

(No Model.)

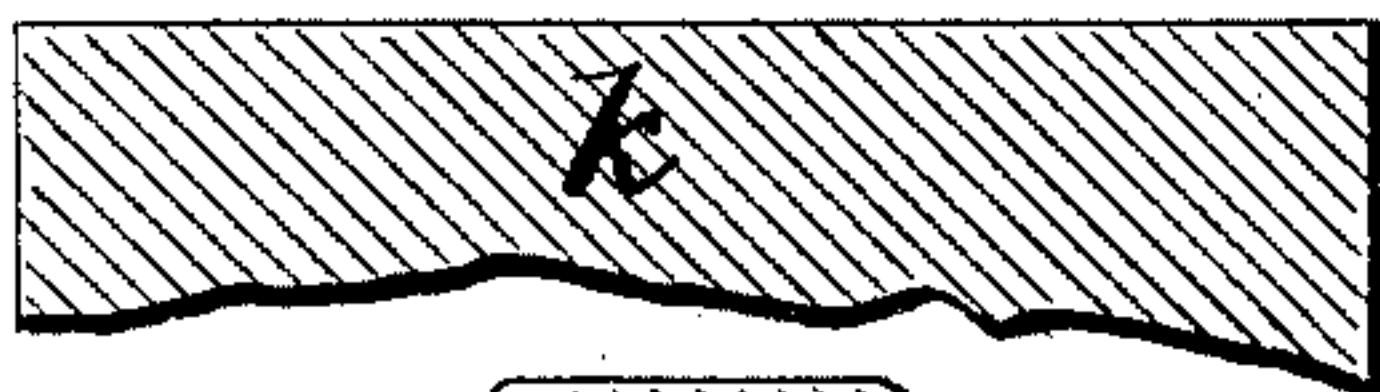
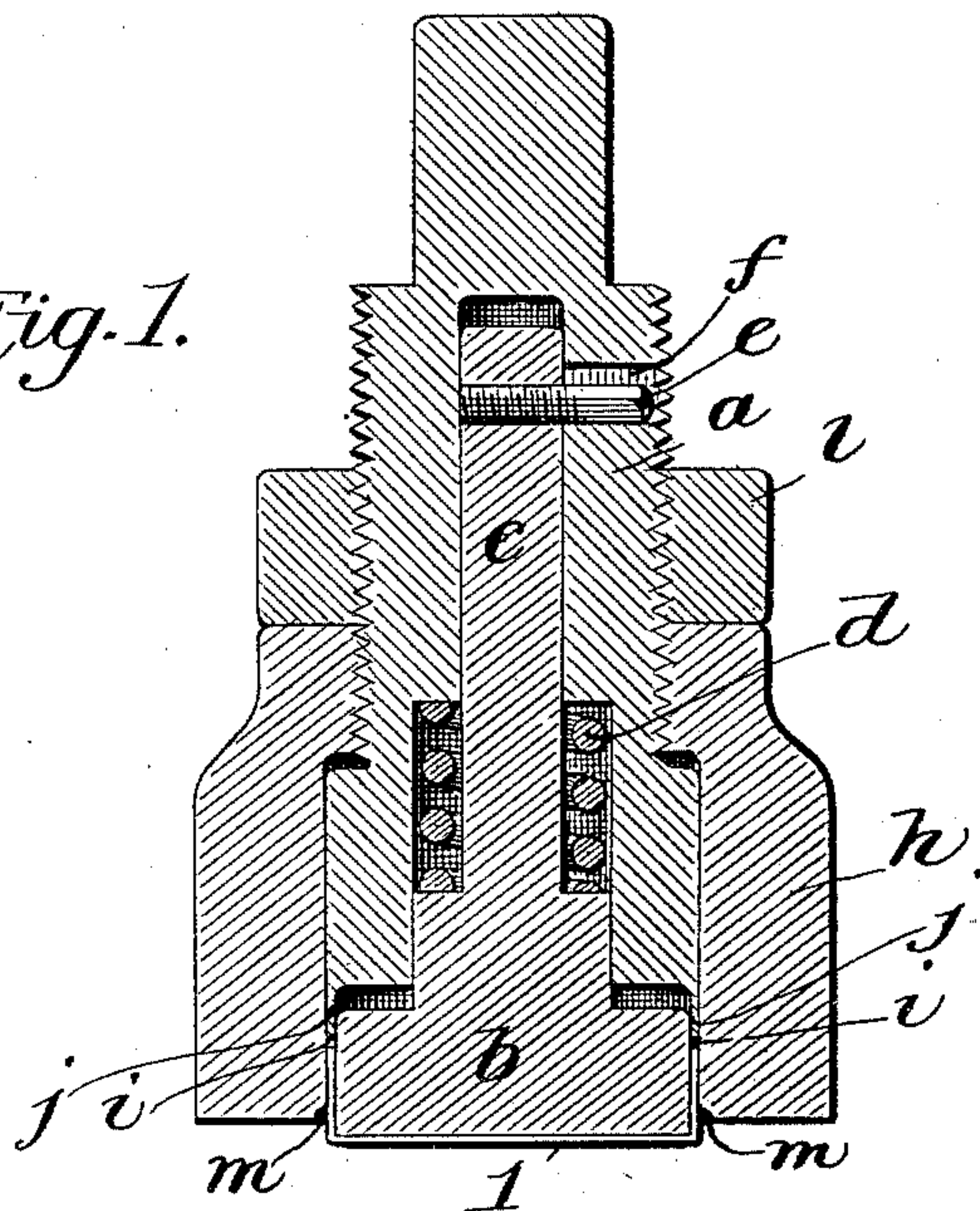
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J. GODFREY.  
BOX MACHINE.

