

No. 751,944.

PATENTED FEB. 9, 1904.

C. H. RUSSELL.
FOLDING BOX OR CRATE.
APPLICATION FILED DEC. 17, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

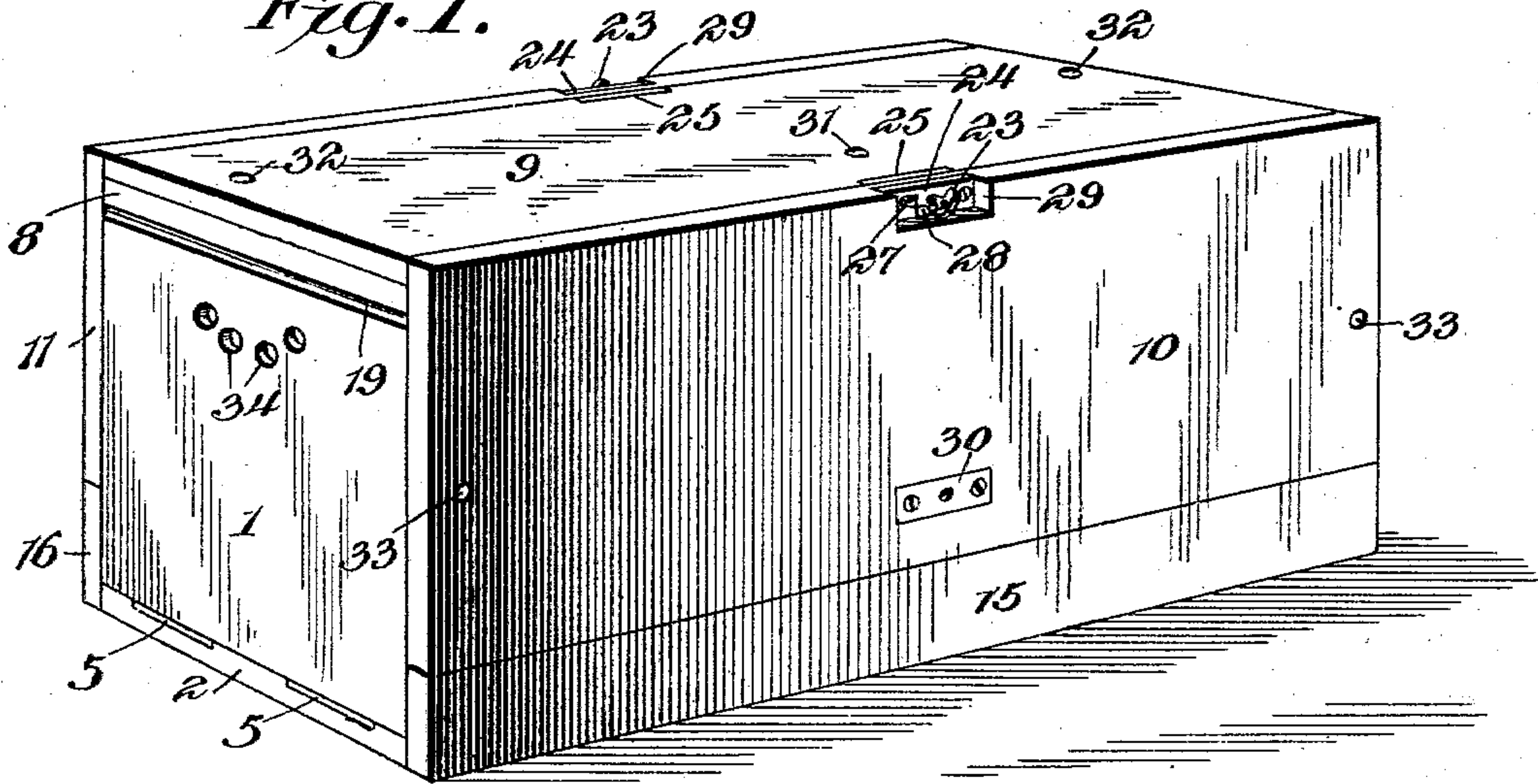


Fig. 2.

