

(No Model.)

4 Sheets—Sheet 1.

J. B. FONDU.

SAFETY DEVICE FOR USE IN GLASS SPREADING FURNACES.

No. 597,818.

Patented Jan. 25, 1898.

Fig. 1.

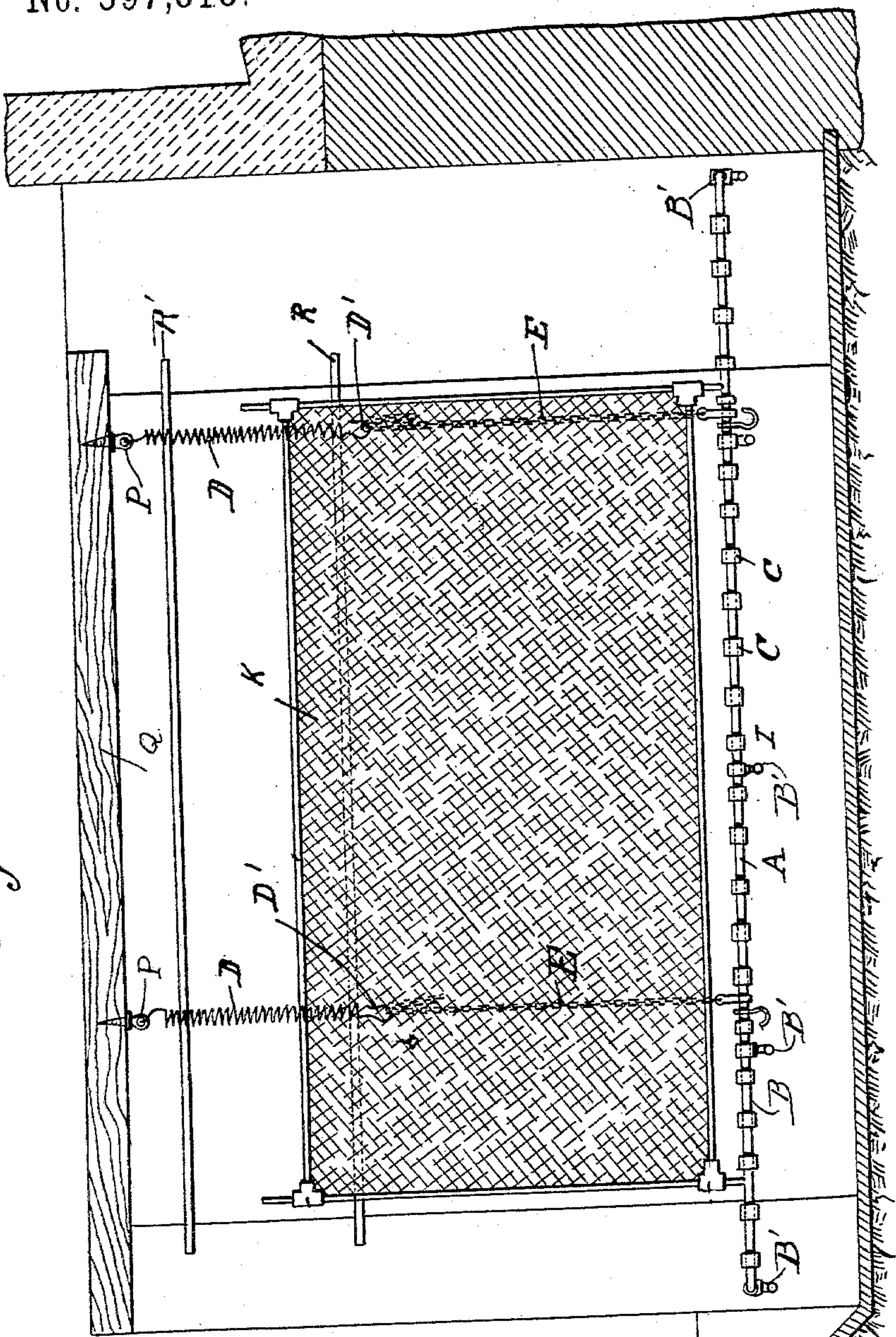
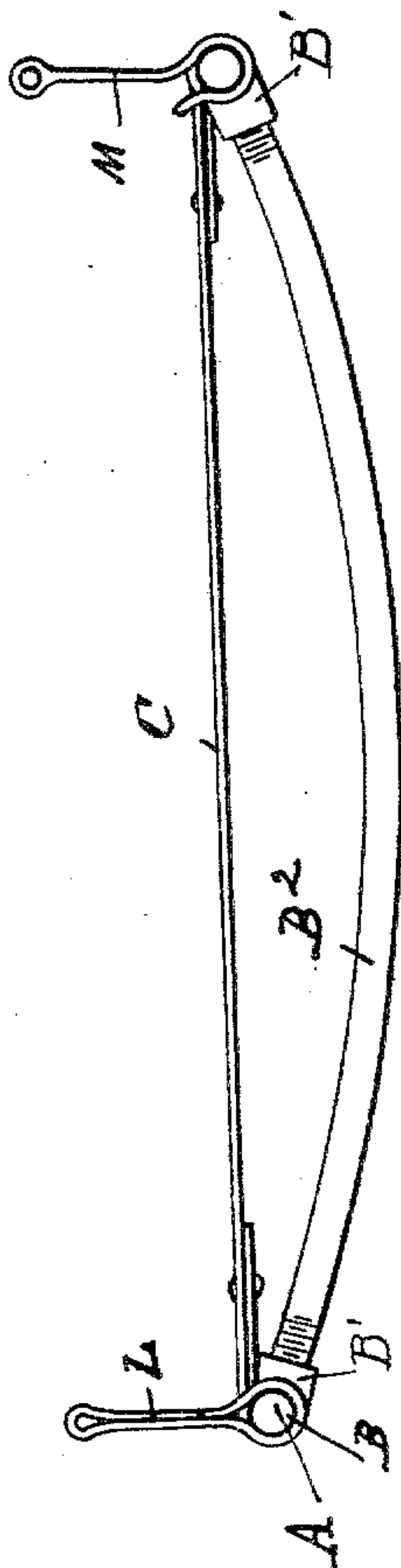