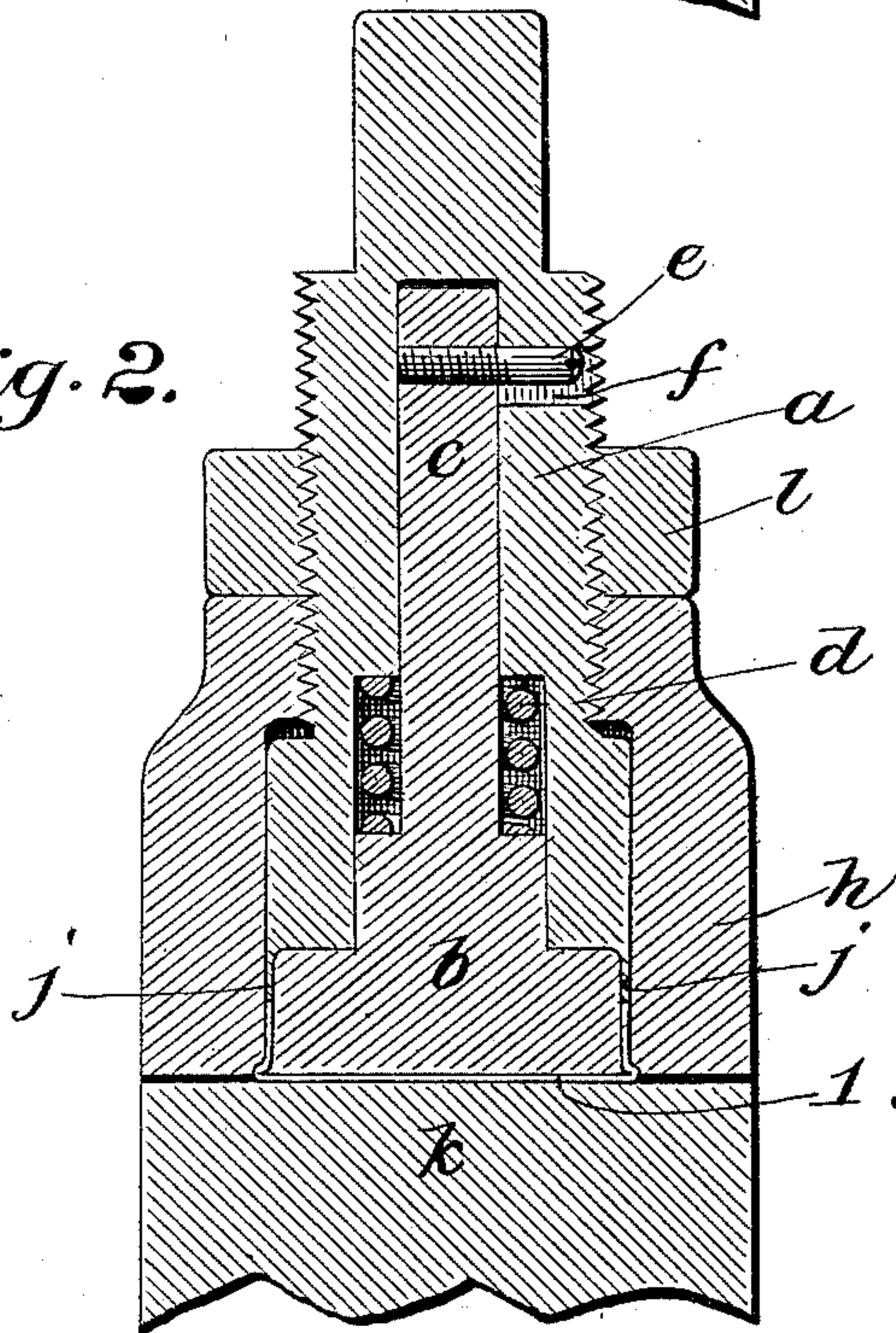
No. 483,649.