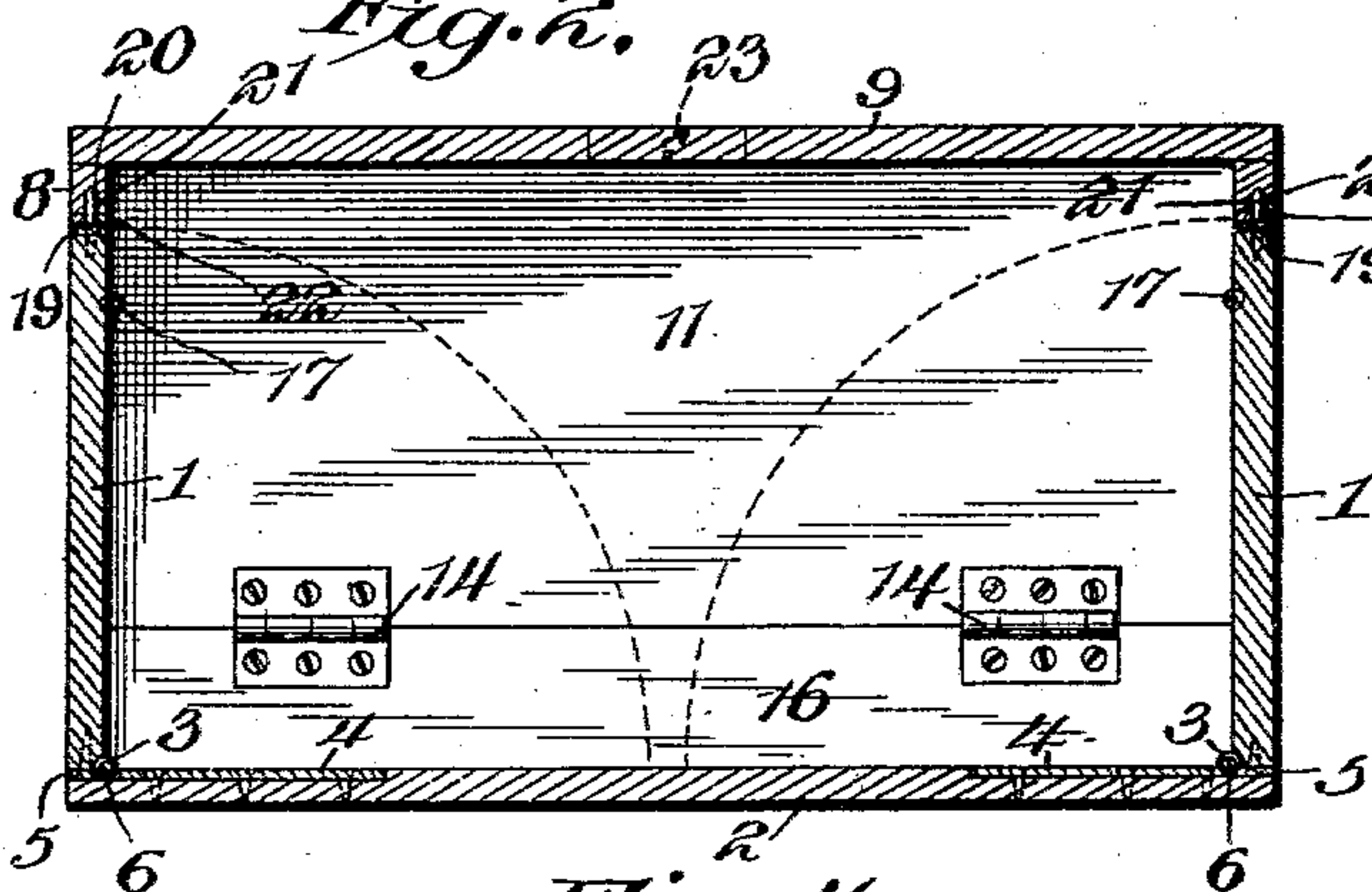


Fig. 3.

