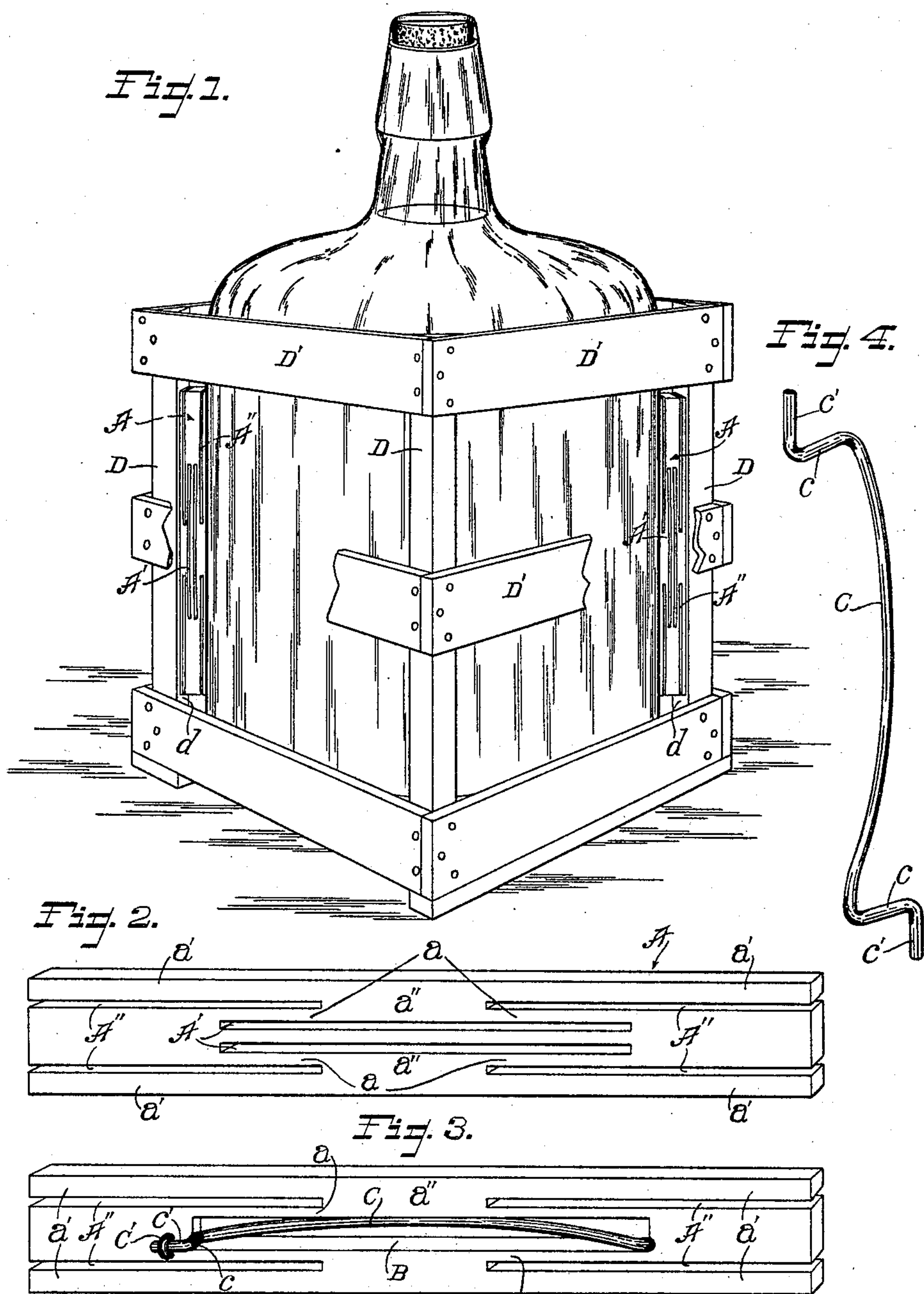


(No Model)

J. S., A. J. & N. HODGE.  
SPRING BUFFER FOR CRATES.

No. 582,919.

