(No Model.)

# H. ENGEL.

## BAG FASTENER.

No. 520,107. Patented May 22, 1894.

Fig. 1.

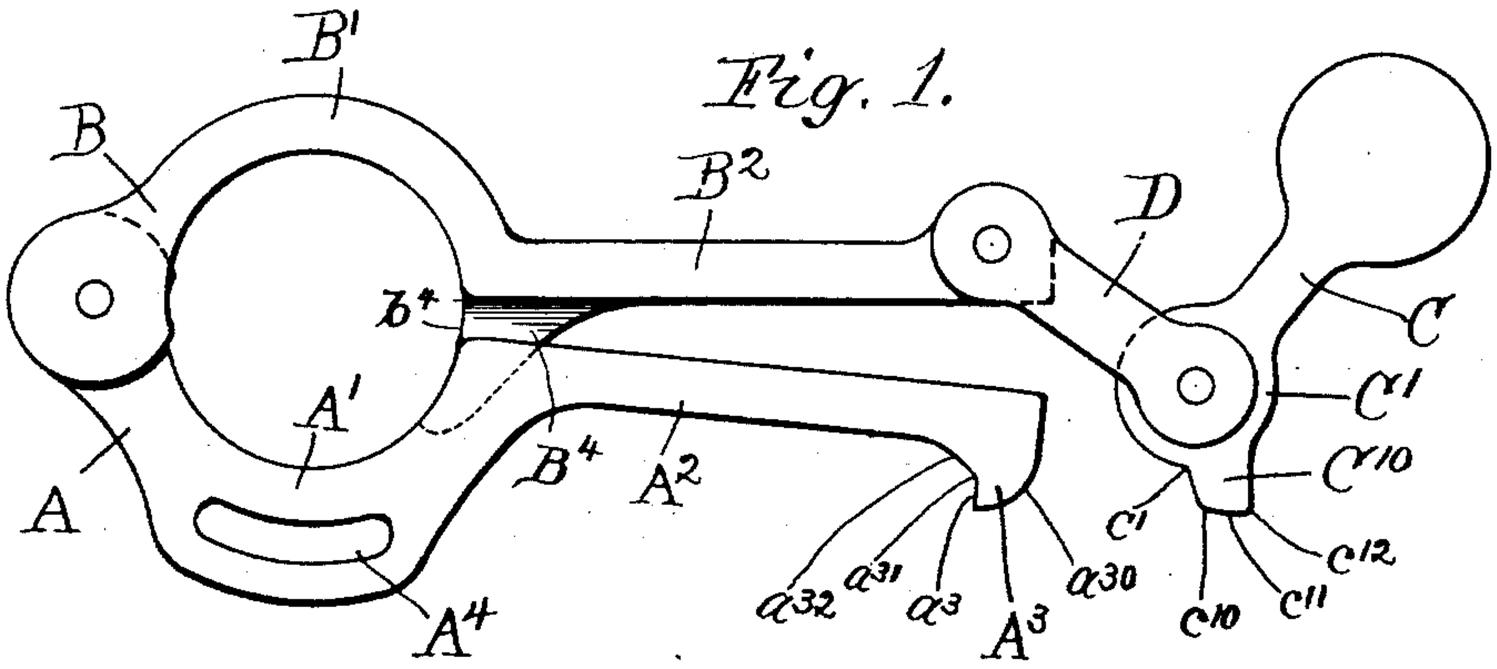



Fig. 2.

