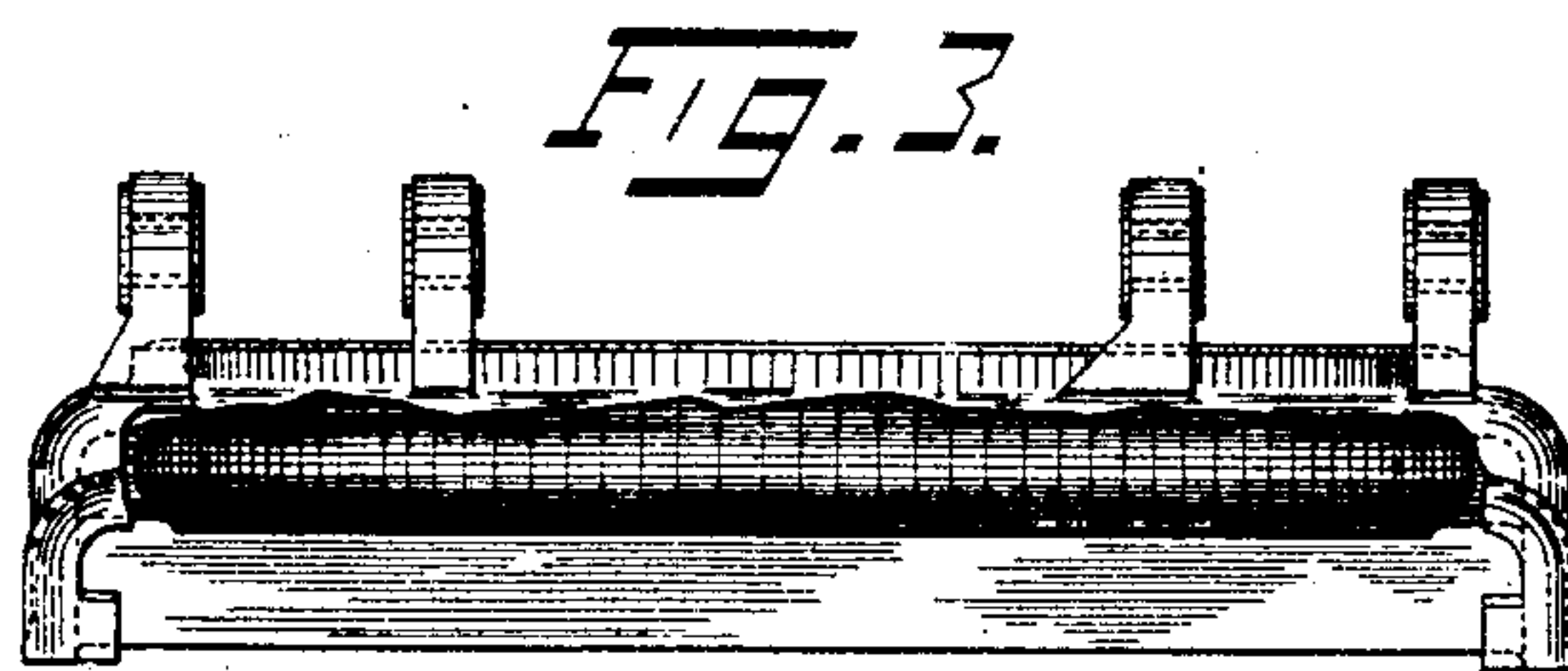
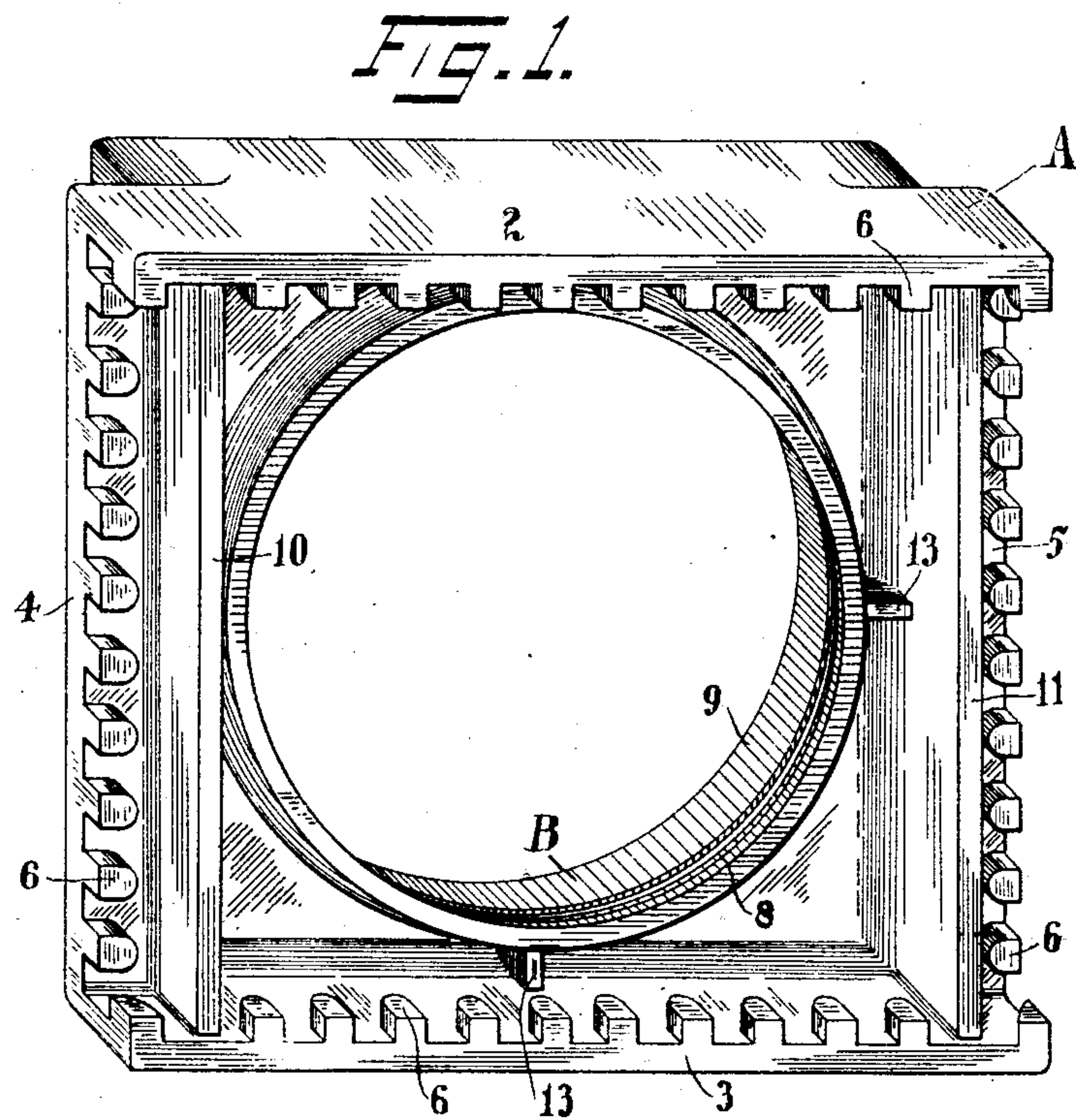