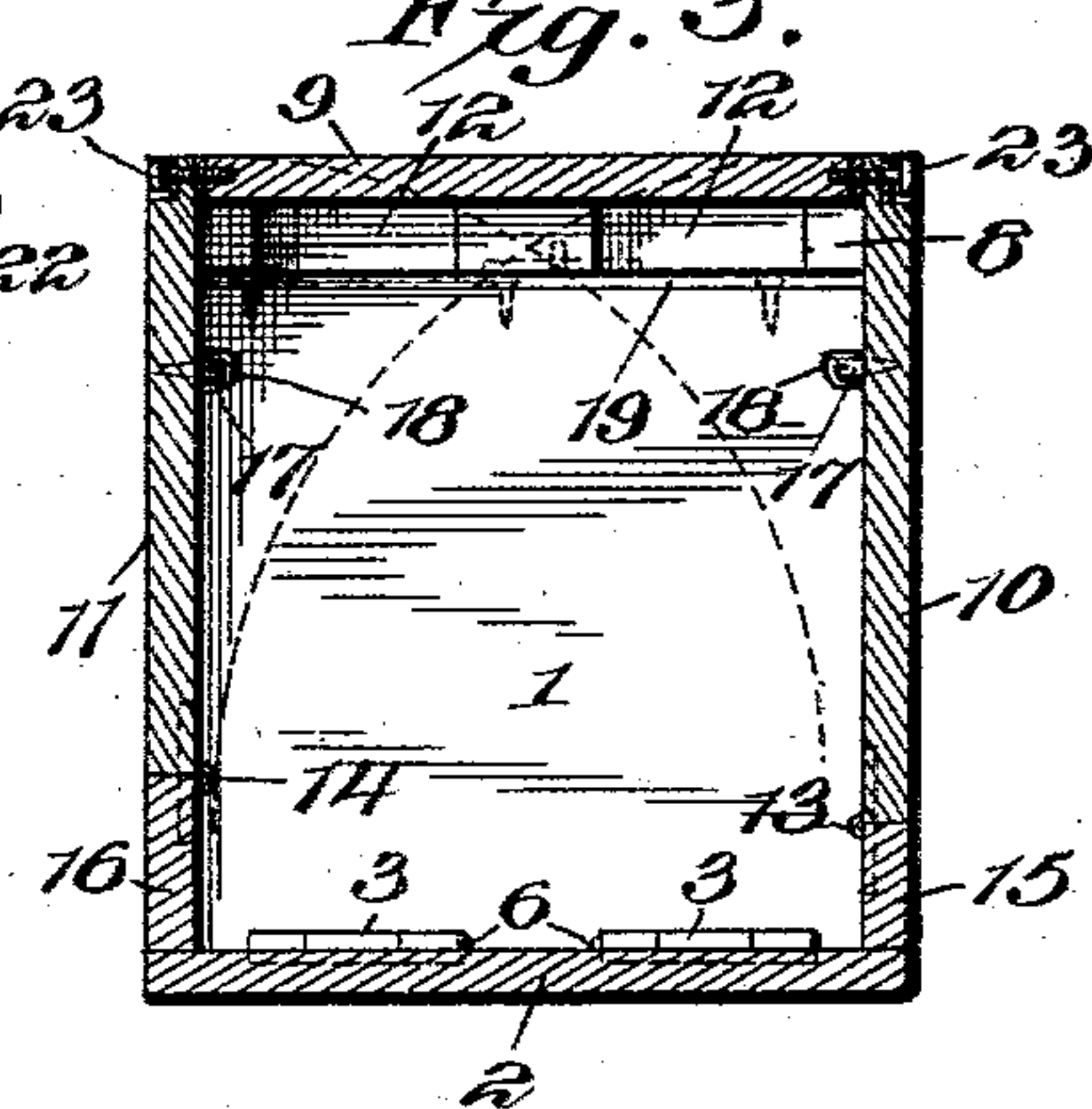
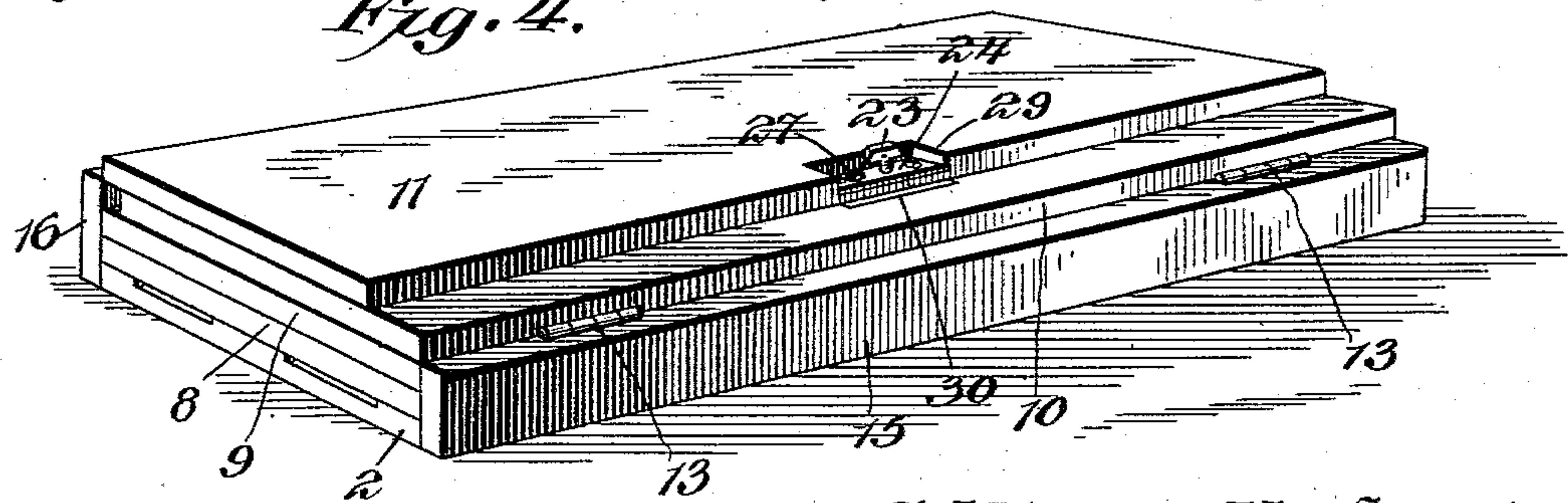