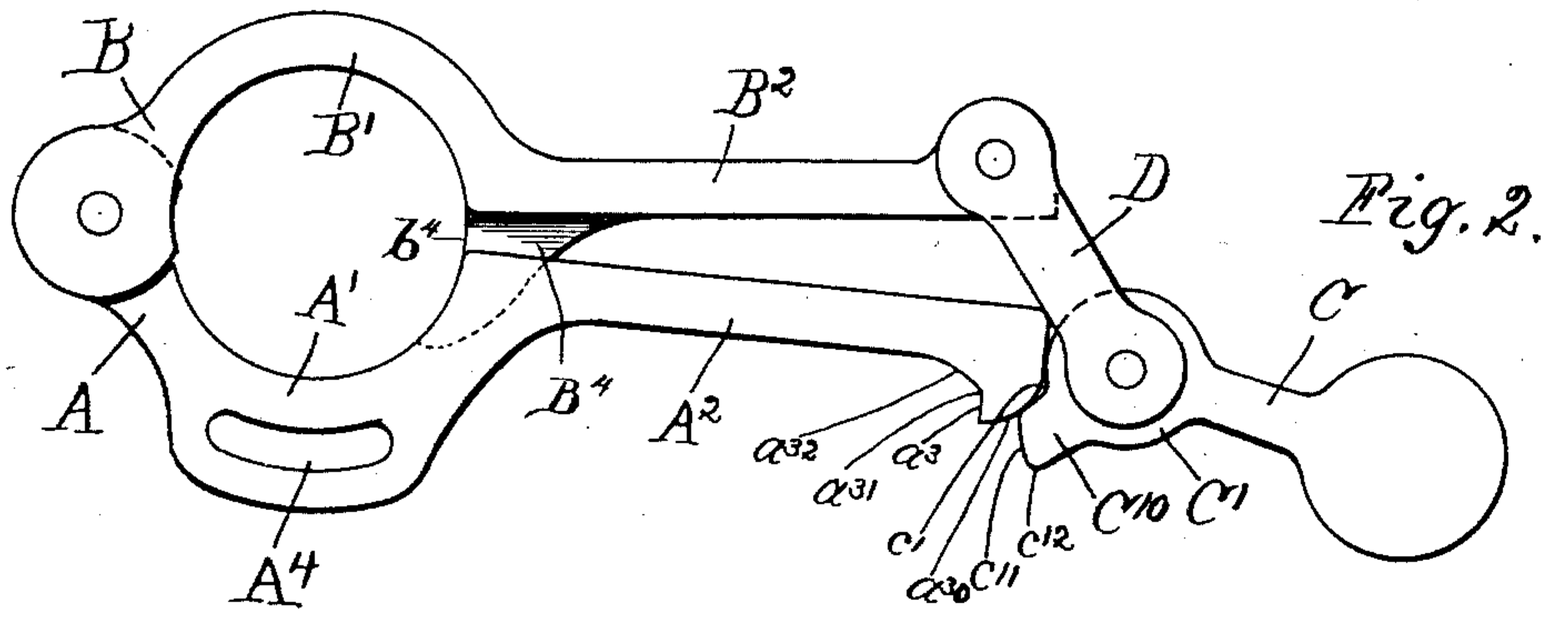



Fig. 3.

