







No. 688,600.

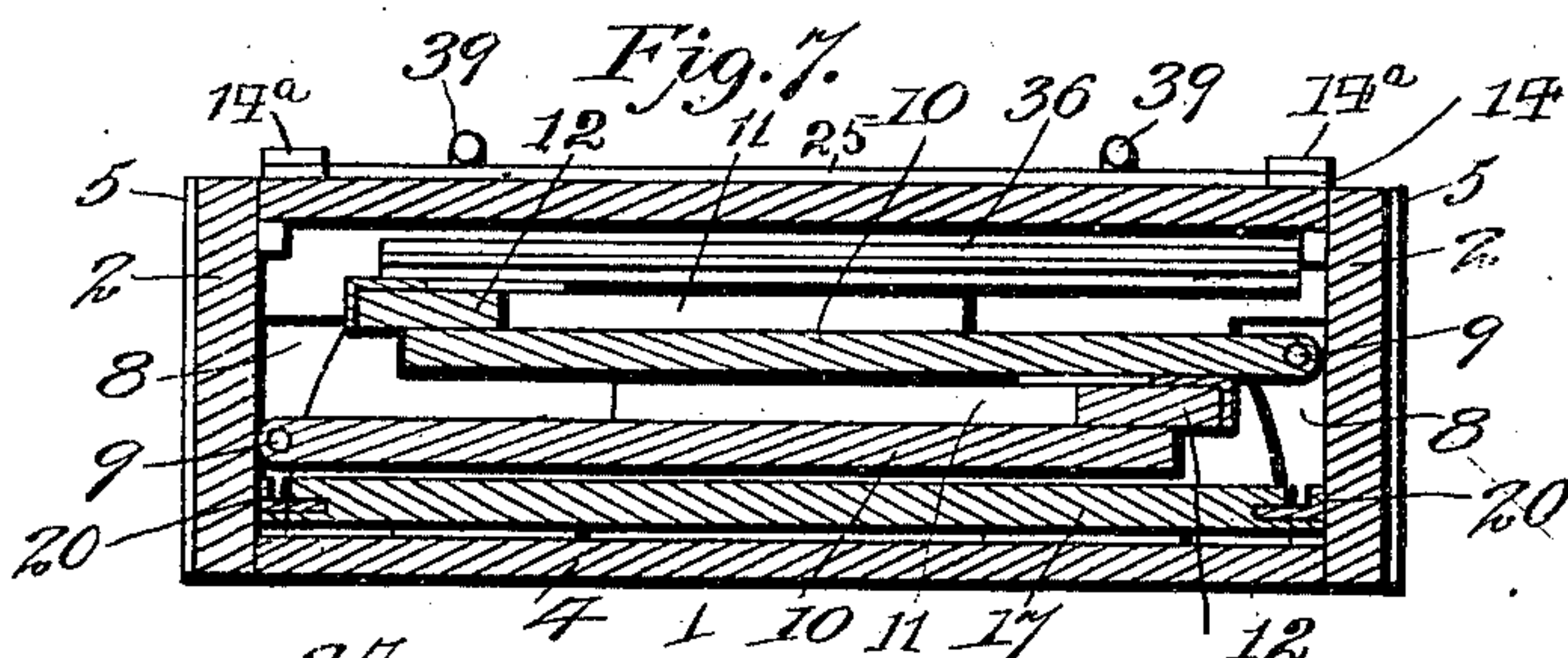
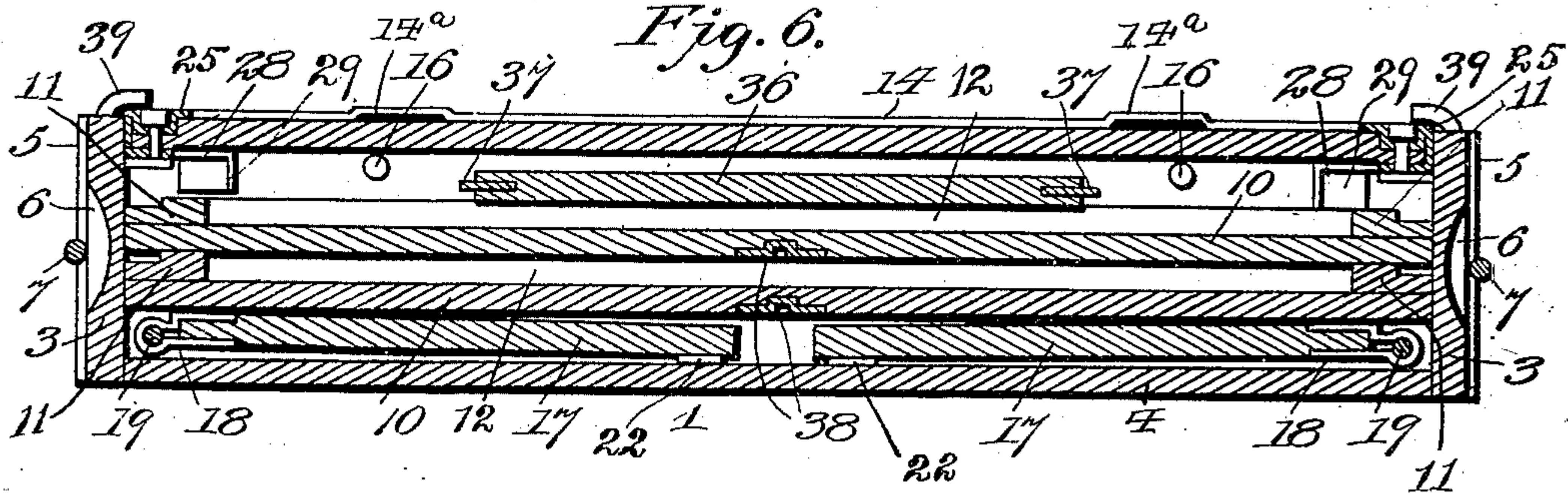
