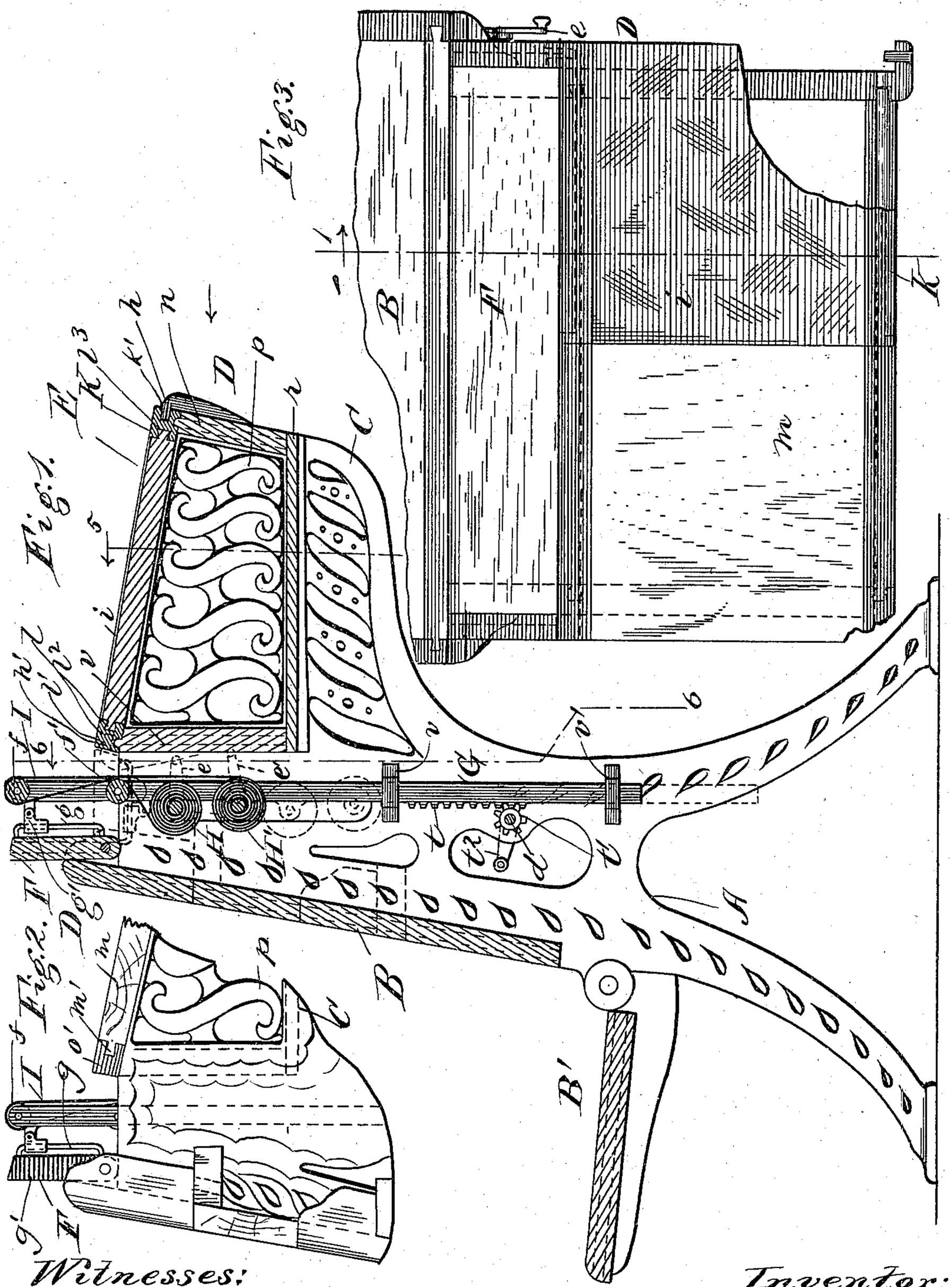
(No Model.) 3 Sheets—Sheet 1.

T. J. THORP.

SCHOOL DESK.

No. 598,685. Patented Feb. 8, 1898.



(No Model.)