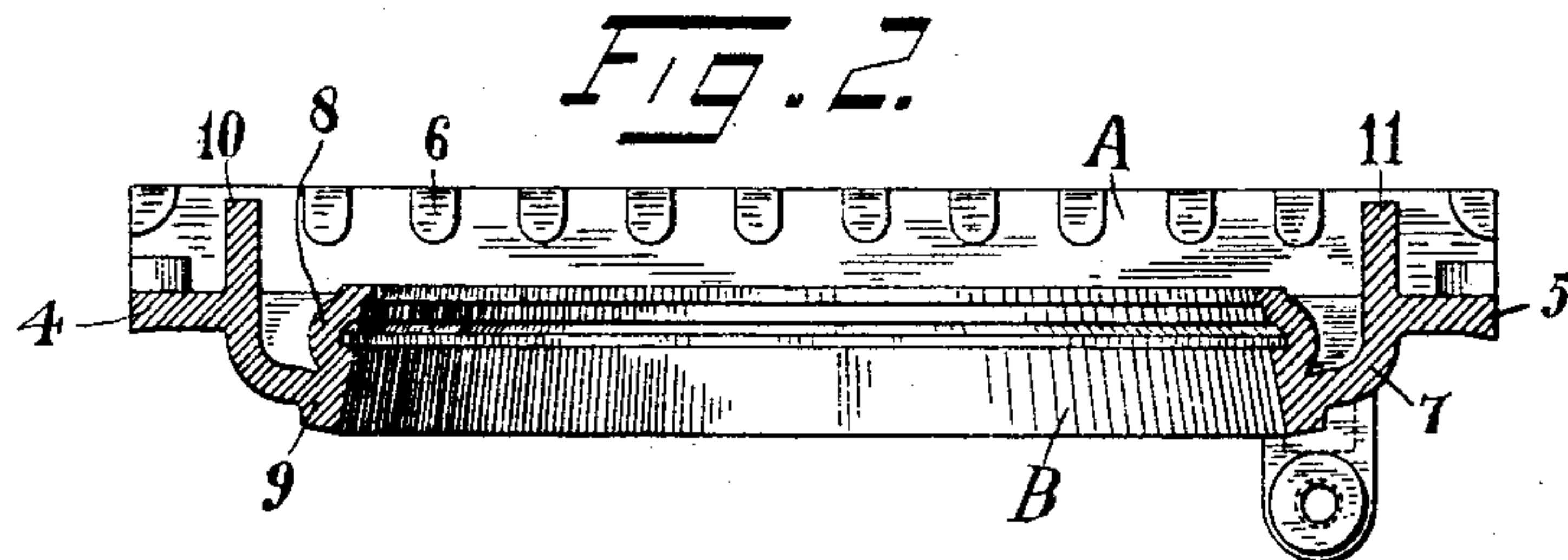


