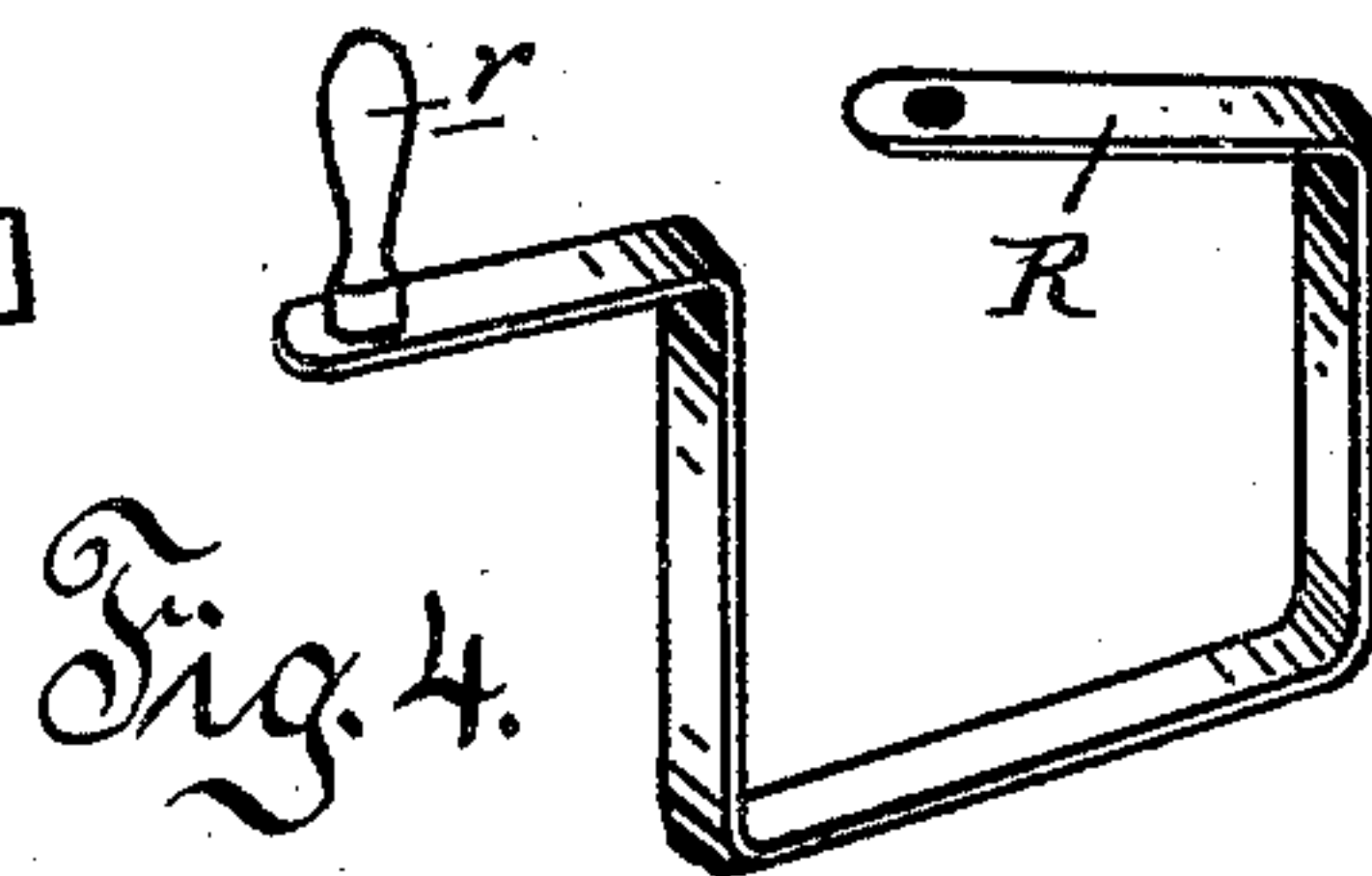
