

J. B. JARMIN.
METAL CULVERT.
APPLICATION FILED FEB. 8, 1909.

983,623.

Patented Feb. 7, 1911.

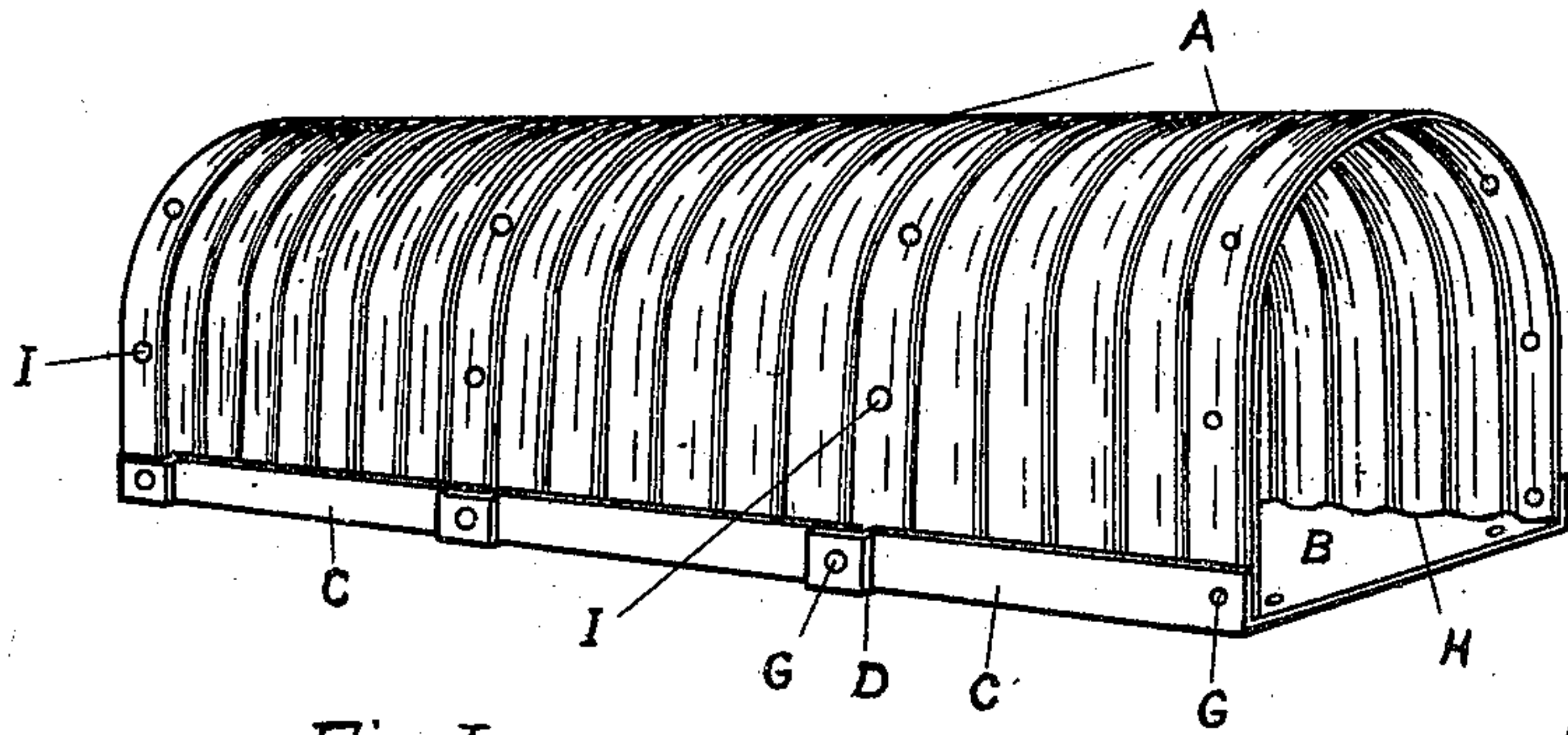


Fig. I

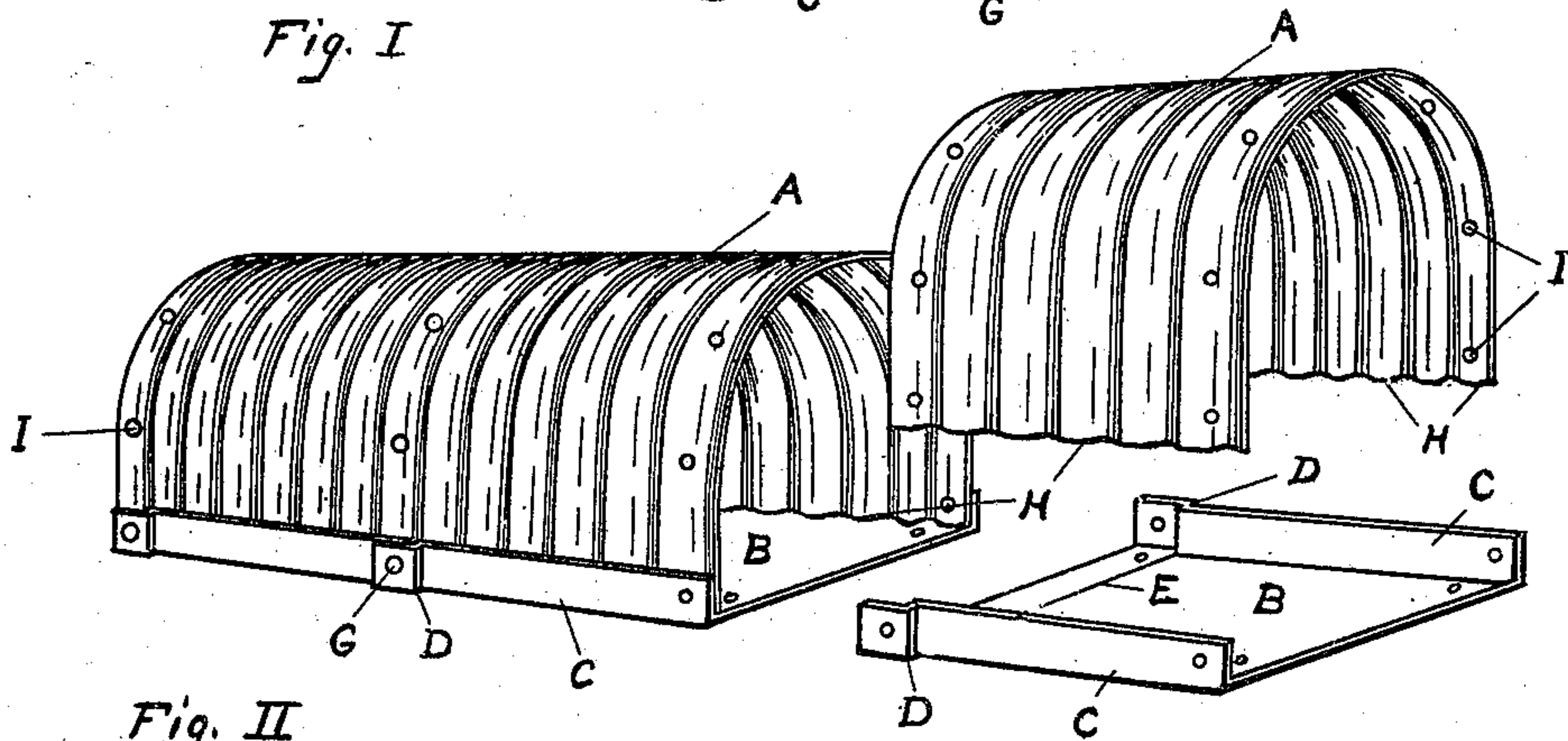


Fig. II

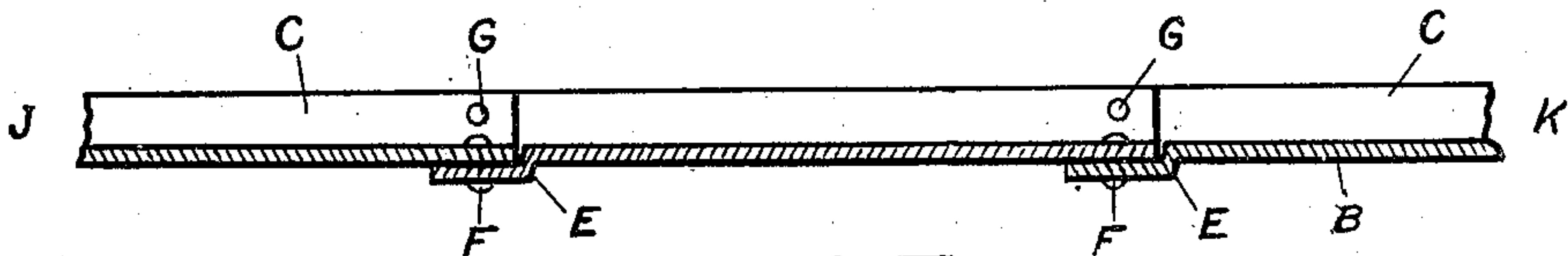


Fig. III

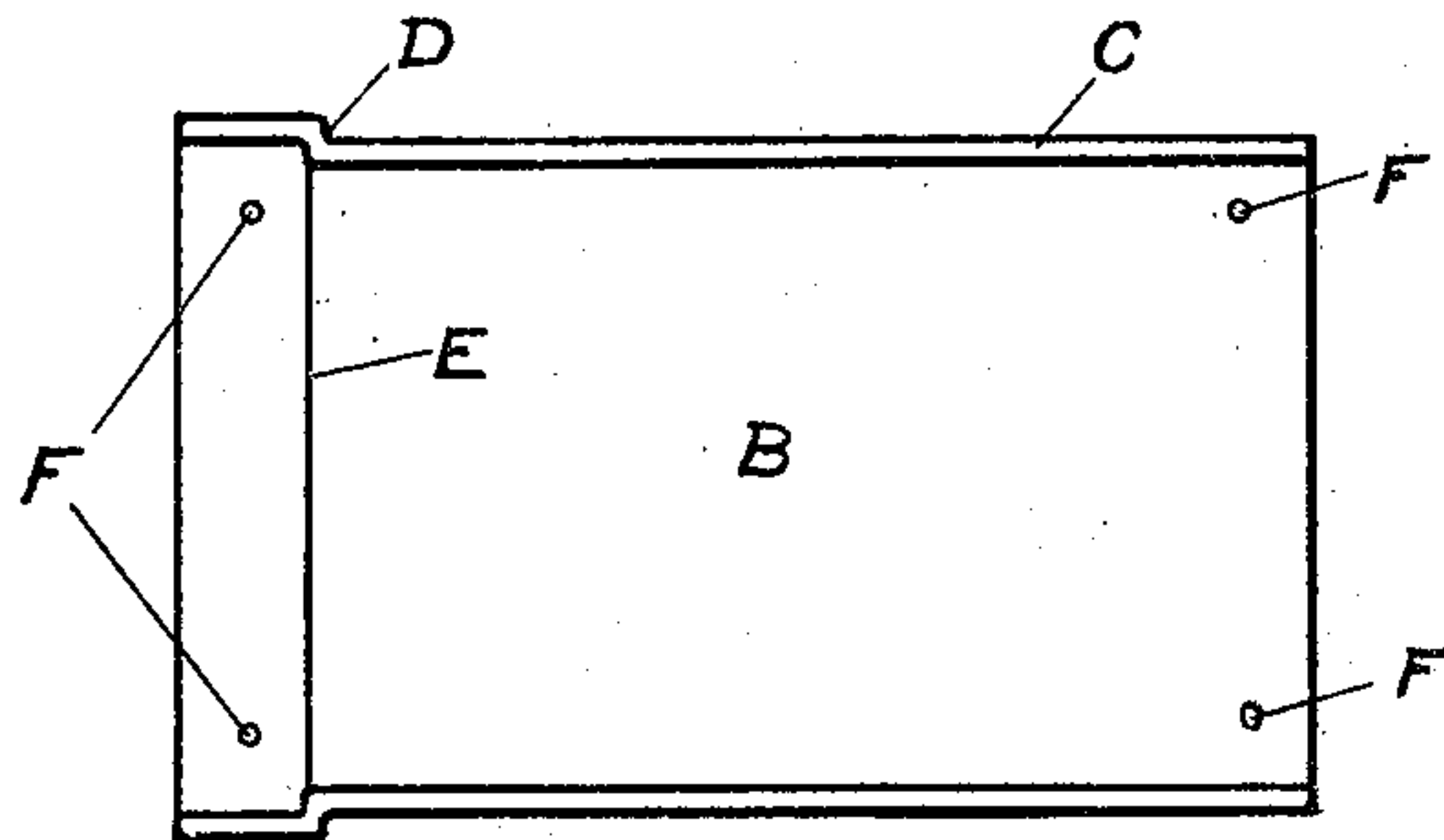


Fig. IV

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METAL CULVERT.

983,623.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES B. JARMIN, a citizen of the United States, residing at 1908 Broadway avenue, in the city of Spokane, county of Spokane, State of Washington, have invented a new and useful Metal Culvert, of which the following is a specification.

The object is to provide a metal culvert pipe having a flat bottom and a curved top of a general semi-cylindrical shape, both the top and bottom portions of which are made of short sections so joined together and in sufficient numbers to form a completed culvert pipe and so arranged that the inside of the bottom will be smooth and free from any obstruction and serve as a base upon which the lower edges of the upper portion may rest, said bottom having flanges along the edges thereof to which flanges the lower edges of the upper portion are bolted, all parts being nestible for the purpose of easy transportation to the place of erection. I attain this object by the novel composition and arrangement of parts as hereinafter fully described and illustrated in the accompanying drawing in which:—

