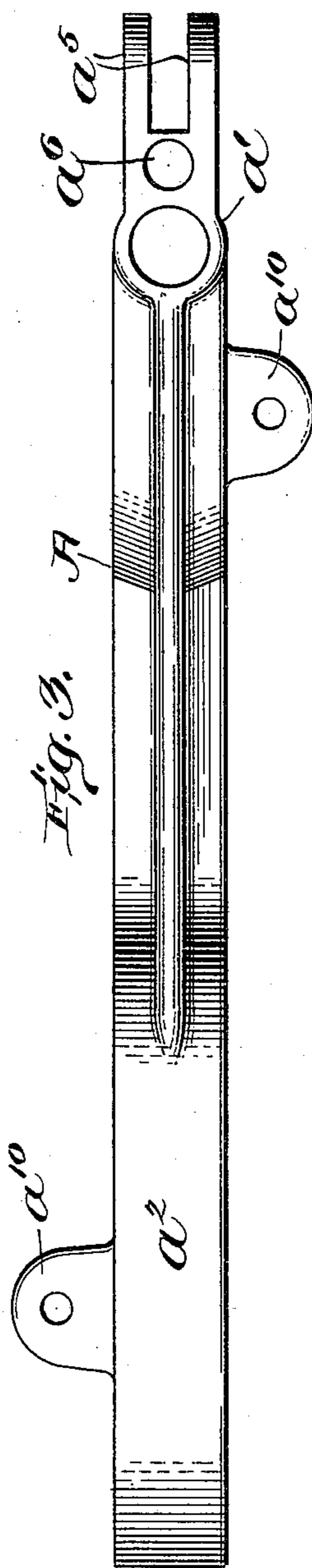
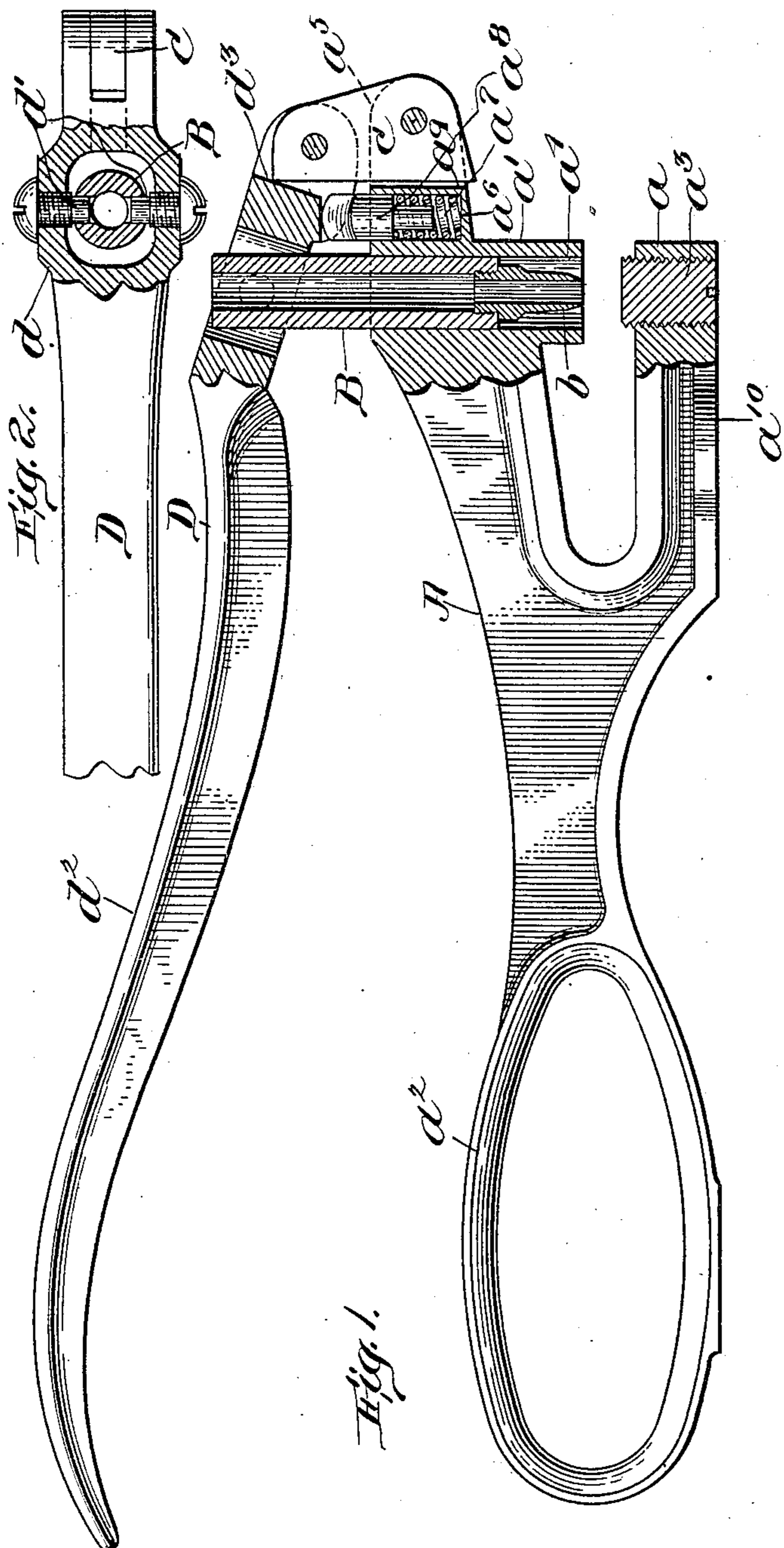