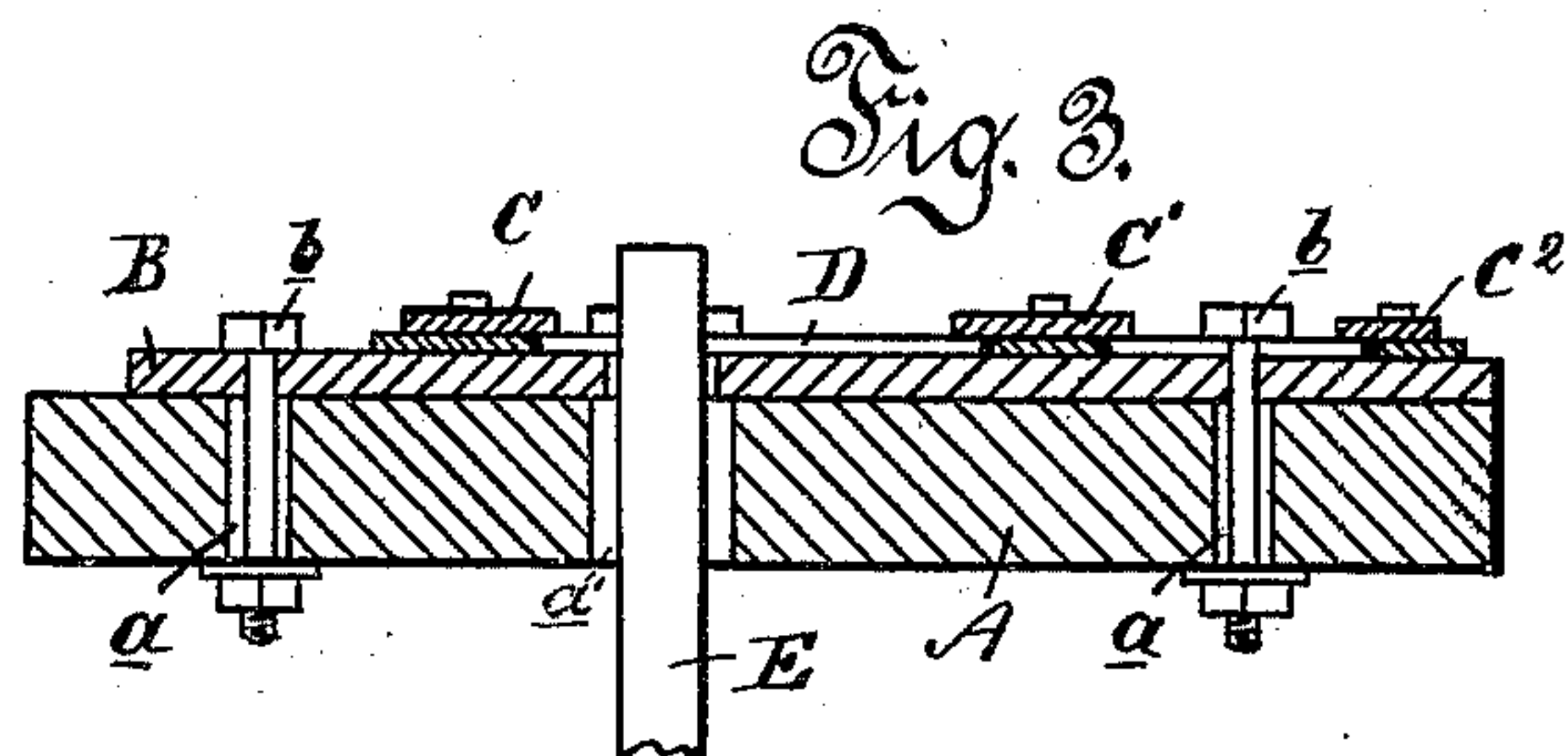
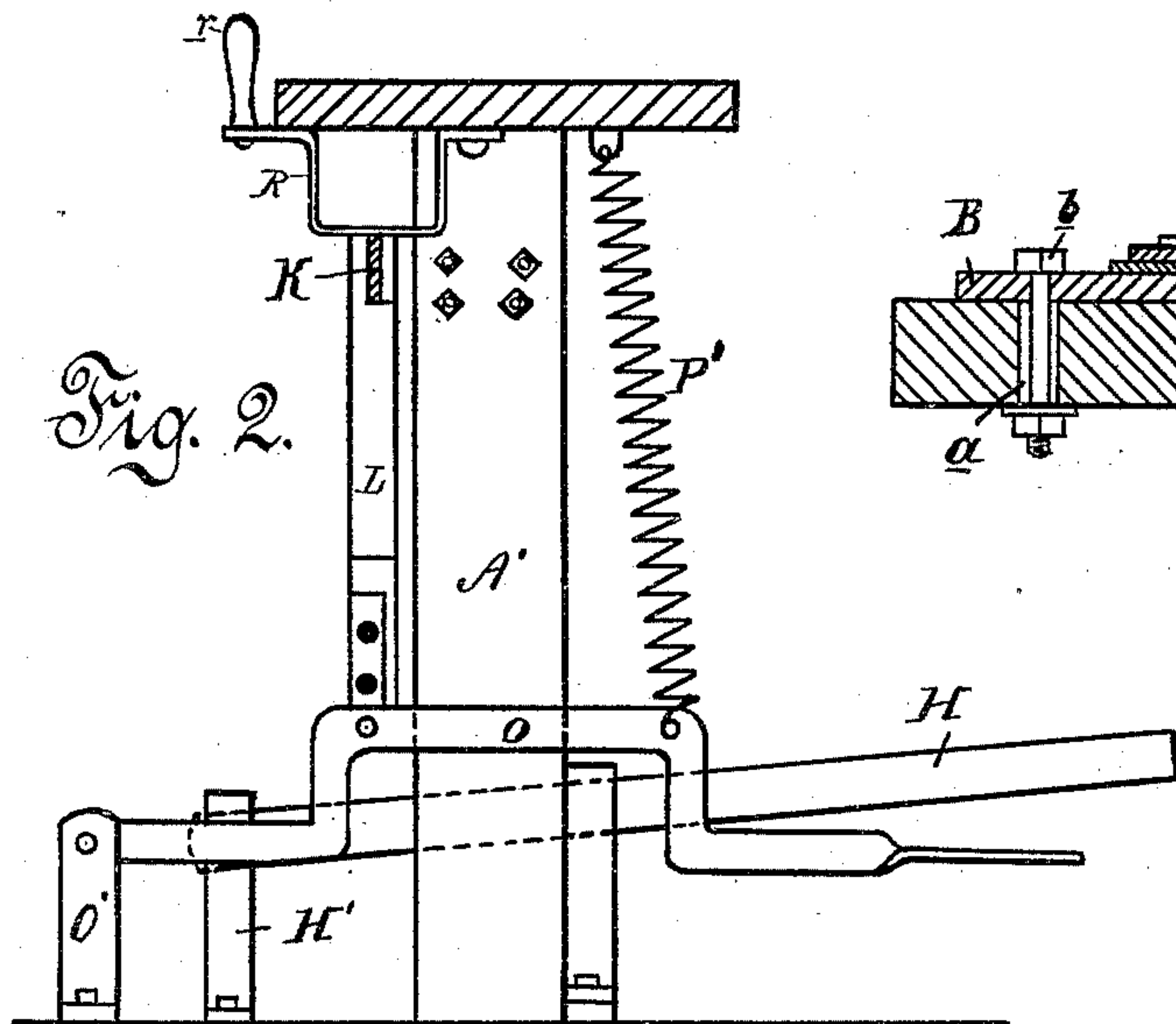
