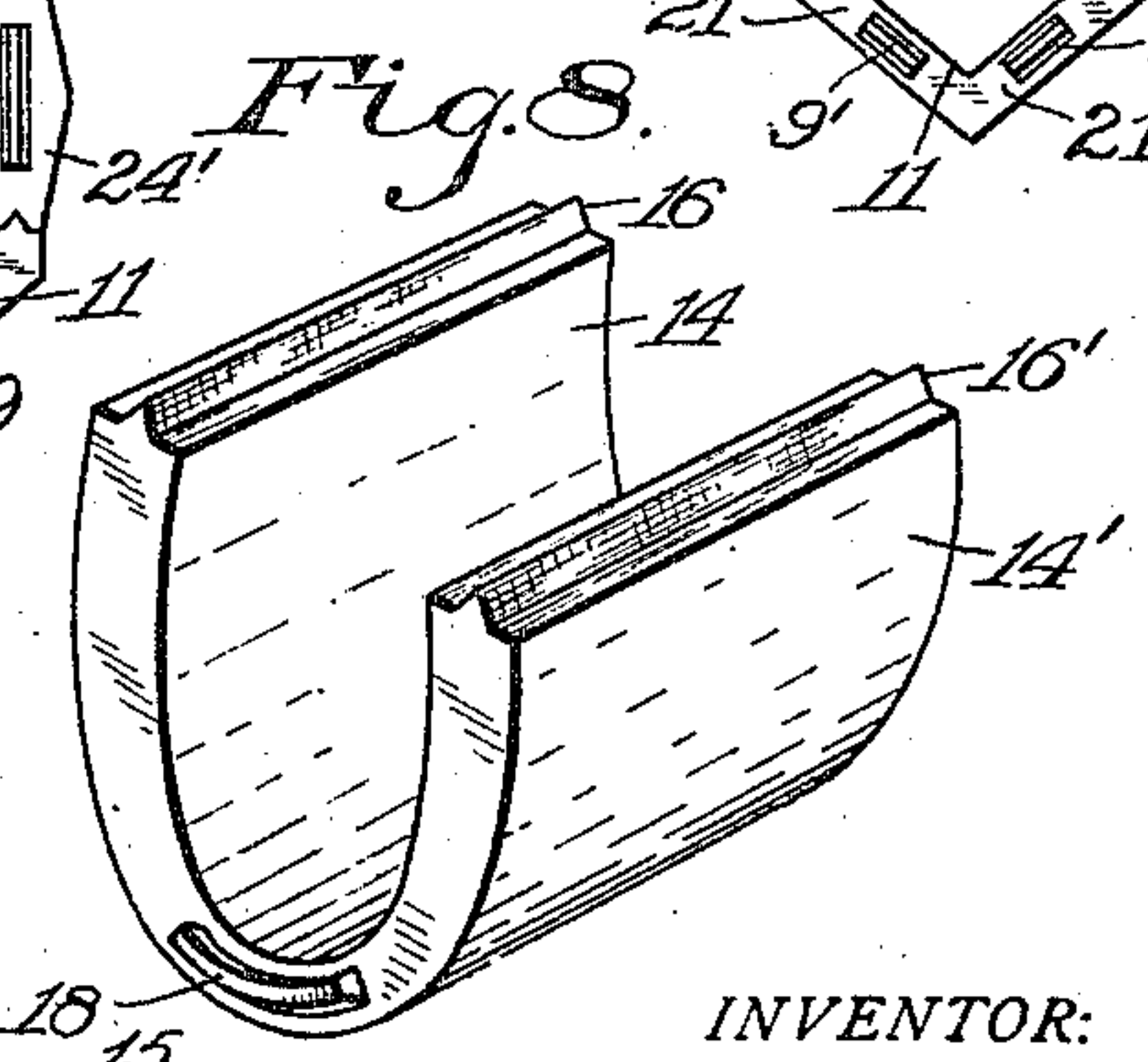