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 COMBINED REINFORCED DOOR FRAME AND VESTIBULE MEMBER.
 APPLICATION FILED JAN. 2, 1908.

903,281.

Patented Nov. 10, 1908.



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UNITED STATES PATENT OFFICE.

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COMBINED REINFORCED DOOR-FRAME AND VESTIBULE MEMBER.

No. 903,281.

Specification of Letters Patent.

Patented Nov. 10, 1908.

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To all whom it may concern:

Be it known that I, SAMUEL W. FISH, a citizen of the United States, residing in Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in a Combined Reinforced Door-Frame and Vestibule Member, of which the following is a specification.

This invention relates to burglar-proof vaults, and particularly to that kind of vault which is made up of a number of members or plates fastened together, the object of the present invention being to provide a combined integral vestibule-forming member and door-frame which will be sufficiently stiff to hold its shape and which will be less expensive to manufacture, will weigh less, and will take up less space in the banking room than these parts as heretofore constructed.

In the patent granted to Henry D. Hibbard January 8, 1907, No. 840,490, an improved vestibule for vaults is shown, but in this construction, as will be seen from an inspection of Figs. 4 and 5, it is necessary to connect thereto the door-frame member in order to furnish a means for carrying the door. In the present improvement, however, the door-frame and the vestibule-forming member are of one integral structure, but as in vaults of large size the casting for the combined vestibule and door-frame is a very massive one, it follows that unless the structure is reinforced in a particular manner it would not be possible to use such a structure, owing to its weakness and to the fact that under the great weight of the door the casting would sag at the underside of the door. Furthermore, when unmachineable metal, such for instance as manganese steel, is used, it would not be practicable to cast such a massive casting and then heat treat it unless the reinforcement was of such a character and located in such a manner that it would not interfere with these steps in the manufacture of the casting.