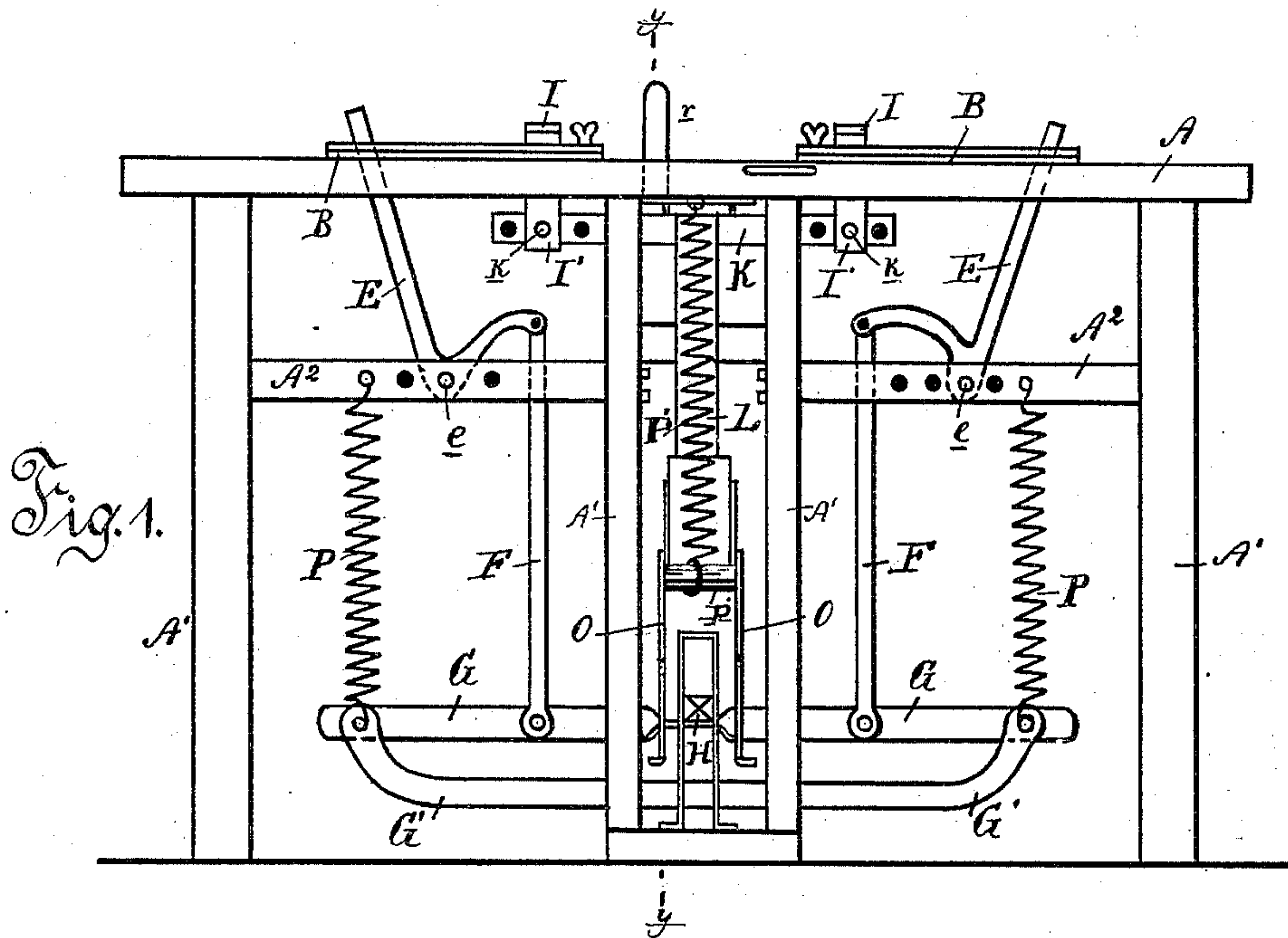