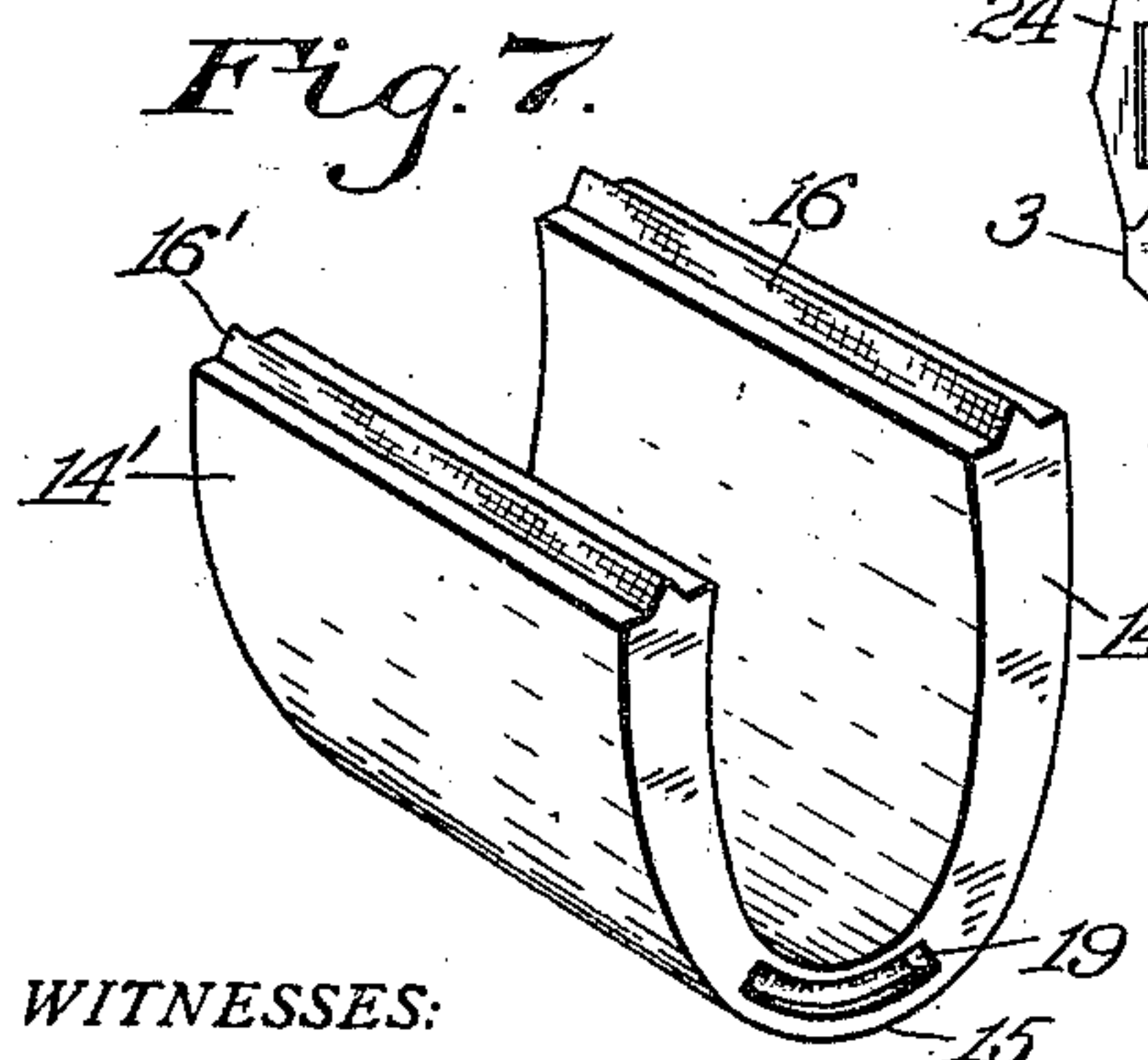
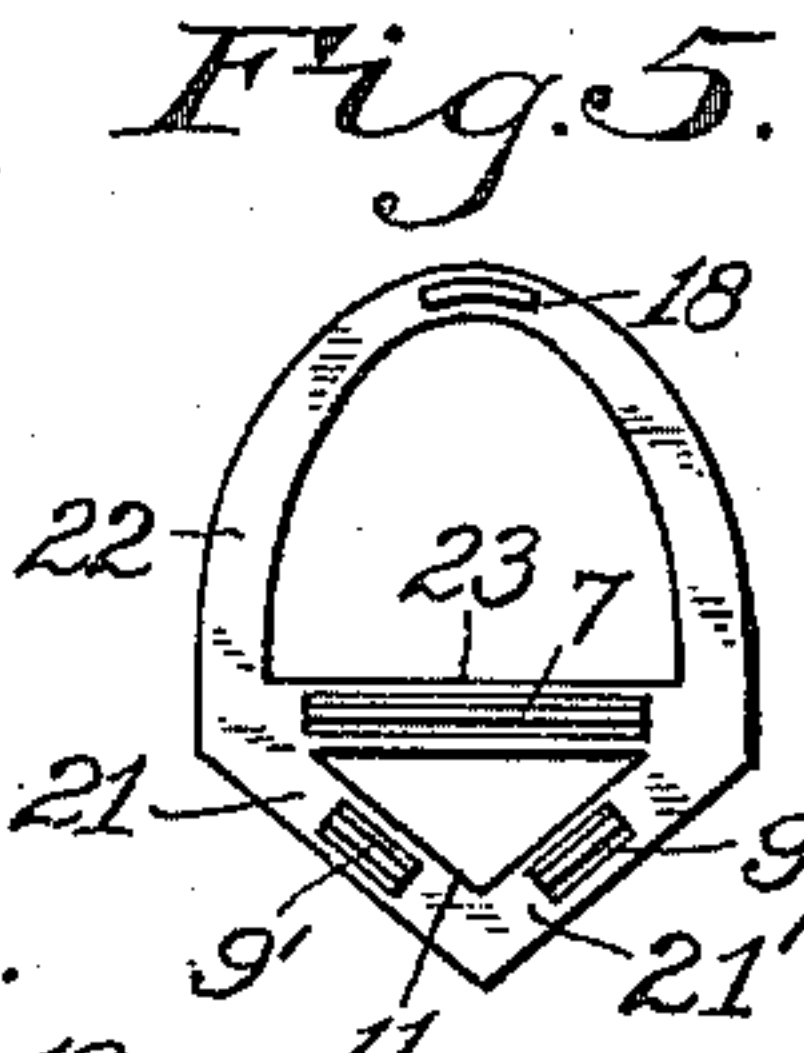
