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F. WEIL & W. A. GROSS.
HINGE.

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Fig. 1.

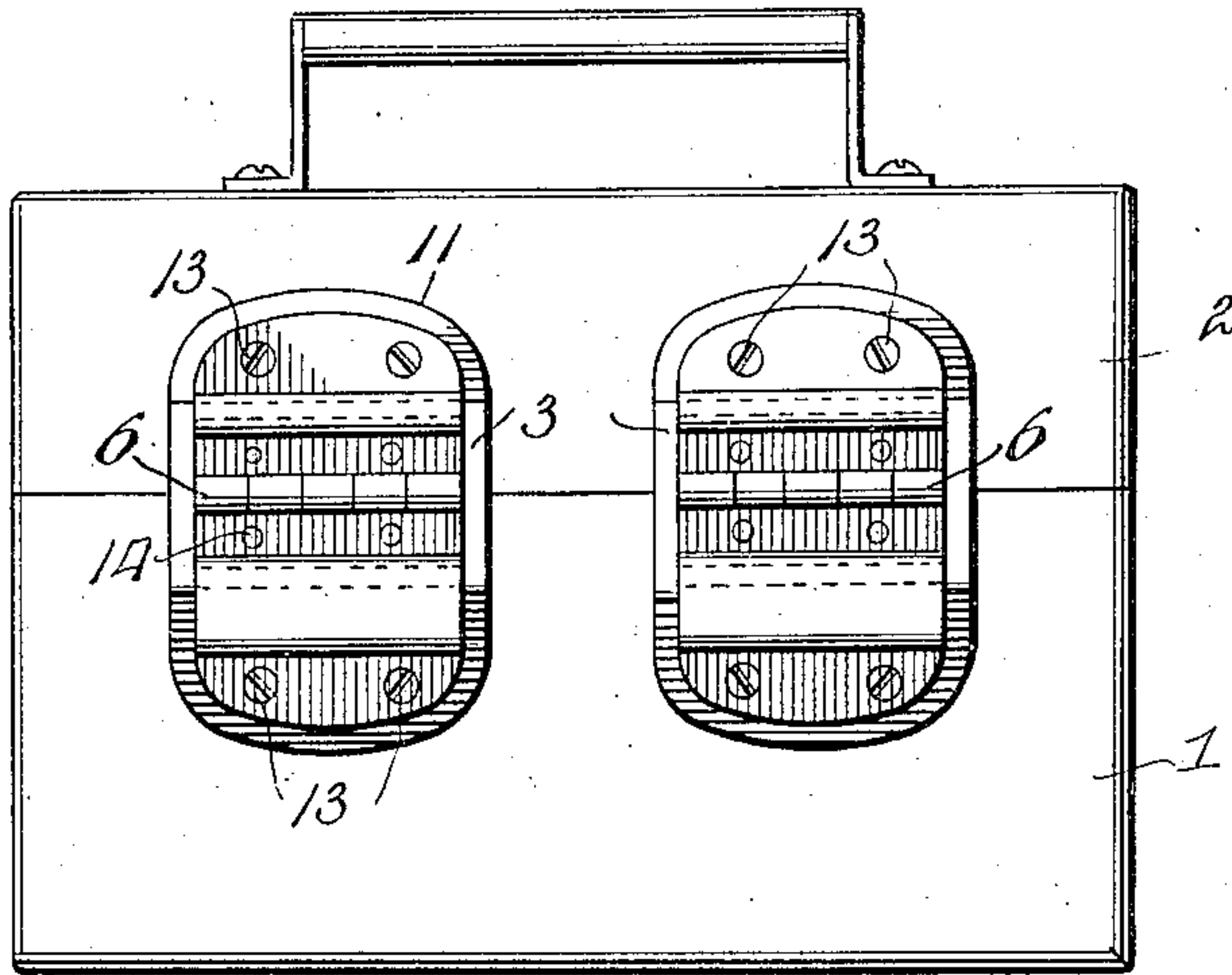


Fig. 3.

