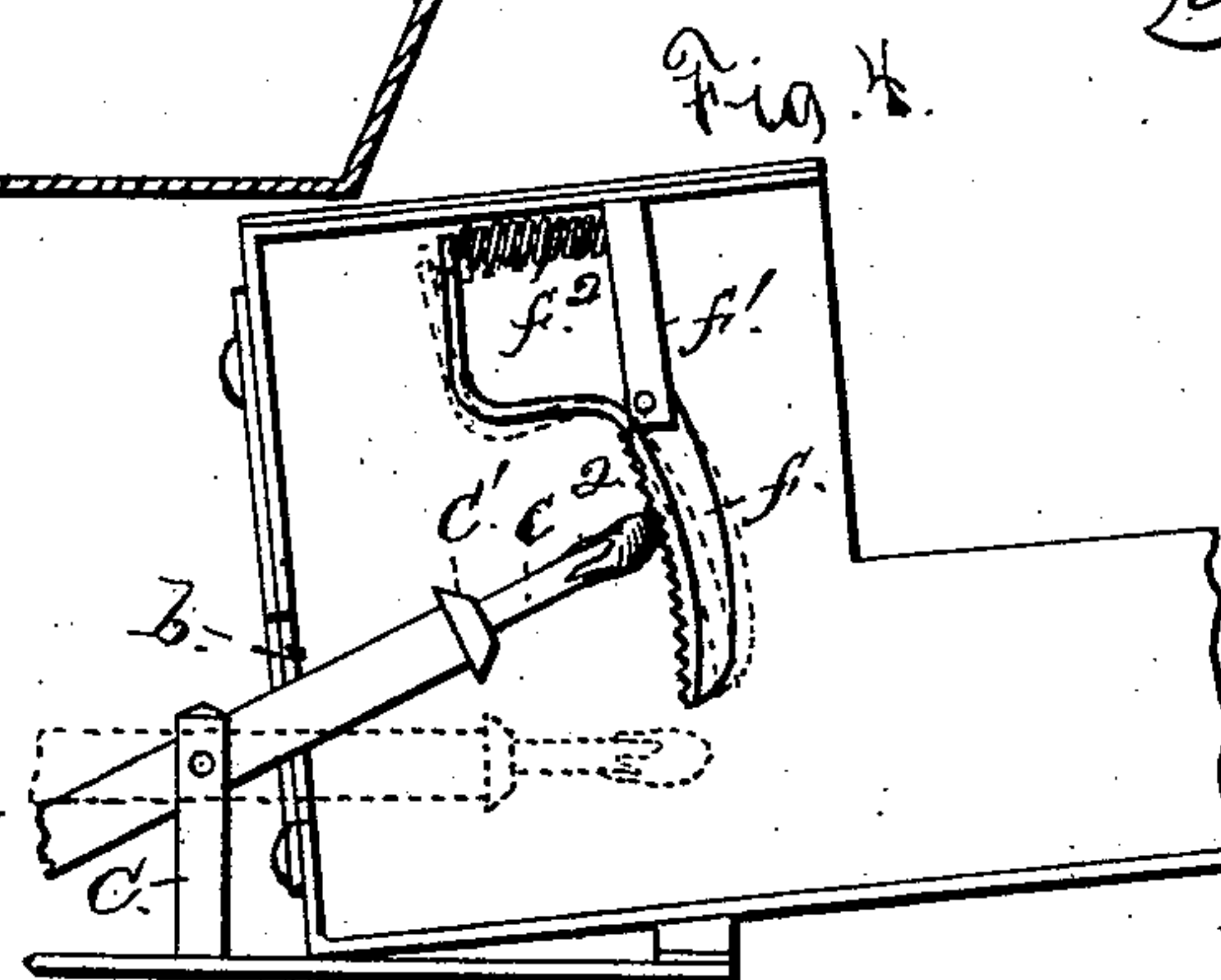