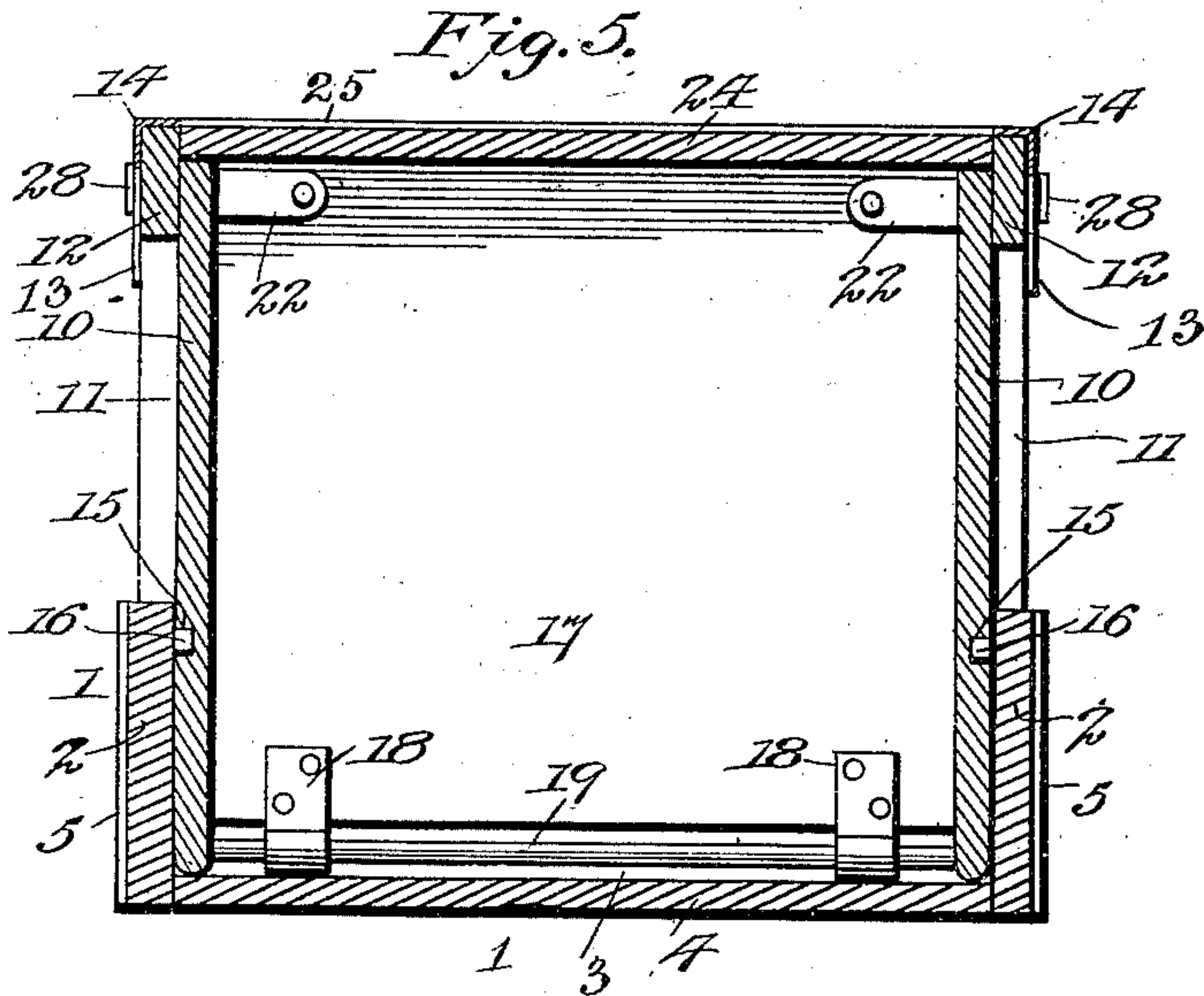
Patented Dec. 10, 1901.