Fig. 4.



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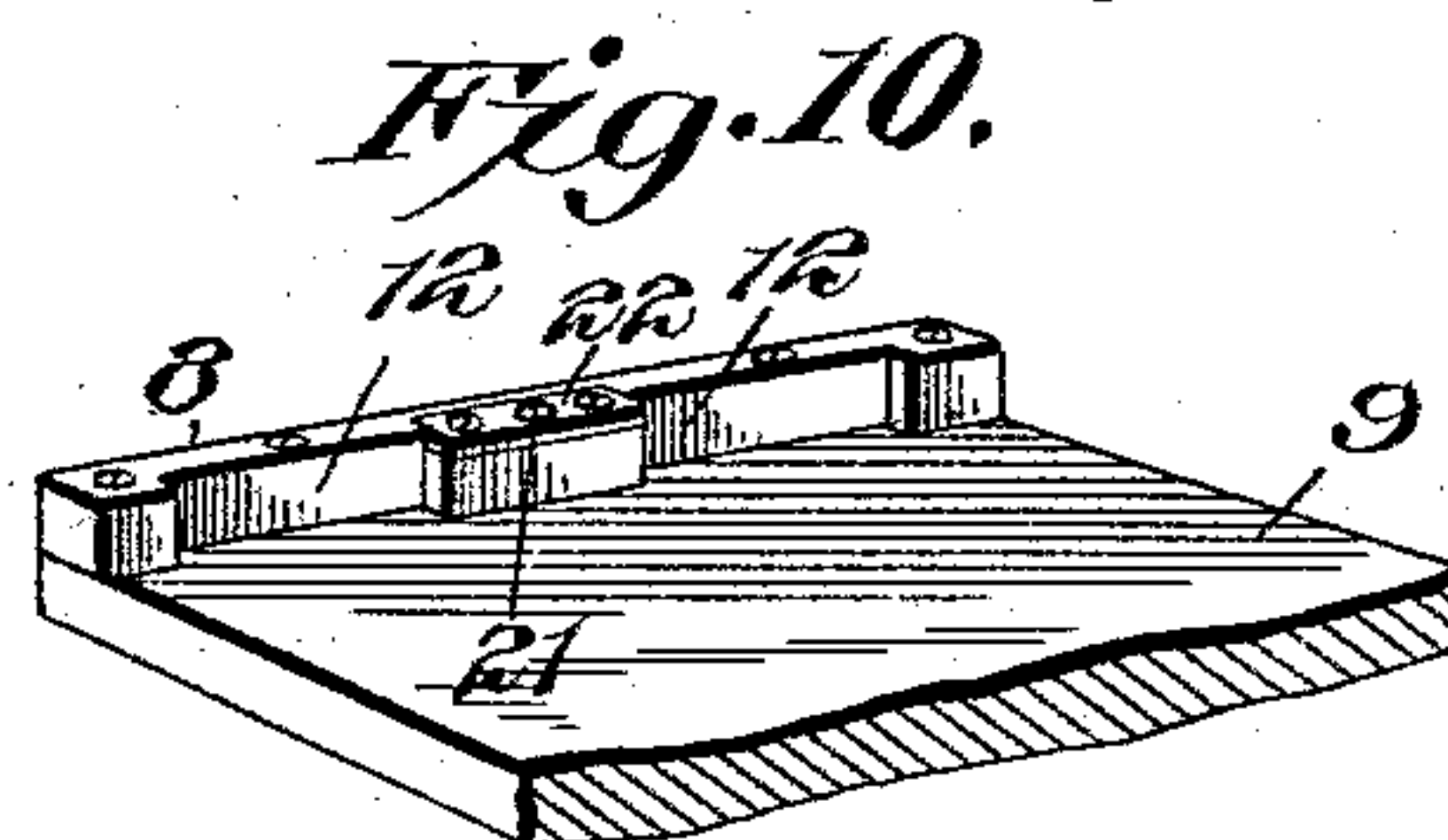
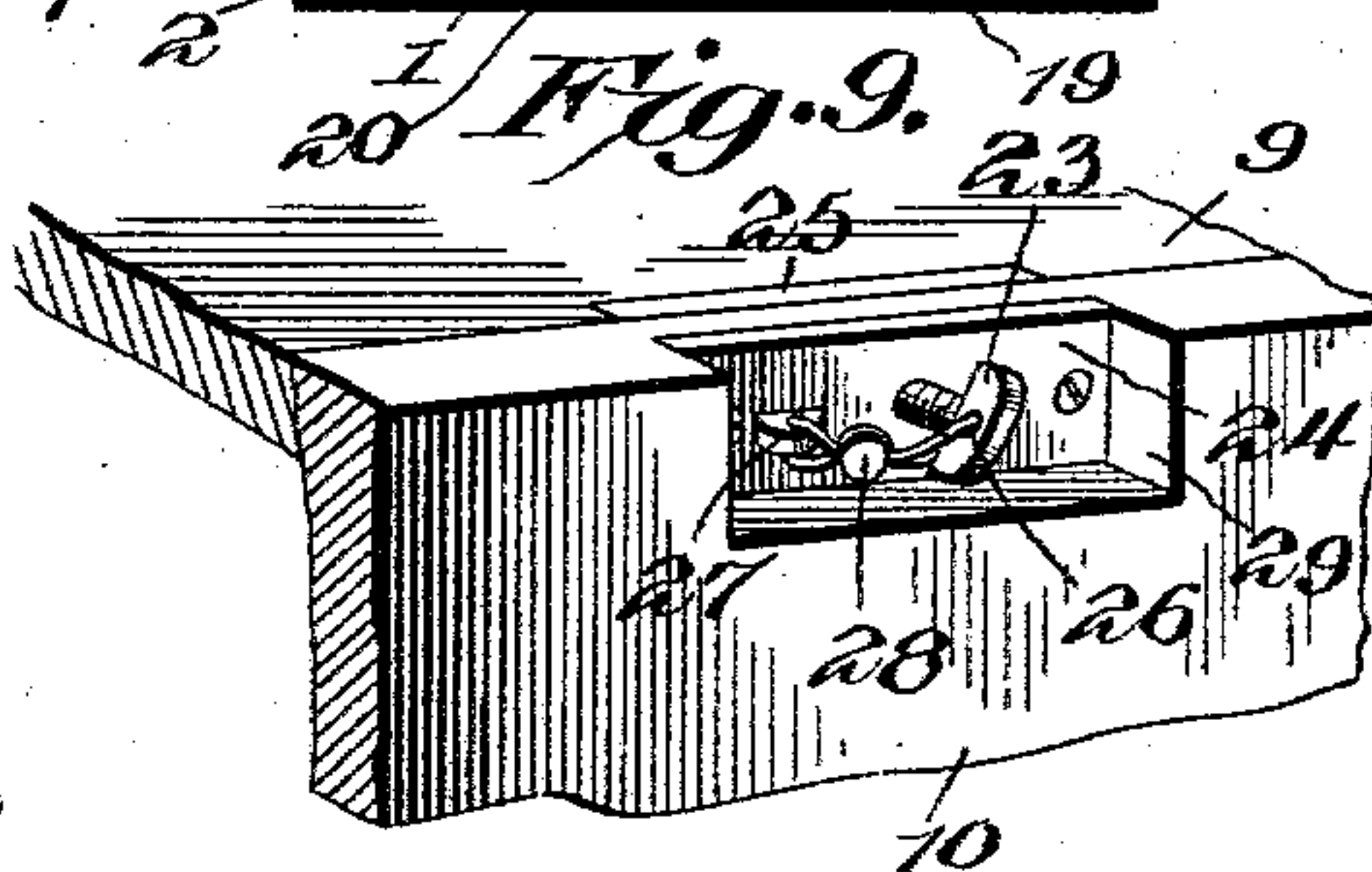