Fig. 3.



Witnesses:

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Inventor:
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(No Model.)

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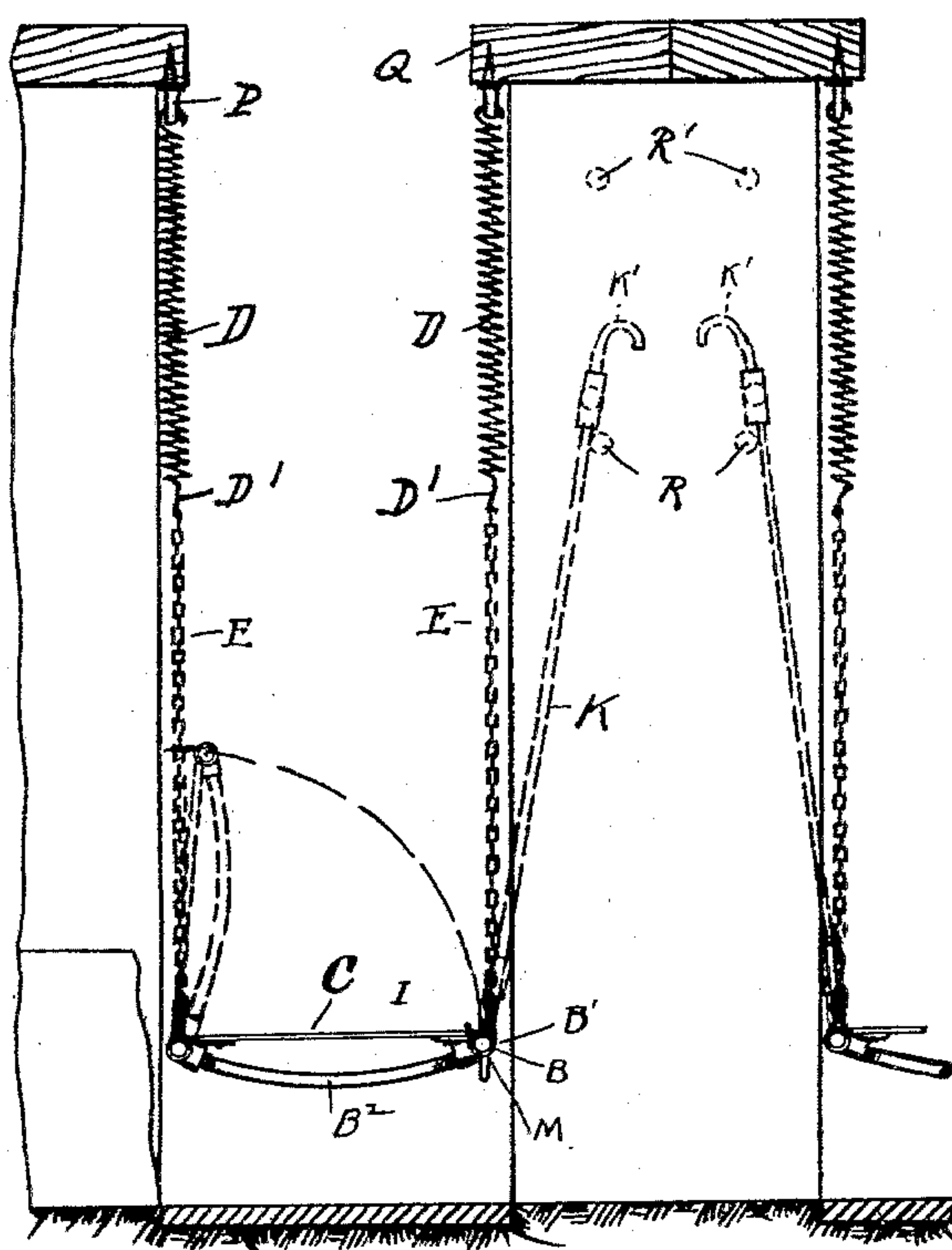
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No. 597,818.