R. E. L. CROSBY.  
COLLAPSIBLE CRATE.

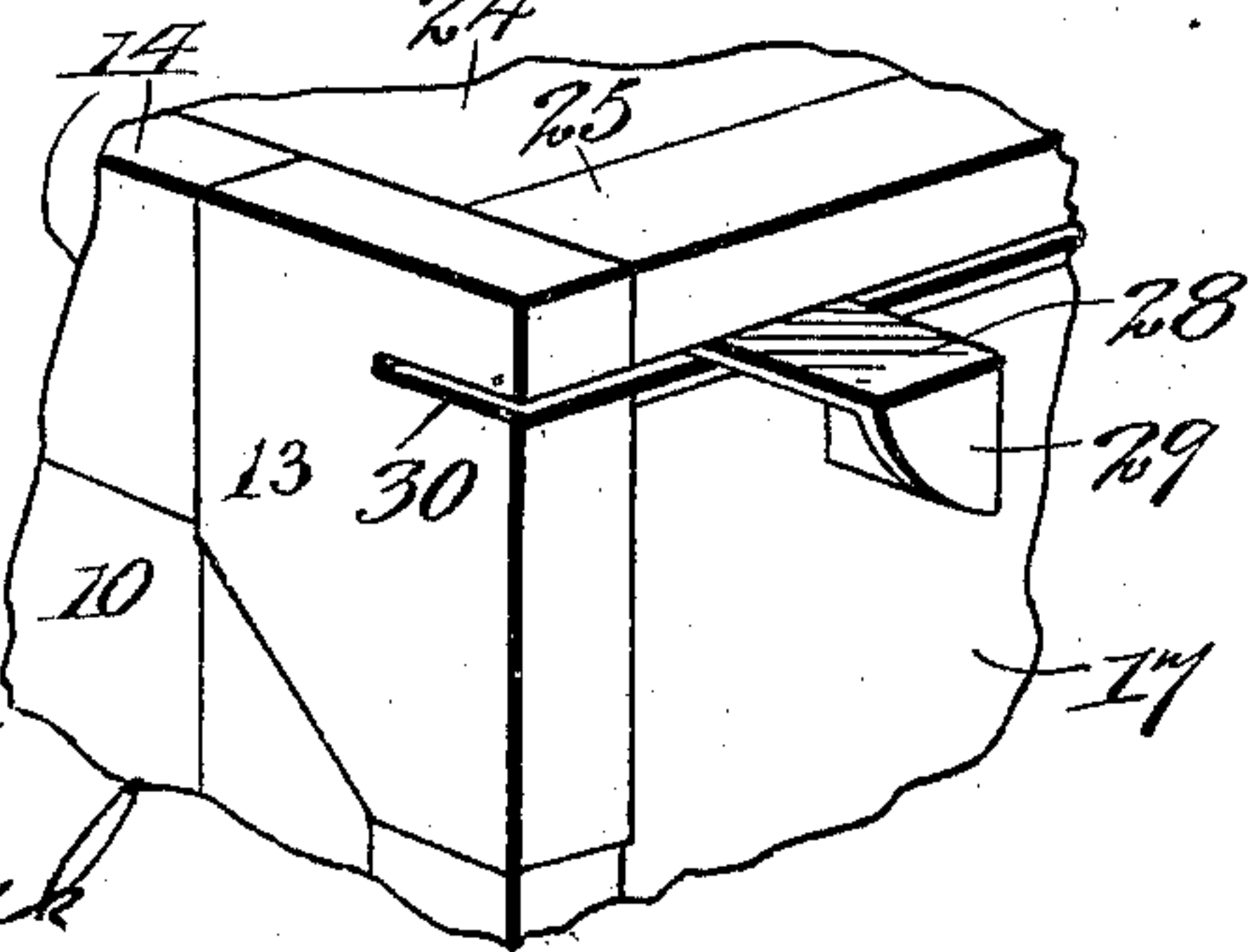
(Application filed May 4, 1901.)