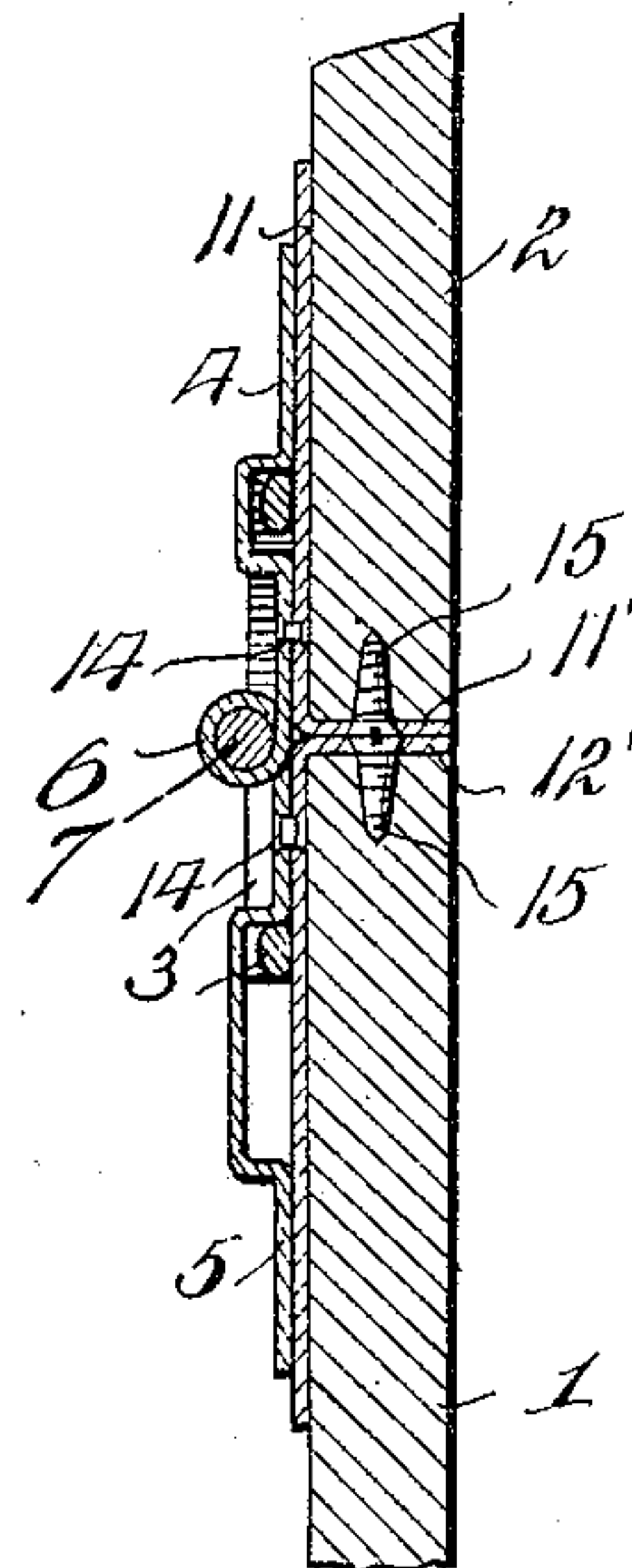


Fig. 2.