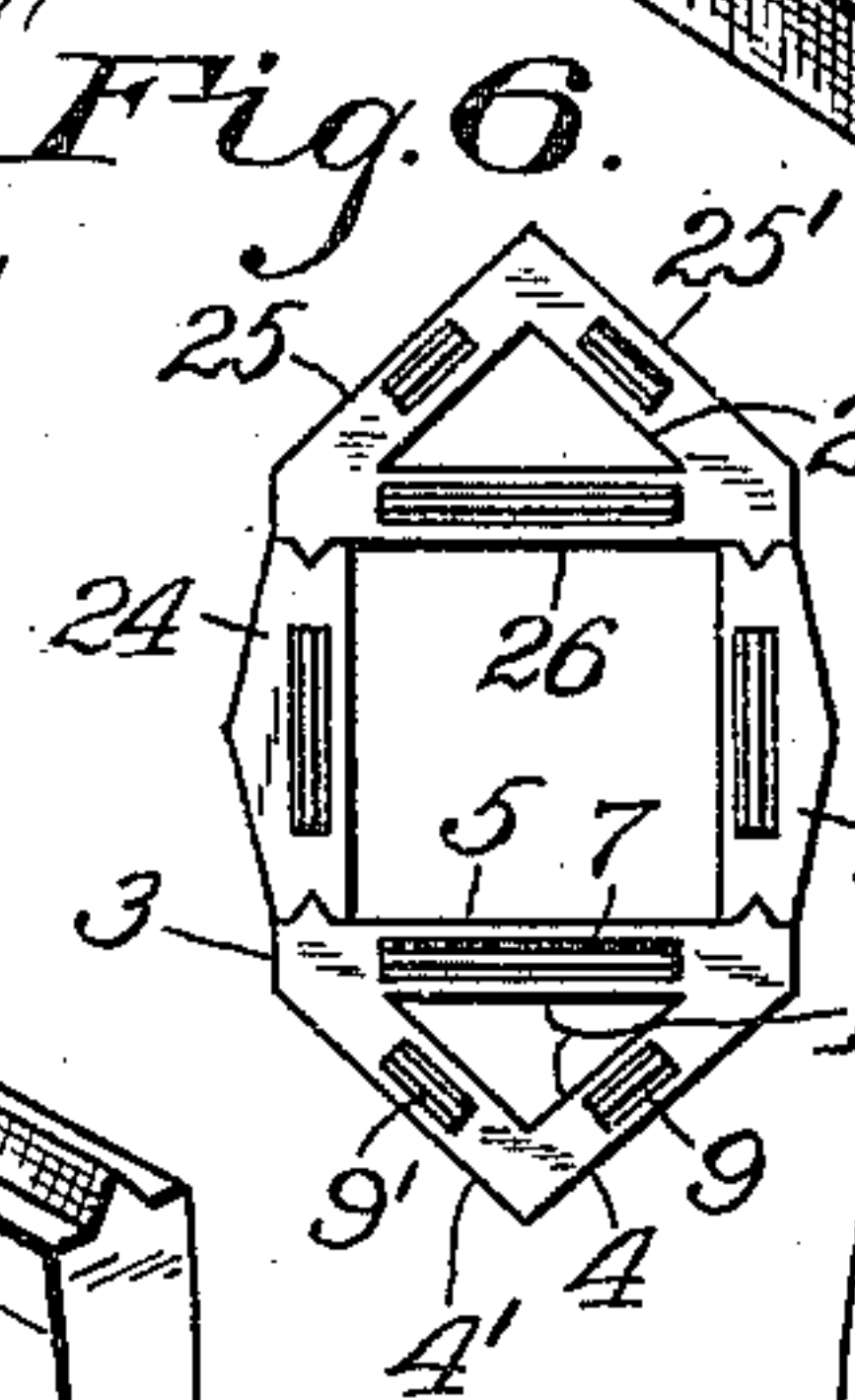