(No Model.)

3 Sheets—Sheet 3.

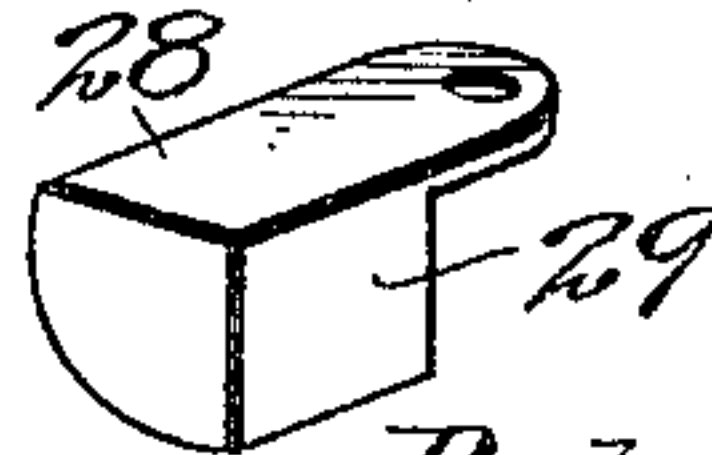


*Fig. 8.*



Witnesses  
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*Fig. 9.*



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# UNITED STATES PATENT OFFICE.

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## COLLAPSIBLE CRATE.

SPECIFICATION forming part of Letters Patent No. 688,600, dated December 10, 1901.

Application filed May 4, 1901. Serial No. 58,818. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT E. L. CROSBY, a citizen of the United States, residing at Searcy, in the county of White and State of Arkansas, have invented new and useful Improvements in Collapsible Crates, of which the following is a specification.

This invention relates to improvements in collapsible crates.

10 The object of the present invention is the provision of a crate of the character mentioned which is extremely simple in construction, but one possessing advantages in point of durability and strength, whereby when the  
15 crate is open and in the position for shipping purposes the parts thereof will be effectually maintained in the proper relation to each other, so that the contents thereof will be thoroughly protected.

20 A further object of the invention is to provide in the construction of a collapsible crate simple and efficient means for locking the parts thereof together both when the crate is extended and in the form for shipping purposes and when the same is collapsed to be  
25 returned to the shipper to be refilled and used again.

30 With these general objects in view and others which will appear as the nature of the improvements is better understood the invention consists, substantially, in the novel construction, combination, and arrangement of parts, as will be hereinafter fully described, illustrated in the accompanying drawings,  
35 and pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation of a collapsible crate constructed in accordance with the present invention. Fig. 2 is a vertical longitudinal sectional view thereof.  
40 Fig. 3 is a top plan view of the crate. Fig. 4 is a similar view, the cover being removed. Fig. 5 is a vertical transverse sectional view. Fig. 6 is a vertical longitudinal sectional view of the crate when collapsed. Fig. 7 is a vertical transverse sectional view with the crate  
45 in a collapsed form. Fig. 8 is a detail perspective view of one corner of the crate to illustrate the fastening for the same. Fig. 9 is a similar view of the corner - fastening removed. Fig. 10 is an inverted plan view of the crate-cover to illustrate more clearly the  
50 manner in which the corner - fastenings are

connected thereto and their mode of operation. Fig. 11 is a detail sectional view illustrating the manner of sealing the cover in  
55 closed position. Fig. 12 is a sectional view illustrating the manner of retaining the securing-studs in the crate ends.