Patented Oct. 4, 1892.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

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(No Model.)

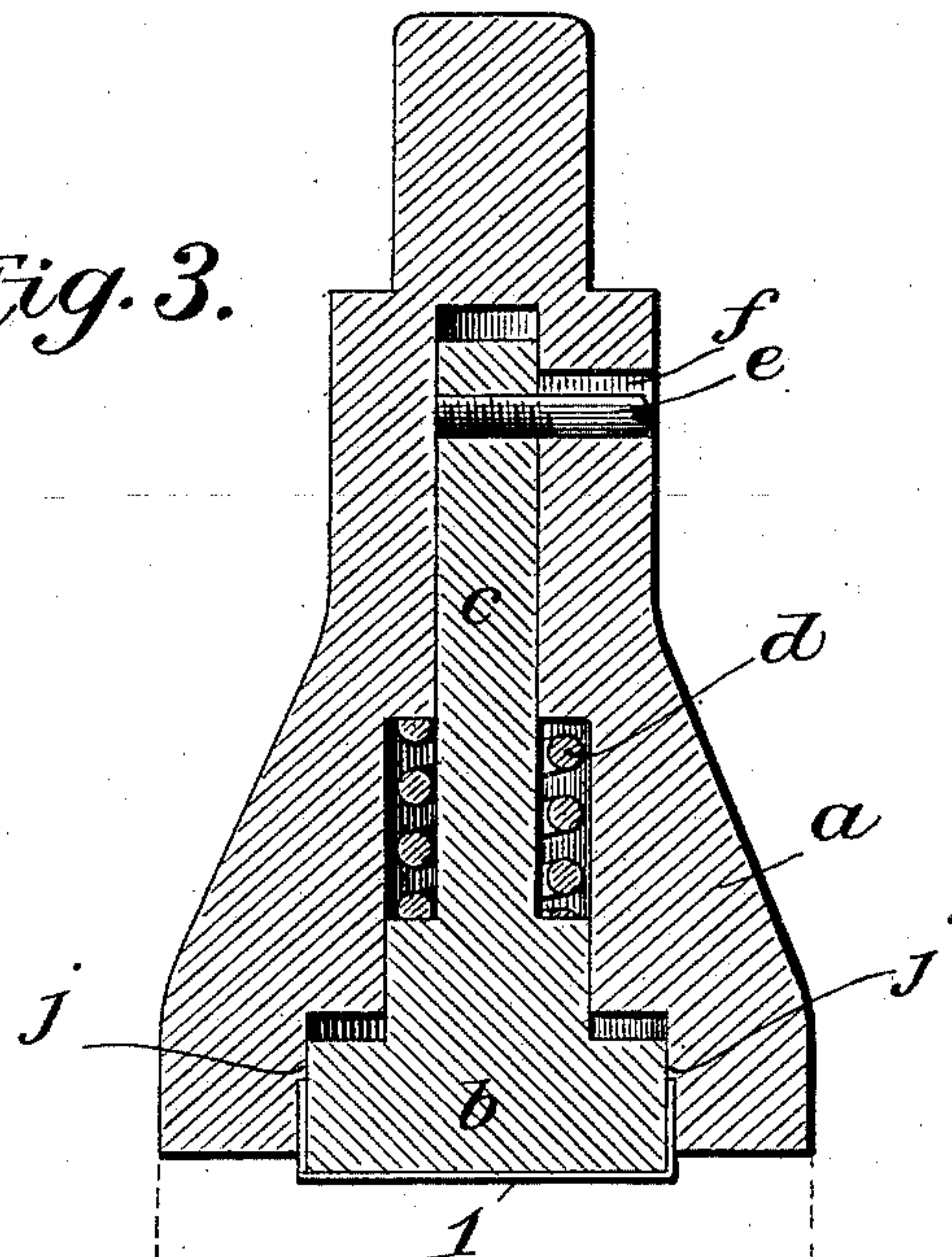
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J. GODFREY.  
BOX MACHINE.

