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GRIPPING ATTACHMENT FOR BOX MACHINES, &c.

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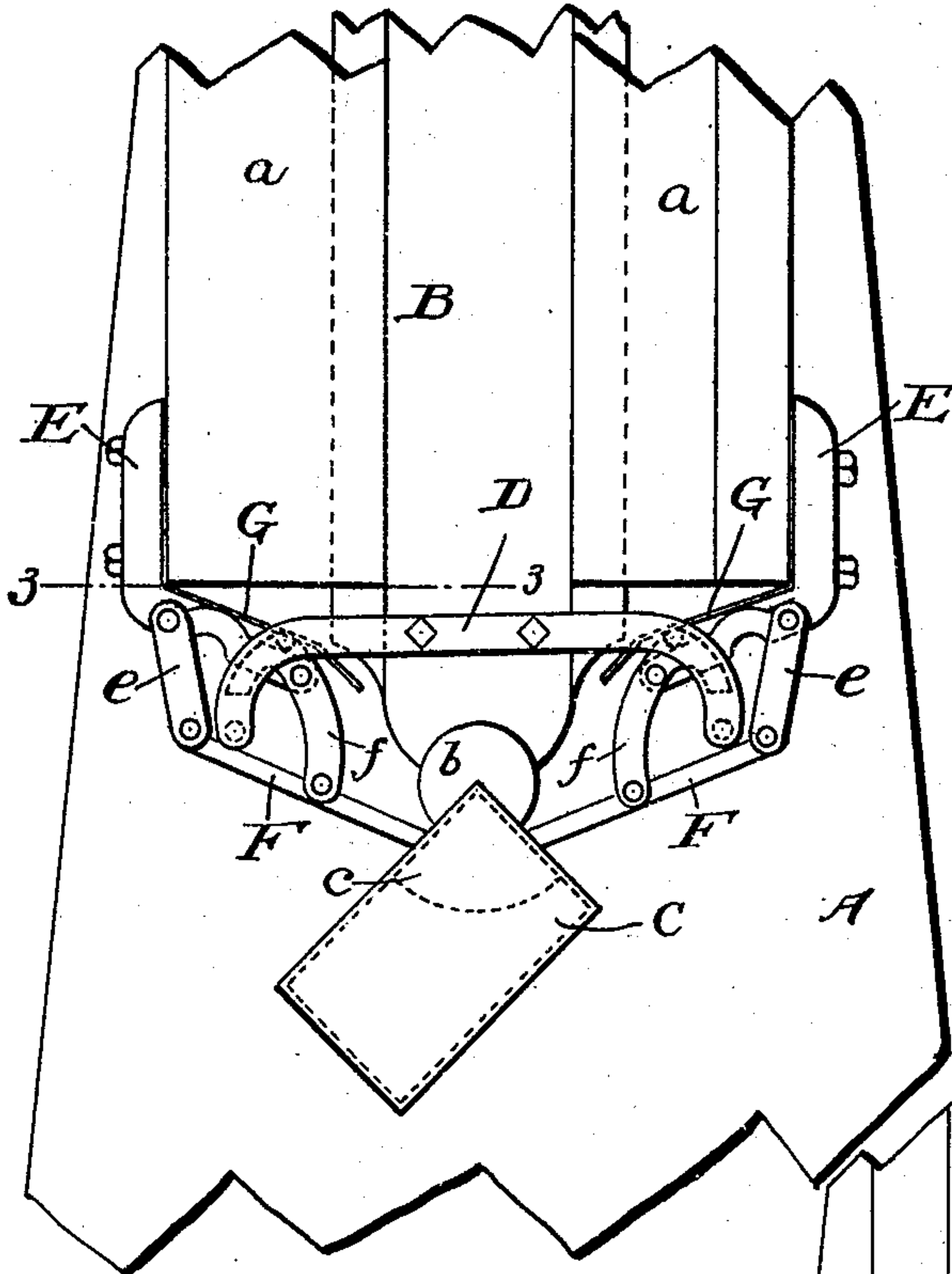


Fig. 1.