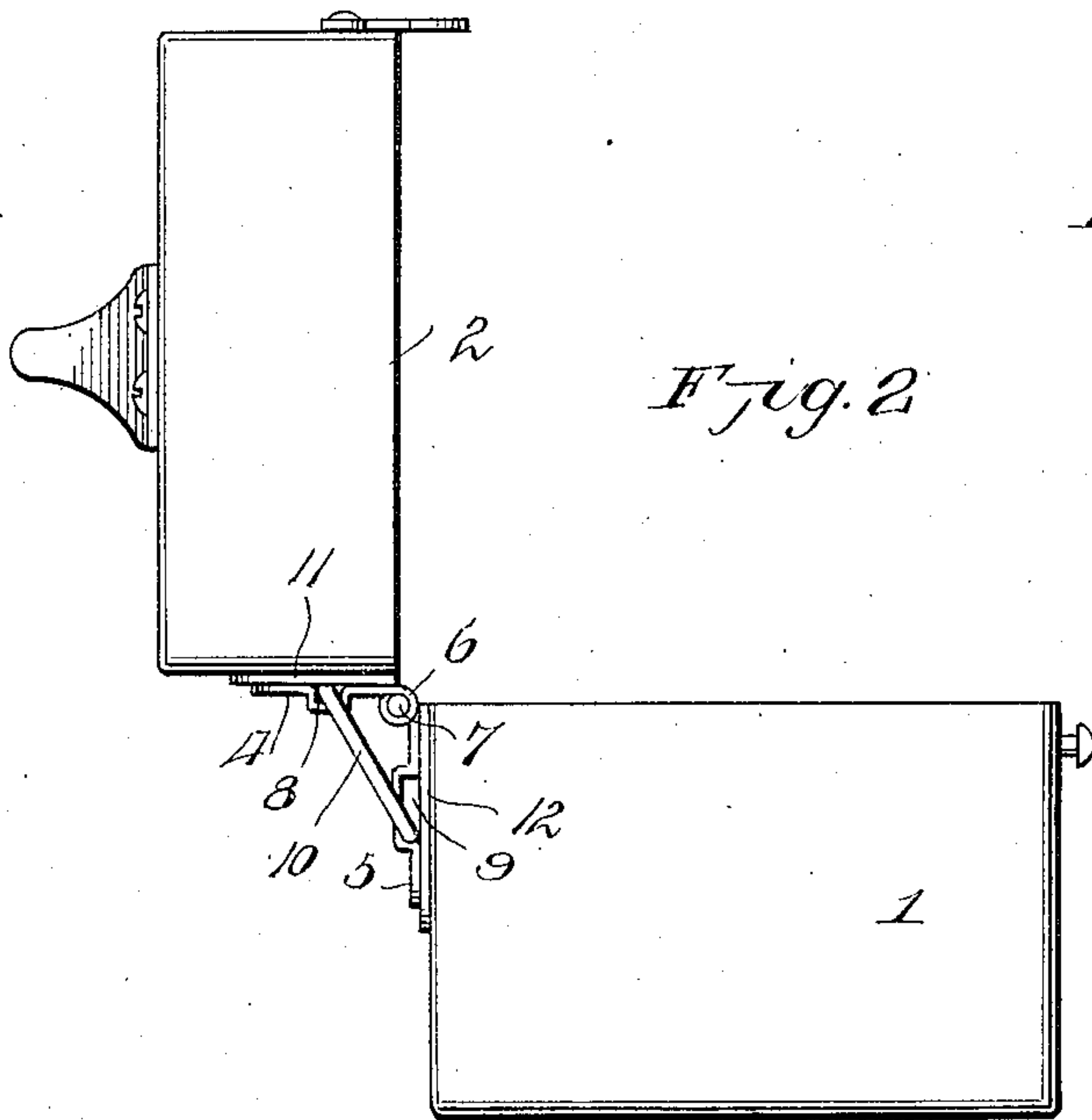
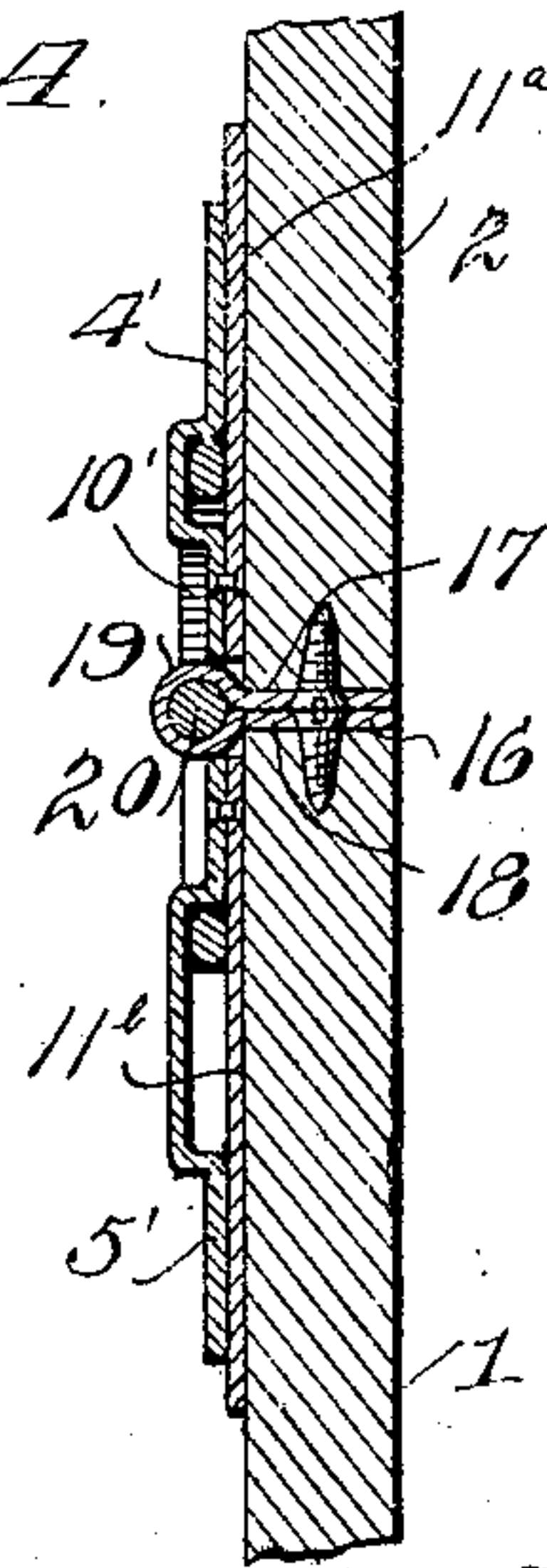