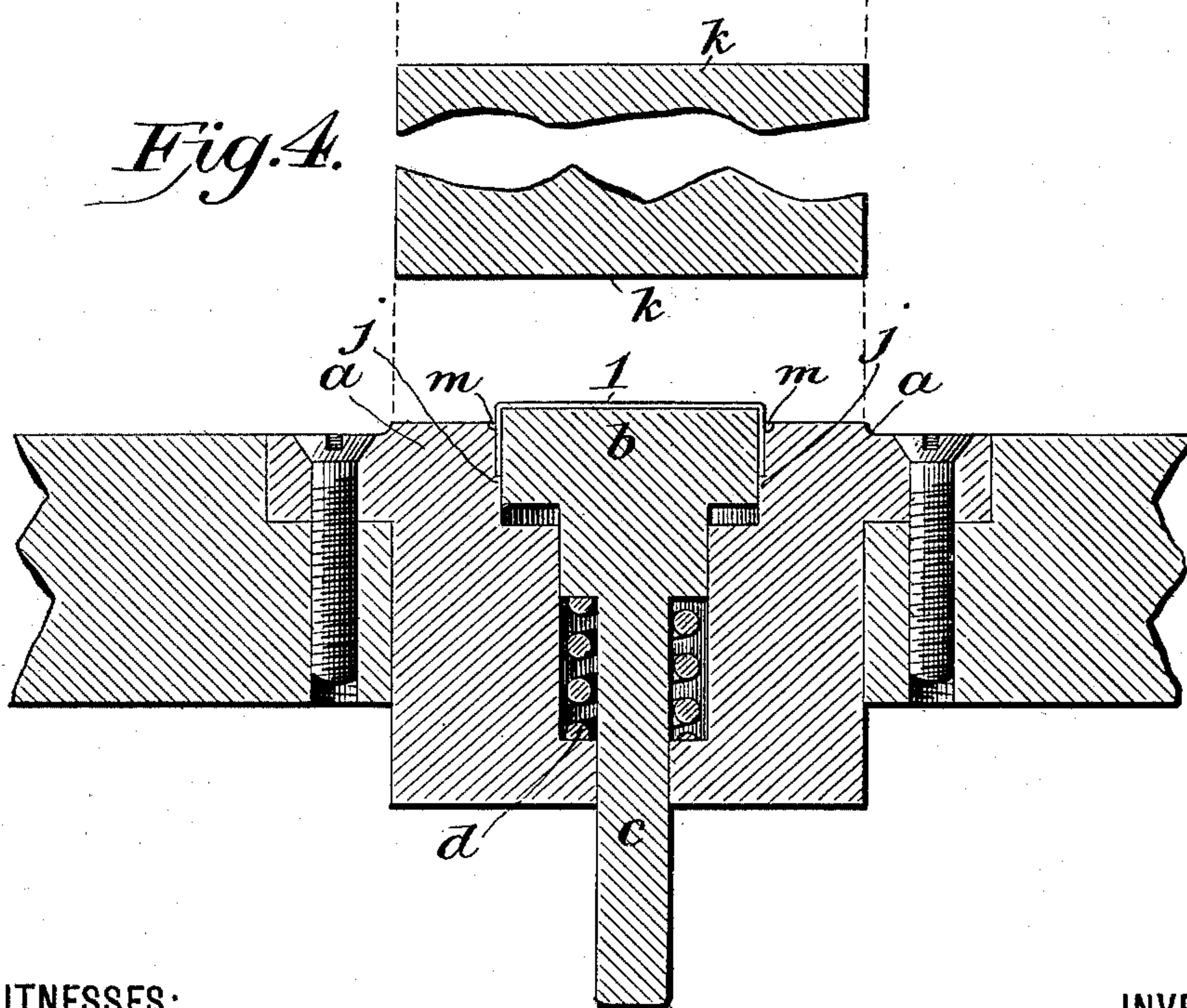
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*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

