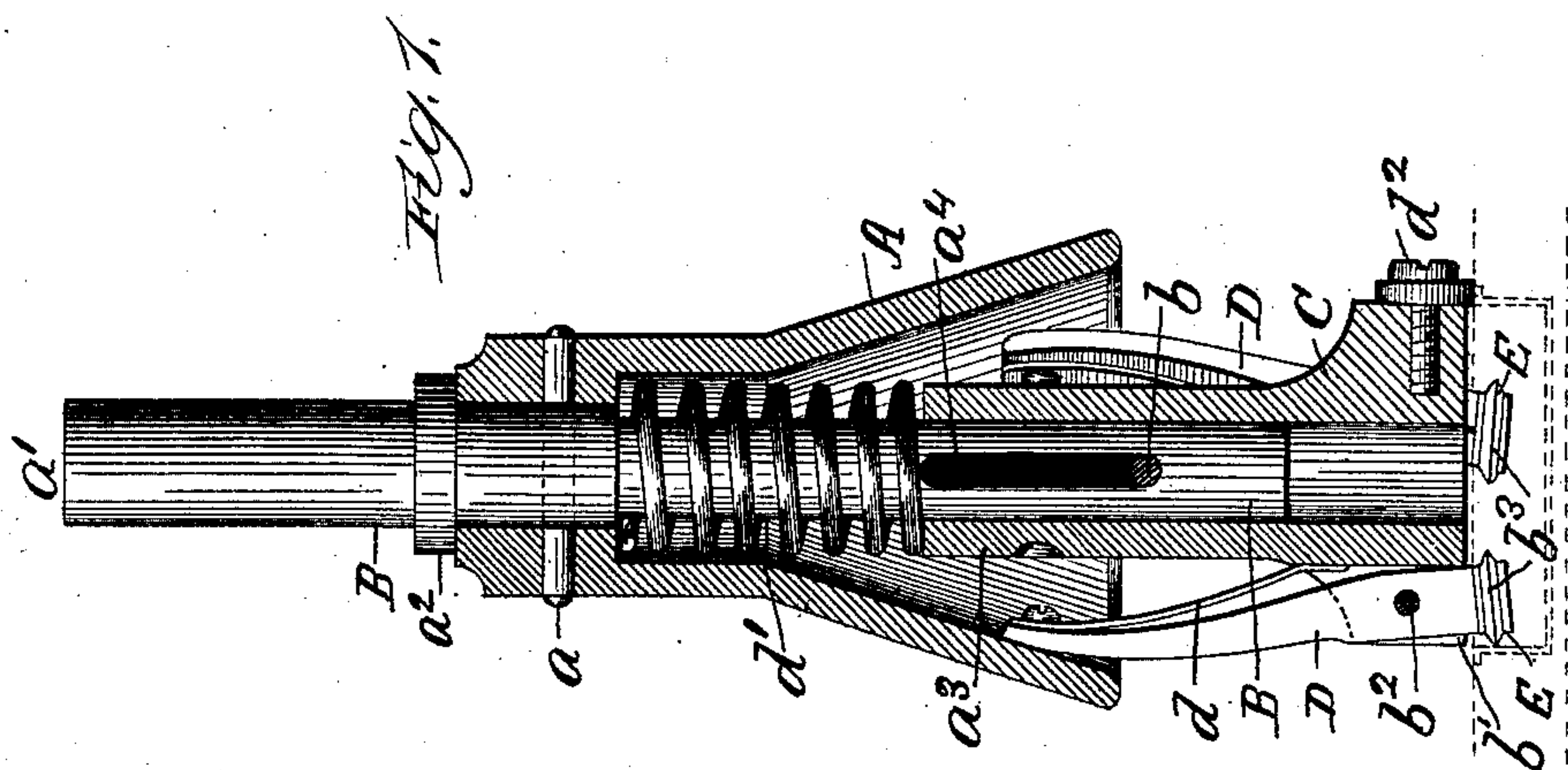


(No Model.)

J. A. SEAMAN.  
EXPANDING TOOL.

No. 428.786.

Patented May 27, 1890.





# UNITED STATES PATENT OFFICE.

JOHN A. SEAMAN, OF CHICAGO, ILLINOIS.

## EXPANDING-TOOL.

SPECIFICATION forming part of Letters Patent No. 428,786, dated May 27, 1890.