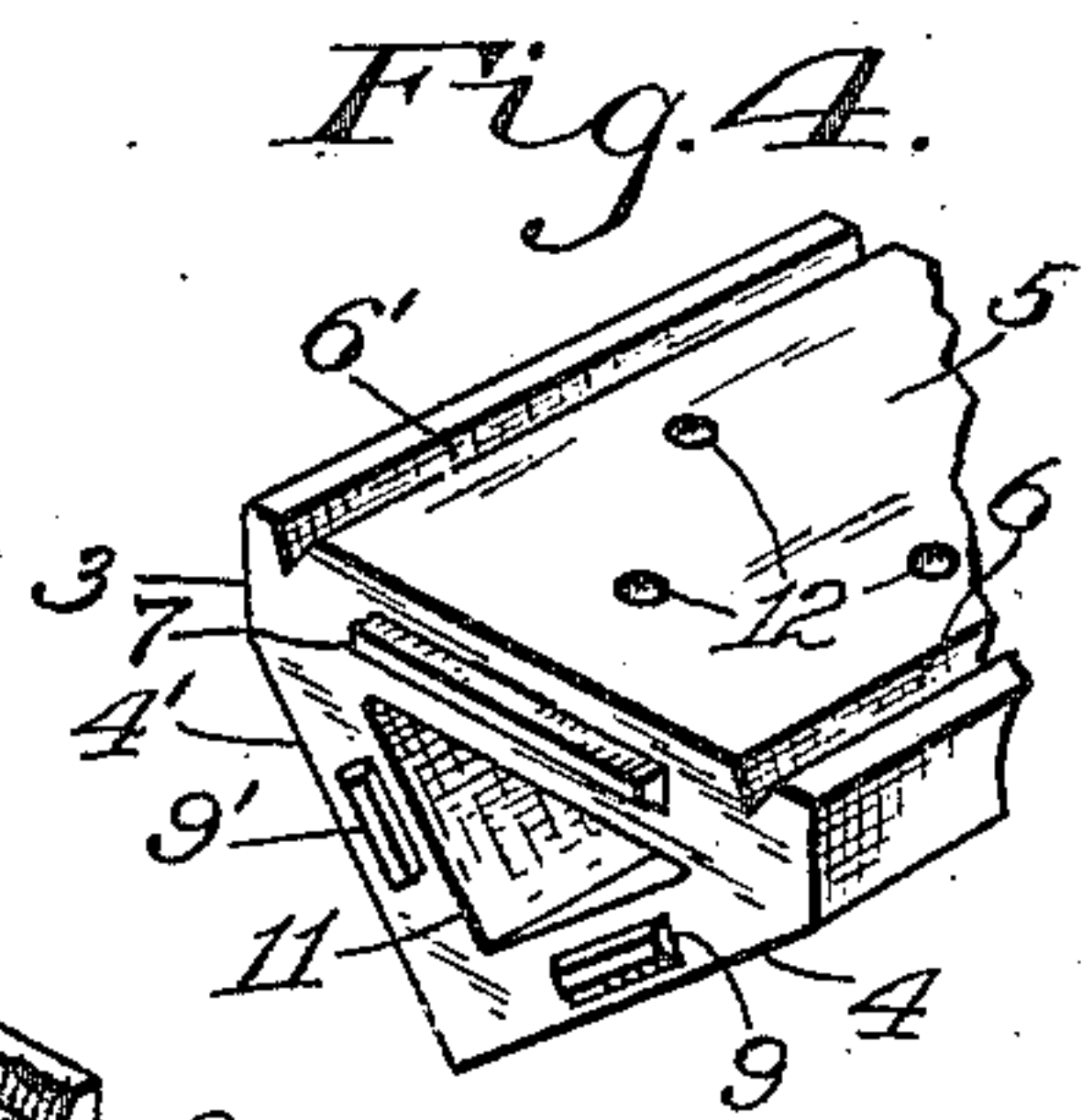