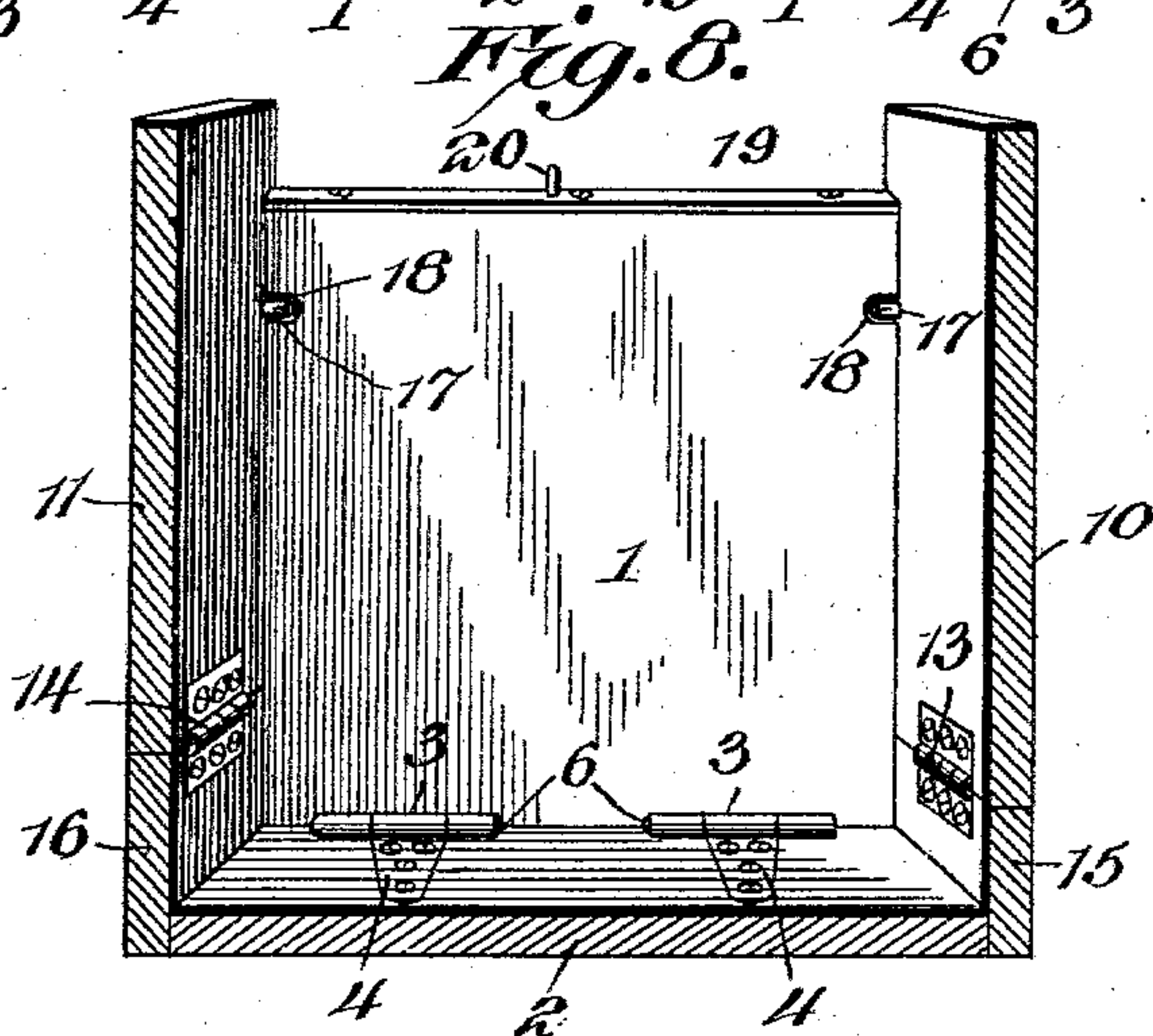
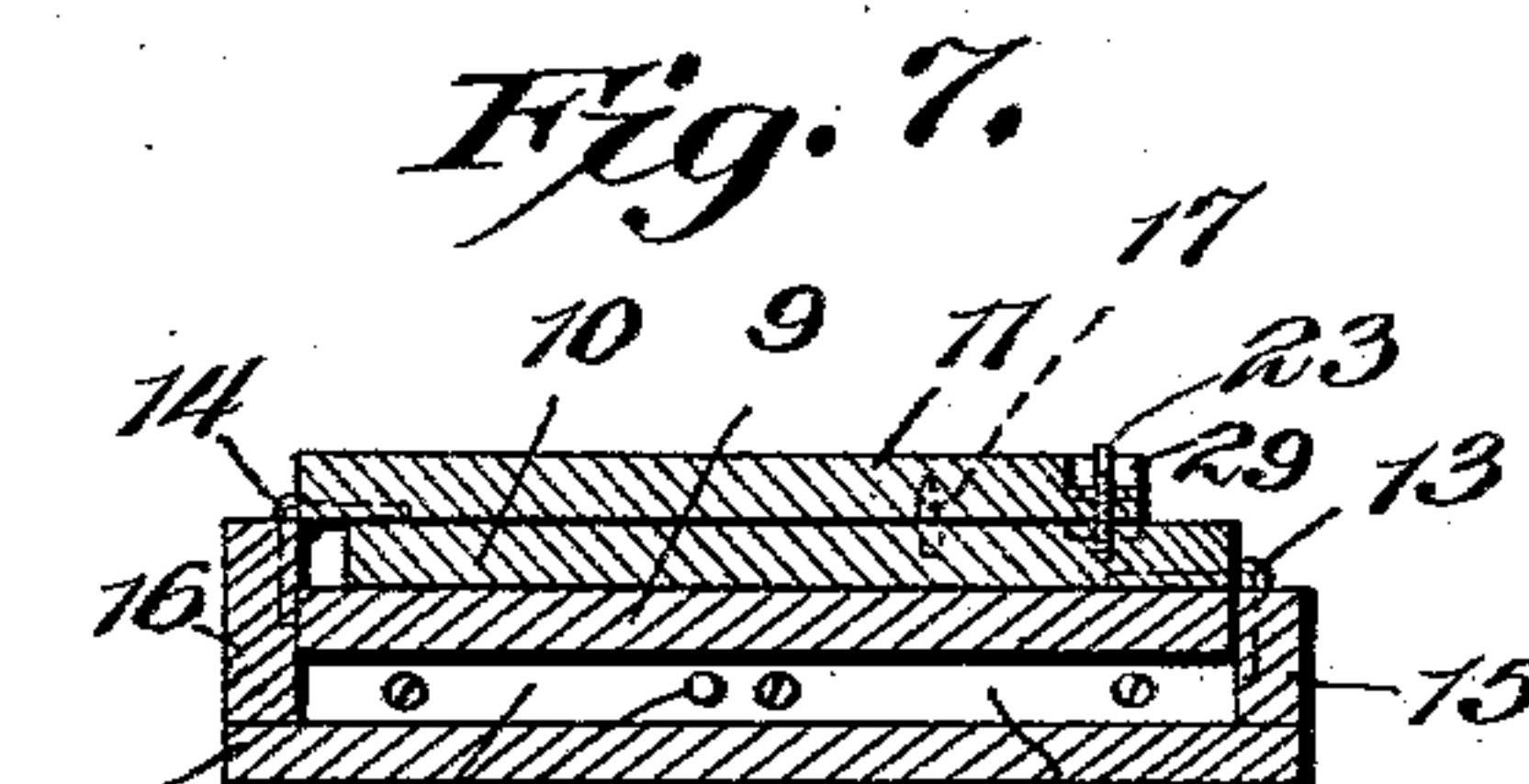
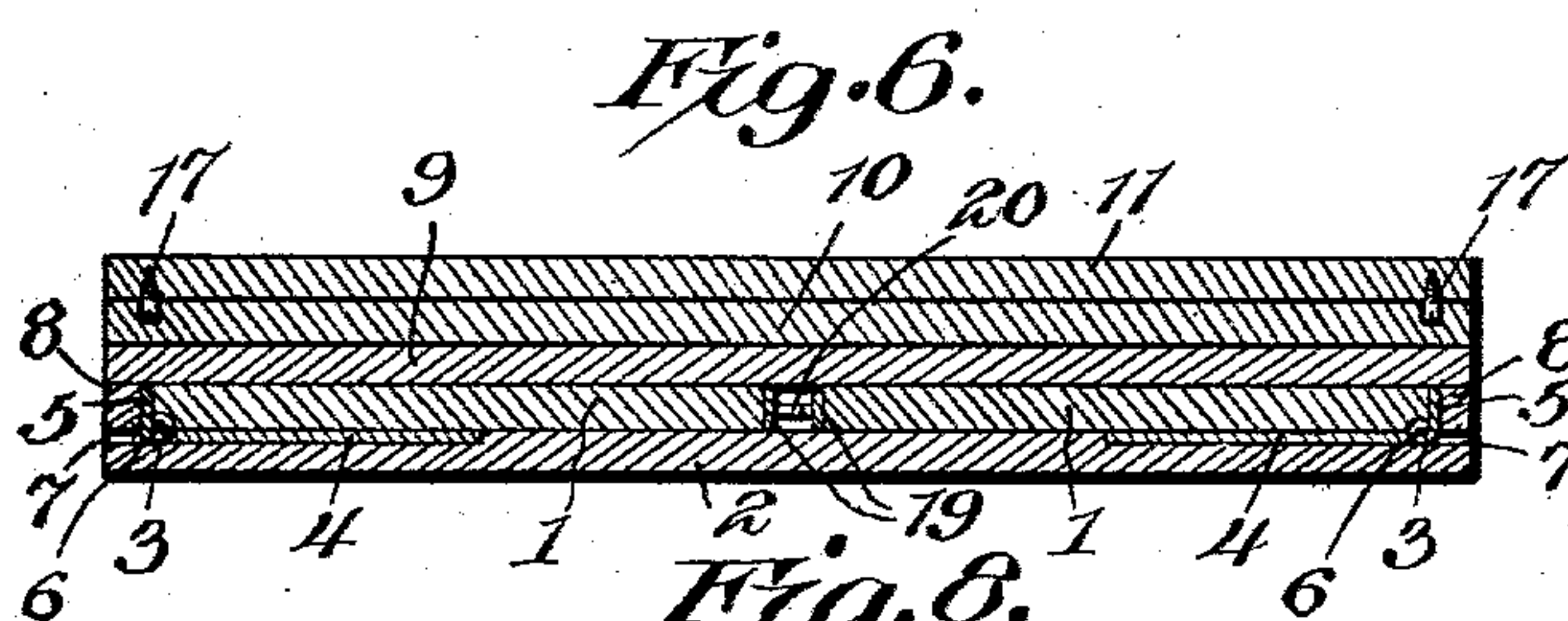