3 Sheets—Sheet 2.

T. J. THORP.

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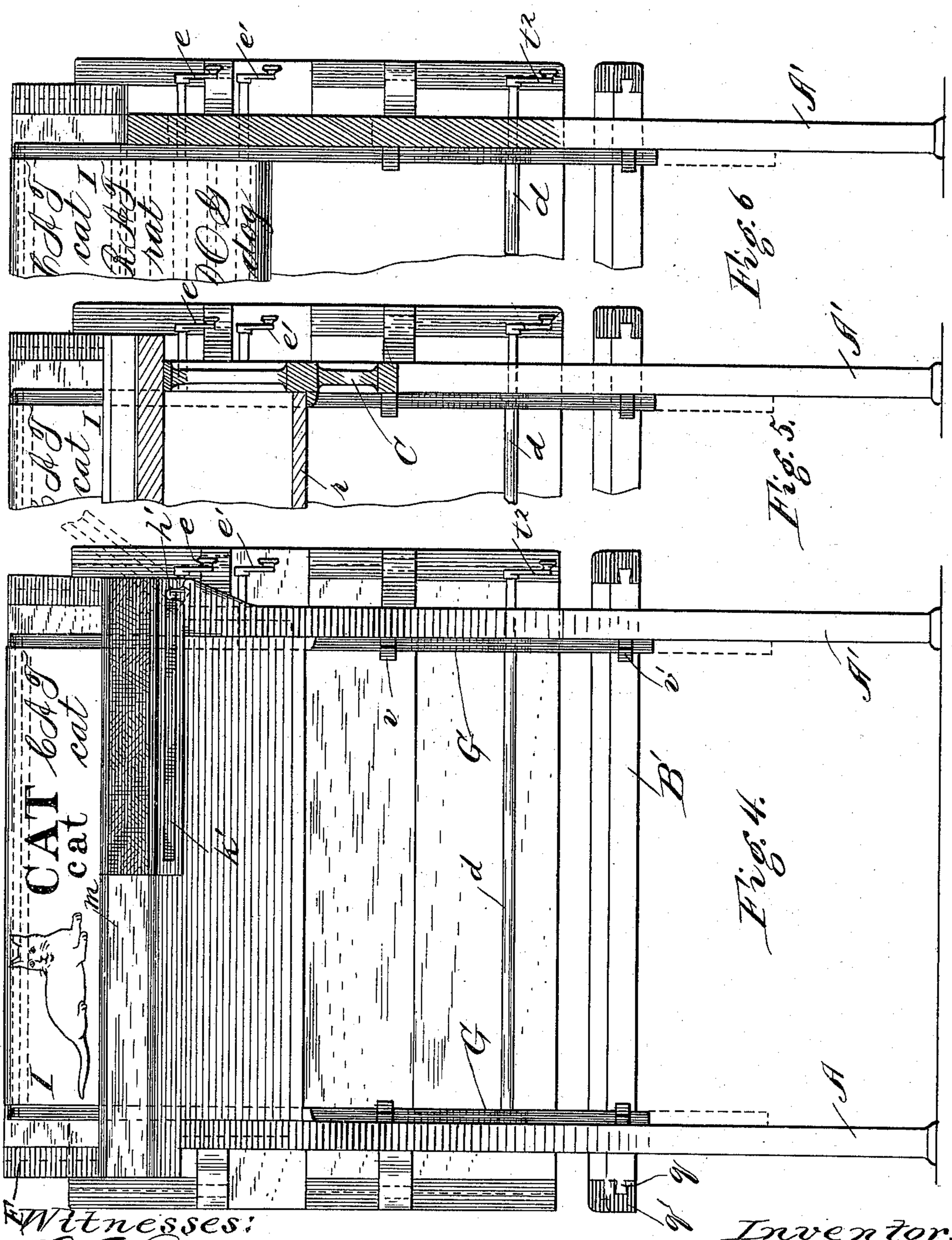

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(No Model.) 3 Sheets—Sheet 3.

T. J. THORP.

SCHOOL DESK.

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Fig. 7.