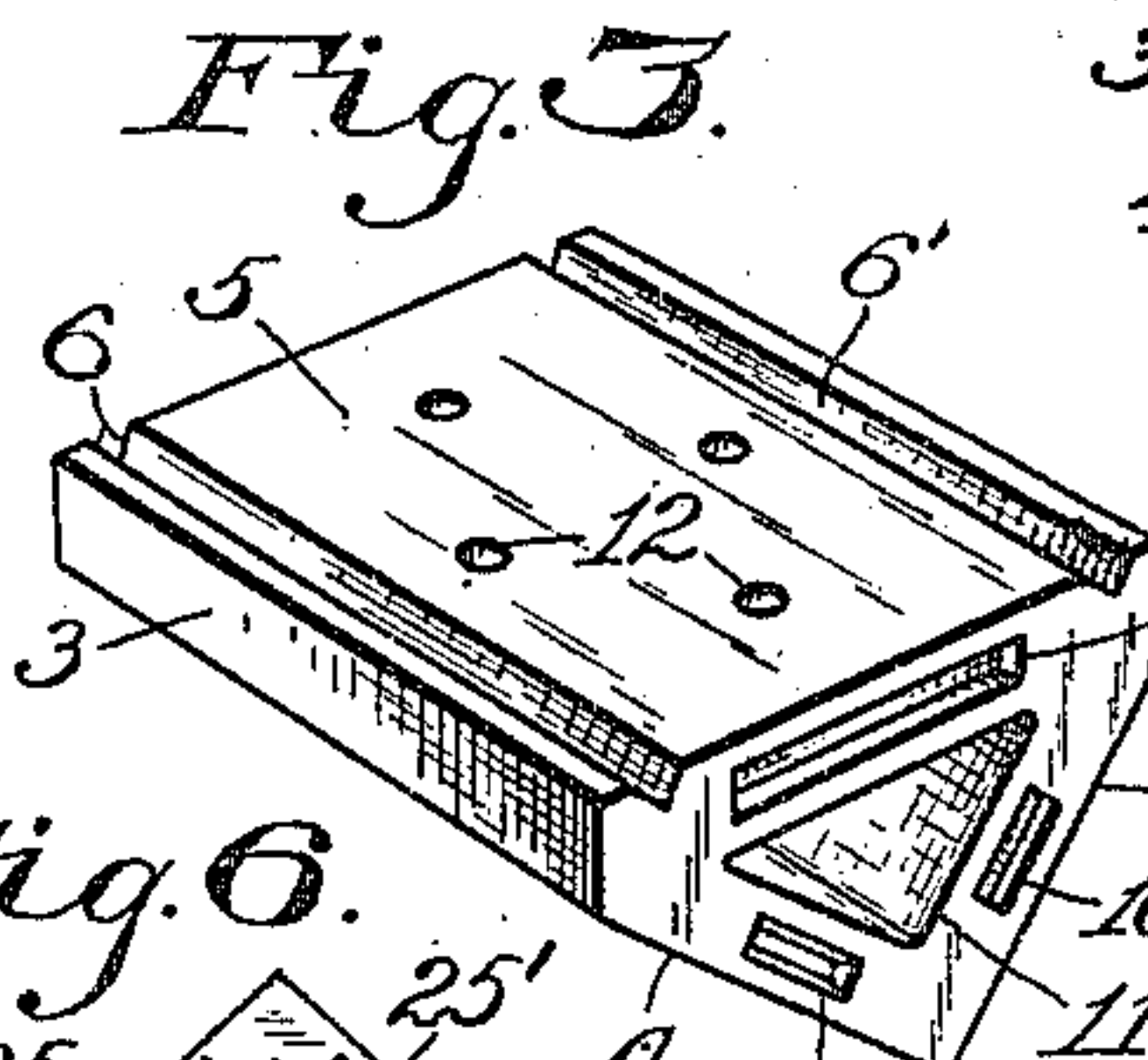
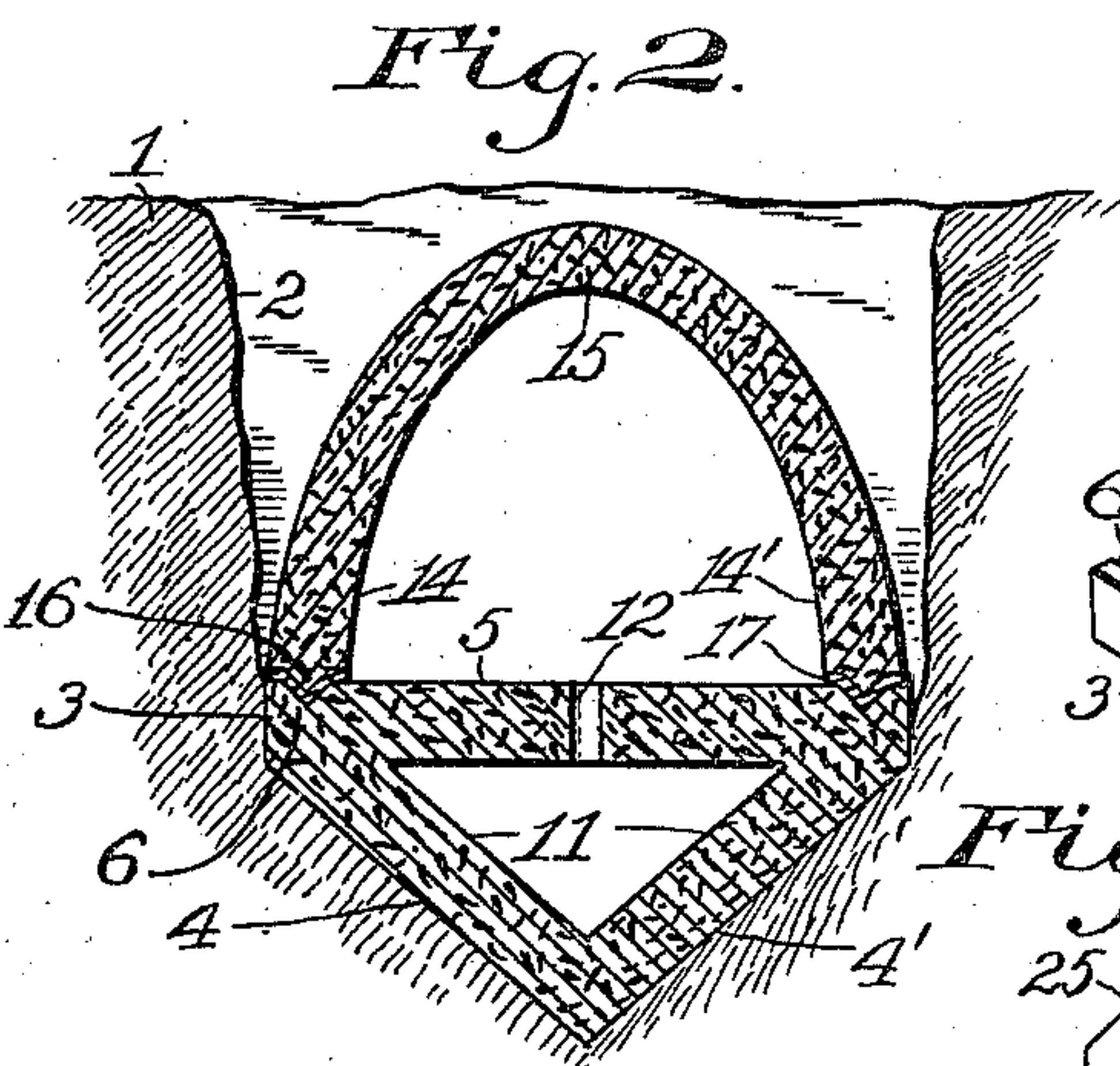
