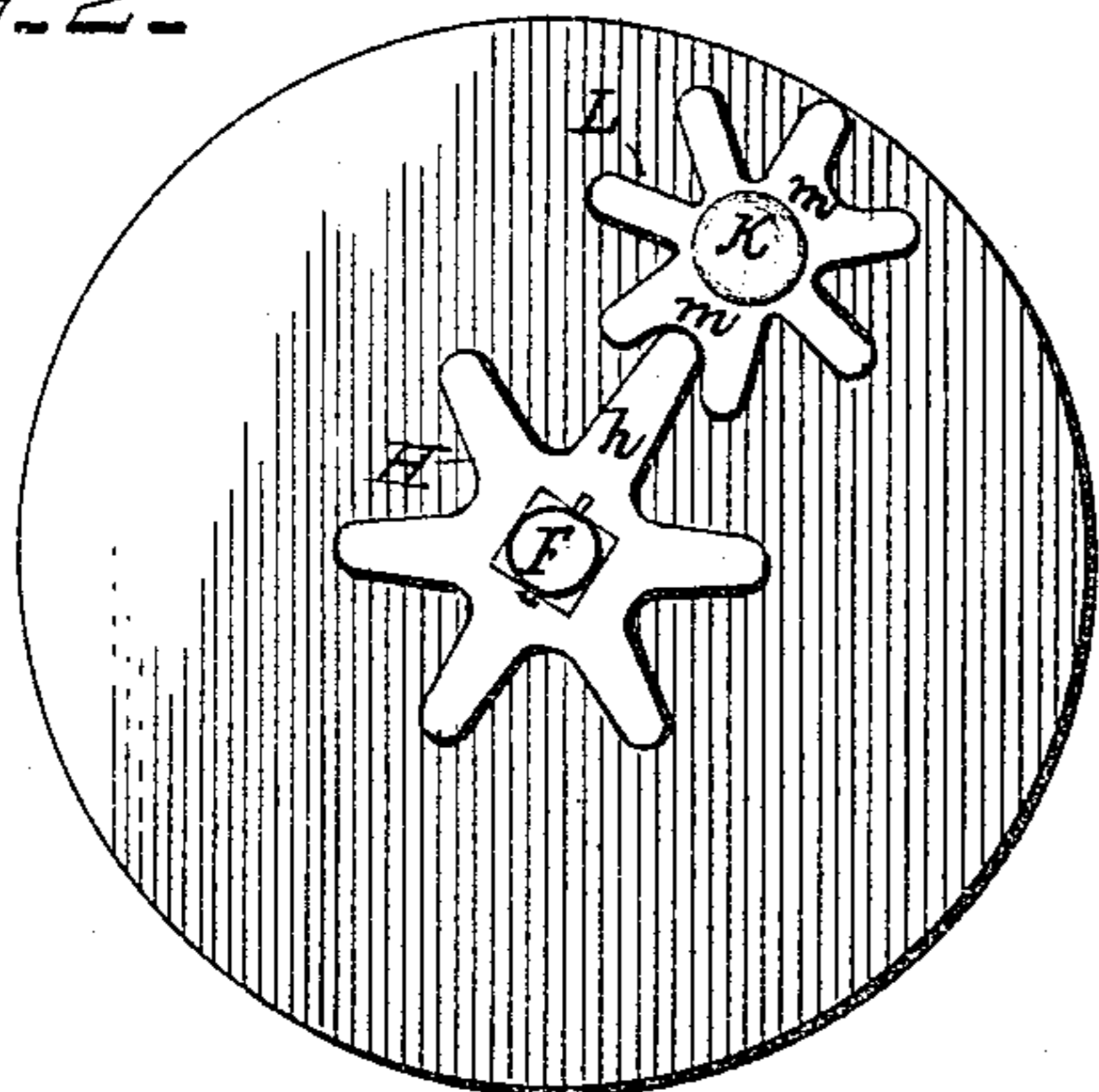