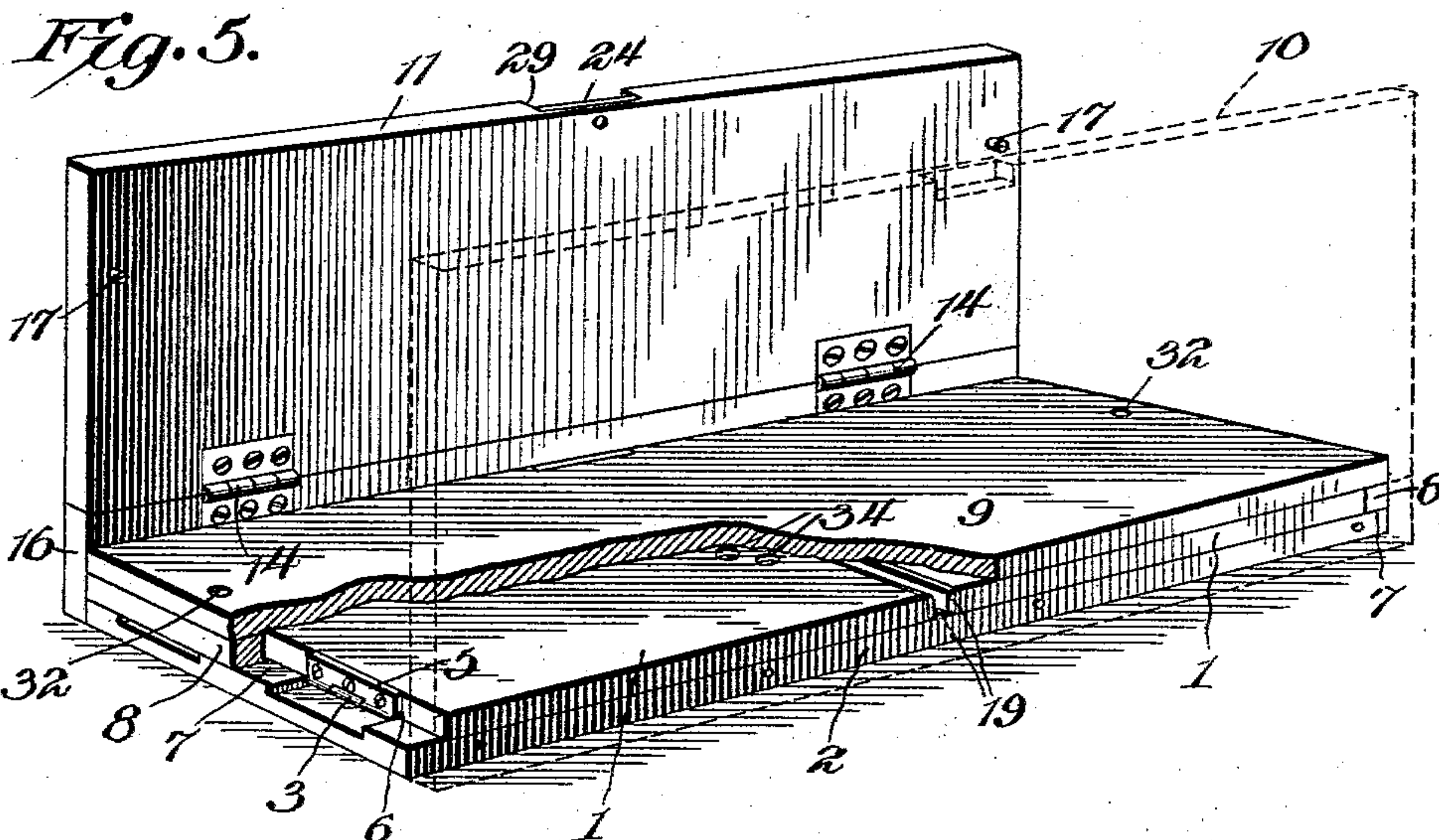
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PATENTED FEB. 9, 1904.