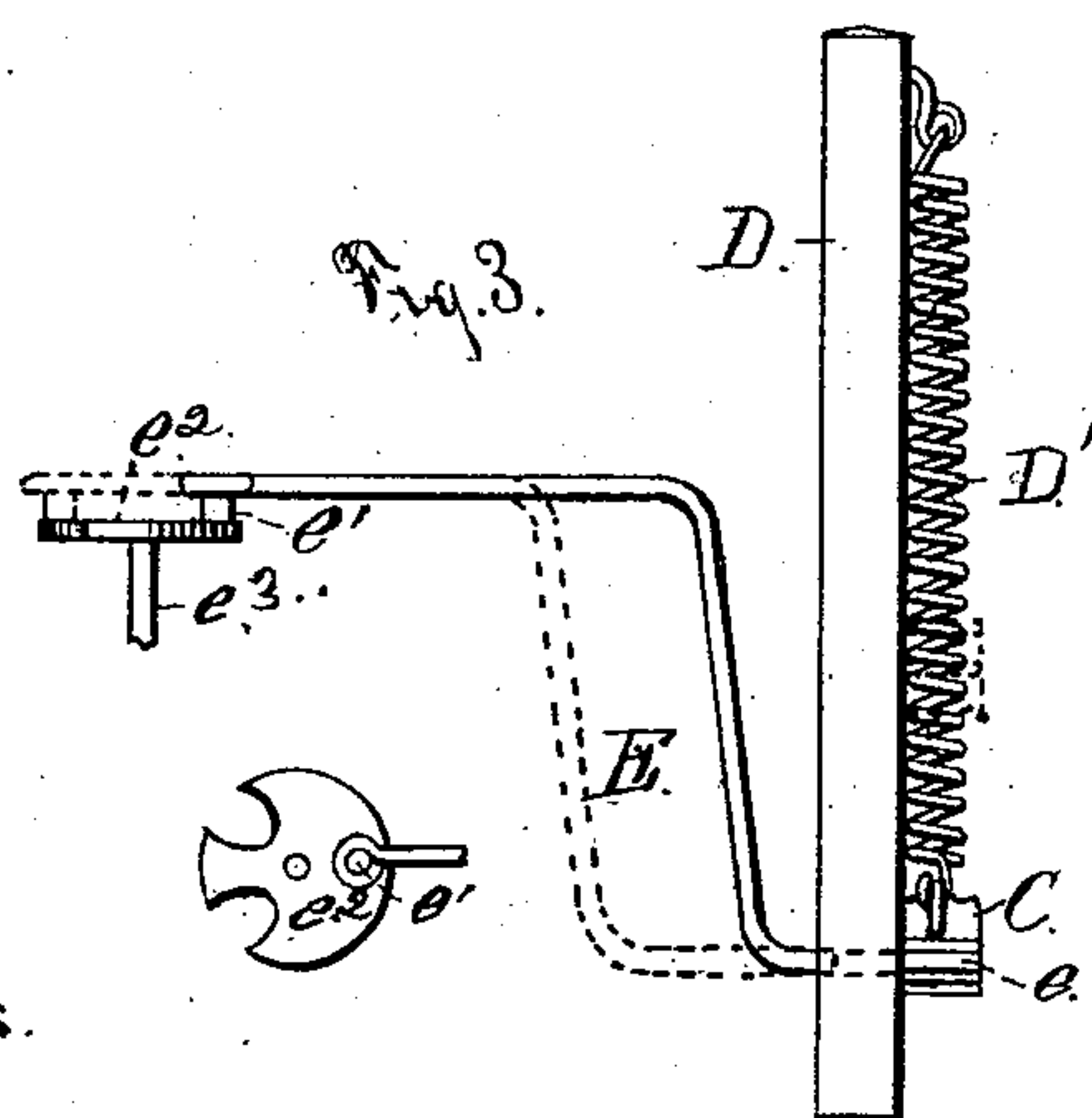
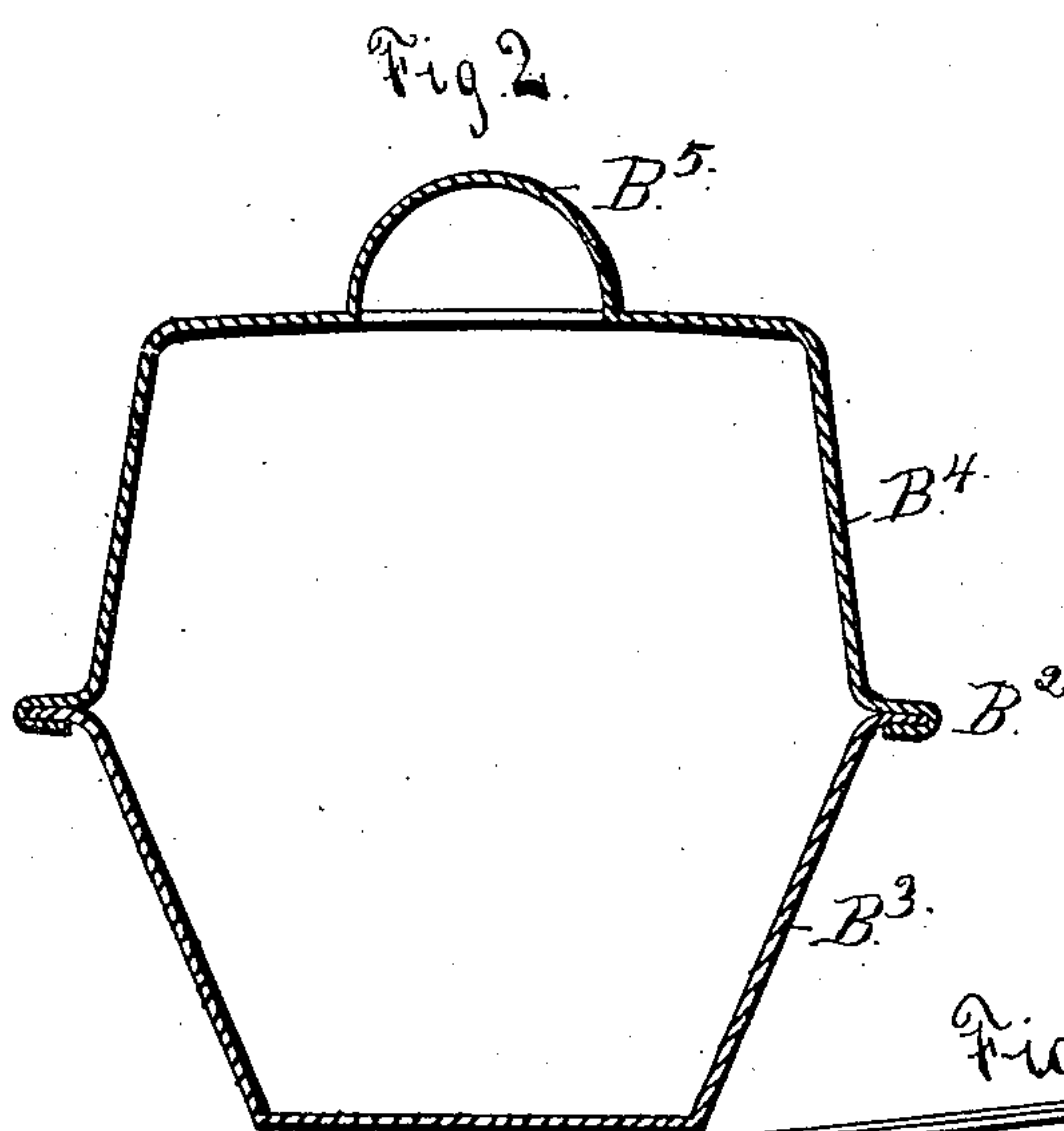