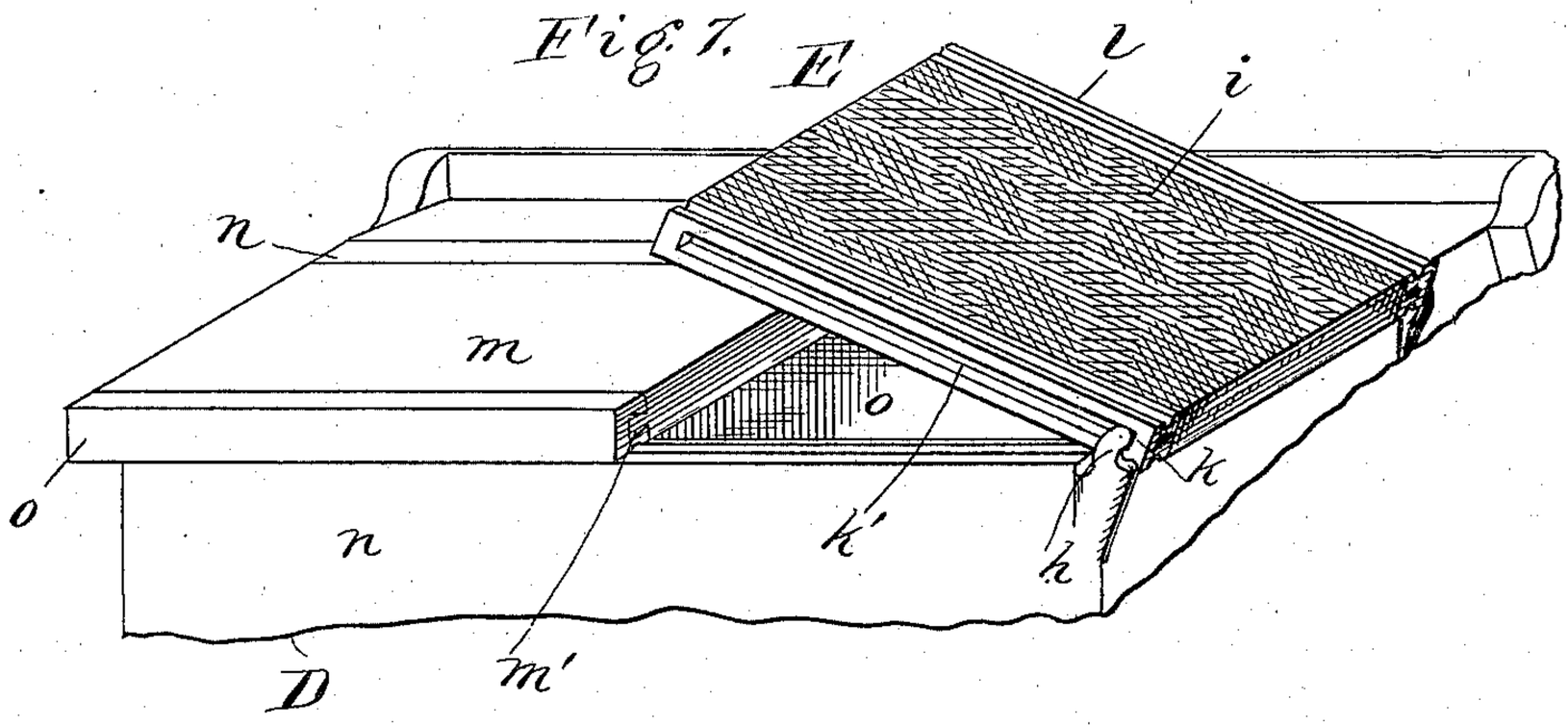


Fig. 8

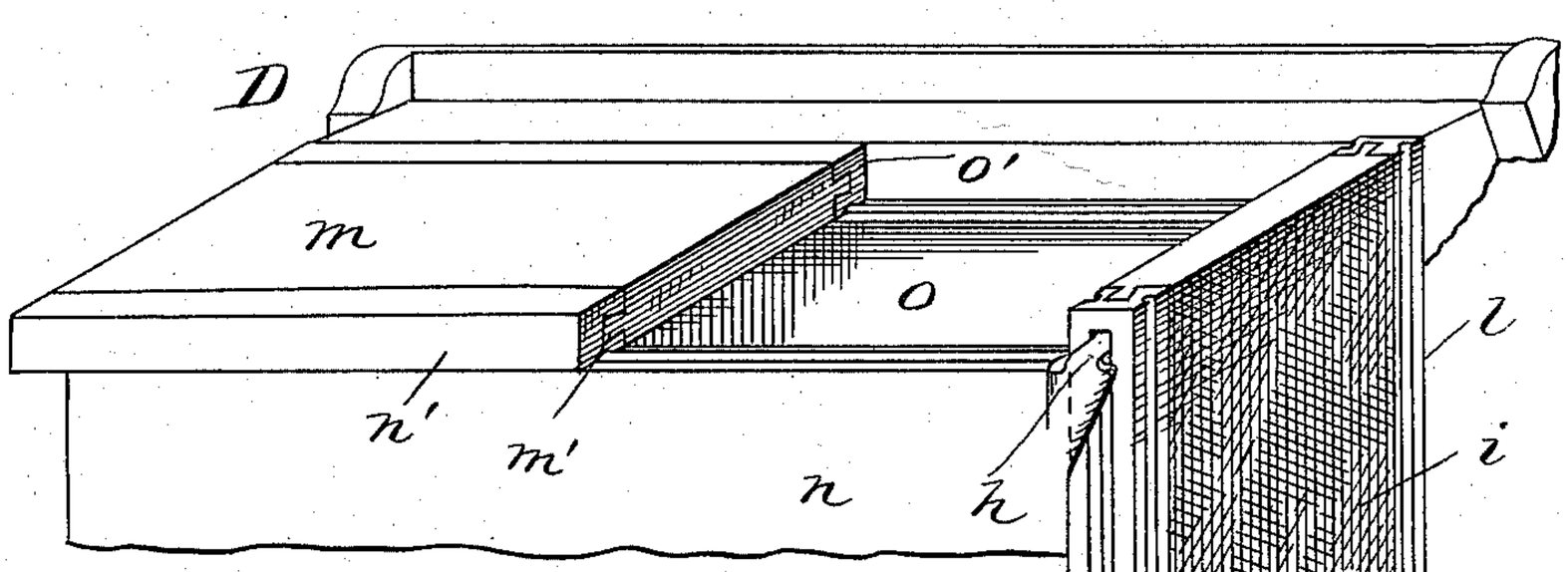