Fig. 4.



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UNITED STATES PATENT OFFICE.

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HINGE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, FRANKLIN WEIL and WILLIAM A. GROSS, citizens of the United States of America, residing at Northampton, in the county of Northampton and State of Pennsylvania, have invented new and useful Improvements in Hinges, of which the following is a specification.

This invention relates to improvements in bracing-hinges especially adapted for use on trunks, boxes, and other similar articles in which considerable strain falls upon the hinges when the lid or cover is adjusted to open position.

One of the objects of the invention is to provide a simple construction of hinge and associated means for bracing the hinge when the lid or cover is open, thus relieving the hinge from the whole or greater portion of the supporting strain, such means also serving when the cover is closed to prevent disconnection of the pintle.

A further object is to provide a hinge of this character employing in conjunction therewith wear-plates so arranged as to increase the strength and durability of the structure, as well as to permit of a more convenient assemblage and disassemblage of its parts.

A still further object is to provide a construction of bracing device embodying the advantages above set forth and which may be applied to existing trunk or box structures for use in conjunction with an ordinary hinge.

In the accompanying drawing, Figure 1 is a rear elevation showing the application of the invention to a box or case. Fig. 2 is an end elevation of the same, showing the lid or cover in open position. Fig. 3 is a vertical central section through one of the hinges with the cover in closed position. Fig. 4 is a similar view showing a modification embodying a bracing device for use in conjunction with hinges of ordinary construction.

Referring to Figs. 1, 2, and 3, 1 designates a box, trunk, or other suitable packing-case, and 2 its lid or cover. As shown, the lid or cover is connected with the body of the trunk or case by a desired number of hinges 3, each comprising leaves 4 and 5, bent at their meeting ends to provide knuckles 6 for the passage of the connecting-pintle or pivot-pin 7. The leaves are preferably formed of sheet

metal and are respectively offset to provide a transverse socket 8 and a transverse guide-way 9 for the reception of the ends of a bracing link or bail 10. The upper end of the bail 10 has pivotal movement and a slight degree of longitudinal play in the socket 8, while the lower end thereof is free for pivotal as well as a defined degree of sliding movement in the guide 9. The socket and guide-way open on their inner sides and are designed to be closed by metallic bracket or wear-plates 11 and 12, fastened with the leaves to the body and lid by screws or other suitable fastenings 13. These plates 11 and 12 not only close the socket and guide and form wear-surfaces to sustain the wear from the bracing link or bail and prevent the same from falling upon the body and lid, but also materially strengthen the connection of the leaves with said trunk and body, thus materially increasing the durability, strength, and efficiency of the hinge. In the operation of assembling the parts the leaves are arranged in juxtaposition to bring their knuckles into interfitting relation, the pintles 7 applied to connect said knuckles, the ends of the bail or brace link seated in the socket and guide-passage, and the plates 11 and 12 applied to hold the link in position, said plates being secured to the leaves by rivets or other suitable fastenings 14. By this means the parts of the device may be conveniently assembled and securely held in assembled and operative position without the necessity of employing complicated securing means. Furthermore, the construction described permits of the use of sheet metal instead of castings, thus materially decreasing the cost of production. It will be observed that the brackets or wear-plates project beyond the leaves, thus allowing the link when in vertical position to bear against the projecting portions of the brackets at the sides, whereby the link is effectually stayed when the lid or cover is closed.