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Fig. 2.



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(No Model.)

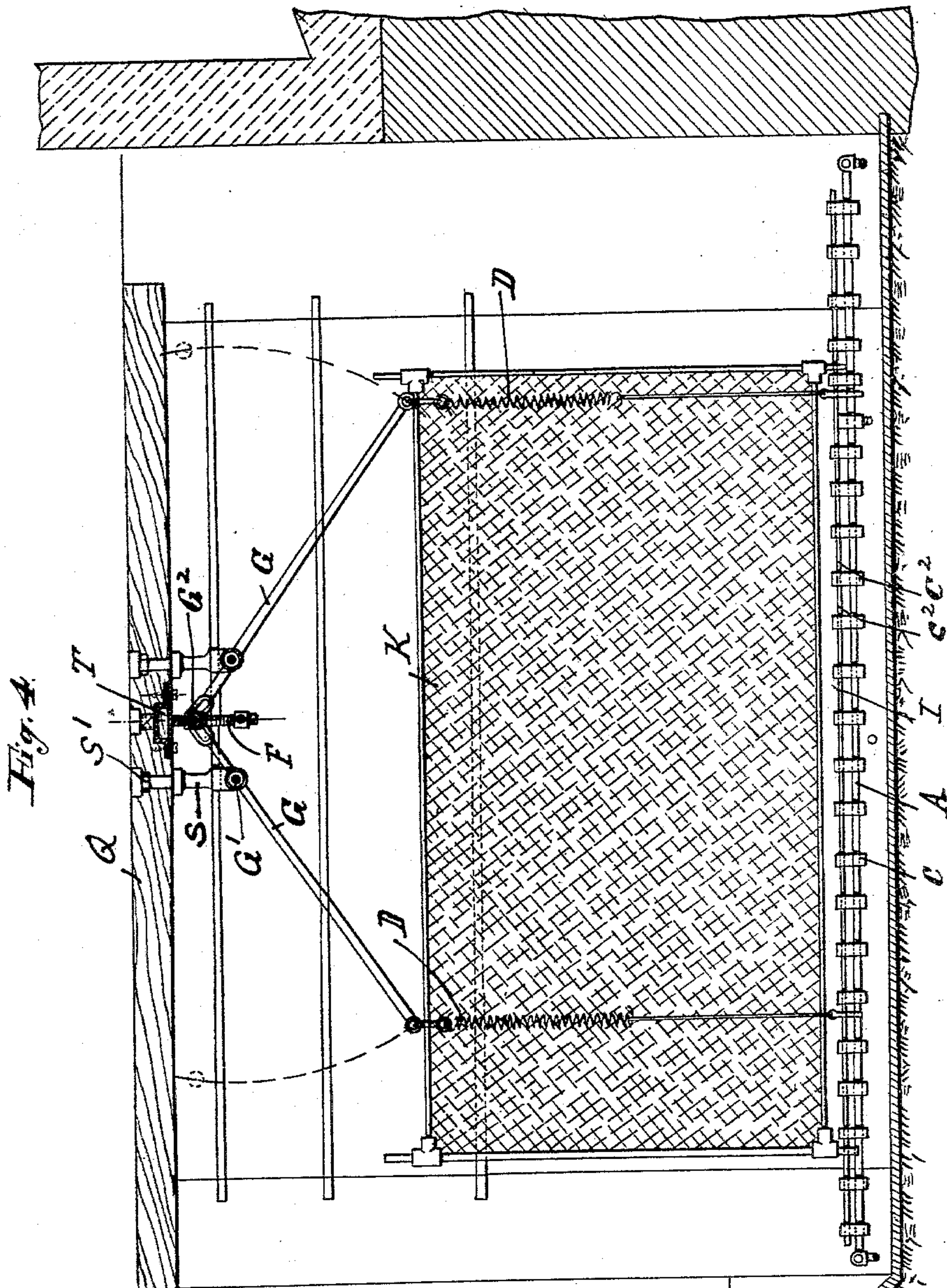
4 Sheets—Sheet 3.