As stated in the patent to Hibbard hereinbefore referred to: "Vaults of large size are necessarily made up of a number of plates, members or castings suitably connected or fastened together edgewise, and such vaults require and are furnished with doors of sufficient size to enable them to be readily entered by the users thereof, in consequence of which it has been found that that particular mem-

ber or casting in which the doorway is formed has a tendency to sag, owing to the fact that when the casting is made with a large part of the metal necessarily removed to form the doorway there is insufficient metal left around such doorway to give stiffness and rigidity to the casting sufficient to prevent it from sagging, the remaining part of the metal in such plate being insufficient to support or retain such a large casting in its normal shape, and this sagging has taken place to such an extent that the door when circular becomes out of round, in other words, does not fit true in its jamb, requiring considerable effort to close it and also adjustment of the door at various times to insure the closing thereof in a proper manner. This sagging is also assisted to a large extent by the weight of the roof of the vaults, and as it is impracticable and undesirable, and at times impossible, to increase the thickness of this particular casting of the vault to any appreciable extent beyond the thickness of the other castings making up the body it follows that when the plate or casting is formed with a large doorway or opening therein it must be stiffened in some practicable manner without increasing the thickness of the metal, which in a manganese-steel vault is usually only about three inches thick.

"In those structures where the doorway is of substantially the same size as the body of the vault and where the vault-body is made as an integral structure the door-frame, which, as stated, is integral with the body, is of ample strength and stiffness; but where it is necessary, as in the building of large vaults, to construct them of several members or castings, and where the door must necessarily be of less size than the front of the vault, it is essential that that particular casting in which the doorway is formed shall be of great rigidity and strength for the reasons hereinbefore stated. It is also frequently desirable, in order to decrease the number of joints, and thereby the number of fastenings, to form the front or the front member of the vault of as large a casting as possible; but it is not practicable, nor necessary, nor desirable, to provide a doorway, and therefore a door, of the same size, so that it becomes a material object and advantage to provide a structure in which the

door may be considerably smaller than the front or front plate of the vault and yet be sufficiently large to enable entrance of one or more persons to the vault."

5 But in the Hibbard patent the advantages referred to were accomplished by the formation of a vestibule member separate from the door-frame itself, which required that the door-frame be connected by a joint with
10 such vestibule-forming member.

The object of the present invention is the provision of a structure which will enable the formation of the vestibule member and the door-frame as one integral structure,
15 thus doing away with all joints between the door-frame and the vestibule-forming member. But, as hereinbefore stated, owing to the massiveness of such a casting, such an integral structure could not be furnished
20 unless formed and reinforced in such a manner that the door-frame would not sag under the tremendous weight of the door and the roof of the vault, especially as this weight is materially increased in the present in-
25 stance by the added portions or vestibule-forming part of the casting. To provide a combined vestibule and door-frame so reinforced that the reinforcement will not in any way interfere with the casting or heat
30 treatment of the casting is therefore an object of the present invention.

In the drawings accompanying and forming part of this specification, Figure 1 is a perspective rear view of this combined door-
35 way and vestibule-forming member; Fig. 2 is a cross-sectional view thereof looking from the front of such member; and Fig. 3 is a view looking into the interior of the jamb, with a part thereof broken away.

40 Similar characters of reference indicate corresponding parts in the different figures of the drawings.

The present improved structure, which is designated herein as a combined vestibule-
45 forming member and door-frame, comprises an integral casting consisting in its preferred form of a plurality, shown herein as a pair, of rearwardly extending plates or members 2, 3, in the present structure com-
50 prising the top and bottom plates of the vestibule portion A and a plurality of laterally extending members 4, 5, comprising in the present instance the two front walls of such vestibule-forming member, each of which
55 plates 2, 3 and 4, 5 is provided with some suitable means for securing the structure to the other members of the vault. In the present instance this means consists of projections or lugs 6 cast along the edge of the
60 plates for the reception of shrunk-on-links, as in the Hibbard patent hereinbefore referred to. Projecting forwardly from and integrally connected with these plates forming the vestibule is a front wall 7, shown as
65 curved, forming the door-frame B, this front

wall terminating in a rearwardly extending flange 8 and preferably a forwardly extending flange 9, which form the jamb of the doorway. By the provision of these forwardly and rearwardly extending flanges a
70 relatively long jamb is provided, and moreover, the casting is so made that it is not too thick at any part to prevent the proper heat treatment thereof when formed of man-
75 ganese steel.