In applying the hinge to the trunk or other article the plates 11 and 12 are respectively fastened to the body and lid by the screws 13, which pass through the leaves, and thus securely hold all the parts connected. In order to secure a firmer attachment of the hinge, the plates 11 and 12 may be provided with flanges 11' and 12' to lap over the meeting surfaces of the body and lid where the hinge is applied, screws 15 be-

ing employed to fasten the same in position. This connection provides contacting wear-pieces between the parts of the trunk or case and at the same time strengthens the hinge mechanism.

It will be observed by reference to Fig. 2 that the construction is such that when the lid 2 is thrown back the link or bail 10 will assume an inclined or oblique position and act as a stay or truss-strut disposed between the lid and body to support said lid in position, thus relieving the hinge from the supporting strain. It will also be seen by reference to Figs. 1 and 2 that when the lid is closed the link or bail will assume a vertical position, with its side arms lying in contact with the plates on opposite sides of the knuckles 6 and in line with the ends of the pintles 7, thus preventing the latter from being displaced or forced out of position by an unauthorized person in an attempt to disconnect the parts of the hinge to gain access to the trunk. Upon removing the screws 13 and fastenings 14 the leaves may be conveniently detached from the wear-plates to permit of the disconnection from the link, thus facilitating the operation of cleaning or repairing the parts.

In the embodiment of the invention shown in Fig. 4 we have disclosed a bracing hinge or structure adapted to be used in connection with and to supplement the ordinary form of hinge to relieve the latter from strain and to secure the advantages above set forth. The structure here is the same as that already described in connection with Figs. 1, 2, and 3, except that an ordinary form of hinge is applied to connect the lid with the body-section, the leaves 17 and 18 of said hinge being respectively secured to said parts, while the knuckles 19 thereof are united by the usual pintle 20. The inner or meeting edges of the leaves 4' and 5' and wear-plates 11^a and 11^b are here spaced apart to provide an interposed opening for the pintle connection of the hinge, thus allowing the latter to project outward therebetween. The link 10' in this form operates in the same manner as the link 10, previously described, and is so relatively arranged as to serve as a guard when the lid is closed to

hold the pintle 20 of the hinge 16 from disconnection from the knuckles 19. This construction of bracing hinge or device is applicable to trunks, boxes, and other packing-cases in which ordinary hinges are used to connect the body with the lid, thus permitting the bracing structure to be applied to trunks and other storage-cases already in use.

Having thus described the invention, what is claimed as new is—

1. A device of the character described comprising leaves, each leaf consisting of a body offset to respectively provide a socket and a guide open at one side, bracket-plates permanently secured to the leaves and projecting at the sides beyond the same, said plates closing the open sides of the guide and socket and being arranged for attachment with the ends of the leaves to a trunk or other container, and a link pivotally engaging the guide, said link being adapted when the leaves are in alinement to extend vertically and bear against the extended side edges of the bracket-plates.

2. A device of the character described comprising two leaves, one formed with a socket and the other with a guide-passage open at the rear side, said leaves being spaced apart at their adjacent edges for the passage of the knuckle and pintle of an independent hinge therebetween, bracket-plates permanently fastened to the leaves and closing said socket and guide, said plates projecting at all sides beyond the leaves, and a link pivotally engaging the socket and slidably and pivotally engaging the guide-passage, said link being adapted when the leaves are in alinement to bear against the extended sides of the bracket-plates and to lie vertically with the sides thereof in line with the ends of the hinge-pintle, whereby displacement of the latter from the hinge-knuckles is prevented.

In testimony whereof we affix our signatures in presence of two witnesses.

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Witnesses:

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