NO MODEL.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

CHARLES H. RUSSELL, OF MANISTEE, MICHIGAN.

FOLDING BOX OR CRATE.

SPECIFICATION forming part of Letters Patent No. 751,944, dated February 9, 1904.

Application filed December 17, 1902. Serial No. 135,607. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. RUSSELL, a citizen of the United States, residing at Manistee, in the county of Manistee and State of Michigan, have invented a new and useful Folding Box or Crate, of which the following is a specification.

The invention relates to improvements in folding boxes or crates.

The object of the present invention is to improve the construction of boxes and crates for shipping produce and the like and to provide a simple, inexpensive, and efficient box or crate of this character of great strength and durability adapted to be compactly folded for shipping, storing, or returning it to the shipper and capable when folded of forming a solid structure to prevent it from being broken or otherwise injured when so arranged.

A further object of the invention is to provide a folding shipping box or crate adapted to be readily secured in its operative and folded positions and capable of being readily sealed to prevent its contents from being tampered with undetected.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereto appended, it being understood that changes in the form, proportion, and minor details of construction within the scope of the claims may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a folding box or crate constructed in accordance with this invention and arranged for use. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a transverse sectional view. Fig. 4 is a perspective view of the box or crate, the same being folded. Fig. 5 is a similar view, the box or crate being partially folded and one side being removed to illustrate the construction and arrangement of the ends more clearly. Fig. 6 is a longitudinal sectional view, the parts being arranged as shown in Fig. 4. Fig. 7 is a transverse sectional view of the same. Fig. 8 is a

perspective view illustrating the manner of holding the ends in an upright position and showing the arrangement of the hinges. Fig. 9 is a detail perspective view illustrating the construction of the sealing device. Fig. 10 is a perspective view of one end of the lid, illustrating the construction of the cleats.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 1 designate foldable ends connected at their lower edges with a bottom 2 by hinges 3, whereby the ends are adapted to swing downward upon the upper face of the bottom 2 from an upright position to fold the box or crate and to provide a folded structure as compact and practically as strong as a solid block of wood. The hinges 3 may be of any desired construction and are provided with leaves 4 and 5, arranged on the upper face of the bottom 2 and on the lower edges of the ends 1 and secured to such parts by screws or other suitable fastening devices, the pintles 6 of the hinges 3 being arranged at the inner faces of the ends in suitable recesses or cut-away portions of the same and the bottom of the box or crate to permit the ends to fold flat against the bottom and to cause end spaces or recesses 7 to be left when the ends are folded, as clearly illustrated in Fig. 6 of the drawings. The pintles 6 are located short distances from the ends of the bottom to form the said end spaces or recesses 7 for the reception of end cleats 8 of a lid or cover 9, which is placed upon the folded ends, as clearly illustrated in Figs. 6 and 7, before the sides 10 and 11 are folded. The leaves 5, which are secured to the lower edges of the ends 1, fit in recesses or cut-away portions of the bottom when the said ends 1 are arranged in an upright position, and when the said ends 1 are folded these leaves 5 fit in recesses 12 of the cleats of the lid or cover when the latter is placed in position in folding the box or crate. The recesses 12, which permit the parts to fit snugly together, are cut in the inner faces of the cleats 8 and are located at opposite sides of the center thereof.

The sides 10 and 11, which fold down upon the detachable lid or cover, are connected by hinges 13 and 14 to longitudinal bars 15 and

16, secured to the bottom 2 and forming sections or continuations of the sides 10 and 11. The bar 15 extends upward above the bottom and has its upper edge arranged flush with the upper face of the lid or cover when the latter is placed upon the folded ends. After the removable lid or cover has been placed upon the folded ends the hinged side 10 is folded downward and inward upon the same. The other longitudinal bar 16 projects upward and has its upper end arranged flush with the upper face of the side 10 when the latter is folded, as just described, and the side 11 is then swung downward upon the other side 10. The hinges 13 and 14 are secured in suitable recesses of the sides 10 and 11 and the longitudinal bars 15 and 16, so that the pintles will not materially project from the inner faces of the sides and will permit the same to fold, as before described. The longitudinal strips or bars 15 and 16 are secured to the bottom at the outer side edges thereof, and the hinged ends 1 fold inward between them.

The sides 10 and 11, which are provided at their inner faces with projecting studs 17, are arranged to swing outward slightly beyond a perpendicular position to permit the hinged ends 1 to clear the studs 17 in unfolding the box or crate. The studs, which are preferably provided with threaded shanks and which have grooves at their outer ends to receive a screw-driver or similar tool, are located at the upper portions of the sides adjacent to the end edges thereof and are adapted to engage the hinged ends 1, which are provided at their inner faces with recesses 18 to receive the studs 17, that do not project inward into the box or crate and reduce the carrying capacity of the same when the parts are arranged as shown in Figs. 2 and 3 of the drawings. These projecting studs retain the sides and ends in an upright position while the box or crate is being filled.

The box or crate is designed for carrying all kinds of produce, and the ends, which are reinforced at their upper edges by metal bars 19, are provided adjacent to the center of the upper edges with projecting studs 20, arranged to clear each other when the parts are folded and adapted to fit in suitable sockets 21 of the cleats of the top or lid, whereby the latter is firmly engaged with the hinged ends of the box or crate when the latter is arranged as shown in Fig. 1. The cleats of the lid or cover are reinforced adjacent to the sockets by means of plates 22, secured in suitable recesses of the cleats and having their outer faces flush with the lower edges of the same. The reinforcing-plates 22 conform to the configuration of the central portions of the cleats 8 and are secured to the same by screws or other suitable fastening devices.

The sides 10 and 11 are secured to the top or lid and retained in engagement with the

ends by means of screws 23, extending through perforations of plates 24 and engaging threaded openings of plates 25. The plates 25 are secured to the side edges of the lid at the center thereof in suitable recesses of the same, and the plates 24, which are mounted on the exterior of the sides 10 and 11, are secured in suitable recesses thereof to provide spaces for the heads of the screws to prevent the same from projecting beyond the outer faces of the sides. The screws are provided with perforations 26, and the plates 24 have perforated lugs or projections 27, and these perforated parts are adapted to receive the wire of a seal 28, which is also adapted to lie within the recess 29 of the side of the box or crate. By this construction the box or crate may be sealed, and the contents of it cannot be tampered with without breaking the seal.

The side 10 is provided at its outer face adjacent to its hinged end with a plate 30, having a threaded opening and arranged when the parts are folded to be engaged by the screw of the other side 11, whereby the parts are securely locked in their folded position.

The lid is provided at its outer face at one side with a centrally-arranged depression or socket 31 to receive the threaded portion of the screw of the side 10 when the parts are folded. The lid or cover is also provided at its ends with similar depressions or sockets 32 to receive the studs of the side 10. The latter is provided at its exterior with depressions or sockets 33 to receive the projecting studs of the side 11. The ends are provided with exterior finger-receiving recesses or sockets 34, arranged in a curved series and forming a grip or hold to enable the box or crate to be readily carried.