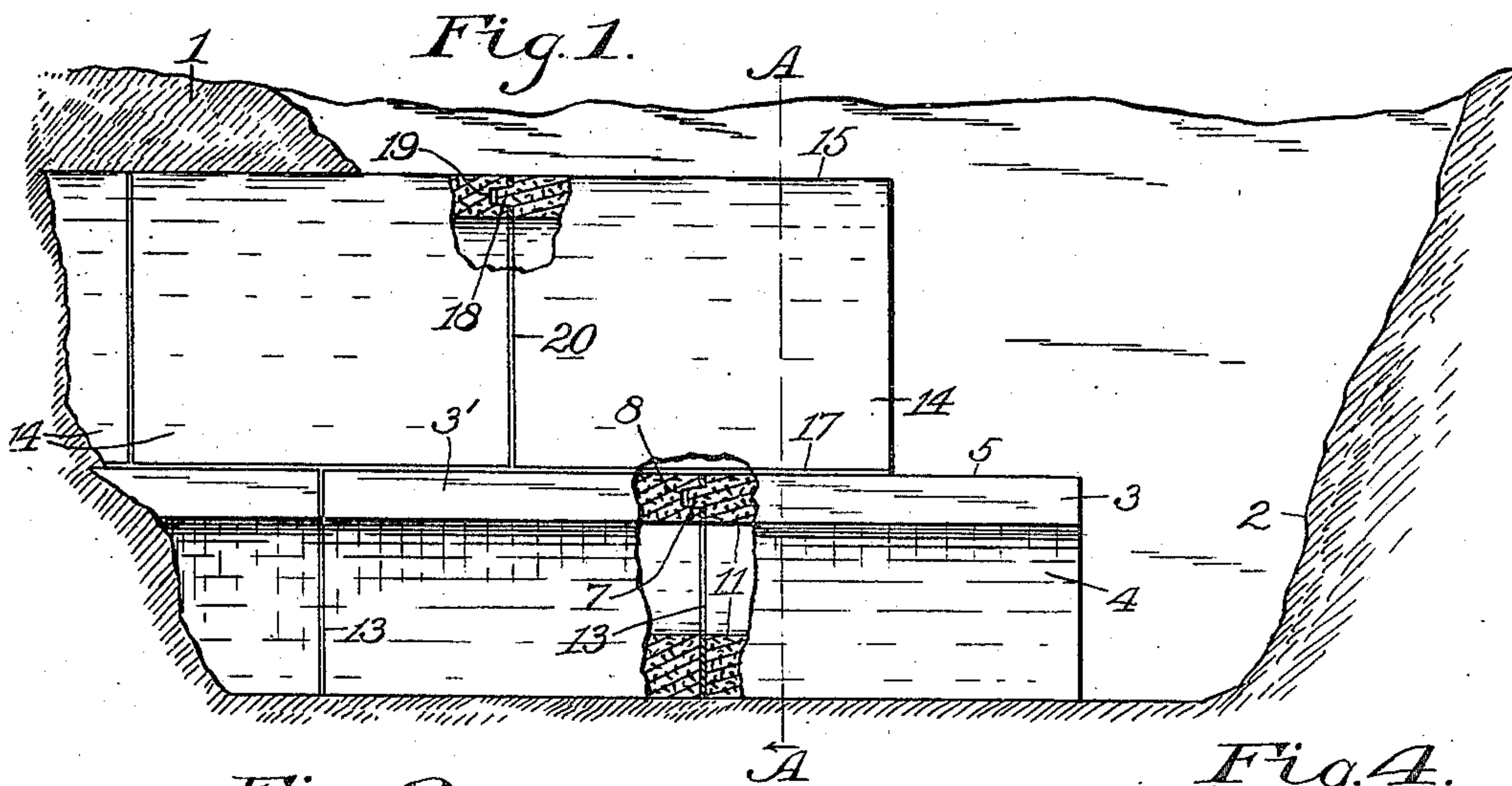