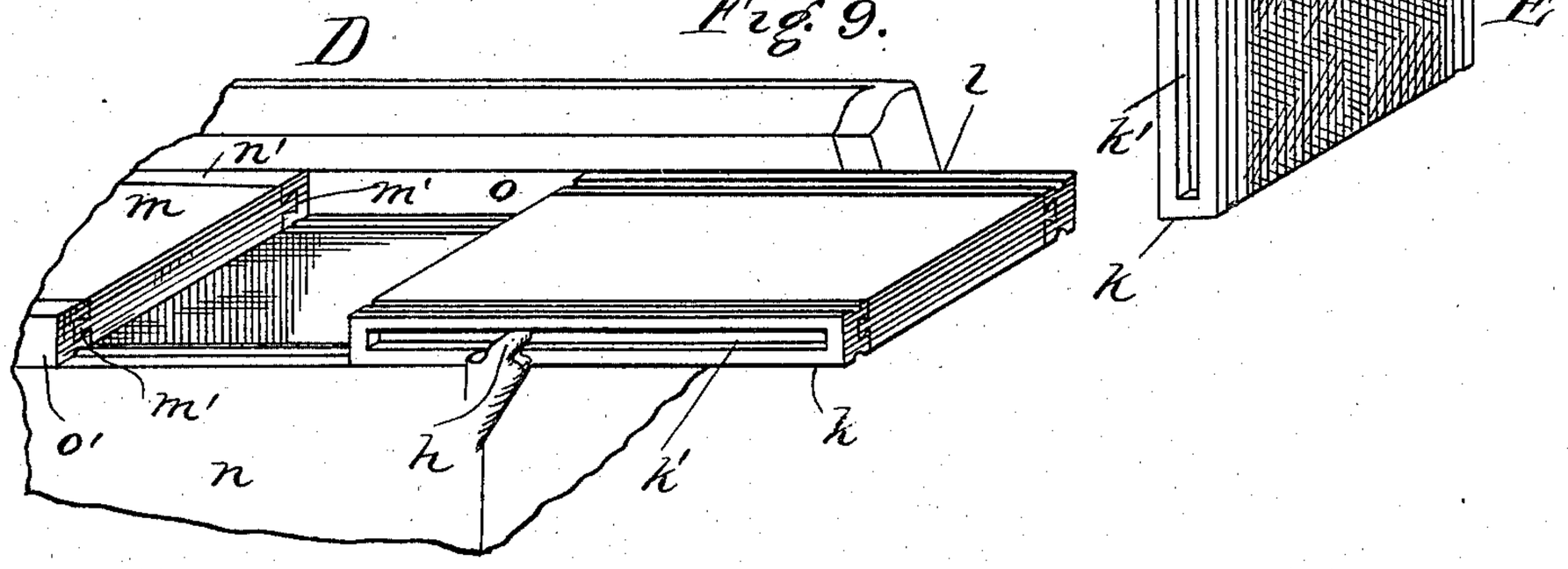


Fig. 9.