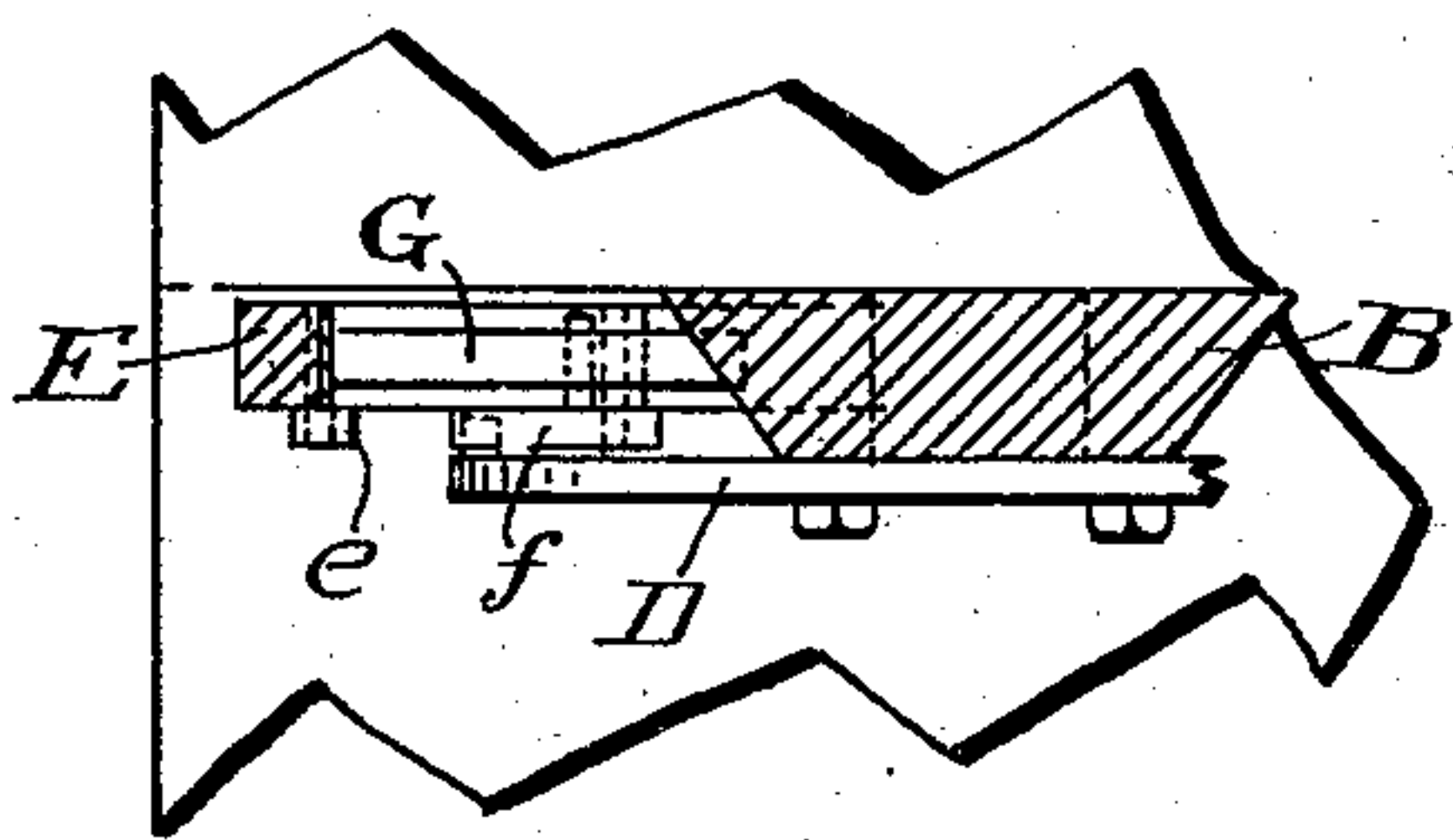


Fig. 3.