Patented May 18, 1897.



Witnesses  
Seymour Kingman.

Alfred Townsend.

Inventors  
Jacob S. Hodge  
Arthur J. Hodge  
Nathaniel Hodge.  
by Hazard & Townsend  
attorneys



# UNITED STATES PATENT OFFICE.

JACOB S. HODGE, ARTHUR J. HODGE, AND NATHANIEL HODGE, OF  
PASADENA, CALIFORNIA.

## SPRING-BUFFER FOR CRATES.

SPECIFICATION forming part of Letters Patent No. 582,919, dated May 18, 1897.

Application filed July 27, 1896. Serial No. 600,606. (No model.)

*To all whom it may concern:*

Be it known that we, JACOB S. HODGE, ARTHUR J. HODGE, and NATHANIEL HODGE, citizens of the United States, residing at Pasadena, in the county of Los Angeles and State of California, have invented a new and useful Improvement in Spring-Buffers for Crates, of which the following is a specification.

In shipping articles of a fragile nature it is essential that such articles be supported by yielding means which will prevent them from breaking by reason of jolting or jarring while being handled or transported.

The especial object of our invention is to produce a neat, cheap, simple, and effective buffer which can be applied to crates for crating bottles or demijohns of liquor or liquids, such as wines, brandies, distilled and spring water of various kinds, &c.

Our invention is also adapted for use in crating any article which necessitates careful usage in order to prevent breakage or bruising or injuring from jolting.

Our invention particularly relates to the construction which we employ whereby we are enabled to produce a buffer which is extremely cheap, easily manufactured, not liable to become broken or to get out of order, and which can readily be secured in place in any crate.

Our invention comprises two spring-slats secured together near their mid-length by suitable means which hold the ends of such slats separate from each other, and suitable means for supporting one of such slats upon each side of the point of connection of the two slats to thereby form of one slat a yielding support for the other slat.

Our invention also comprises the peculiar construction which we employ whereby great cheapness is secured and the liability of the various slats becoming broken apart or the fastening disarranged or worked loose is avoided.

Our invention also relates to the means which we employ whereby we combine with the wooden slats a metallic spring, in order to give greater elasticity to the buffer where shipments are made which necessitate the buffer sustaining the entire weight of the package for a considerable length of time.

The accompanying drawings illustrate our invention.

Figure 1 is a side elevation of our improved buffers applied to a crate, showing a large demijohn of water in place in the crate. Fig. 2 is a side elevation of one of our improved buffers removed from the crate. Fig. 3 is a side elevation of a modified form of our improved buffer, showing the wooden spring-slats reinforced by a metallic spring. Fig. 4 is a view of the metallic reinforcing-spring.

In the drawings, A represents one form of our improved buffer, which is composed of an integral bar of flexible material, preferably wood, provided with series of slits or slots A' A'', respectively, which form the bar into series of spring-slats *a a'*, secured together by means of staggered supports formed of the unsevered portions *a''* of the bar. As shown in the drawings, these slots are arranged as follows: Two slots A' are cut through the bar near its mid-length, the slots not extending to either end of the bar. Then four slots A'' are cut into the bar, two from each end thereof, each end slot extending beyond its respective end of the adjacent slot A', as clearly shown in the drawings. By this construction the bar is divided into series of spring-slats which mutually support each other and form in combination a spring-buffer of enough strength and elasticity to hold a bottle or other package firmly in its central position in the crate and to give under pressure to allow the package to be forced to its seat in the crate and to modify any ordinary blow or sudden shock sufficiently to prevent the contained package from breaking or being injured. The outer slits form the outer slats into spring-tongues free at one end.