F. LEDUC.
MACHINE FOR DRIVING GUIDE RODS IN WINGS OF WINDOW SCREENS.
No. 427,584. Patented May 13, 1890.



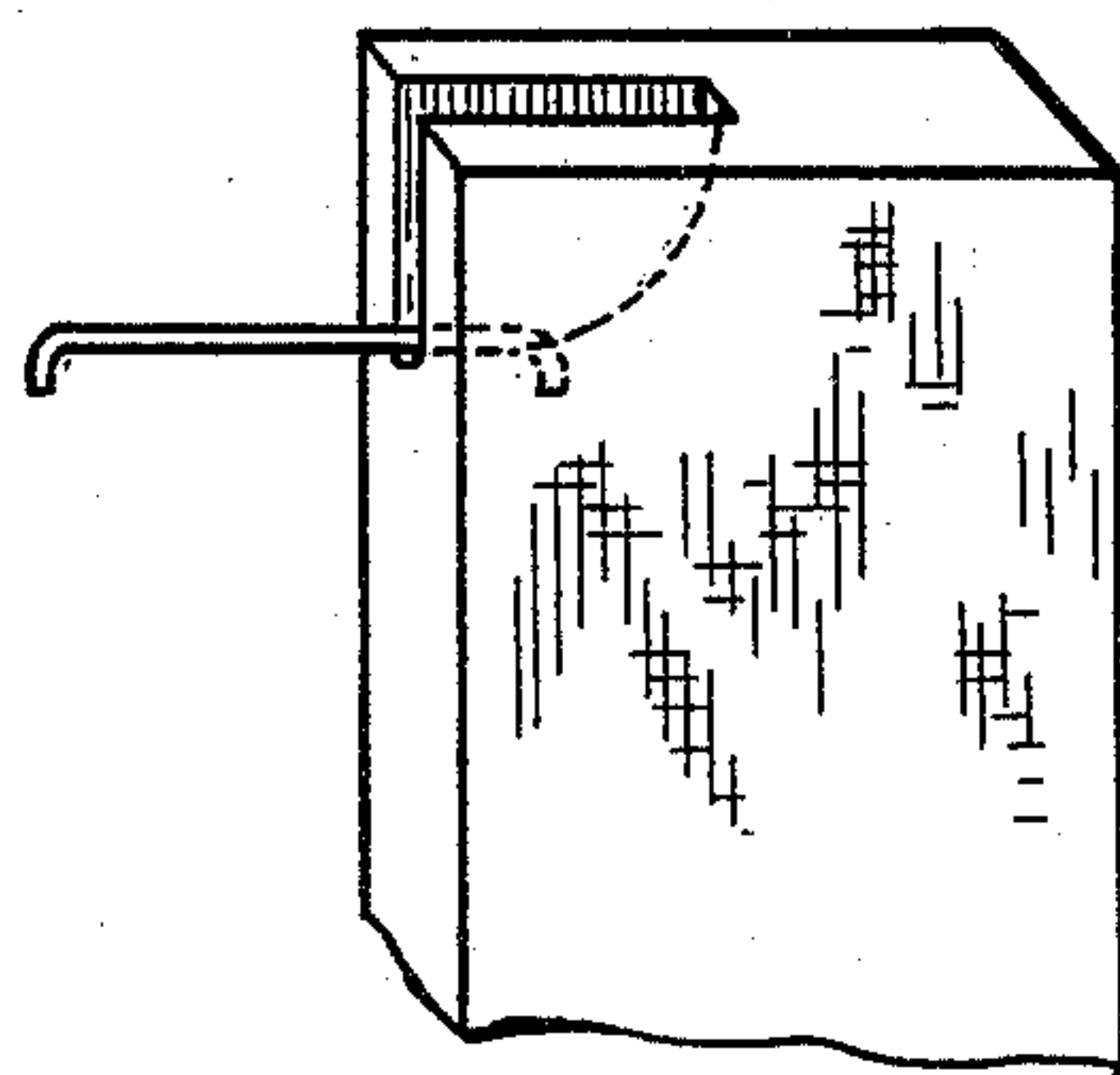
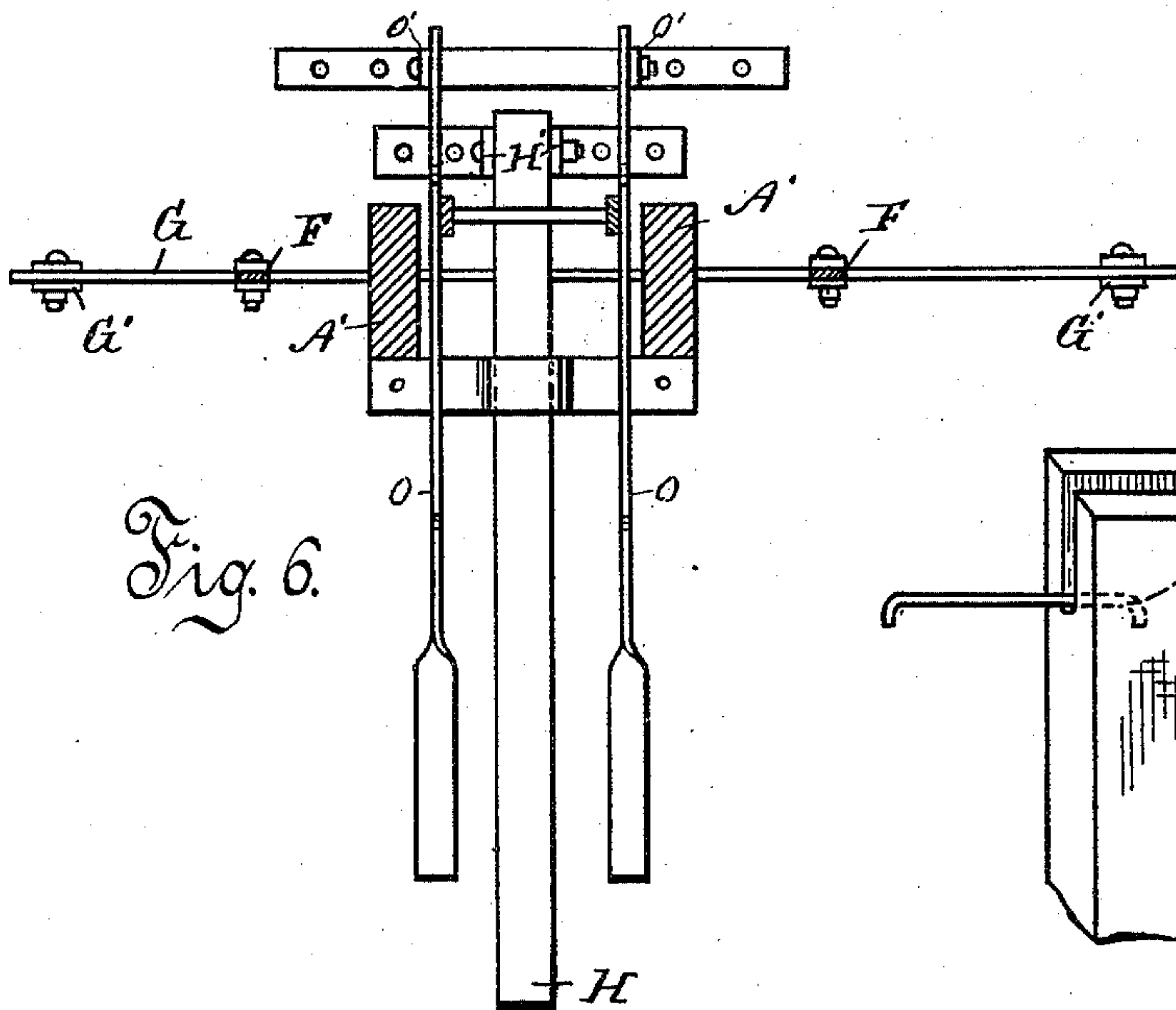