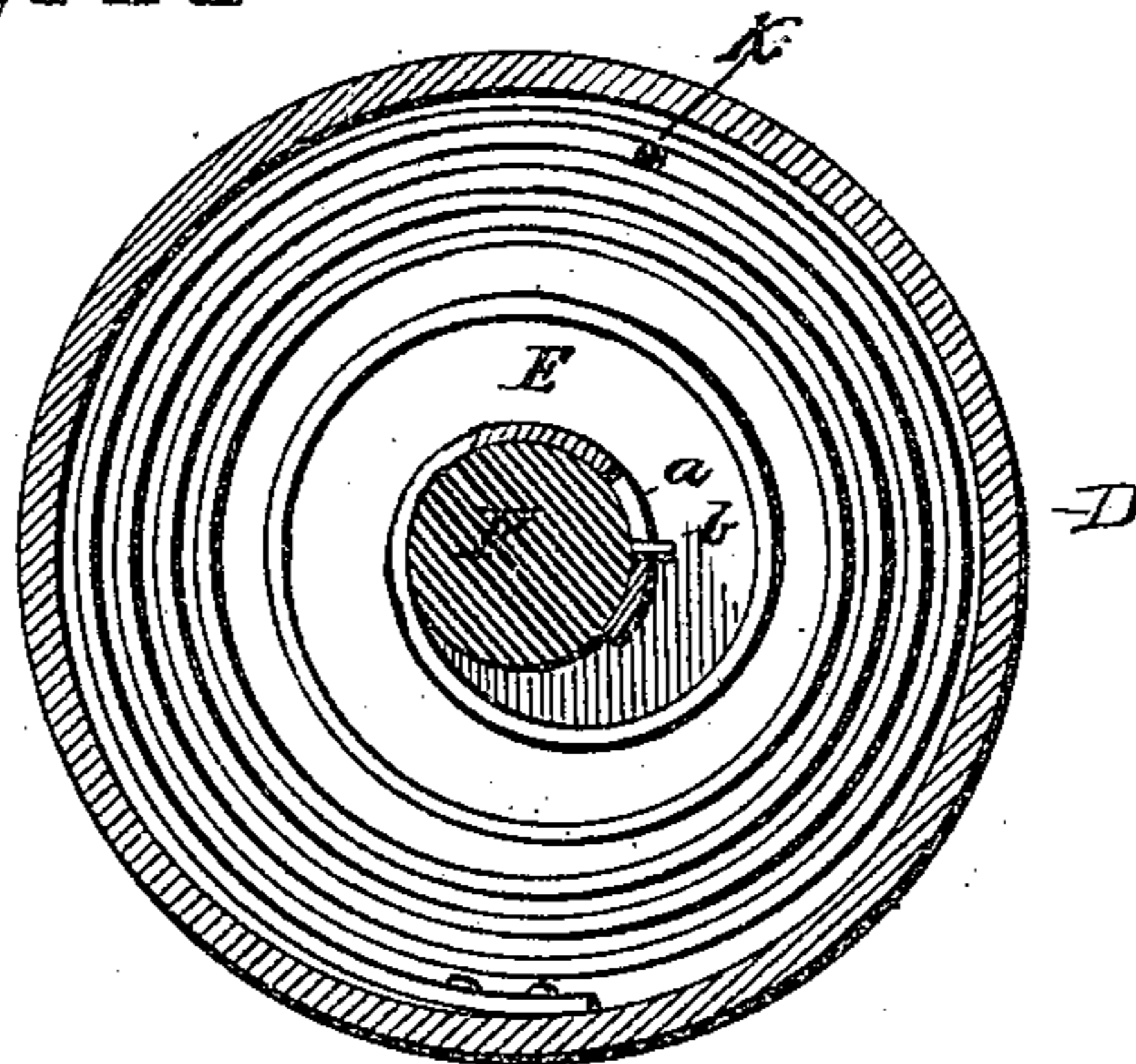