It will be seen that the box or crate is simple, strong, and durable and that the parts are interlocked and arranged so that the strain upon them from the interior and the exterior will not operate to withdraw the screw from the wood. Also it will be clear that when the box or crate is folded the parts fit snugly together and form a solid compact structure to prevent the box or crate from being broken or otherwise injured and also to enable the same to be stored or returned to the shipper in a small space. Furthermore, it will be apparent that when the parts are folded and compactly arranged as described the fastening devices and the means for sealing the box or crate will be located within the contour of the body portion of the same, and will be thereby prevented from being broken or otherwise injured.

What I claim is—

1. A box or crate comprising a bottom, ends hinged to the bottom and arranged to fold downwardly upon the same to form end spaces or recesses, a removable lid or cover provided with cleats arranged to fit in the said recesses to permit the cover to fit against the ends when

the latter are folded, and folding sides extending above the ends to provide spaces for the cleats of the lid when the box or crate is set up, substantially as described.

5 2. A box or crate comprising a bottom, foldable ends connected with the bottom and spaced from the end edges of the same when folded to form end recesses, a lid or cover provided with depending cleats arranged to fit directly
10 upon the bottom in the end recesses when the box or crate is folded, and folding sides extending above the ends to embrace the lid and to provide spaces for the cleats thereof when the box or crate is set up, substantially as described.
15

3. A box or crate comprising a bottom, ends hinged to the bottom at points offset from the end edges of the same, whereby end spaces or recesses are formed when the hinged ends are
20 swung downwardly, a lid provided with depending cleats arranged to fit against the bottom in the end recesses when the box or crate is folded, and hinged sides arranged to fold upon the lid, substantially as described.

25 4. A box or crate comprising a bottom, hinged ends connected with the bottom, the pintles of the hinges being offset from the end edges of the bottom to form end spaces, a lid or cover provided with cleats projecting from
30 the lower faces of the lid or cover and arranged to fit directly upon the bottom in the end recesses when the box or crate is folded, longitudinal bars secured to the bottom and projecting upwardly therefrom, and sides
35 hinged to the longitudinal bars and arranged to fold, said sides being extended above the ends to provide spaces for the cleats of the lid or cover when the box or crate is set up, substantially as described.

40 5. A box or crate comprising a bottom, ends hinged to the bottom and having the pintles of their hinges offset from the end edges of the bottom to form end recesses when the parts are folded, a lid provided with depend-
45 ing cleats to fit directly upon the bottom in the end recesses when the box or crate is folded, hinged sides extending above the ends to embrace the lid and to provide spaces to receive the cleats thereof when the box or crate is set
50 up, and means for detachably engaging the sides, ends and lid with one another, substantially as described.

6. A box or crate comprising a bottom, ends hinged to the bottom and spaced from the end
55 edges thereof when folded and provided at their upper edges with lugs or projections, a lid having cleats to fit directly upon the bottom in the spaces at the ends thereof when the box or crate is folded, said cleats being also pro-
60 vided with sockets to receive the said projections or lugs when the box or crate is set up, and foldable sides extending above the ends to provide spaces to receive the cleats of the lid when the box or crate is set up, substan-
65 tially as described.

7. A box or crate comprising a bottom, ends hinged to the bottom and spaced from the end edges thereof when folded, a lid provided with depending cleats to fit directly upon the bot-
tom in the spaces at the ends thereof when 70 the box or crate is folded, hinged sides extending above the ends to provide spaces to receive the cleats of the lid when the crate or box is set up and provided with studs ar-
ranged to engage the ends at the interior of 75 the box or crate, and means for securing the sides to the lid, substantially as described.

8. A box or crate comprising a bottom provided with recesses, foldable ends, hinges connecting the foldable ends to the bottom and
80 having their leaves fitted in the recesses of the bottom, the pintles of the hinges being located at the inner faces of the ends to form end spaces when the parts are folded, a lid provided with cleats arranged to fit directly
85 upon the bottom in the end spaces and provided with recesses to receive the adjacent leaves of the hinges, and foldable sides extending above the ends to provide spaces to receive the cleats of the lid when the box or
90 crate is set up, substantially as described.

9. A box or crate comprising a bottom, foldable ends hinged to the bottom and spaced from the end edges thereof when folded to form end recesses, said ends being provided
95 at their inner faces with recesses, hinged sides provided with projecting studs to fit in the said recesses, one of the sides being provided with depressions or sockets to receive the studs or projections of the other side when
100 the parts are folded, and a lid having depending cleats and provided with depressions or sockets to receive the lugs of the adjacent side, substantially as described.

10. A box or crate comprising a bottom, 105 ends hinged to the bottom, a removable lid detachably engaged with the ends and preventing the latter from swinging, hinged sides extending above the ends and embracing the side edges of the lid when the box or crate is
110 set up and receiving the said lid between them, and fastening means detachably securing the sides to the lid, substantially as described.

11. A box or crate comprising a bottom, 115 foldable ends, a removable lid detachably engaged with the ends and preventing the same from swinging, foldable sides extending above the ends and embracing the side edges of the lid and receiving the same between them when
120 the box or crate is set up, said sides being provided with exterior recesses, and fastening devices arranged within the exterior recesses and detachably securing the sides of the lid, substantially as described.
125

12. A box or crate comprising a bottom, foldable ends, a removable lid detachably con-
nected to the ends and preventing the same from swinging, foldable sides extending above the ends and embracing the side edges of the 130

lid and receiving the same between them when the box or crate is set up, said sides being provided with exterior recesses, and screws detachably securing the sides to the lid and having heads arranged in the said recesses, substantially as described.

13. A box or crate comprising a bottom, foldable ends, a lid, foldable sides extending above the ends to embrace the lid and provided with screws detachably engaging the lid, and means carried by one of the sides for engagement with the screw of the other side, whereby the parts are locked when folded, substantially as described.

14. A box or crate comprising a bottom, foldable ends spaced from the end edges of

the bottom when folded, a lid having depending cleats to fit in the end spaces, foldable sides provided with fastening devices for engaging the lid, and means mounted on one of the sides for engagement with the locking device of the other side for securing the parts in their folded position, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES H. RUSSELL.

Witnesses:

C. M. RUSSELL,
ALBERT ERICKSON.