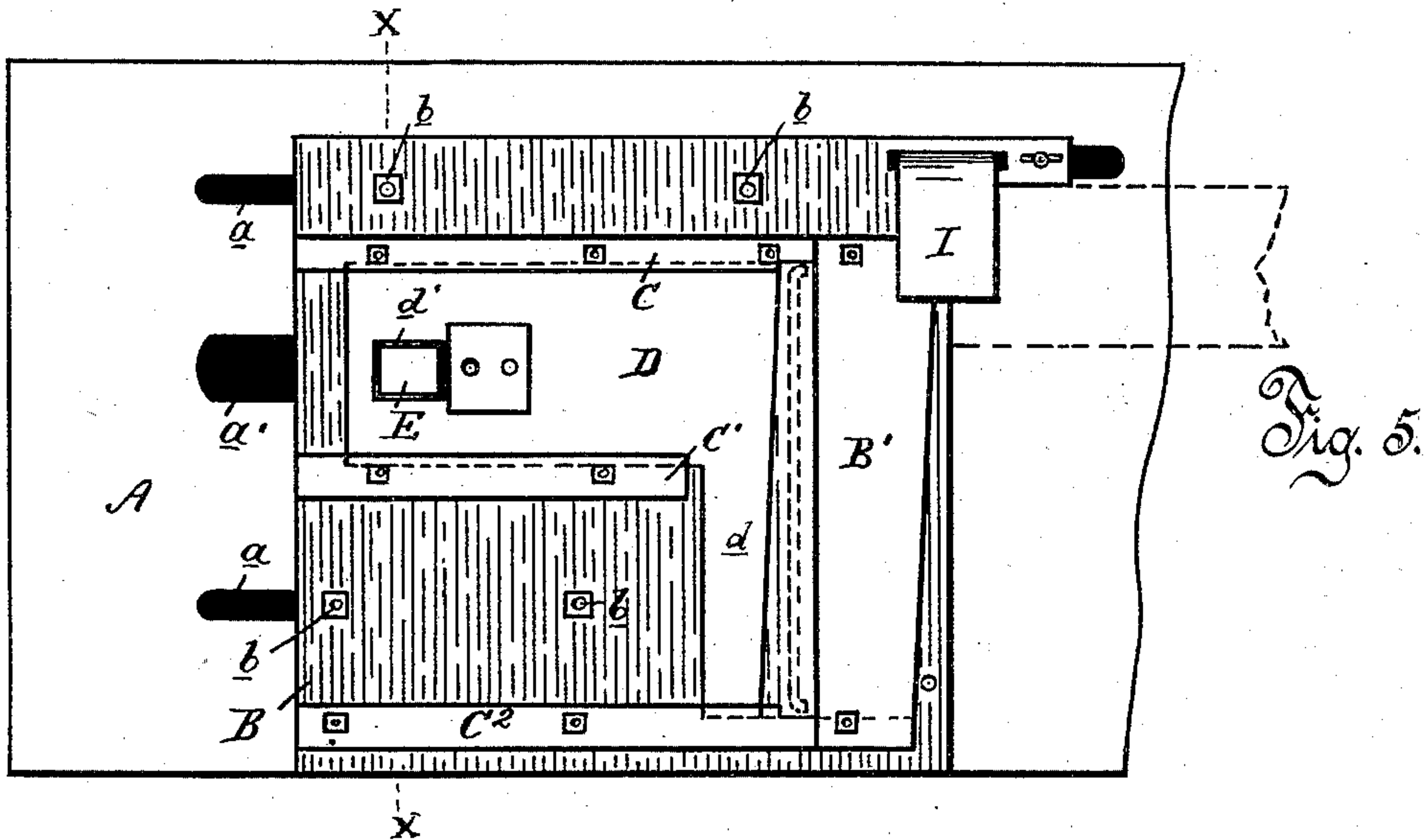
Witnesses
John Schuman.
William R. Howe.