Fig. 3.



WITNESSES

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HENRY LEWY, OF MONTGOMERY, ALABAMA.

DOOR-SPRING.

SPECIFICATION forming part of Letters Patent No. 356,001, dated January 11, 1887.

Application filed November 1, 1886. Serial No. 217,696. (Model.)

To all whom it may concern:

Be it known that I, HENRY LEWY, a citizen of the United States, residing at Montgomery, in the county of Montgomery and State of Alabama, have invented certain new and useful Improvements in Door-Springs; 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 ap-
10 pertains to make and use the same.

This invention relates to that class of door-closers which are operated by coiled springs; and it has for its object to provide a simple device whereby the action of the spring is auto-
15 matically checked to prevent the door slamming or closing violently, as will be hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view of
20 my improved door-closer in position; Fig. 2, an enlarged view of the bottom of the device, and Fig. 3 a horizontal section through the barrel.

Similar letters refer to similar parts throughout the several views.

A represents the upper part of a door-casing, and B the upper part of a door. To the door-casing, above the door and about six inches from a vertical line drawn through the
30 hinges, I secure, by means of screws or nails, the bracket C of my improved door-closer. This bracket consists simply of a plate of metal provided with perforations near each of its ends, and is preferably cast integral with the
35 barrel or drum D, which contains the flat coiled spring E. The outer end of this spring is secured in any desired manner to the inner surface of the barrel D, and its outer end is provided with a slot, *a*, to embrace a pin, *b*, cast
40 on the main shaft F, so that when the latter is turned or rotated toward the right, Fig. 3, the spring will be wound round it. The ends of shaft F project through openings formed in the top and bottom of the barrel or drum and
45 are reduced to receive the grooved pulley G and toothed wheel H, the former being on its upper and the latter on its lower end. A short shaft, K, is rigidly secured to the bottom of the barrel in any desired manner, and on this
50 shaft a pinion-wheel, L, is loosely mounted, so that it may rotate on the same. To the

grooved pulley G one end of a cord or rope, *g*, is secured, and connected by its other end to an arm or hook, M, which is secured to the door, either in line with, or, as shown, slightly
55 to one side of the barrel D of the device. The wheel H is provided with five short teeth and one long one, *h*, and meshes with the pinion L, which has seven teeth, the space between two of which, on opposite sides, is shorter, or
60 is filled out, so as to present a concave surface at *m*.

The object of so forming the wheel H and pinion L is to check the action of the spring, and the operation is as follows: The device
65 being located, as described above, on the casing a short distance from the hinged side of the door, and the arm M being secured to the door a short distance to one side of or in line with the barrel of the device, and the cord
70 or rope wound around the pulley and secured to said arm, so that it will hang somewhat loose or slack, the opening of the door will rotate the shaft F and wind the spring around the same, and at the same time rotate the wheel
75 H, which, meshing with the pinion L, will turn the same until the rounded or convex end of tooth *h* meets the concave surface *m* between the teeth of pinion L, the contact between the two offering a resistance to the further turning
80 of the shaft, but which can be overcome by slightly pushing the door to force the tooth *h* past the concave surface, this action occurring with a six-toothed wheel and seven-toothed
85 pinion at every fourth revolution of the wheel. When the door is closing, the same action is repeated, but in a less degree, as the resilience of the spring will at the start force the parts
90 past each other with hardly a perceptible stop or want of action until the door is nearly closed, when, the resilience growing weaker and the cord being slack, the parts will engage and hold the door slightly open, or if they
95 are forced apart, will offer such resistance to the spring that the door will close gently, or without violence.

The object of locating the device near the hinged side of the door and the arm to one side of or in line therewith is to permit the door to be opened wide or back against a wall, where
100 it will remain or be held by the device because of the end of the arm and the pulley being

thus brought in a horizontal line and throwing the line of force exerted by the spring back of the door.

I do not desire to be restricted to wheels
5 with six teeth and pinions with seven, as it is obvious that if the same proportions are sustained the result will be the same, no matter how many teeth are used. The end of tooth *h* and the concave *m* should be of hard metal.

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

The combination, in a door-closer, of the

drum D, spring E, shaft F, the toothed wheel H, one tooth of which projects beyond its general circumference, and the pinion L, having 15 two of its interdental spaces on opposite sides shortened and concaved, substantially as set forth.

In testimony whereof I affix my signature in 20 presence of two witnesses.

HENRY LEWY.

Witnesses:

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H. C. MOSES.