No. 763,225.

PATENTED JUNE 21, 1904.

F. E. WALDEN.
PUNCH OR THE LIKE.
APPLICATION FILED SEPT. 4, 1903.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

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BAY STATE TOOL COMPANY, OF BOSTON, MASSACHUSETTS, A CORPO-
RATION OF MAINE.

PUNCH OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 763,225, dated June 21, 1904.

Application filed September 4, 1903. Serial No. 171,875. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK E. WALDEN, a citizen of the United States, and a resident of Worcester, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements in Punches or the Like, of which the following is a specification.

My invention relates to presses, punches, and the like, and has for its object to improve the construction of articles of this class to the end that such articles may be rendered easy to manipulate by hand, powerful, compact, and efficient.

In accordance with my invention the press, punch, or the like is made up of a frame comprising a work-supporting arm and a head separated to permit the entrance of the work between them, a plunger mounted on the head of the frame, a plunger-lever pivotally connected near its end to the plunger, and a fulcrum-link pivotally connected at one end to the lever near the plunger and at its other end to the head of the lever-frame. In the best form of my invention the frame also is a lever made with a handle opposite the free end of the plunger-lever, and the link through which the plunger-lever is connected with the lever-frame coöperates with said lever to limit the extent of movement of the plunger in one direction and coöperates with the frame to limit the movement of the plunger in the opposite direction.

Hereinafter I have pointed out other features of my invention.

In the accompanying drawings, Figure 1 is an elevation, partly in section, of a hand-operated punching-press embodying one form of my invention. Fig. 2 is a plan view, partly in section, of a portion of the plunger-lever of the punching-press shown in Fig. 1, showing the manner in which said lever is connected with the plunger hereinafter described. Fig. 3 is a plan view of the lever-frame of the punching-press shown in Fig. 1.

Having reference to the drawings, A represents the frame of a hand-operated punch embodying the preferred form of my invention. This frame differs from the frames of punches as heretofore constructed in that it

constitutes a forked lever and comprises a work-supporting arm *a* and head *a'* at one end thereof and a handle *a''* at the other end in the form of a loop through which the fingers of the user may be passed. The arm *a* is made with a threaded socket in which is screwed an exteriorly-threaded cutting-block *a'''*. The head *a'* is made with a cylindrical bore *a''''*, which is in alinement with the cutting-block *a'''*.