Referring to the drawings, the numeral 1 designates the base of the hereinabove-described crate, which base is provided with  
60 sides 2 and ends 3, said sides and ends being suitably secured together and to the bottom 4 and being bound at their meeting portions with metallic corner-stays 5. Each of the ends  
65 3 is provided with a longitudinally-extending cavity 6, and arranged upon each of said ends and extending over each of said cavities is a handle 7, by means of which the crate may  
70 be lifted. If desired, however, the cavities 6 may be in the form of openings extending entirely through the thickness of the ends 3.

Each of the ends 3, at its inner side and at each end thereof, is provided with slots or  
75 grooves 8; but it will be observed that said grooves 8 are of greater width at their upper ends than at their lower ends, and arranged within the base 1 and provided at each of  
80 their ends with an outwardly-extending stud 9 are the sides 10 of the crate. The studs 9 lie within the grooves 8, and it will thus be seen that said sides 10 have a fixed connection with the ends 3 of the base 1, but which  
85 connection is such as to render the sides 10 capable of a vertically-slidable movement, which movement is limited by the length of the slots 8. By reason of the slots 8 being of  
90 greater width at their upper ends than at their lower ends it will also be seen that the sides 10 are adapted to readily fold inwardly in a manner to be more fully stated hereinafter.

Arranged at the outer surface of the sides 10 and at their ends are vertically-disposed  
95 braces 11, the lower ends of said braces terminating a sufficient distance from the lower edges of the sides 10, so that said ends will rest upon the upper edges of the sides 2 when  
100 the sides 10 are in the position occupied by the same when the crate is in the form for shipping, and arranged at the upper edge of each of the sides 10 and projecting thereabove is a longitudinally-extending brace 12. The  
brace 12 is dovetailed or otherwise suitably connected to the braces 11, and metallic stays



13 are employed for fastening the contiguous ends of the braces 11 and 12. A metallic facing 14 is also arranged upon the upper edge of the brace 12 in order to protect the same from wear. The sides 10 are further provided at their exterior surfaces within the sides 2 of the base with a series of openings or recesses 15, and said openings or recesses are adapted to receive a series of dowel-pins 16, projecting inwardly from the sides 2 of the base 1. When the crate is in position for shipping purposes, the dowels 16 fit within the openings 15, and the braces 11, resting upon the sides 3, impart to the sides 10 a sufficient rigidity to withstand the usual shock incident to handling, as if firmly nailed to the base.

The numeral 17 designates the ends of the crate, which ends fit between the sides 10, and each of said ends is provided at its lower edge with a series of loops 18, which surround a journal-bar 19, arranged upon the inner surface of the bottom 4, and which journal-bars are mounted in the sides 2 of the base 1. It is thus evident that the ends 17 have a swinging connection over the base 1, so that the same may be readily positioned either in collapsing the crate or when extending the latter to provide the shipping form. Arranged at each side edge of the ends 17 is an outwardly-directed angle-iron 20, one flange of which is embedded and secured within the end 17, while its other flange is spaced from said end, and arranged upon each end of the sides 10 is a similar angle-iron 21. The angle-irons 21 are reversely arranged with relation to the angle-irons 20, one flange of each of the irons 21 being suitably secured to the sides 10, while the other flange is spaced a sufficient distance therefrom to receive the adjacent flanges of the irons 20, and it will thus be seen that when the crate is extended the irons 20 and 21 are adapted to interlock, and thus provide a firm joint between the sides 10 and the ends 17. To maintain the ends 10 and 17 in their locked position, said ends are provided at their inner faces with pivot-latches 22, the free ends of said latches projecting beyond the adjacent edges of the ends 17 and being received by grooves 23, formed in the adjacent portions of the sides 10.

The numeral 24 designates the cover of the crate, and said cover is of sufficient width to snugly fit between the projecting upper edges of the longitudinal braces 12. The ends of the cover 24 are provided with metallic facings 25, while the under side of said cover is likewise provided with metallic strips 26, arranged in proximity to the overlapping portions of the facings 25. Each corner of the under side of the cover 24 is recessed, as at 27, and arranged within said recesses 27 and pivoted between the ends of the strips 26 and the adjacent portions of the cover 24 is a series of corner-fastenings 28. Each of said fastenings is provided with a depending annular flange 29, which flange is adapted to embrace the outer sides of the sides 10 and