J. L. POTTER.
SEWER CONSTRUCTION.
APPLICATION FILED OCT. 17, 1910.

987,398.

Patented Mar. 21, 1911.



WITNESSES:

J. H. Gardner.
R. R. Woddell.

INVENTOR:

Joseph L. Potter,
BY
E. T. Silvers,
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOSEPH L. POTTER, OF INDIANAPOLIS, INDIANA.

SEWER CONSTRUCTION.

987,398.

Specification of Letters Patent.

Patented Mar. 21, 1911.

Application filed October 17, 1910. Serial No. 587,525.

To all whom it may concern:

Be it known that I, JOSEPH L. POTTER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Sewer Construction; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to the class of sewers that are adapted to be constructed either wholly or partially of concrete sections which may be molded and cured in advance of the construction work of the sewers, the invention having reference more particularly to combination sanitary and storm sewers, and also to the under portions of the sewers.

The object of the invention is to provide improved sewer construction, in the practical application of which time and expense may be saved in the sewer trenches, in which relatively few unskilled laborers may work to the best advantage and accomplish a relatively large amount of work; a particular object of the invention being to provide an improved sewer that will not be liable to crack and spread outward, and which will be adapted to conduct away the seepage water found in many cases in trenches, it being necessary to get rid of such water in order to prevent hindrance of the operations; a still further object being to provide a double-duct sewer, of which one duct may, after completion of the sewer, be used for sanitary drainage and the other for carrying away large volumes of water during rain storms.

With the above-mentioned and minor objects in view the invention consists in improved sewer construction comprising arch sections, and also novel base sections, which preferably are hollow, for supporting the arches or upper portions of the sewer section; and the invention consists further in the novel parts, and combinations and arrangements of parts, as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is a fragmentary section of sewer construction substantially in accordance with the invention; Fig. 2, a transverse section on the plane of the line A A in Fig. 1; Fig. 3, a per-

spective view of one of the base sections showing particularly one end thereof; Fig. 4, a fragmentary perspective view of the base section showing the opposite end thereof; Fig. 5, an end elevation of modified construction; Fig. 6, an end elevation of another modification in construction; Fig. 7, a perspective view of one of the arch sections inverted; and Fig. 8, a perspective view of the arch section reversed and showing clearly the opposite end thereof from that shown in the preceding figure.

Similar reference characters in the different figures of the drawings indicate corresponding parts or features of construction herein referred to.

In practically carrying out the objects of the invention a plurality of sections of suitable length are formed of plastic material in molds, the material preferably consisting of cement and sand with gravel or any suitable substance adapted to be mixed with cement. Preferably the sections comprise lower or base parts and separate upper or main parts; or the upper or main portions of the sewer may be composed of any suitable number of parts or pieces erected upon the base sections.

In the drawings the numeral 1 indicates a section of the earth in which is an excavation 2, and it will be understood that the sewer construction proper is arranged in the excavation and comprises preferably a suitable number of base sections 3, 3', each section being substantially triangular in cross section so that it has inclined under sides 4 and 4' which diverge from the extreme lower portion of the section upwardly nearly to the upper portion of the section, the under side of the section, therefore, having flat seat faces which firmly support the section and prevent shifting while being erected. Each section has a substantially flat top or upper side 5 upon which the main portion of the sewer is arranged either integrally with the base section or otherwise, as may be described. The upper side 5 of each section preferably has two longitudinal grooves 6 and 6' therein arranged near opposite edges of the section. One end of each section has a projection 7 thereon which extends horizontally near the top of the section, the opposite end of the section having a correspondingly arranged recess 8 therein to receive the projection of an abutting section. Also one end of each section has other projections 9, 9', thereon near the lower por-

tion of the section, the opposite end of the section having correspondingly arranged recesses 10, 10', to receive the projections 9, 9', of an abutting section. Preferably each section has a duct 11 which extends longitudinally therethrough which may serve to carry away seepage water during construction or may serve permanently for sewerage purposes. Preferably the upper portion of each base section has a suitable number of apertures 12 therein affording communication between the main sewer conduit and the conduit in the base section.