J. B. FONDU.

SAFETY DEVICE FOR USE IN GLASS SPREADING FURNACES.

No. 597,818.

Patented Jan. 25, 1898.



Witnesses:

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L. Snyder.

Inventor:

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(No Model.)

4 Sheets—Sheet 4.

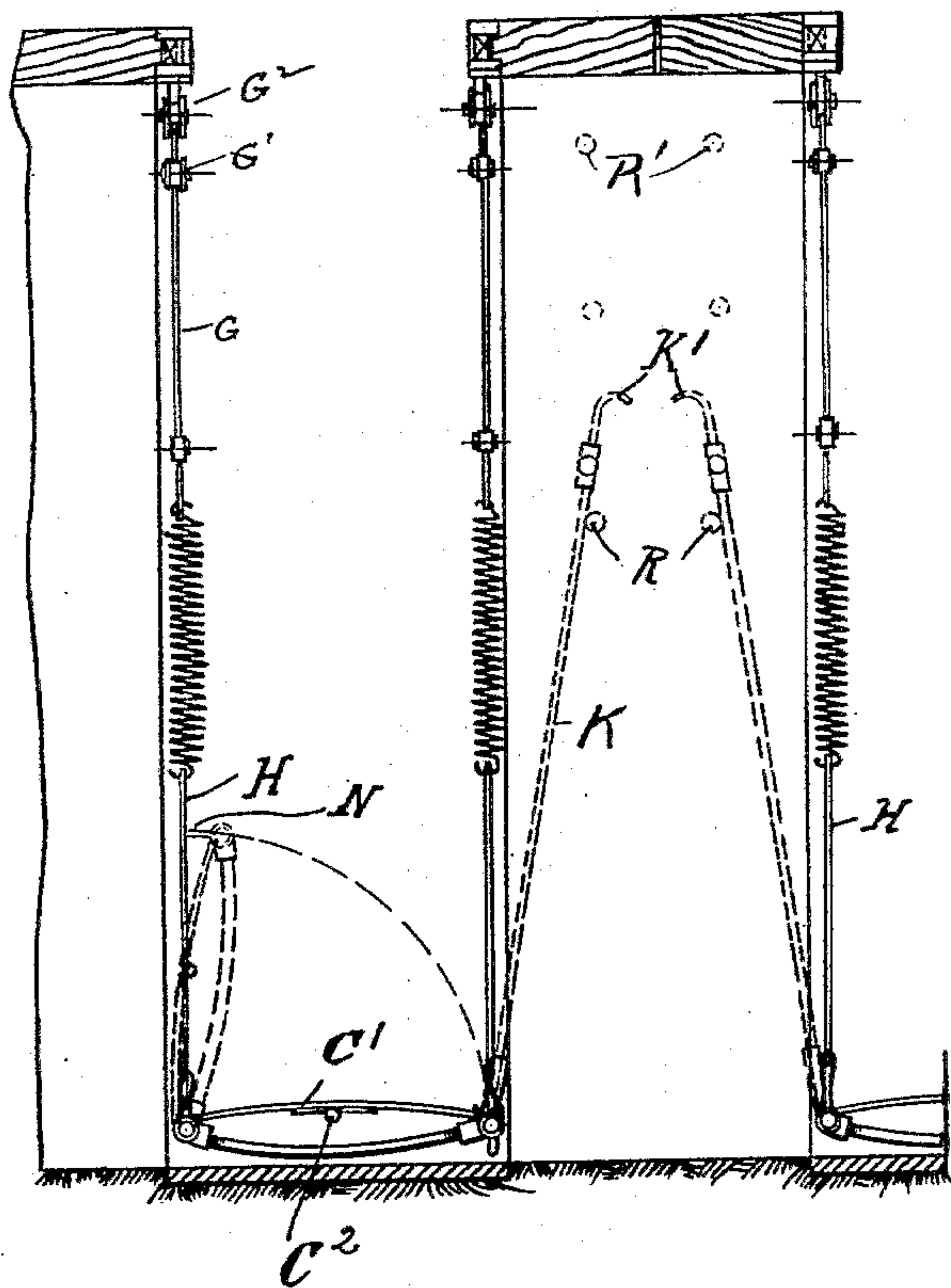
J. B. FONDU.