ends 17, and in order that this may be accomplished the sides 10 within the upper ends of the strips 11 are provided with horizontally-arranged slots 30. The slots 30 are adapted to receive the body portions of the fastenings 28, and when said fastenings are in such positions the depending flanges 29 embrace the sides 10 and ends 17 in the manner stated. This provides a firm connection between said sides and ends and the cover 24; but in order that the latter may be further locked in engagement with said sides and ends the cover is provided at its upper face with a series of locking-hooks 31, pivotally mounted within depressions or recesses 32, the hooks 31 being adapted to pass beneath elevation 14<sup>a</sup> in the metallic facings 14 and engage the securing pins or nails 14<sup>b</sup> employed for maintaining said strips upon the braces 12. It is also desirable when the crate is extended to seal the cover thereon, and in order that this may be permitted each of the ends 17 is provided at its central portion with an upwardly-extending stud 33. The ends of said stud are grooved, the groove at the lower end receiving a securing-staple 34, and by means of the staples 34 the studs 33 are held within the ends 17. The upper ends of the studs 33 project through centrally-arranged apertures 35, formed in the cover 24, the upper portions of said apertures being countersunk to provide an enlarged annular space around the projecting portions and the studs 33. This space is designed to be filled with lead, and when the latter is deposited within the apertures 34 the same enters the grooves in the ends of the studs 33, and thereby seals the cover 24 in position. A suitable die may be employed for impressing the lead within the countersinks with the initials of the sender of the crate. This seals the crate ready for shipment and guards against its being opened in transit.

A removable partition 36 is arranged at a point within the crate midway its ends, said partition being provided at its side edges with outwardly-extending guide-strips 37, and said strips are received by metallic grooves 38, embedded in the inner sides of the sides 10. It will thus be seen that the guides 37 and the metallic grooves 38 provide a strong connection between the removable partition 36 and the sides 10 and at the same time provide such a connection as to permit the partition 36 being readily removed and replaced when desired.

In order to lock the cover 24 upon the base 1 when the crate is collapsed, a series of locking-bolts 39 is arranged in each of the ends 3 of said base, the upper ends of said bolts being curved and adapted to embrace the upper surface of the cover 24 when the latter is positioned upon the base. When the crate is extended, however, the curved ends of the bolts 39 are received by a series of openings 40, formed in the ends 17, the bolts 39 being rotatably mounted in the ends



3, so as to be moved into position to overlap the cover 24 or to be turned from such position in order to permit the cover 24 being applied to the base 1 and folding of the ends 17 inward.

With the elements assembled in the relation illustrated and described it will be seen that the crate may be readily collapsed by simply removing the partition 36, after which the latches 22 are swung from engagement with the notches 23, whereupon the ends 17 may be swung inwardly upon the bottom 4 of the base 1. The sides 10 are then moved upwardly and with the studs 9 as pivot-points are readily folded upon the ends 17. The partition 36 is then placed upon the folded sides, and when the corner-fastenings 28 have been swung into the closed position under the cover 24 the latter is placed upon the base 1 and the bolts 39 turned to engage the ends of the same. The crate is then firmly held in collapsible position and may be readily handled. To extend the crate, however, the cover 24 is removed, the sides 10 opened to the vertical position, the ends 17 also swung open, the latches 22 being engaged with the sides 10, and after this the partition 36 is inserted in the same, if desired. After the crate has been filled with the desired contents for shipping the cover 24 is placed thereon, and after this has been accomplished the corner-fastenings 28 are swung into the slots 30. The locking-hooks 31 are also engaged with the braces 12, and the studs 33 are sealed within the apertures 35 by means of lead, as before described, and after this has been done the crate is ready for shipping.

While the form of the invention herein shown and described is what is believed to be a preferable embodiment thereof, it will be understood that various changes in the form, proportion, and minor details of construction may be resorted to, and the right is therefore reserved to modify or vary the construction of the invention as falls within the spirit and scope thereof.

The crate is adapted for many uses—such as shipping eggs, fruit, canned goods of all kinds, boots and shoes, coffee, tea, dry goods, and various other wares and merchandise which require a strong crate—and it will also be observed that the crate possesses advantages in point of simplicity and durability. The crate may be constructed at small cost and may be used indefinitely. It may be constructed of wood and metal or of paper and metal or of metal alone or such other material as may be best adapted to the character of articles or merchandise desired to be shipped.

The crate may be made in different sizes, so that one of a large size when set up will hold a definite number of a smaller size collapsed, thus facilitating the transportation of the empty crates in a collapsed condition, and thus lessen the cost of transporting the empty crates.