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UNITED STATES PATENT OFFICE.

THOMAS J. THORP, OF FOREST GROVE, OREGON, ASSIGNOR OF ONE-EIGHTH TO BURDETT L. HURD, OF CHICAGO, ILLINOIS.

SCHOOL-DESK.

SPECIFICATION forming part of Letters Patent No. 598,685, dated February 8, 1898.

Application filed April 26, 1897. Serial No. 634,032. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. THORP, a citizen of the United States, residing at Forest Grove, in the county of Washington and State of Oregon, have invented a new and useful Improvement in School-Desks, of which the following is a specification.

One of the objects of my invention is to provide a construction of school-desk whereby parts shall be metal-bound and fastened together by fitting without the use of screws, nails, and the like, thus to afford a strong and durable construction. My further object is to afford to the desk educational properties by providing the cover of the box portion in the form of a blackboard or "slate," and combining with the box portion lessons on an apron stretched between rollers to be rolled to bring different lessons successively into view in convenient position with relation to a person sitting at the desk, the lesson apparatus being adapted to be lowered when out of use into the desk and to be raised therefrom into position for display.

Referring to the accompanying drawings, Figure 1 shows my improved desk by a view in cross-sectional elevation with the lesson apparatus represented by full lines in its position for exhibition and by dotted lines in its lowered position, the section being taken at the line 1 on Fig. 3 and viewed in the direction of the arrow; Fig. 2, a view in side elevation of a broken section of the same; Fig. 3, a broken plan view of the desk; Fig. 4, a view in rear elevation of the same; Fig. 5, a broken section taken at the line 5 on Fig. 1 and viewed in the direction of the arrow; Fig. 6, a broken section taken at the line 6 on Fig. 1 and viewed in the direction of the arrow; and Figs. 7, 8, and 9 are broken perspective views of the box portion of the desk, showing, by way of diagram, respectively, the incipient movement of the movable slate-section of the top preparatorily to reversing it, the hanging position thereof preparatory to raising it for reversal, and the reverse position of the movable section in the act of being closed.

The general form of the desk shown, to which my improvements are applied, is a conventional form of school-desk having the two open-work metal legs A and A', one at each side, forked and spread toward their lower ends, with the front B of wood extending between them and affording the back for the seat B', hinged to them, and with bracket-arms C C projecting backward from their rear edges to afford supports for the box portion D of the desk. The base *r* of the box D is supported upon the bracket-arms C. The sides *p p* are of open-work metal, and *o* and *n* are respectively the front and rear walls of the box, which may be formed of metal-bound wood. One half of the top of the box portion of the desk is rigid, being formed of a panel which may be of wood, having dovetail tongues *m'* extending along its front and rear edges to enter dovetail grooves in metal bars *o'* and *n'* on the upper edges of the front and back walls *o* and *n* of the box D. The bottoms of the bars *o'* and *n'* are longitudinally grooved, as most clearly shown in Fig. 8, to receive corresponding tongues on the upper edges of the parts *o* and *n* to couple thereto the stationary part of the top at its edges. The other half of the top of the box is formed of the front and rear metal bars *l* and *k*, grooved along their upper and lower edges, as best shown in Fig. 9, and having longitudinal dovetail grooves in their inner sides and longitudinal grooves *l'* and *k'*, respectively, in their outer sides, the dovetail grooves receiving the dovetail tongues l^2 and l^3 on the front and rear edges of a slate, or, as shown, a panel having one surface provided with a coating *i* to afford a slate or blackboard E. The tongues referred to as being provided on the upper edges of the front and rear walls *o* and *n* extend throughout the length of the latter to engage with the grooves in the under sides of the bars *l* and *k* and afford guides for the slate in moving it. This slate is connected with the box D to adapt it to be slid back and forth laterally by fingers *h* and *h'*, projecting toward each other at the right-hand side of the desk to enter the grooves *k'* and *l'*, which are stopped at their opposite ends, whereby when the slate is drawn outward on the fingers toward the right, as indicated incipiently in Fig. 7, it may hang down the side of the box D, as shown in Fig. 8, and may be turned around to bring the slate-sur-