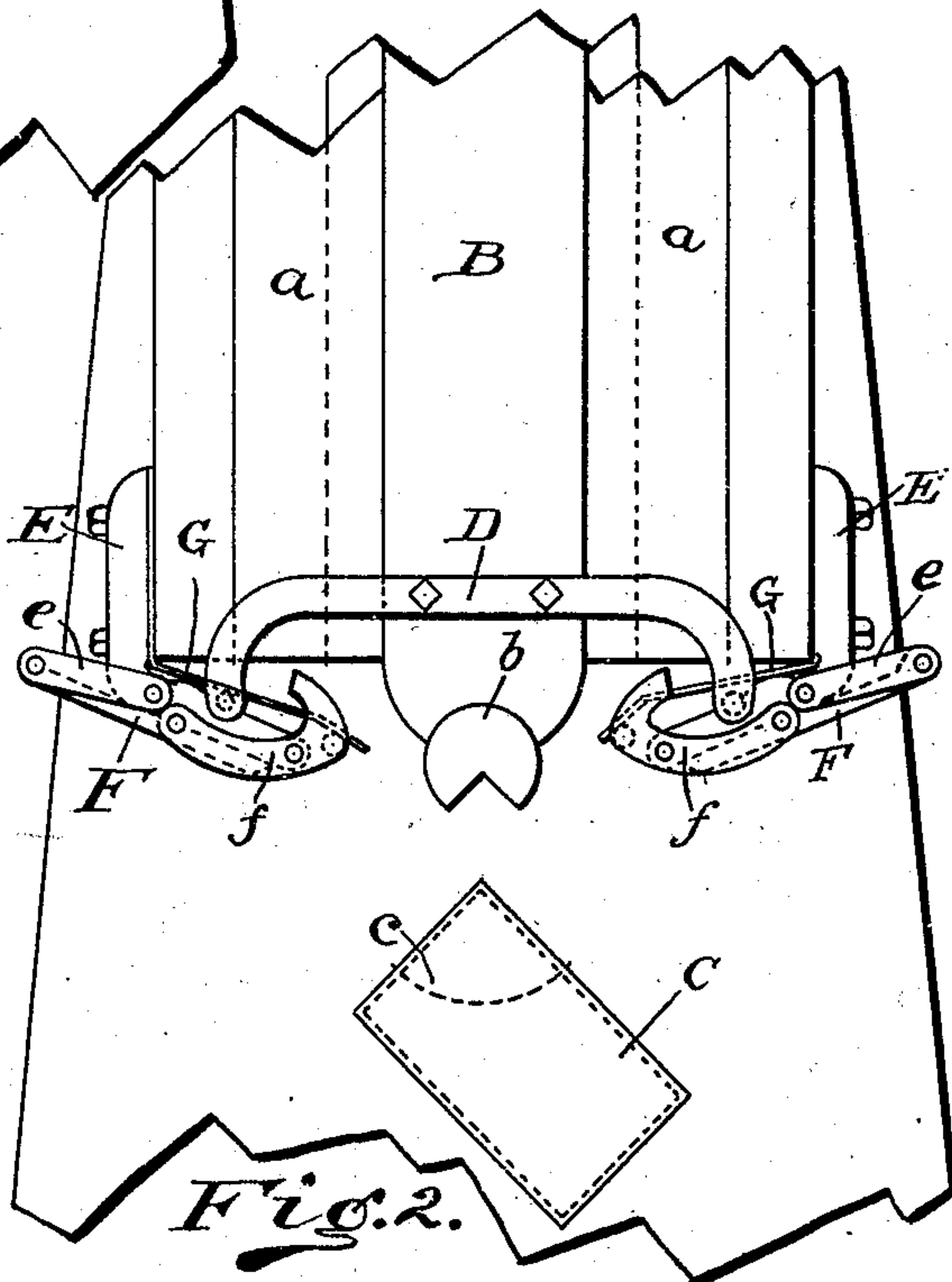


Fig. 2.

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UNITED STATES PATENT OFFICE.

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GRIPPING ATTACHMENT FOR BOX-MACHINES, &c.

No. 842,290.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, HENRY M. WRIGLEY and JOHN ASPENLEITER, citizens of the United States, and residents of Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Improvement in Gripping Attachments for Box-Machines and the Like, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of our specification.

Our invention relates to an attachment adapted more especially for use in connection with a machine for attaching stays to the corners of paper boxes, (although it may be equally as well applied to other machinery,) and we have shown and shall describe it in connection with such machinery.

The object of the invention is to provide a device whereby the adjacent sides of a paper box may properly be held on the anvil of the machine until the corner formed by the juncture of the two sides is provided with a stay-strip composed of any suitable material and which in practice are preferably secured by some adhesive substance and pressed into place by a die at the end of a reciprocating plunger, the die being adapted to take over the anvil.

The invention consists in providing a pair of angular arms to which are pivotally connected links, which are also pivotally secured to engaging bars or grippers, and springs adapted to exert pressure on one pair of said links to one side or the other of the pivotal point on the angular arms, so that the links will be retained in the position they assume after the action of an engaging bar, as will more fully hereinafter appear and be set forth in the specification.

