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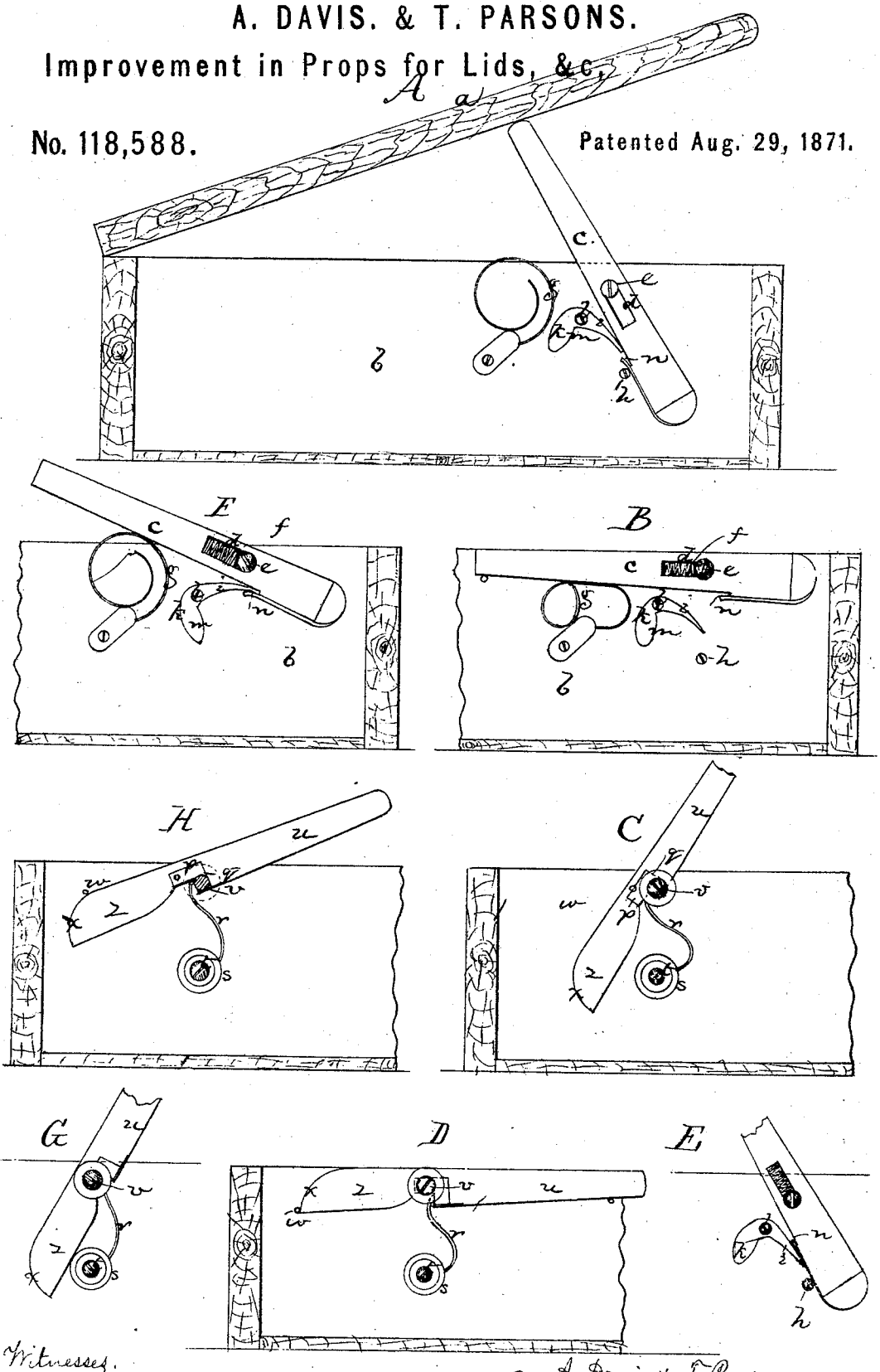
Improvement in Props for Lids, &c.

No. 118,588. Patented Aug. 29, 1871.



Witnesses.
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UNITED STATES PATENT OFFICE.

ADDISON DAVIS AND THEODORE PARSONS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PROPS FOR HOLDING UP THE LIDS OF BOXES, &c.

Specification forming part of Letters Patent No. 118,588, dated August 29, 1871.

To all whom it may concern:

Be it known that we, ADDISON DAVIS, and THEODORE PARSONS, both of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Props for Holding up the Lids of Boxes, Bins, &c.; and we do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of our invention, sufficient to enable those skilled in the art to practice it.

Our invention relates to an improvement in operating props for sustaining in elevated inclined position piano-forte covers and lids of boxes, bins, &c.; the invention consisting, primarily, in a self-operating prop, which is automatically thrown up (when the cover over it is raised) into position for supporting the cover. The invention further consists in a prop which is automatically thrown out of supporting position when the elevated cover is lifted above it, and into position to be thrown down with or by the descending cover, or before the descent of the cover; and the invention further consists in a prop which is automatically thrown up into supporting position when the cover is raised, and is automatically thrown into such position that the cover may close by the elevation of the supported cover. The invention further consists in certain details of construction of the self-operating-prop mechanism.