In Fig. 3 we have shown a modified form of our invention. The central portion of the bar is cut away to form a spring-receiving recess B, having its elastic side walls formed of the slats *a*. The ends of the bar are slotted in the same manner as that shown in Fig. 2. In the spring-recess B we arrange a metallic spring C, (shown in Fig. 4,) which is formed of a length of bowed spring-metal wire reversely bent at its ends to form arms *c*, which extend across from side to side of the spring-



recess in the bar, and have a projection *c'* at each end which, when the spring is in place in the spring-recess, lies along the bar, as shown in Fig. 3, and is secured in place by means of a staple *C'*, embracing the projection and driven into the bar. The spring thus strengthens and supports the wooden slats and causes our buffer to retain its elasticity after continued compression. It is obvious that other forms of springs may be used for accomplishing this purpose, but we consider the form shown to be preferable on account of its cheapness and also for the reason that it is very easy to apply and not liable to become broken or get out of order.

It will be observed that in the form shown in Figs. 1 and 2 one of the slots *A'* may be dispensed with if the bar is made thinner or the slot made wider. We do not limit our claims to the specific construction shown, since other means of arranging the slots may be devised; also, the bar may be made of a series of independent or separate slats, secured together by suitable means which will hold the slats separate from each other and form them into mutual spring-supports in the manner shown. We do not at present know of any satisfactory means of securing the slats together other than making the entire buffer from a single bar, as shown, for the reason that the constant springing in and out of the various parts will soon cause nails or other common fastenings to work loose. We have found in actual practice that when a buffer is made from an integral bar, slotted as shown, the parts are rigidly held in position relative each other and are not liable to become broken or inoperative in ordinary use.

We have in practice formed the slots in the bar by means of a circular saw, cutting a sufficiently wide kerf to leave room between the walls of the kerf for the slats to spring together.

The buffers may be quickly secured in place in the crate by toenailing in the ordinary manner. The corner bars *D* of the crate which we employ for crating demijohns of water are formed by sawing a square piece of timber diagonally through from one corner to the other, thus giving three-cornered pieces which, while giving a breadth of bearing for the cross-bars of the crate sufficient to give great rigidity to the crate, are yet extremely light. The inner face *d* of each upright also furnishes a suitable base to which the buffers may be secured.

Now, having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A buffer for crates, comprising spring-

slats connected with each other and secured to a base by staggered supports arranged to hold the slats yieldingly separated from each other.

2. A buffer for crates, comprising an integral wooden bar divided by a plurality of slits or slots into a series of slats connected with each other by staggered supports formed of the unsevered portions of the bar.

3. A buffer for crates, comprising a wooden bar having a central slot cut through the bar, but not extending to either end thereof, and also provided with side slots forming the sides of the bar into spring-tongues each extending from the end of the bar to a point beyond its respective end of the central slot.

4. A buffer comprising two spring-slats rigidly connected with each other near their mid-length and having their ends separated from each other to form spring-tongues, one of such slats being supported upon each side of the point of connection between the two slats whereby one slat forms a yielding support for the other slat.

5. A buffer for crates, comprising a wooden bar having its center slotted to form a spring-receiving recess; a slot cut from each end of the bar, each slot arranged at one side of and extending beyond its respective end wall of the spring-receiving recess to form spring-tongues; and a suitable spring, arranged in the spring-receiving recess to bear against and resist compression of the side walls of such recess.

6. A buffer for crates, comprising an integral bar having its central portion cut away to form a spring-receiving recess having elastic side walls, and a spring arranged in the recess to support the flexible side walls of the bar, substantially as set forth.

7. In combination, a wooden bar provided with a central slot cut through the bar, but not extending to either end thereof; side slots, each extending from one end of the bar to a point beyond its respective end wall of the central slot; a bow-shaped wire spring having its ends reversely bent to extend across from side to side of the bar, and having each bent end provided with an extension adapted to extend along the side of the bar, and a staple embracing each extension and driven into the bar.

J. S. HODGE.  
ARTHUR J. HODGE.  
NATHANIEL HODGE.

Witnesses:

ALFRED I. TOWNSEND,  
E. C. GRIFFITH,  
C. S. WITTEN.