face underneath by raising the slate on the guide-fingers *h* and *h'* till they are stopped at the lower closed ends of the grooves *l' k'*, when the slate may be turned bodily over in the direction toward the right till it is brought to a horizontal position, in which it may be slid on the said fingers, as indicated in Fig. 9, to abut against the panel *m* and cover the box D. To reverse this adjustable section of the box top or cover and present its slate-surface uppermost, it is drawn out and allowed to drop in the manner described, then raised to the limit of the grooves *l'* and *k'*, when it is turned over till it assumes a horizontal position and slid on the guide-fingers *h* and *h'* toward the left till it abuts against the panel *m*.

It is also desirable to form the seat B' of wood, with dovetail tongues *q* extending about its edges, and bind the latter with metal bars *q'*, dovetail-grooved about their inner sides to interlock with the tongues.

The space between the seat-back B and top of the box D is covered by a lid F, which should be formed of metal-bound wood, like the seat B, and which is hinged near one edge between the legs and carries near its opposite ends the transverse guide-rods *g g*, on which are loosely confined the collars *g'*. In guide-loops *v* and *v'* on the inner sides of the desk-legs, near their rear edges, are reciprocably confined the vertical rack-bars G G, having near their upper ends pivotal link connection with the sliding collars on the rods *g* and having journaled between them at their upper ends the guide-roller *f* and below the latter the guide-roller *f'*, and in bearings projecting forward from the front edges of the bars G, above their rack portions *t*, are journaled the rollers H and H', carrying, respectively, the crank-handles *e* and *e'* on corresponding ends of their journals, by which to actuate them.

I is the sheet or apron, having printed on one or on each of its surfaces at suitable intervals lessons, such as indicated, this lesson-apron being properly applied at its opposite ends upon the rollers H and H' to unwind from one by winding it upon the other and passing about the rollers *f* and *f'*, as represented in Fig. 1, or in any suitable manner for the desired display of the lessons, as hereinafter described. A shaft *d* is journaled near its opposite ends in the desk-legs A A' and carries pinions *t'*, meshing with the racks *t*, and an operating-handle t^2.

To raise the lesson-exhibiting attachment to the position in which it is illustrated by the full lines in Fig. 1, the shaft *d* is turned in the proper direction to cause the pinions *t'* to raise the rack-bars G, thereby lifting the lid F and the apron-carrying rollers to display a section of the lesson-apron vertically in front of an occupant of the desk. By turning the shaft *d* in the opposite direction the rack-bars G are lowered, thereby lowering the apron with its rollers to house them, and, finally, by means of the described connection of the rack-bars with the lid, pulling the latter down to close it. By turning one or the other of the handles *e e'* the apron I is caused to travel, winding upon one roller, as that marked H, the handle of which is being manipulated, and from the other companion roller to display successive lessons in front of the rollers *f f'*. If the apron has lessons provided on each of its surfaces, it may be taken off its rollers and readjusted thereon to display, by operating them, its reverse surface, or the apron may be endless.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a school-desk, the box portion having front and rear sides formed of wood and provided on their upper edges with longitudinal tongues, and a top formed of a stationary and a movable section, each section having its front and rear edges reinforced with metal bars secured in place by tongue-and-groove connection and grooved along their base portions to engage the tongues on said front and rear sides, substantially as described.

2. In a school-desk, the box portion having its cover formed with a laterally-sliding section provided with a slate-surface, substantially as described.

3. In a school-desk, the box portion having its cover formed with a laterally-sliding and reversible section provided with a slate-surface, substantially as described.

4. In a school-desk, the box portion D having guide-fingers *h* and *h'* at one side and a slate-section of the cover having guide-grooves *l'* and *k'* in its opposite edges into which said arms extend, substantially as and for the purpose set forth.

5. In combination with a school-desk, a lesson-apron I on rollers H, H', *f*, *f'*, rack-bars G reciprocably supported at opposite sides of the front portion of the desk and carrying said rollers, a rotary shaft *d* carrying pinions engaging said rack-bars, a hinged lid F forward of the top of the box portion of the desk and provided on one side with the arms *g*, and collars *g'* on said arms having pivotal link connection with said rack-bars, substantially as and for the purpose set forth.

THOMAS J. THORP.

In presence of—
J. H. LEE,
R. T. SPENCER.