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No. 597,818.

Patented Jan. 25, 1898.

Fig. 5.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

JEAN BAPTISTE FONDU, OF BRUSSELS, BELGIUM.

SAFETY DEVICE FOR USE IN GLASS-SPREADING FURNACES.

SPECIFICATION forming part of Letters Patent No. 597,818, dated January 25, 1898.

Application filed August 21, 1897. Serial No. 648,990. (No model.)

To all whom it may concern:

Be it known that I, JEAN BAPTISTE FONDU, a subject of the King of Belgium, residing at Brussels, in the Kingdom of Belgium, have invented certain new and useful Improvements in or Relating to Safety Devices for Use in Glass-Spreading Furnaces and other Places, of which the following is a specification.

The advantages of the hereinafter-described apparatus are as follows: First, the metallic frame A is constructed by means of metal tubing B, on which rest transversely steel blades or strips C, thus forming a light, rigid, and elastic mattress or support; second, owing to the transverse arrangement of bars C arranged at short distances apart the small pieces of glass falling on them are enabled to pass through; third, owing to the special mode of attachment by means of spiral spring D the mattress forms a perfectly elastic support or safeguard on which workmen can fall without injuring themselves; fourth, the support can be instantly adjusted at a desired height by means of the supporting-chains E and the hooks D' on spiral springs D or in a modified manner, as shown in Figs. 4 and 5, by means of a screw F, causing two lever-arms G to lower or raise the mattress suspended by spiral springs D; fifth, the bottom of the spreading-furnace may be readily cleaned, as, the movable and reversible mattress I being hinged on one side on two spring-suspension rods H, it may be raised, and when it is perpendicular against the rods to which it is connected the spreading-furnace is left completely open for cleaning; sixth, the apparatus can be fitted up in a very short time without any change in existing arrangements, only a few holes having to be drilled in the woodwork and the fitting is complete for either modification, thus leaving the spreading-furnace entirely free from any apparatus secured to the ground or to the sides of the brickwork. Finally, at the open sides a metallic frame K is supported on the tubing B, whereby persons who in falling are thrown toward the open space on this side will be thrown back onto the support I. This frame K being movable thus follows the movement of the mattress I on which it rests. These frames are provided at their upper end with buckles or loops to enable them to be suspended to transverse bars and thus to al-

low cleaning to be effected under the metallic frames arranged under the places for the blowers between the brickwork columns, and, further, to enable the mattresses to be raised. 55

In the drawings, Figure 1 is a front view of the arrangement of regulating the height of the mattress by means of chains. Fig. 2 is a side view. Fig. 3 is a detail view. Figs. 4 and 5 are views of a modified form of the invention. 60

An expert will readily understand from the drawings the construction of this device and the advantages it offers. The frame of the mattress I is constructed of tubing B, connected by sockets or angle-pieces B'. The cross connections may be effected by straight or curved tubes or rods, such as B², placed transversely at desired distances apart along the mattress I. On this tubing B are placed steel blades or cross-bars C at such distances apart as to enable the glass bits falling into the spreading-furnace to pass between them. These blades C are secured by turning their ends round the tubing. These blades may be arched, as indicated by C' in Fig. 5, or straight, as indicated by C in Figs. 2 and 3. In case they are curved they will be held apart by a tube C², passing through sheaths attached to each spring. One side of the mattress I is placed in a lug or spring L, Fig. 3, on the suspension-chain E, and on the other side is suspended by means of a hook M, open at the top to enable the mattress to be disengaged from said hook and to be raised, as shown in dotted lines, Figs. 2 and 5, by turning the mattress upward in the lugs L on the suspension-chain E and then connecting it to the latter by means of a hook or hooks N. One of the links of the chain E is placed into one of the hooks D' of the spiral spring D, while the top hook engages with a hook or ring P, secured to the beam Q. It will be easily understood that this mattress I, suspended on its four springs D, is perfectly elastic and insures the safety of a workman who might fall into the spreading-furnace. 85 90 95