Frank Leduc Inventor
By his Attorney Chas. F. Hunt.

(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

FRANK LEDUC, OF DETROIT, MICHIGAN.

MACHINE FOR DRIVING GUIDE-RODS IN WINGS OF WINDOW-SCREENS.

SPECIFICATION forming part of Letters Patent No. 427,584, dated May 13, 1890.

Application filed September 7, 1889. Serial No. 323,260. (No model.)

To all whom it may concern:

Be it known that I, FRANK LEDUC, of the city of Detroit, in the county of Wayne and State of Michigan, have invented new and
5 useful Improvements in Machines for Driving Guide-Rods in Wings of Window-Screens; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying draw-
10 ings, which form a part of this specification.

My invention relates to an improvement in machines for fastening guide-rods in wings of window-screens.

The objects of my improvement are, first,
15 to securely clamp and hold the ends of the wings while the guide-rod is being driven into the slot in the wing and the arm or prong of the rod driven into the wood; second, to prevent the splitting of the wood by the arm
20 or prong as it is driven in; third, to drive the guide-rod into the slot in the wing and the arm or prong into the wood, and to retract the driving-plate and release the wing from the clamp; and it consists in the means for
25 clamping the ends of the wings and in the mechanism actuating the clamps; in the means for holding them while clamping the wings, and in the means to return them to their normal position, and in the means for driving
30 the guide-rod into the slot in the wing and the arm or prong of the guide-rod into the wood, and the mechanism for operating the driving-plate and to retract it from the slot of the wing, and in the peculiar combination,
35 arrangement, and construction of the various parts, as hereinafter more particularly set forth.

As a guide-rod is necessary at each end of the wing of a window-screen, I have con-
40 structed my machine in two sections or double, so as to drive the two at one operation. It is evident the one section or a single machine would do the work as well as the double one, but only one-half as fast. There-
45 fore, when speaking of any part of the machine its duplicate is included, when there is such duplicate, in the other section.

Figure 1 is a front elevation of my machine, one section only being shown. Fig. 2 is a
50 vertical section through the line $y y$ in Fig. 1. Fig. 3 is a vertical section through the

table and guide-plate, on the line $x x$ in Fig. 5. Fig. 4 is a perspective view of the stop for holding down the clamps detached from the table. Fig. 5 is a plan view of the table 55 and guide-plate, one section only being shown. Fig. 6 is a horizontal section through the top of the bar G in Fig. 1. Fig. 7 is a perspective view of a part of the wing, showing the slot and the guide-rod driven in and fastened. 60

In the drawings, A represents the table of my machine supported on the standards $A' A'$. This table extends the whole length of the two sections of my device. The standards are in sets of four, one set under each section. 65 Each set is connected by proper girts below the table. A double girt A^2 is placed a short distance below the table and a little to the rear of the center, extending lengthwise of the table, and is supported by proper cross- 70 girts inserted in the standards $A' A'$. This double girt forms a slot, in which a bell-crank lever is pivoted, and a link connected to one arm of the lever reciprocates.

B is a movable guide-plate held in position 75 on the table by the set-screws and nuts $b b$, which pass through the slots $a a$ in the table. This guide-plate is so set that its upper face is level with the lower edge of the slot in the wing for the reception of the guide-rod, so 80 that when the guide-rod is forced forward off of the guide-plate by the forward movement of the driving-plate it enters without any difficulty or obstruction the slot in the wing.

$C C' C^2$ are ways on the guide-plate, in 85 which the driving-plate reciprocates.

D is a thin plate sliding in the ways $C, C',$ and C^2 , which, by its forward movement, drives the guide-rod into the slot in the wing and the prong or arm of the rod into the wood. 90

d is an arm or extension of the plate D , extending across the guide-plate and into the ways C^2 on the side of the plate. This arm serves to move and keep the free or outer end of the guide-rod in the proper position while 95 the arm or prong on the inner end is being driven into the wood.

B' is a bar or plate extending across the inner end of the guide-plate and above the driving-plate which slides under it. This 100 plate holds the guide-rod in position for entering the slot in the wing.

The long arm of the bell-crank lever E projects upward through the slot a' in the table and guide-plate, and is limited in its movement by the ends of this slot. This arm also passes through the aperture d' in the driving-plate D. As this aperture is just large enough to permit of the free passage of the arm of the lever, the forward and backward movement of the lever carries with it the driving-plate D. The lever E is pivoted in the slot in the double girt A^2 at e . A link F is pivoted to the short arm of the lever E and at its lower extremity to the bar G. The bar G extends beneath the two sections of my machine, and in each has the link F pivoted to it, and is twisted or flattened at the center to give a bearing to the lever H, by which it is actuated. The bar G is strengthened by the truss-bar G' , which is under it and bolted to it at its ends with a truss in the center.

P P are coiled springs attached at one end to the bar G and at the other end to the double girt A^2 , one being under each section.

The lever H is pivoted at its inner end to the standard H' , which is firmly secured by proper bolts to the floor in rear of the standards of the table. The lever H rests on the center of the bar G, and extends out beyond the table and forms a foot-treadle. The downward movement of this lever forces down the bar G, which draws down the link F and the short arm of the bell-crank lever E. This brings forward the arm of the lever, which projects upward through the slot a' in the table and the guide-plate and forces forward the driving-plate D, which drives the guide-rod into the slot and the arm or prong into the wood of the wing. When the weight is taken off of the lever H, the contraction of the coiled springs P P reverses the whole movement and brings all the parts back to their normal position.