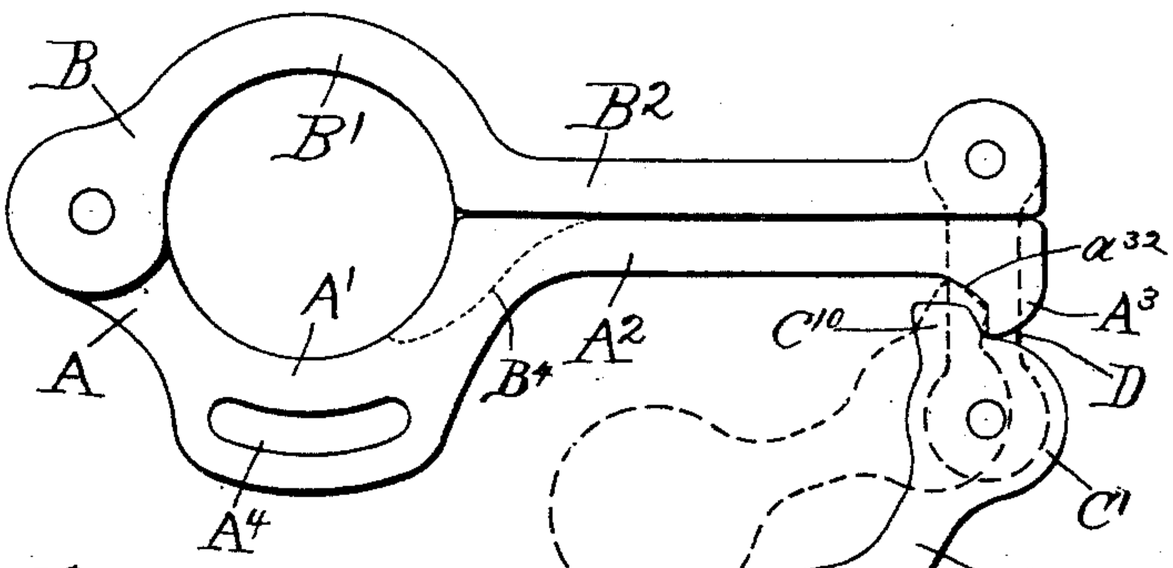
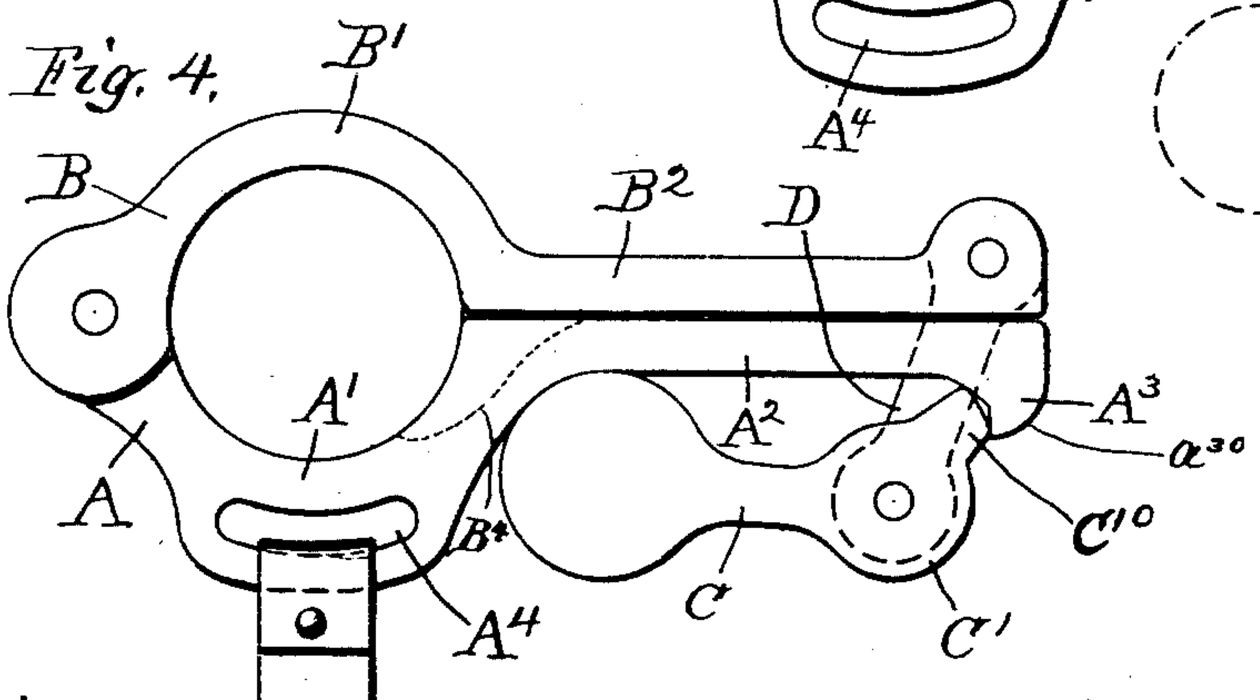