Having thus fully described my invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. A crate comprising a base consisting of a bottom, sides, and ends having corner-grooves and rigidly secured together, journal-bars secured to the sides over the bottom adjacent to the ends, folding ends having loops, whereby they are hinged to the journal-bars, folding sides having studs engaging in the corner-grooves of the ends of the base, the vertical braces secured to the outer sides of the folding sides so as to seat on the sides of the base, and a cover closing the crate in its extended or collapsed condition.

2. A crate comprising a base consisting of a bottom, sides, and ends having corner-grooves and rigidly secured together, journal-bars secured to the sides over the bottom adjacent to the ends, folding ends having loops whereby they are hinged to the journal-bars, folding sides having studs engaging in the corner-grooves of the ends of the base, vertical braces secured to the outer sides of the folding sides so as to seat on the sides of the base, longitudinal braces arranged on the folding sides and fitted to the vertical braces, and a cover closing the crate in its extended or collapsed condition.

3. A crate comprising a base consisting of a bottom, sides, and ends having corner-grooves and rigidly secured together, journal-bars secured to the sides over the bottom and adjacent to the ends, folding ends having loops whereby they are hinged to the journal-bars, folding sides having studs engaging in the corner-grooves of the ends of the base, vertical braces secured to the outer sides of the folding sides so as to seat on the sides of the base, longitudinal braces arranged on the folding sides and fitted to the vertical braces, metal stays fastening the contiguous ends of the vertical and longitudinal braces, metal facing on the longitudinal braces, and a cover closing the crate in its extended and collapsed condition.

4. A crate comprising a base consisting of a bottom, sides having inwardly-projecting dowel-pins, and ends having corner-grooves and rigidly secured together, journal-bars secured to the sides over the bottom adjacent to the ends, folding ends having loops whereby they are hinged to the journal-bars, folding sides having studs engaging in the corner-grooves of the ends of the base, and formed with series of openings in which the dowel-pins are received, and a cover for closing the crate in its extended and collapsed condition.

5. A crate comprising a base, consisting of a bottom, sides, and ends having corner-grooves and rigidly secured together, journal-bars secured to the sides over the bottom adjacent to the ends, folding ends having loops whereby they are hinged to the journal-bars, and provided with angle-irons, folding sides having studs engaging in the corner-grooves of the ends of the base and provided with angle-irons with which the angle-irons on the fold-



ing ends interlock, and a cover closing the crate in its extended or collapsed condition.

6. A crate comprising a base consisting of a bottom, sides, and ends having corner-grooves and rigidly secured together, journal-bars secured to the sides over the bottom adjacent to the ends, folding ends having loops whereby they are hinged to the journal-bars, and provided with pivoted latches, folding sides having studs engaging in the corner-grooves of the ends of the base and formed with grooves with which the pivoted latches engage, and a cover closing the crate in its extended or collapsed condition.

7. A crate comprising a base consisting of a bottom, sides, and ends, having corner-grooves and rigidly secured together, journal-bars secured to the sides over the bottom and adjacent to the ends, folding ends having loops whereby they are hinged to the journal-bars, folding sides having studs engaging in the corner-grooves of the ends of the base, and provided with corner-slots, and a cover closing the crate having corner-recesses on its under side and corner-fastenings each formed with a depending flange and pivoted in the corner-recesses.

8. A crate comprising a base consisting of a bottom, sides, and ends having corner-grooves and rigidly secured together, journal-bars secured to the sides over the bottom adjacent

to the ends, folding ends having loops whereby they are hinged to the journal-bars, folding sides having studs engaging in the corner-grooves of the ends of the base, and provided with metal facings having elevations, securing-pins extending through the elevations, and a cover closing the crate having depressions in the top thereof and locking-hooks pivoted in the depressions and adapted to pass beneath the elevations and engage the securing-pins.

9. A crate comprising a base consisting of a bottom, sides, and ends having corner-grooves and rigidly secured together, the locking-bolts having inwardly-curved upper ends and secured in the ends, journal-bars secured to the sides over the bottom adjacent to the ends, folding ends having loops whereby they are hinged to the journal-bars and formed with openings receiving the curved ends of the locking-bolts, folding sides having studs engaging the corner-grooves of the ends of the base, and a cover closing the crate in its extended or collapsed condition.

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

ROBERT E. L. CROSBY.

Witnesses:

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W. E. WORD.