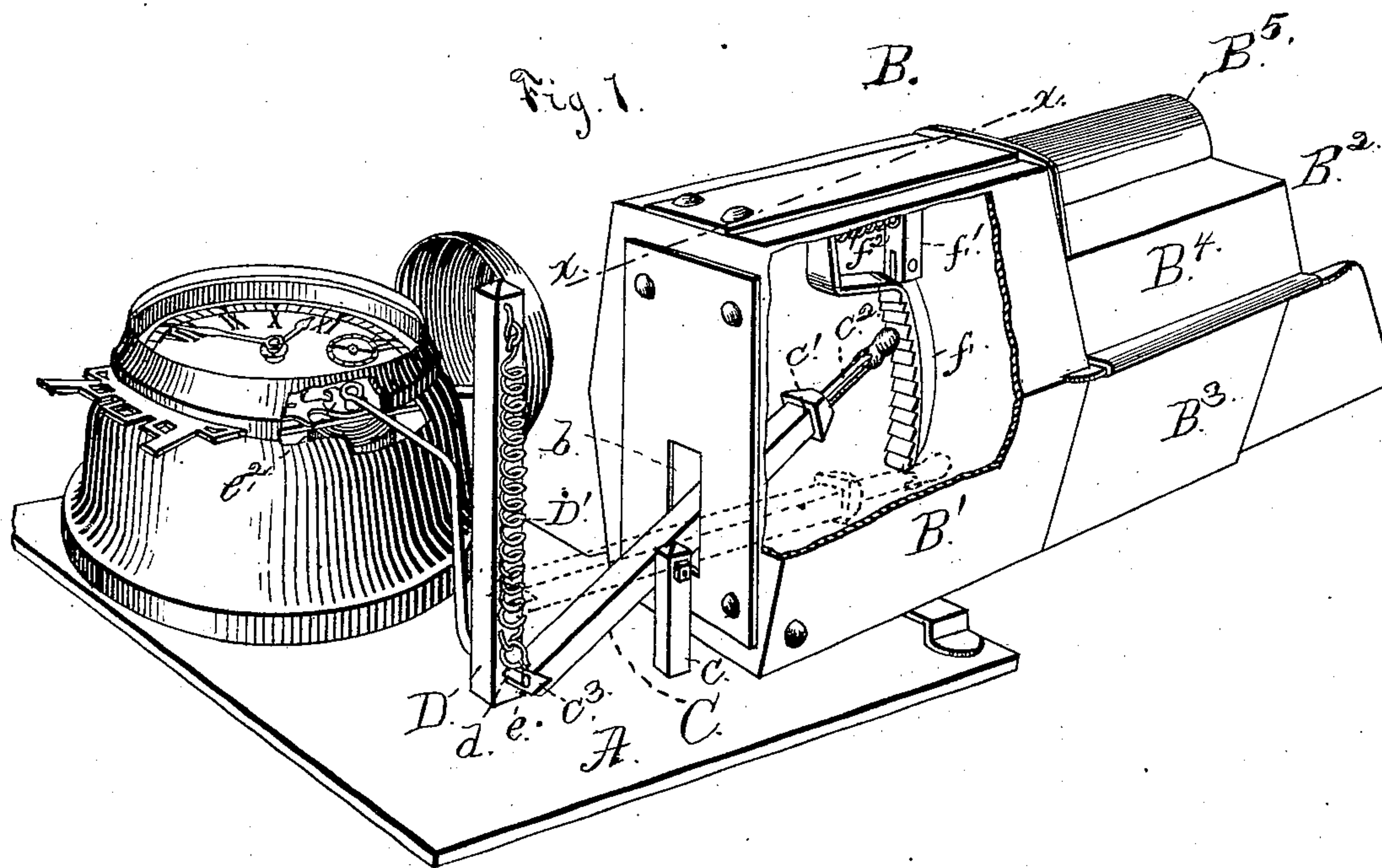