Application filed August 27, 1889. Serial No. 322,068. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. SEAMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in an Expanding-Tool, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The object of this invention is to provide a device of this character which is more especially intended for permanently securing a fixed stopple in paint-kegs and similar packages, and for which a patent was issued to me September 11, 1888, No. 389,253.

Figure 1 is a longitudinal section of a device embodying my improved features; Fig. 2, an end elevation. Fig. 3 shows a stopple loosely inserted in the head or end of a package, and Fig. 4 shows the same permanently fixed in position by the application of the expanding-tool.

Referring to the drawings, A represents a hollow conical body rigidly mounted on the spindle B, and secured thereto by means of the pin *a*. This spindle passes longitudinally and centrally through the body A, the upper projecting end *a'* being adapted to be inserted in a suitable "chuck" or other device for holding and rotating the expanding-tool as a whole. The ring or collar *a*<sup>2</sup> formed on the spindle provides an annular abutting shoulder for the upper end of the conical body A. The expanding-head C is loosely mounted on the lower end of the spindle and is adapted to have a vertical sliding movement thereon. That portion of the spindle covered by the sleeve part *a*<sup>3</sup> of the expanding-head is provided with the elongated aperture or slot *a*<sup>4</sup>. The pin *b* is inserted in and passes through the sleeve and aperture *a*<sup>4</sup> from side to side, and secures the expanding-head and spindle in proper relative position and provides for their vertical movement with reference to each other. This pin *b* forms a stop, and limits the downward movement of the conical body by its contact with the bottom of the slot in the spindle. All the parts are illustrated in their normal positions.

The lower enlarged end of the annular ex-

panding-head is provided at equidistant points with three recesses or notches *b'*, in which are inserted the lower ends of a corresponding number of expanding-levers D, secured in place by means of the pivot-pin *b*<sup>2</sup>, which permits of the lower ends of the levers D being thrown laterally outward from the head. The upper slightly-curved ends of the expanding-levers extend upwardly inside of the flaring-mouth part of the conical body A, and bear against the interior sides thereof, as shown in Fig. 1. Now, when the body is forced downwardly or the head upwardly, the upper ends of the expanding-levers are forced inwardly in the direction of each other by the contact of the gradually narrowing or contracting sides and at the same time rock the levers on their pivots and throw the lower ends outward in a lateral direction, thereby bringing the expanding-rollers E in contact with the surface to be operated upon. The rollers E are provided with the beveled peripheries or contact-edges *b*<sup>3</sup>, and are secured to the lower ends of the levers by means of screws *b*<sup>4</sup>, as shown in Fig. 2. The upper ends of the flat springs *d* are secured to the inner sides and corresponding ends of the levers D, while the lower ends bear against the expanding-head in line with the levers and hold the upper ends of the same in continuous contact with the inclosing sides of the body A. The spiral spring *d'*, coiled on the spindle inside of the conical body, automatically restores the normal relation between the expanding-head and body when the tool is disengaged from work.

The series of gage-rollers *d*<sup>2</sup>, secured to the expanding-head, prevent the same from entering the work beyond a fixed point. The relative position of the work with reference to the tool is indicated by dotted lines in Fig. 1.

The expanding-rollers, when brought in contact with the inner side of the cup-shaped stopple F, form an annular groove on the inside and a corresponding bead *g* (see Fig. 4) on the outside, which is forced into and embedded in the wooden head or end of the package, thus permanently securing the stopple in place.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an expanding-tool of the character described, the combination, with the hollow conical body, of a spindle passing longitudinally therethrough and rigidly secured there-  
5 to, the expanding-head loosely mounted on the lower end of said spindle and having a vertical movement thereon, and the spiral spring coiled on the spindle inside of the conical body, substantially as and for the purpose  
10 set forth.

2. In an expanding-tool, the combination, with the conical body, of the spindle on which said body is rigidly mounted, the expanding-head loosely mounted on the lower end of

said spindle, the series of levers pivoted at 15 their lower ends in said head, the upper ends extending upwardly inside of the conical body and bearing against the interior sides thereof, the springs attached to said levers and holding the same in contact with the in- 20 closing-body, and the expansion-rollers mounted on the lower ends of said levers, substantially as and for the purpose set forth.

JOHN A. SEAMAN.

Witnesses:

L. M. FREEMAN,  
L. B. COUPLAND.