I is a broad flat clamp having an arm I' at right angles with the plate extending down through a slot in the rear edge of the table. The arm I' is slotted at its lower end for the reception of the bar K, which connects and operates the clamp on the two sections. The arm I' is secured on the bar K by the set-screws k , which allows the position of the clamp on the bar to be changed to suit the length of wing to be operated upon. A pitman L connects the lower arm I' of the clamp to the bowed lever O, which is pivoted at its inner end to the standard O' , which is firmly attached to the floor in the rear and at one side of the standard H' . The lever O is bowed upward to pass over and allow free play to the bar G below it. As there are two clamps, there are two pitmen and two levers; but the levers are connected by bolts as the clamps are by the bar K' , and both are moved at the same time.

P' is a coiled spring attached at its lower end to the bolt p between the two levers O O, and at its upper end to the under side of the table.

R is a stop pivoted to the underside of the table near the bar K and has a handle r , by which it is moved, projecting above the table. When the clamps are drawn down, this stop is swung around between the under side of the table and the bar K and holds the clamps down while the guide-rod is being driven into the wing. When the operation is complete, the stop is removed by the operator, and the clamps are forced upward by the action of the spring P'.

In operating my machine the wing is placed on the table with its ends under the clamps, the slot in the wing being turned toward the front or open toward the operator. The operator, having placed the guide-rods to be driven into the wing in proper position, steps on the two levers O O, attached to the clamps. His weight brings the clamps down on the wings. The stop is then swung around between the table and the bar connecting the two clamps. The operator then changes his weight to the lever actuating the bell-crank lever, and, bringing that down, pushes the driving-plate forward by its long arm projecting above the table. The driving-plate forces the guide-rod into the slot and the arm or prong of the guide-rod into the wood of the wing, the clamp preventing the splitting of the wing by the arm or prong of the rod as it is driven in. The operator changes his weight to the clamp-levers and the springs P' P cause the bar G to rise, and that throws up the bell-crank levers, and they retract the driving-plate from the wing. The operators remove the stop and the spring P' forces the clamp up, and the wing is released and removed and another placed in position, and the operation is repeated.

It will be readily seen that it would be almost impossible to drive this guide-rod into the slot and into the wood by hand, and that tools would even then have to be constructed for that especial purpose, and the work would be slow and unprofitable, while with my machine it can be done about as fast as the wings and rods can be placed in position and removed.

What I claim as my invention is—

1. In a machine for driving guide-rods into wings of window-screens, the combination of the table A with the guide-plate B, provided with the ways $C C' C^2$, in which the driving-plate reciprocates, the driving-plate D, for driving in the guide-rod, the lever E, actuating the driving-plate, the link connecting the lever to the bar G, the bar G, operated by the lever H, and the lever H, actuating the bar G, all substantially as described.

2. In a machine for driving guide-rods into the wings of window-screens, the combination of the table A with the clamp I, for holding down the wing to be operated on, provided with the arm I' , slotted to receive the bar K, the bar K, passing through the slot in the arm I' and locked when the clamp is down by the stop R, the stop R, inserted between the bar

K and the table, the pitman L, connecting the clamp with the lever O, and the lever O, actuating the clamp, all substantially as described.

3. In a machine for driving guide-rods into the wings of window-screens, the combination of the table A with the guide-plate B, provided with the ways C C' C², in which the driving-plate D reciprocates, the driving-plate D, for driving in the guide-rod, the lever E, actuating the driving-plate, the link F, connecting the lever E to the bar G, the bar G, actuated by the lever H, the lever H, actuating the bar G, the clamp I, for holding down the wing and provided with the arm I', the pitman L, connecting the clamp I to the lever O, and the lever O, actuating the clamp, all substantially as described.

4. In a machine for driving guide-rods into the wings of window-screens, the combination of the table A with the guide-plate B, provided with the ways C C' C², in which the driving-plate reciprocates, the driving-plate D, for driving in the guide-rod, the lever E, actuating the driving-plate, the link F, connecting

the lever to the bar G, the bar G, operated by the lever H, the lever H, actuating the bar G, the clamp I, for holding down the wing, the pitman L, connecting the clamp to the lever O, the lever O, actuating the clamp, the bar K, passing through the slot in the arm of the clamp, and the stop R, inserted between the bar K and the table, all substantially as described.

5. In a machine for driving guide-rods in the wings of window-screens, a combination of the table supporting the guide-plates and the clamps, the guide-plate provided with ways in which the driving-plate reciprocates, the driving-plate sliding in the way on the guide-plate, the mechanism for actuating the driving-plate, the clamp for holding the wings, the means for operating the clamps, and the springs for raising the levers, all substantially as described.

FRANK LEDUC.

Witnesses:

AMBROSE LEDUC,
ADOLPH WURZBURG.