The mattress, together with the frames K, resting at the top against the transverse bars R and supported at the bottom on the mattress-framing by means of hooks, insures the safety of workmen who might be thrown into the empty space between the two pillars. 100

When it is desired to have a free passage for cleaning glass between the two pillars, the side frames are hooked onto the transverse bars or tubes R' by means of their hooks K'.

5 The second construction illustrated in Figs. 4 and 5 is based on the same principle as that already described. The mattress, being constructed as described and suspended also by means of rods and spiral springs, is attached
10 to the ends of levers G, which are held in two suspension-supports S, secured to the beams Q, preferably by means of nuts S', covered with wood to prevent the workmen from slipping. These two levers G are hinged on pins
15 G', the two ends of said levers being formed with slots, with which engage two pins G², forming a part of the nut T, through which the screw F passes. This screw, having a shoulder or being enlarged at its upper end, is
20 held in the beam by means of a flange or plate secured by screws or otherwise. It will be easy to understand the action of these levers. A key is introduced into and turned in a hole in the head of the screw, the nut T being
25 thereby caused to descend or ascend and the lever G to come into the extreme position shown in full and dotted lines or any intermediate position. I do not confine myself to the method in which the mattress may be raised,
30 as it is obvious that this may be suitably effected in various ways. The mattress according to this construction can be raised, as in the first construction, and hooked up to the spiral springs in a perpendicular direc-
35 tion, as shown in Figs. 2 and 5, although when the levers are completely raised it is impossible to pass under the mattress to clean the spreading-furnace. The aperture for the key for turning the screw is also preferably
40 covered by wood to prevent the workmen from slipping on metal.

While I have described this invention with reference to its application to a glass-spreading furnace, I do not wish to confine myself
45 to this application, as it may obviously be used or adapted in various dangerous places, factories, wharves, &c., to prevent falls and accidents.

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

1. The combination with a frame, a series of metal strips transversely arranged on said frame, two sets of suitably-suspended spiral
55 springs supporting said frame, one of said sets serving as fulcrum for one side of the frame, while the other set furnishes open bear-

ings for the other side of said frame, an auxiliary frame covered with netting carried by the last-mentioned side of the frame and at
60 an obtuse angle thereto, hooks on said auxiliary frame, and a series of rods suitably supported and parallel with said auxiliary frame and adapted to be engaged by said auxiliary frame and its hooks respectively, all said
65 parts, substantially as and for the purposes described.

2. The combination with a frame, a series of metal strips transversely arranged on said frame, two sets of suitably-suspended spiral
70 springs supporting said frame, one of said sets serving as fulcrum for one side of the frame, while the other set furnishes open bearings for the other side of said frame, an auxiliary frame covered with netting carried by
75 the last-mentioned side of the frame and at an obtuse angle thereto, hooks on said auxiliary frame, a series of rods suitably supported and parallel with said auxiliary frame and adapted to be engaged by said auxiliary
80 frame and its hooks respectively, and means for raising and lowering said spiral springs, substantially as and for the purposes described.

3. The combination with a frame, a series
85 of metal strips transversely arranged on said frame, two sets of suitably-suspended spiral springs supporting said frame, one of said sets serving as fulcrum for one side of the frame, while the other set furnishes open bear-
90 ings for the other side of said frame, an auxiliary frame covered with netting carried by the last-mentioned side of the frame, and at an obtuse angle thereto, hooks on said auxiliary frame, a series of rods suitably sup-
95 ported and parallel with said auxiliary frame and adapted to be engaged by said auxiliary frame and its hooks respectively, two fulcrumed levers connected with their longer arms to the free ends of their respective spi-
100 ral springs, a vertically-arranged screw suitably and revolvably supported, and a nut mounted on said screw and adapted to be operated thereby and pivotally connected
105 with the shorter arms of said fulcrum-levers, substantially as and for the purposes described.

In witness whereof I hereby set my hand in the presence of two subscribing witnesses.

JEAN BAPTISTE FONDU.

Witnesses:

GREGORY PHELAN,
JOSEPH SCHELMANN.