The drawing shows a prop mechanism embodying our invention. A shows in section a prop-supported lid or cover. B is a detail, showing the prop thrown down. C shows a modification of the prop being thrown up. D, the same modification, the prop being thrown down.

a denotes the cover or lid of the box, case, bin, or piano-forte; *b*, one of the end walls of the same; *c*, the prop, which, when thrown up, sustains the lid in elevated position, as seen at A, and when thrown down lies in the case and side of the wall, as seen at B and D. The prop is made with a slot, *d*, through which extends a pin, *e*, the prop sliding freely on the pin. With the prop shown at A and B a spring, *f*, is employed, one end of such spring bearing against the pin *e*, and the other end against the prop, (at the top of the slot,) and the stress of the spring alone tending to keep the prop pressed forward, so that the bottom of the slot is against the pin, as seen at B. When the lid is closed the prop is in the position shown at B, and a spring, *g*, bears against its front part, and as the lid rises this spring starts up the front end of the prop, the opposite end of the prop being weighted, so that it falls as the lid rises, bringing the prop into position for the lid to rest upon its top. The spring *g* may be dispensed with, and the weighting of the prop be alone depended upon to raise the supporting end of the prop, but the spring serves to start the prop up quickly as the lid commences to rise. When the lid is raised sufficiently to permit the prop to assume the position to which the weighted end will carry it (its movement being arrested by a pin, *h*,) the parts will be in the position seen at E. The lid is then let down upon it, and the weight of the lid presses down the prop, causing it to slide on the pin and bringing it into the position seen at A, in which position it supports the lid. When the opening of the lid allows the prop to be thrown up, the lower end of the prop is carried against the arm *i* of a trigger-lever, *k*, as seen at E, said lever turning on a pin, *l*, and having its other arm *m* weighted. The point of the arm *i* (as seen at E) is some distance below a notch, *n*, in the adjacent side of the prop, and when the lid presses down the prop the weighted arm of the trigger-lever throws the point of the arm *i* over the notch. When the lid is next slightly raised, preparatory to dropping it, the spring will throw the prop up, and as it rises the the point of the arm *i* will catch in the notch, and the stress of the spring will then throw over the prop, bringing it into such position (as seen at F) that the lid will fall against it and press it down into the case into the position shown at B, its movement toward this position freeing the trigger-lever, whose weight carries it into the position shown at B, ready to be again struck and set by the prop the next time the lid is raised. The prop is now in position to be again thrown up by the spring *g*, or by its lower weighted end, or by both the spring and such weight at the next rise of the lid. It will thus be seen that with the closed lid the prop is always set, so that when the lid is raised the prop will be thrown up into position to receive and support the raised lid, and that the supported lid sets the mechanism in position, so that when the lid is slightly raised, preparatory to closing it, the prop automatically assumes a position to be thrown down

by the closing lid, and to be set by such throwing down, so as to automatically rise into a lid-supporting position when the lid is next raised. The prop, being arranged to automatically rise into its lid-supporting position, may be tripped by hand to be thrown down, or may be arranged to be raised by hand, and be automatically thrown into position to be pressed down by the falling lid by the rise of the supported lid; but we prefer the prop automatically operated, both to bring it into position to support the raised lid, and into position to be closed by the falling lid. In the modification shown at C and D the slot *o* is formed with a part, *p*, for sliding lengthwise upon the pin, and a part, *q*, for moving laterally upon it, the prop being operated by the stress of a spring, *r*, the shank of which may extend from a roll, *s*, turning on a pin, *t*. When the lid is closed the prop is in the position shown at D, and as the lid is raised the stress of the spring throws up the end *u* of the prop into the position shown at G, the prop turning on the pin *v* from the position seen at D to the position seen at G, the pin being at the bottom of the slot. The lid is now let down upon the prop, and its weight presses the prop down until the top of the slot comes to the pin, when the lateral stress of the spring will force the prop over into the lateral slot *q*, as seen at C. When the lid is next slightly raised, preparatory to closing it, the stress of the spring will throw up the tail-piece *z* of the prop, the pin remaining in the notch or slot *q* and the tail-piece assuming the position shown at H, the stress of the spring bringing it against a stop-pin, *w*. When the lid descends upon the prop the pin holds the tail-piece *z*, and the weight of the lid forces the prop down, carrying the pin out of the lateral notch *q*, and an incline, *x*, causing the prop to move forward, so that when the lid is closed the pin *e* is in the rear or bottom of the slot *o*, as seen at D. The prop is now ready to fly up again into a lid-supporting position as soon as the lid is raised, being automatically brought into such supporting position by the spring *r*, automatically carried into position to permit the lid to be closed by such spring, and automatically thrown into position to rise when the lid is raised, by the weight of the lid. The mechanism shown at C and D is the simpler of the two, and to be preferred in many cases. Other modifications may be made, however, and we do not confine ourselves to either of the specific constructions shown. When the prop *c* is released from the pressure of the supported cover, and is thrown down by the trigger and spring *f*, it would be liable to be thrown out of engagement with the trigger by its movement, if free to drop entirely down into the box, and would spring up again into its lid-supporting position. To prevent this the spring *g* is so arranged as to receive the thrown-down prop, and prevent such extent of movement as would liberate it from the trigger *k*.

We claim—

1. In combination with a hinged lid or cover, a prop which, upon the lifting of the closed lid, automatically assumes a position to support the lid or cover in inclined elevated position, substantially as described.

2. A prop which, upon lifting the open lid resting on such prop, is automatically thrown into position to permit the lid or cover to close, substantially as described.

3. A prop automatically thrown both into position to support the lid or cover when it is opened, and also thrown into position when the lid which it supports is released, to permit such lid or cover to close, substantially as described.

4. The combination and arrangement of the slotted or recessed prop, pin, stop, and spring with or without the trigger *k*, substantially as shown and described.

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Witnesses: THEODORE PARSONS.

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