Figure I. is a perspective view of an assembled pipe. Fig. II. shows a completed pipe in process of assembling at the place of erection. Fig. III. is a cross section of several bottom plates, when assembled, ready for the top portion to be attached thereto. Fig. IV. is a detailed top view of one of the sections of bottom.

The pipe may be constructed of any suitable metal and the top may be either plain or corrugated, the general form of the culvert being the same in either case but for the purpose of illustration Figs. I and II show the top portion made of corrugated metal and the bottom of plain metal.

Bottom B as shown in Figs. III and IV has a flange C along each side. These flanges may be of any desired height but that of two inches will probably be sufficient. At D flange C is offset as shown in Fig. IV and this for the reason that another section of bottom may fit therein and the two be bolted or riveted together at points G and F, this method making the inside of flanges C C perfectly straight and without projections; or projections on outside of flanges C C may also be avoided if flanges C C be cut off at points D D. Bottom B also has a shoulder

or offset along line E thus giving the inside of the bottom a perfectly smooth surface as shown in Fig. III, the two sections of bottom B being riveted or bolted at F F. If desired, more rivets or bolts may be used between points F F, thus making joints of bottom sections B B tighter and stronger.

Top A is of a general semi-cylindrical or circular shape as shown in Figs. I and II and the bottom edges thereof H H are cut or made smooth and straight and rest upon bottom B as shown and are secured to flanges C C at points G G by means of bolts or rivets and at as many other points along said flanges C C as may be deemed necessary. The lower edges of top A being inside of flanges C C and bolted to same, it is impossible for the top A to spread or contract when pressure is brought to bear thereon by filling material. Top A may be composed of as many sections as desired joined as shown in Fig. I by rivets or bolts at points I but this joint need not be placed or disposed directly over the joints of bottom plates B but may be so placed or disposed that the joints of the top A and the joints of the bottom B will be broken or staggered thus giving the pipe greater strength.

Ordinarily water will flow through the culvert in a direction from J to K as shown in Fig. III but may flow either way and bottom joints at line E may be made water tight by the use of a greater number of bolts or rivets.

The culvert having a flat bottom, it is a very easy matter to prepare a suitable bed on which to place the same and, when in place, it is also very easy to properly tamp filling material about and over the same, there being no pockets or points where tamping is not possible. The joint in bottoms B B at line E tends to stiffen the same and give to the bottom of the culvert greater strength. Offset E may be on the inside of the bottom B if a corresponding portion of lower edges H H be removed. If metal used is of the thin sheet variety the offsets D and E may be dispensed with as the natural spring of the metal will take their place and the thickness thereof will be so small as not to interfere with the proper assembling and use of the culvert. If corrugated metal is used to form the top section as is shown in Figs. I and II, at the point where top A adjoins top edges of flanges C C, regular

openings corresponding to the corrugations will appear between flanges C C and top A but these will be in no way detrimental as they will fill with dirt when pipe is tamped
5 into position and this dirt will have a tendency to make joint at point H water tight.