The base sections are placed end to end in the trench and tight joints formed by means of mortar or cement 13, being securely locked together against lateral displacement by means of the end projections entering the end recesses. The upper or main portion of the sewer structure preferably comprises concrete arch sections which are each of the same length as a base section and are substantially inverted U-shape in cross section, so as to constitute side wall portions 14 and 14' and a roof portion 15 integral therewith, the bottoms of the portions 14 and 14' being arranged upon the upper portion of the base sections at the edges thereof and having longitudinal tongues 16 and 16' thereon entering the grooves 6 and 6' respectively, the joints preferably having mortar or cement 17 therein. One end of each arch or main section has a projection 18 thereon and the opposite end of the section has a recess 19 therein to receive the projection 18 of an abutting section, the joints of the sections being rendered water tight by means of mortar or cement 20. Preferably the joints of the upper or main sections are arranged in planes intermediately of the joints of the base sections, in order to obtain the maximum strength in a complete structure.

In some cases, especially for relatively small sewers, the base and main portions of the sewer sections are molded so as to be integral as illustrated in Fig. 5, so that there are two bottom slabs 21 and 21' diverging upwardly and an arch 22 on the upper ends of the slabs, and a horizontal slab 23 tying the upper ends of the base slabs and the lower portions of the arch together.

When it is desired to construct a sewer with vertical sides and flat roof so as to be rectangular in cross-section the separate base sections are employed on which are erected vertical side walls 24 and 24' and base sections inverted and placed upon the side walls so that thereby a comb shaped roof is formed having sloping sides 25 and 25', and a flat ceiling 26, above which is a duct 27 which may be utilized as may be desired, as shown in Fig. 6.

While constructing the sewer, it will be understood, the seepage water may be con-

ducted away through the duct 11 and the expense of pumping out the water avoided. It will be understood also that in some cases it may be desirable to omit some of the cement 13 at the lower portions of the base sections, to permit seepage water to enter the duct 11 when there is excessive water in the ground and firm foundation not liable to settle with the decrease in the volume of the underground water. In some cases the apertures 12 may be desirable in order to afford communication between the main and base ducts so that the lower duct may serve as a catch basin for the upper one, and in some cases if either duct becomes temporarily choked the water may pass through the apertures and around the obstruction until the latter is removed, it being understood that suitable facilities for clearing the sewer of obstructions will be found desirable as usual.

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

1. A sewer comprising base sections having each a triangular external contour in cross-section, the sections having flat tops and joined together, and main sections upon the flat tops of the base sections and joined together, the main sections extending across the joints between the base sections.

2. A sewer including a plurality of abutting base sections having flat upper faces, the sections being triangular externally in cross-section, a plurality of abutting main or arch sections upon the base sections, and means for interlocking all the sections together against lateral movement relatively one to another.

3. A sewer including a lower or base portion having a flat top and also a bottom side comprising upwardly diverging seat faces, the top having longitudinal grooves therein near opposite edges thereof, side walls on the base having tongues inserted in the grooves, and a roof portion on the side walls.

4. A sewer comprising base sections having each a flat top and also a longitudinal duct therein, the top thereof having an aperture therein, and a main structure constituting a main sewer upon the top of the base sections and in communication with the apertures that are in the top of the base sections.

5. A sewer structure including a lower base or foundation having greater vertical thickness intermediate the longitudinal sides thereof than at the sides, for bracing the relatively thinner side portions, and a main sewer structure supported upon said side portions.

6. A sewer comprising base sections having each a triangular external contour in cross-section, the tops being flat and joined together and having longitudinal guides extending along the edge portions thereof, and

an arch structure supported upon said edge portions and covering and locked to said guides.

7. A sewer structure comprising abutting
5 base sections having flat upper sides and
braces extending downward from the edge
portions of the upper sides to the plane of
the sections intermediate the edge portions,
and an arch structure on the side portions
10 of said base sections.

8. A sewer structure comprising hollow
abutting base or foundation sections having
substantially flat upper sides, the sections

having greater vertical depth intermediate
the longitudinal sides thereof than at the 15
sides, abutting main or arch sections on the
base or foundation sections, and means for
interlocking all the sections together against
lateral movement relatively one to another.

In testimony whereof, I affix my signa- 20
ture in presence of two witnesses.

JOSEPH L. POTTER.

Witnesses:

P. A. HAVELICK,
E. T. SILVIUS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