Fig. 4.




Witnesses.
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Jean Elliott

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By Burton and Burton
his attys

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# UNITED STATES PATENT OFFICE.

HENRY ENGEL, OF NEW ULM, MINNESOTA, ASSIGNOR OF ONE-FOURTH TO ALBERT W. ENGEL, OF CHICAGO, ILLINOIS.

## BAG-FASTENER.

SPECIFICATION forming part of Letters Patent No. 520,107, dated May 22, 1894.

Application filed April 14, 1893. Serial No. 470,333. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY ENGEL, a citizen of the United States, residing at New Ulm, county of Brown, and State of Minnesota, have invented certain new and useful Improvements in Bag-Fasteners, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

In the drawings,—Figure 1 is a plan of my improved fastener, showing the bag grasped and before the fastener is locked. Fig. 2 shows the locking device brought into contact with the jaw at the commencement of the clamping movement. Fig. 3 shows in full lines the parts in position when the clamping is completed but the device not locked, and in dotted lines a position a little subsequent to that in full lines. Fig. 4 shows the device fully locked.

The purpose of this invention is to afford an easily operated and reliable fastener for filled bags, more simple in construction and easier in operation than those heretofore in use. It comprises the two jaws A and B, hinged together at one end, and having near the hinge respectively semi-circular bends A′ and B′, forming together a circular clasp which embraces the bag when the device is closed and locked, being adapted to gather and compress tightly folds of the bag's mouth at the position where it is usually tied up with a strap or string. The jaws are extended from the bends A′ B′ in the direction of the diameter of the circle formed by such bends when the device is closed, the extension $A^2$ $B^2$ constituting lever arms or handles by which the device is clamped about the bag. To one of the lever arms $B^2$, at the end, a cam lever C is linked by the links D D. The other lever arm $A^2$ has a tooth or projection $A^3$, at the end, forming at the inner side a shoulder $a^3$, and at the outer side the curved cam surface $a^{30}$. The cam lever C has a tooth $C^{10}$ projecting from the hub C′, which is otherwise substantially circular about the pivotal connection of the links D D to said lever, a concavity or re-entrant angle or curve being formed at $c'$ between the tooth and the general contour of the hub. This concavity becomes a seat for the cam surface $a^{30}$ of the tooth $A^3$ in the operation of clamping the bag. The operator, gathering the slack of the bag below the mouth into the circular clasp A′ B′, and holding the lever arms $A^2$ $B^2$ as closely folded as possible, swings the cam lever C over the tooth $A^3$, bringing it eventually to the position shown in Fig. 3, which is easily done if the two lever arms are held close together by the hand. If the resistance of the material which is gathered in the clasp A′ B′ is such that the grip of the operator does not suffice to bring the two jaws completely together, the movement natural to carry the cam lever C into the position shown in Fig. 3 will bring it first into the posion shown in Fig. 2, the cam surface $a^{30}$ seating in the concavity $c'$ of the lever C; then, as the lever C is carried over toward the final position, the lever arm $A^2$ will be crowded down toward the lever arm $B^2$ by the co-operation of the two engaged surfaces until the parts are in the position shown in Fig. 3, wherein the crest of the tooth $A^3$ is in line with the pivotal connections of the links D D to the lever arm B′ and the lever C, respectively, and such crest then becomes the fulcrum over which the lever C tilts as it rocks down toward the final position shown in Fig. 4, coming intermediately, however, to the position shown in dotted lines in Fig. 3, wherein the corner $c^{10}$ of the projection $C^{10}$ becomes lodged at the point $a^{31}$ of the shoulder $a^3$. From that stage of the movement, the lever rocks over a fulcrum which shifts as the eccentric edge $c^{11}$ of the projection $C^{10}$ slides up along the inner face or shoulder $a^3$, and in this last movement, said projection operating against the shoulder causes the lever C of the tooth $A^3$ to swing the links D over to the oblique position shown in Fig. 4. This last movement would tend to slacken the grasp of the jaws on the material engaged in the clasp but for the eccentric shape of the end of the projection and the inclined path $a^{32}$, which at its corner $c^{12}$ follows in the closing movement; and these surfaces are so shaped and related as to counteract the slackening of the grasp of the jaws due to the links passing the line of contact of the toe with the lever arm $A^2$. And in the final position, the jaws are still as tightly closed as when the link C was in the

position shown in full lines in Fig. 3; and the lever C, now resting on the back of the arm $A^2$ at two points,—viz: the toe and the opposite end, where it is adapted to be grasped by the finger of the operator, and the link D, connecting said lever to the opposite jaw, the line of their pivots crossing the line of the two contacts of the lever C with the jaw A, between said contacts, the expansion of the bag, operating as a force along the line of said pivots, tends to hold the lever C close down upon the back of the arm $A^2$, and thereby to keep the device locked securely.

To unlock it, the operator will seize the free end of the lever C, and swing it by any movement which it will take back over the end of the jaw A, retracing the path which was followed in clamping it. The jaw A is provided at any convenient point, as at the crest of the bend A′, with an eye $A^4$ for a strap by which it may be permanently attached to the bag.

In order to make it easier to get the folds of the bag's mouth all inclosed within the clamp-circle of the jaws and prevent any fold getting between the lever arms, and so preventing them from being closed up, I prefer to form on one of the jaws a wing $B^4$, whose inner edge $b^4$ continues the curve of the circular opening, and which overlaps the other jaw when the clamp is fully closed. This wing may be made to project far enough so that its point will overlap the other jaw while the folds of the bag are still only loosely gathered, so that all the severe compressing will be done after all the folds are within the inclosure and past the possibility of getting between the lever arms.

I claim—

1. In a bag fastener, in combination with the jaw $B^2$, the link D, pivotally connected at one end to one end of the jaw; and a lever C, pivoted at the other end to the link; the jaw A, hinged to the jaw B at the end opposite that at which the link is connected, and having the cam surface $a^{30}$ at the free end; the lever having the re-entrant angle C′, adapted to seat said cam surface: substantially as set forth.

2. In a bag fastener, in combination with the jaws A and B, hinged together at one end; a link D, pivoted to the jaw B at its free end; a lever C, pivoted to the other end of the link; the jaw A, having the tooth $A^3$ at its free end, and the lever having the toe $C^{10}$ adapted to engage the tooth at the inner side, said toe terminating eccentrically with respect to the pivot of the lever: substantially as set forth.

3. In a bag fastener, in combination with the jaws A and B, hinged together and adapted to clasp the bag between them near their hinge, the lever C, and the link D, connecting it to the free end of the jaw B, said lever being formed eccentrically about its pivot to the link; the jaw A having a stop tooth $A^3$ at the free end, and the lever being adapted to engage behind said stop tooth and operate against it in its clamping movement: substantially as set forth.

4. In a bag fastener, in combination with the jaws hinged together and having in their proximate edges recesses which together form an inclosed space in which the bag's mouth is clamped, one of the jaws being provided with a wing $B^4$ at the margin of the recess remote from the hinge, said wing projecting toward the other jaw and adapted to overlap the other jaw at the corresponding margin of its recess: substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at New Ulm, Minnesota, this 31st day of March, 1893.

HENRY ENGEL.

Witnesses:
ROBERT NIX,
ALBERT STEINHAUSER.