Within the bore *a''''* is mounted a plunger B, herein shown as hollow and as carrying at its lower end a hollow cutting-tool *b*, adapted to coöperate with the cutting-block *a'''*.

Between a pair of lugs *a'''''*, provided on the head *a'* of lever-frame A, is pivoted one end of a link C, pivotally connected at its opposite end to the forked end of a plunger-lever D. Lever D is made with a yoke *d*, carrying two oppositely-disposed pivot-screws or trunnions *d''*, on which plunger B is hung. From yoke *d* lever D extends out over handle *a''*, as at *d'''*, and this extension *d'''* also serves as a handle.

Between link C and plunger B the head *a'* of lever-frame A is made with a pocket *a''''''*, holding a spring *a'''''''*, and a button *a''''''''*, supported upon spring *a'''''''*. Button *a''''''''* bears at its upper end upon the under side of the lever D between plunger B and link C. The function of this spring-pressed button *a''''''''* is to move plunger B and lever D in one direction, while movement in the opposite direction is effected by the operator. Upward movement of lever *d* by spring *a'''''''* is limited by the engagement of the upper part of link C with a co-operating surface or stop *d''''* on lever D.

The lower part of the link C coöperates with a surface or stop *a''''''''* on head *a'* of lever-frame A to limit the extent of downward movement of plunger B. This stop *a''''''''* is important, because it not only prevents the cutter from mutilating the cutting-block and prevents the cutter itself from being injured or dulled by the cutting-block, but the parts may be so adjusted that the stop shall limit the downward movement of the plunger before the cutter meets the cutting-block at all, thus punching the work only part way through, as is required in some

classes of work. Preferably the handle a^2 and arm a are each made with a perforated laterally-projecting lug a^{10} , by means of which the lever-frame may be fixed to a bench or
 5 other support.

As shown in Fig. 1, when the upper end of link C is against its cooperating stop d^3 on lever D the cutter b is entirely sheathed within its bore a^4 , and the advantage of this fea-
 10 ture is that the lower end of the head a' serves to doff or clear the article being operated upon from the cutter b .

The cutter b , as shown, is removable from the plunger, so that a tool of another charac-
 15 ter can be substituted for it. Also the cutting-block is not only adjustably mounted on the arm a , but it can be removed and a different block substituted when desired.

Other features of my invention reside in
 20 the compact and efficient arrangement of lever and lever-frame alongside each other and of the few parts or elements required and their arrangement, whereby it is possible to produce a powerful, comparatively light, and
 25 small hand-operated press which as a portable article or as a fixture on a bench or the like fully meets all the requirements of such an article.

What I claim is—

30 1. A press of the character described made

up of a frame comprising a work-supporting arm and a head separated to permit the entrance of the work between them; a plunger mounted on the head of the frame, a plunger-lever pivotally connected near its end to the
 35 plunger; a pocket in said head between the link and plunger; a spring in said pocket for moving the plunger-lever in one direction, and a fulcrum-link pivotally connected at one end to the plunger-lever near the plunger and
 40 at its other end to the head of the frame.

2. A press of the character described made up of a frame comprising a work-supporting arm and a head separated to permit the entrance of the work between them; a plunger
 45 mounted on the head of the frame; a plunger-lever pivotally connected near its end to the plunger; a fulcrum-link pivotally connected at one end to the plunger-lever near the plunger and its other end to the head of the
 50 frame; a pocket in said head between the link and the plunger; a spring in the pocket, and a button supported by the spring and engaging the plunger-lever.

Signed by me at Boston, Massachusetts, 55
 this 29th day of August, 1903.

FREDERICK E. WALDEN.

Witnesses:

ARTHUR F. RANDALL,
 JOSEPHINE H. RYAN.