The structure so far described, however, would not be efficient in use in very large-size vaults, because of the tremendous weight of the casting, which, when combined with the weight of the door and of the top or
80 roof of the vault located adjacent thereto, would cause the doorway to sag, and therefore, in order to prevent this, and to enable the door-frame and vestibule to be made as one integral structure, it is necessary, as
85 hereinbefore stated, to properly reinforce the structure, and to do this without materially increasing the massiveness thereof or increasing the thickness of its walls so as not to interfere, when it is made of manganese
90 steel, with the proper heat treatment of the casting, a three-inch thickness of casting being, as is now well known, about the limit in thickness to get satisfactory results in heat
95 treatment. In the present instance this reinforcement is obtained by providing a pair of stiffening pillars in the form of plates 10, 11, shown in the present instance as vertically located between the top and bottom
100 plates 2 and 3 of the vestibule member and extending rearwardly from the side or front plates 4 and 5 of such member, and preferably integrally connected, in other words, cast with the structure. Of course, if the
105 plates 2 and 3 constituted, instead of the top and bottom plates, two side walls, then these stiffening members would run horizontally. The inwardly extending flange 8 of the door jamb is also connected by stiffen-
110 ing webs or ribs 13 at intervals around the same with these pillars and the adjacent walls of the casting. In the present instance these connecting portions are shown as four in number, one running to each pil-
115 lar and one to the top and bottom plates of the vestibule. Thus, the recess which it is desirable to have between the inwardly extending flange 8 and the adjacent walls of the casting is still retained, while the door-
120 frame is properly supported at intervals, a part of this support for the door jamb being received from the reinforcing pillars, so that the latter not only support, reinforce and stiffen the vestibule portion of the cast-
125 ing, but also the door jamb itself. These stiffening members 10 and 11 act in a similar way to a pair of posts or pillars the lower ends of which rest upon the bottom plate forming a part of the floor of the vault, while the tops thereof engage the top mem-
130

ber forming a part of the roof of the vault, and from these members a pair of the connecting webs which assist in sustaining the door-frame extend, as hereinbefore stated.

5 The pillars are shown located away from the edge of the laterally extending plates 4, 5.

From the foregoing it will be seen that this improved vestibule-forming member and door-frame is made up of a structure comprising four rearwardly extending members or plates rigidly connected together, these being the top and bottom plates 2 and 3 and the reinforcing ribs or members 10 and 11, thus forming a box-like structure, from which project at the sides thereof a pair of plates or members which form, with the reinforcing ribs, an angularly formed structure, while forwardly from this structure projects the front wall of the door-frame curved inwardly and connected with which is the door jamb itself, which, when a long jamb is desired, is obtained by forming a rearwardly and forwardly extending flange, the rearwardly extending flange of which extends into the vestibule and is connected with the box-like structure hereinbefore referred to by the desired number of webs. Thus, each part of the structure reinforces the other part, the pillars or reinforcing ribs stiffening the top of the vault and also the door-frame and enabling the formation of a door-frame and vestibule made up of an integral structure, heretofore not deemed practicable or possible in large vaults.

I claim as my invention:

1. A combined door-frame and vestibule-forming member comprising an integral casting made up of a pair of rearwardly extending plates, a pair of laterally extending plates, a door-frame having a jamb, and a pair of pillars connecting the rearwardly extending plates.

2. A combined door-frame and vestibule-forming member comprising an integral casting made up of a pair of rearwardly extending plates, a pair of laterally extending plates, a door-frame having a jamb, and a pair of pillars connecting the rearwardly extending plates away from the edges of the laterally extending plates.

3. A combined door-frame and vestibule-forming member comprising an integral casting made up of a pair of rearwardly extending plates, a pair of laterally extending plates, a door-frame having a jamb, a pair of pillars connecting the rearwardly extending plates, and webs connecting the pillars with the door jamb.

4. A combined door-frame and vestibule-forming member comprising an integral casting made up of a pair of rearwardly extending plates, a pair of laterally extending plates, a door-frame having a jamb, a pair

of pillars connecting the rearwardly extending plates, and webs connecting the rearwardly extending plates with the door jamb.

5. A combined door-frame and vestibule-forming member comprising an integral casting made up of a pair of rearwardly extending plates, a pair of laterally extending plates, a door-frame having a jamb, a pair of pillars connecting the rearwardly extending plates, and webs connecting the pillars and the rearwardly extending plates with the door jamb.