(No Model.)

J. M. RUSSELL.
AUTOMATIC FIRE LIGHTER.

No, 284,677.

Patented Sept. 11, 1883.



Attest
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UNITED STATES PATENT OFFICE.

JOHN M. RUSSELL, OF GARRISON, KANSAS, ASSIGNOR OF ONE-HALF TO
ROBERT M. MANN, OF SAME PLACE.

AUTOMATIC FIRE-LIGHTER.

SPECIFICATION forming part of Letters Patent No. 284,677, dated September 11, 1883.

Application filed June 12, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. RUSSELL, a citizen of the United States, residing at Garrison, in the county of Pottawatomie and State of Kansas, have invented certain new and useful Improvements in Fire-Lighters; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in fire-lighters; and it consists, essentially, in the peculiar means whereby the match-arm is released at a predetermined time, and in other improvements, all of which will be hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a machine constructed according to my invention. Fig. 2 is a cross-sectional view of the fire-box. Fig. 3 is a detail view, and Fig. 4 is a detached section, of the fire-box on line *x x*, Fig. 1.

These several parts of my machine are mounted on a suitable base-plate, A, so it may be arranged close to the stove when being set for use and removed and set aside when not in use, as will be readily understood.

The fire-box B is composed of the main or lighting chamber B' and the connecting-chamber B². This connecting-chamber is composed of the two parts B³ B⁴, the top part, B⁴, being removable from the lower part for the purpose of renewing the match, properly placing the kindling, &c. The upper edges of the side plates of part B³ are turned out, as shown, and the side plates of top or part B⁴ are turned to fit the turned-out portions of the lower part, B³, as shown in Figs. 1 and 2, so that the hood or top B⁴ may be readily removed from the main body of the fire-box. In the top of the hood B⁴ is formed a flue, B⁵, which may be connected with the smoke-flues or chimney of the stove in which the fire is to be lighted.