JONATHAN GODFREY, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR OF ONE-HALF TO W. E. BAILLIE, OF SAME PLACE.

## BOX-MACHINE.

SPECIFICATION forming part of Letters Patent No. 483,649, dated October 4, 1892.

Application filed March 1, 1892. Serial No. 423,370. (No model.)

*To all whom it may concern:*

Be it known that I, JONATHAN GODFREY, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Machines for Forming Beads on Paper Boxes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to machines for forming what is commonly termed a "bead" around the edges of paper boxes, its object being to form such bead with great rapidity and uniformity.

In the accompanying drawings, Figures 1 and 2 are sectional elevations illustrating my improvement, the parts being respectively in the positions assumed before and after the beading of a box; Fig. 3, a view similar to Fig. 1, but showing a slightly-modified form of construction; and Fig. 4, a sectional elevation showing a modified form of my improvement.

Similar letters and figures denote like parts in the several figures of the drawings.

Referring to Figs. 1 and 2, *a* is a head-block, which is secured within the gate of any ordinary press. (Not shown.)

*b* is a plunger-block, whose tail end *c* extends upward within the block *a*, so as to be capable of a free movement therein. A coil-spring *d* around said tail bears against the blocks *a* *b*, so as to keep the latter normally depressed, and a pin *e*, extending from the tail laterally through an opening *f* in the block *a*, holds the block *b* in position. The size of the opening *f* is such that the block *b* is capable of a limited vertical movement. The interior of the upper part of the block *a* is threaded, and a shell *h* is run thereon, the bottom of said shell in normal position being in a plane above that of the block *b*, while the inner circumference of said shell is separated from the block *b* by an annular space *i*, which is just sufficient to admit the side of a box. Immediately above this space is an annular shoulder *j*, depending from the block *a*, against which shoulder the edge of the box abuts when the latter is forced within the space *i*, as will

be presently set forth. When the box 1 is on the block *b* and the latter by means of a force applied against the bottom of said box has been driven upward until the edge of the box has abutted against the shoulder *j*, it will of course be apparent that the continued application of this force will not affect the side of the box, since that particular part is confined between the block *b* and shell *h*. It will be observed, however, that the box is not confined exteriorly at or near the base portion, so that it will be readily understood that said portion will be spread out circumferentially and jammed firmly against the lower edge of the shell *h* by a continued forcing of the block *b* upward. The part *k* is an ordinary anvil or bed and is of course stationary, and when the press-gate descends the parts *a* *b* *h* will all be carried thereby, the box 1 being forced against such anvil until abutted against the shoulder *j*, whereupon the continued movement of said gate will cause the box to be spread outwardly at its base and firmly clamped, as to such spread portion, between the anvil *k* and the bottom of the shell *h*, as shown particularly at Fig. 2. The shell by its screw action may be adjusted to bring its bottom plane normally nearer to or farther from the bottom of the block *b* in order to allow for boxes of different depths or to normally vary the area of the base portion of the box, which is unconfined exteriorly, after the box has abutted against the shoulder *j*, whereby more or less stock is thrown into the bead, as the case may be.