6. A combined door-frame and vestibule-forming member comprising an integral casting made up of a pair of rearwardly extending members or plates, a pair of laterally extending members or plates each having means for the reception of fastenings along its edge, and a pair of pillars or stiffening members located between said rearwardly extending plates.

7. A combined door-frame and vestibule-forming member comprising an integral casting made up of a top and bottom rearwardly extending member a pair of laterally extending members forming portions of the front of the vestibule, and pillars connecting the top and bottom members and forming with such top and bottom members a box-like structure.

8. A combined door-frame and vestibule-forming member comprising an integral casting made up of a top and bottom rearwardly extending member, a pair of laterally extending members forming portions of the front of the vestibule, and pillars connecting the top and bottom members away from the edges of said laterally extending members and forming with such top and bottom members a box-like structure.

9. A combined door-frame and vestibule-forming member comprising an integral casting made up of a top and bottom rearwardly extending member, a pair of laterally extending members forming portions of the front of the vestibule, and pillars connecting the top and bottom members and forming with such top and bottom members a box-like structure, said structure having a forwardly extending wall provided with a door jamb.

10. A combined door-frame and vestibule-forming member comprising an integral casting made up of a top and bottom rearwardly extending member, a pair of laterally extending members forming portions of the front of the vestibule, and pillars connecting the top and bottom members and forming with such top and bottom members a box-like structure, said structure having a forwardly extending wall provided with a door jamb comprising an inwardly extending flange.

11. A combined door-frame and vestibule-forming member comprising an integral

casting made up of a top and bottom rearwardly extending member, a pair of laterally extending members forming portions of the front of the vestibule, and pillars connecting the top and bottom members and forming with such top and bottom members a box-like structure, said structure having a forwardly extending wall provided with a door jamb comprising an inwardly extending flange web-connected with said structure.

12. A safe or vault casting comprising oppositely located plates and pillars connecting said opposed plates, said casting having an integral front projecting forwardly of such plates.

13. A safe or vault casting made up of oppositely located plates and having means for attachment to companion plates of the vault, and pillars connecting said opposed plates, said casting having an integral door jamb formed by a rearwardly extending flange located adjacent to said pillars.

14. A safe or vault casting having means for attachment to companion plates of a vault and made up of oppositely located overhanging plates and laterally extending plates, and pillars connecting said opposed plates, the pillars also being connected to said laterally extending plates.

15. A vault casting made up of oppositely located plates and an integral door jamb, and pillars supporting said opposed plates and located interiorly of the casting between the door jamb and the outer edges of the plates.

16. A vault casting made up of oppositely located plates and an integral door jamb, and pillars supporting said opposed plates and located interiorly of the casting between the door jamb and the outer edges of the plates, said edges carrying means for attaching the structure to companion plates of the vault.

17. A casting for a vault comprising a vestibule having its inner free edges adapted

for attachment to a vault body and having an integral forwardly extending front having an integral door jamb extending transversely to such front.

18. A casting for a vault having its inner free edges adapted for attachment to a vault body and comprising opposed overhanging members, and stiffening means between said members, said casting having an integral forwardly extending front provided with an integral door jamb extending transversely to such front.

19. A member for a vault, comprising a box-like casting having its inner free edges adapted for attachment to a vault body and having a forwardly projecting front provided with an integral door jamb extending rearwardly into such box-like structure and connected at its sides with said structure.

20. A member for a vault, comprising a box-like structure adapted for attachment to a vault body and having in front thereof and integral therewith a vault front having a doorway therein, the jamb of which doorway extends rearwardly into said box-like structure, a part of said box-like structure extending laterally and exteriorly thereof.

21. A combined door frame and vestibule, comprising a casting having a plurality of pillar-stiffened plates and adapted for attachment to the main body of the vault to form therewith a vestibule and having a forwardly projecting vault front provided with an elongated door jamb.

22. A combined door-frame and vestibule, comprising a casting having a plurality of pillar-stiffened plates and means for attachment to the main body of the vault to form a vestibule, and also having a forwardly projecting integral vault front.

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