In the drawings, Figure 1 is a front elevation of a portion of a stay-attaching machine with a paper box between the dies or on the anvil beneath the plunger with our improved gripping attachment secured thereto, showing the same engaging the sides of the paper box and holding it in place while a stay-strip is being applied. Fig. 2 is a similar view with the plunger having the female die up out of contact with the other die or anvil and showing our attachment or grippers out of operative contact with the paper box on the anvil or male die, and Fig. 3 is a sectional view taken on the line 3 3 of Fig. 1.

Like letters of reference indicate identical parts in the respective figures.

A is a standard or upright of a machine of the type referred to, which is provided with the usual slideway *a a*, in which the plunger B reciprocates. This plunger B is provided at its bottom with the female die *b*, which is adapted to take over the male die or anvil *c* (shown in dotted lines) and on which the box C is mounted. Secured on the plunger B by bolts or in any other suitable manner is a bowed arm or bar D, whose ends may preferably be provided with small rollers to reduce the frictional contact with the parts. Secured to the side of the slideway *a a* on the frame of the machine in any suitable manner are the angular arms E E, to which are pivotally connected the links *e e f f*, which links also are pivotally connected to the fingers or gripper-bars F F. The links *f f* are preferably of the hook construction shown in the drawings, so that their hook or free ends extend to the side and downward beneath the point of their pivotal connection with the bars or arms E and into the path of the lugs or rollers mounted on the ends of the bowed arm or bar B, so that the movement of the plunger D with the bowed arm or bar D will affect the action of the links *f f*.

As seen in the drawings, the bowed arm D is either provided with lugs or rollers at its ends and at right angles thereto adapted to engage with the fingers or gripper-bars F, as shown in Fig. 1, and these ends, with their lugs or rollers, are also in the same perpendicular plane with the downwardly depending ends of the links *f f*. It is apparent that when the plunger B, to which the bowed arm D is secured, takes upward and away from the male die or anvil *c* the rollers or lugs at the ends of the bowed bar D will strike the downwardly depending ends of the links *f f*, swinging these links on their pivotal points on the angular arm D, thereby drawing the fingers or grippers F with them and out of contact with the box C, which had been placed on the male die or anvil *c*.

Mounted in any suitable manner to the frame of the machine are the flat springs G G, which are so constructed as to exert a spring-pressure on the links *f f* at a point preferably above the pivotal connection of the links *f f* on the angular arms E E. It will be seen that the tendency of the flat springs G G by reason of their bearing at the point on the links *f*, as above set forth, and shown in the drawings, is either to retain the links *f f* in the position shown in Fig. 1, when the

gripper-bars or fingers F F will be held against the sides of the box on the anvil *c*, or as seen in Fig. 2, when the links *ff* will be tilted on their pivotal points and the gripper-bars or fingers F F drawn up away from the sides of the box on the anvil *c*, because the action of the springs G will be exerted either to one or the other side of a dead-center, as can readily be understood from the drawings.

In the operation of the machine a box composed of cardboard or similar material and whose ends or sides are ununited is placed on the male die or anvil *c*, which is shaped to take into a corner of the box to be formed, when the machine is set in operation and the plunger B, with the female die *b* and the bowed bar or arm D, is brought down toward the male die or anvil *c* and on top of the ends or sides of the box mounted on the anvil. The ends of the bowed bar or arm D are thereby brought into contact with the links *ff*, pressing them, together with the gripper-bars F F and the links *ee*, downward, thereby bringing the hook end of the links *ff* downward, swinging the point of frictional contact with the springs G G past the "dead-center" of the links *ff*, thus permitting the tension exerted by the springs G G on the links *ff* to further depress the hook ends of the links *ff* and the gripper-bars F F farther downward and into contact with the box mounted on the anvil *c*. It has been found preferable in practice to provide the flat springs G G with a slight bend, as indicated in the drawings. It will be seen from the drawings that the point at which the flat springs G G exert their tension or pressure on the links *ff* is brought either to the right or left of the pivoted point of the links *ff* to the angular arms E E, or, in other words, to either side of the dead-center, so that the links, together with the gripper-bars F F and the links *ee*, will either be held down into operative position, as shown in Fig. 1, regardless of whether or not the bowed arm D is pressing on the grippers F F, or they will be held up and out of operative position, as shown in Fig. 2.