*l* is merely a lock-nut, which serves to keep the shell in position.

I am aware that heretofore boxes have been beaded by confining the sides to any desired depth and leaving the base of the box free from any interior support or backing and then applying pressure against the base; but this method of procedure is attended with a very decided disadvantage in that the stock of the box is frequently broken and crushed inward as well as outward with no uniformity whatever, the consequence being that a good proportion of the boxes are thrown into the waste because they are imperfectly beaded.

The broad principle which underlies my invention is the constant supporting or back-



ing up of the base of the box during the process of forming the bead. The spring *d* keeps the block *b* firmly against the bottom of the box at all times, so that during the process of forming the bead the stock of the box can only be thrown outwardly.

The operation of beading a box in accordance with my improvement is as follows: The box is placed around the block *b*, with the side or rim portion extending within the space *i*, as shown at Fig. 1. As the block *a* descends the bottom of the box will be forced against the anvil *k*, thereby driving the block *b* upward against the resiliency of the spring *d*. During this upward movement of said block *b* the box will strike against the shoulder *j*, so that as said block continues to move upward the box will be crushed outwardly at the unconfined basal portion of its side, and the part thus outwardly disposed will be firmly compressed into proper contour between the anvil and the lower edge of the shell *h*, as shown at Fig. 2. When the block *a* is raised, the spring *d* will throw the block *b* downward, so that the beaded box will be readily removed. The operation of stripping the beaded boxes from the block *b* may be performed by hand or by any suitable and ordinary mechanical means. The inner bottom edge of the shell may be slightly chamfered, as seen at *m*, to insure a neat finish to the bead; but in some grades of boxes I find that such chamfer is not essential, and in such instances I dispense with it.

The adjustability of the part *h* is a minor feature, and I do not wish to be limited thereby, since the block *a* and such part may be made integral, as shown at Fig. 3, and I would prefer the latter construction when operating on boxes which have a standard uniformity.

In Fig. 4 I have shown the parts of my improvement in a reversed position—that is to say, the anvil is above the blocks *a* *b*. Of course in this construction shown at Fig. 4 the pin *e* and opening *f* are unnecessary, but the block *b* will exert a constant pressure against the box during the forming of the bead, as hereinbefore set forth.

I claim—

1. The combination of the resilient plunger-block on which the boxes are placed, means for confining the sides of said boxes

down to a predetermined point, means for forcing said boxes and block against the resiliency of the latter, and means for arresting the movement of the boxes prior to the stopping of the movement of the plunger, substantially as set forth.

2. The combination of the block *a*, having shoulder *j*, block *b* within the block *a* and capable of a limited play therein, spring *d*, which exerts a constant pressure against block *b*, shell *h*, surrounding block *b*, but separated therefrom by an annular space sufficient only to contain the side of a box, anvil *k*, and means for reciprocating the block *a* and parts carried thereby, substantially as set forth.

3. The combination of the block *a*, the block *b*, contained and having a limited play therein, the spring whereby the block *b* is normally projected beyond the block *a*, the shoulder *j* at the rear of the annular space *i*, which latter is between the blocks and is sufficient only to contain the side of the box, and means applied to the bottom of the box for driving the block *b* against its resiliency, substantially as shown and described.

4. The combination of a plunger-block on which the box is mounted, means for confining the box laterally while on said block down to a predetermined point, a shoulder against which the box abuts, a spring which acts against said plunger, and means applied to the bottom of the box to force the plunger against the resiliency of said spring while the box is stationary, substantially as set forth.

5. In a machine for forming beads on paper boxes, the combination of a resilient plunger-block closely conformed to the interior of the box, means for confining said box laterally, a stop against which the box abuts, means applied to the bottom of the box for forcing the plunger against its resiliency, whereby the basal portion of the lateral area of the box will be outwardly disposed, and instrumentalities for compressing such disposed portion, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JONATHAN GODFREY.

Witnesses:

F. W. SMITH, Jr.,  
J. S. FINCH.