The match-arm C is pivoted on a support, *c*, and extends through a slot, *b*, formed in the front plate of the fire-box, and is provided on its inner end, *c'*, with a suitable socket or other means for retaining the match *c''*. The outer

end of this arm extends beyond the support *c*, and moves up and down close to the side of a standard, D, and the said arm is preferably provided in its outer end with the notch *c''*, for the purpose hereinafter described. The arm C and standard D are connected by a coil-spring, D', one end of which is made fast to the outer end of the arm C, while its other end is made fast to the standard D, near its top. Through the standard D, near its bottom, and at right angles to the arm C, I form a hole, *d*, through which the point of the releasing-bar passes. This releasing-bar E has its point *e* passed through the opening *d*, and engaging in the notch *c''* in the arm C when the parts are in the position shown in Figs. 1 and 3, and the opposite end of the rod E is carried to and connected eccentrically with the main shaft of the alarm mechanism. This may be done by eccentrically securing a wrist-pin, *e'*, on the main-shaft palettes *e''* of the train, and securing the rod E thereto; or a disk especially for the rod might be provided at the top of the main shaft *e''* of the alarm mechanism; or, where so desired, the said shaft *e''* might be bent to form a crank and the end of rod E secured thereto. This rod E is preferably made in the **1** shape shown, as thereby the motion of said rod from side to side, as the palette revolves, will not bend the point *e*; but the said point will move readily within the hole *d* in standard D.

I have not illustrated the alarm mechanism in detail, but merely shown its connection with the parts which I intend to operate thereby. This mechanism may be of any of the usual alarm forms, and may be used with or without the gong, as desired, the desired feature being the automatic starting of the alarm mechanism or train at a time predetermined by the operator.

The scratch-block *f* is pivoted within the fire-box on a suitable support, *f'*, depending from the top of said chamber, and the upper end of said block is carried forward and bent up, and is connected with the support *f'* by coil-spring *f''*, so that the block *f* will conform to the line of motion of the match, as will be readily understood from Figs. 1 and 4.

In the operation of my invention the kindling is properly arranged in the fire-box, and the latter is moved so as to communicate with

the grate of the stove or otherwise with the fuel in the stove proper, and these several parts—match-arm, releasing-rod, &c.—are arranged as shown in Fig. 1, the alarm-train being properly wound and set at time the fire is to be lighted, the clock or time-train being properly wound and running, as is usual in alarm-clocks, so as to trip the alarm mechanism and start the same. When the alarm mechanism is started, the shaft e^3 will revolve. This will draw rod E out of engagement with the arm C, releasing the outer end of same, which is drawn up rapidly by the spring D, and the match, secured on its other end, bearing against the scratch-block f , will be ignited and light the kindling placed in the fire-box, and the flames will rapidly spread to the fuel in the stove.

It will be understood that the rod E could be operated by a string fastened thereto and extended to the bedside of the operator, so the fire could be started before arising; but this would involve the awakening of operator before any necessity therefor, and I prefer the means before described because of its automatic operation and convenience.

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

1. In a fire-lighter, the combination of the pivoted match-arm, the operating-spring, the alarm mechanism, and the releasing-rod having one end arranged to engage and release the match-carrying arm, and its other end connected eccentrically with the main shaft of the alarm mechanism, substantially as and for the purpose set forth.

2. In a fire-lighter, the combination, with the match-arm pivoted on a suitable support, and means for holding, releasing, and operating the same, of a scratch-block pivoted in the path of the match end of said arm, the upper end of said scratch-block being extended above its pivotal point, and a retracting spring connecting the rear side of said upward extension to the framing, whereby the said scratch-block is made yielding to conform to the curved line of motion of the pivoted match-arm, substantially as set forth.

3. The combination of the fire-box, the scratch-block arranged therein, the match-arm, the standard arranged alongside the outer end of said arm, a spring having one end made fast to the standard, and its other end connected to the outer end of the match-arm, the alarm mechanism, and the releasing-rod connected with and operated by the alarm mechanism, and engaging and automatically releasing the match-arm, as set forth.

4. In a fire-lighter, substantially as described and shown, the combination, with the pivoted match-arm C and the alarm-mechanism shaft e^3 , of the T-shaped rod E, having one end connected eccentrically to the shaft e^3 , and its opposite end passed through a suitable support in position to hold and automatically release the pivoted match-arm, substantially as described and shown.

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

JOHN M. RUSSELL.

Witnesses:

B. A. HENLEN,
W. F. BAYLES.