As stated, our invention is more especially adapted for use in connection with a machine for applying stay-strips to the corners of boxes made of cardboard, where it is necessary to hold the sides of the box on the anvil or male die until the plunger, with the female die and the stay-strip, can be brought down onto the sides of the box to form the corner corresponding with the angle described by the anvil or male die. Heretofore in the operation of these stay-attaching machines it has been necessary on the part of the operator to hold the box on the anvil until provided with the stays at the corners. This had to be done with the fingers until the plunger with the female die or anvil was brought down and the stay-strip securely attached, and in order to hold the sides properly, so as to form a neat

corner, the operator must hold the sides of the box very close to the corner or near the apex of the anvil or male die. This quite frequently results in the fingers of the operator being caught beneath the plunger. With our improved device it will be seen that the necessity for the operator grasping the box near the corner, as above mentioned, is obviated, and the device not only firmly holds the box on the anvil until the stay-strip has been secured in place, but also acts in a sense as a guard, preventing the fingers of the operator from sliding too far upward and into danger, as will be readily understood.

We have described what we believe to be the preferable construction and the device as more especially intended for use in connection with a stay-attaching machine; but it is understood that the device may readily be applied to other machinery in which a reciprocating plunger is employed and it is necessary to retain an object to be operated on in place to await the action of such plunger.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. A gripping attachment for stay-attaching machines and the like, comprising a pair of pivotally-mounted gripper-bars or fingers, a pair of links pivotally secured to said bars or fingers, while the other ends of said links have a fixed pivotal point, a striker-bar adapted to reciprocate and control the action of the gripper-bars.

2. A gripping attachment for stay-attaching machines and the like, comprising a pair of pivotally-mounted gripper-bars or fingers, a pair of links the one ends of which are pivotally secured to the gripper-bars and the other ends having a fixed pivotal point, means adapted to reciprocate and engage with said pivotally-secured links and the gripper-bars or fingers, whereby the latter are thrown into or out of operative position.

3. A gripping attachment for stay-attaching machines and the like, comprising a pair of pivotally-mounted gripper-bars or fingers, a pair of links pivotally secured at their one ends to the gripper-bars or fingers, while their other ends have a fixed pivotal point, a striker-bar adapted to reciprocate and engage with the gripper-bars, and means for retaining the gripping-bars in the positions resulting from the action of the striker-bar.

4. A gripping attachment for stay-attaching machines and the like, comprising a pair of gripper-bars or fingers, a pair of links the one ends of which are pivotally secured to the gripper-bars, and the other ends having a fixed pivotal point, a striker-bar adapted to reciprocate intermediate of the gripper-bars or fingers and the ends of the pivoted links, and to engage therewith, whereby, upon the reciprocation of the striker-bar, the grippers will be thrown into or out of operative position.

5. A gripping attachment for stay-attaching machines and the like, comprising a pair of pivotally-mounted gripper-bars or fingers, a pair of hooked links the one ends of which are pivotally mounted to the gripper-bars, said hooked links also having a fixed pivotal point with the hooked portion extending to the side thereof, a striker-bar adapted to reciprocate intermediate of the hooked ends of the links and the gripper-bars, whereby upon its reciprocation the gripper-bars will be pressed into operative position, or the links oscillated on their fixed pivotal point and the gripper-bars thrown out of operative position.

6. A gripping attachment for stay-attaching machines and the like, comprising a pair of gripper-bars or fingers, a pair of links having a fixed pivotal point at their one end and pivotally secured at the other end to the gripper-bars or fingers, and a striker-bar adapted to reciprocate and control the action of the gripper-bars.

7. A gripping attachment for stay-attaching machines and the like, comprising a pair of gripper-bars or fingers, a pair of links having a fixed pivotal point at their one end, and pivotally secured at their other end to the gripper-bars or fingers, said links provided with an extension protruding beyond the fixed pivotal point, and a striker-bar adapted to reciprocate intermediate of the gripper-bars or fingers, and the extension on said links.

8. A gripping attachment for stay-attaching machines and the like, comprising a pair of gripper-bars or fingers, a pair of links, the one ends of which have a fixed pivotal point, while the other ends are pivotally secured to the gripper-bars or fingers, a striker-bar adapted to reciprocate intermediate of the fixed pivotal points of said links and the gripper-bars or fingers, and means for retaining the gripper-bars or fingers in the positions resulting from the action of said striker-bar.

9. An attachment for stay-attaching machines and the like comprising a pair of engaging members, links having pivotal attachment with said members and the frame of the machine whereby the movement of said members is controlled, and mechanism for throwing said members into or out of engagement with the object to be held.

10. An attachment for stay-attaching machines and the like, comprising a pair of engaging members, links having pivotal attachment with said members and the frame of the machine whereby the movement of said members is controlled, mechanism for throwing said members into or out of engagement, and means for holding said members in engagement with the object to be held.

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