The drawings show sections of top and bottom made in lengths of about two feet but they may be made of any desired length.

10 The use of the flat bottom gives to this culvert carrying capacity much greater than that of a round pipe, gives great stability and the general shape is such that it will carry a great load without displacement.

15 My claims are as follows:

1. A culvert comprising a series of lower sections each of plate form having up-standing side flanges with lateral offsets at one end and also having between said offsets a
20 depressed flange at one end so arranged that the opposite end of said base will engage the depressed end flange of an adjacent section when placed in position and the lateral offsets in the adjacent base, means for rigidly
25 securing the base sections together, a series of top sections formed of corrugated metal the lower edges thereof designed to engage the inner sides of the up-standing flanges of the base and so arranged that the
30 ends of the corrugated top sections will overlap one corrugation of the adjacent section, and means for securing the top sections in position relative to the adjacent top section and to the base in such a way that the upper
35 portions of the base of the sections of bases will be substantially in line throughout the entire length of the completely formed culvert and a smooth bottom formed thereby, said side flanges of the different sections also
40 being in line so that the sides of the various base sections will be substantially in alinement with each other to receive the upper sections when placed in position.

2. In a culvert, a lower section of plate
45 form having up-turned side flanges with lateral offsets at one end and a depressed flange between said offsets designed to receive the opposite end of a mating section and so constructed that when the mating
50 end of the opposite section is placed upon said depressed end flange and between said lateral offsets the upper portions of the bottoms of the two sections will be substantially in alinement with each other as well as the
55 inner surfaces of the up-turned side flanges, and curved corrugated top sections designed to be secured together at their adjacent ends and also secured to the up-turned flanges of the bases.

60 3. In a culvert, a lower section of plate form having up-turned side flanges with lateral offsets at one end and a depressed flange between said offsets designed to receive the opposite end of a mating section
65 and so constructed that when the opposite

end of the mating section is placed upon said depressed end flange and between said lateral offsets the upper portions of the bottoms of the two sections will be substantially
70 in alinement with each other as well as the inner surfaces of the up-turned side flanges, curved corrugated top sections designed to be secured together at their adjacent ends and also secured to the up-turned flanges of the bases, and means for securing the bases
75 together.

4. In a culvert, a lower section of plate form having up-turned side flanges with lateral offsets at one end and a depressed flange between said offsets designed to receive the opposite end of a mating section
80 and so constructed that when the opposite end of the mating section is placed upon said depressed end flange and between said lateral offsets the upper portions of the bottoms of the two sections will be substantially
85 in alinement with each other as well as the inner surfaces of the up-turned side flanges, curved corrugated top sections designed to be secured together at their adjacent ends
90 and also secured to the up-turned flanges of the bases, means for securing the bases together, and means for securing the bases and top sections together.

5. In a culvert, a lower section of plate
95 form having up-turned side flanges with lateral offsets at one end and a depressed flange between said offsets designed to receive the opposite end of a mating section and so constructed that when the opposite end of the
100 mating section is placed upon said depressed end flange and between said lateral offsets the upper portions of the bottoms of the two sections will be substantially in alinement with each other as well as the inner surfaces
105 of the up-turned side flanges, curved corrugated top sections designed to be secured together at their adjacent ends and also secured to the up-turned flanges of the bases, and means for securing the top sections to-
110 gether.

6. In a culvert, a lower section of plate form having up-turned side flanges with lateral offsets at one end and a depressed flange between said offsets designed to receive the
115 opposite end of a mating section and so constructed that when the opposite end of the mating section is placed upon said depressed end flange and between said lateral offsets the upper portions of the bottoms of the two
120 sections will be substantially in alinement with each other as well as the inner surfaces of the up-turned side flanges, curved corrugated top sections designed to be secured together at their adjacent ends and also se-
125 cured to the up-turned flanges of the bases, means for securing the top sections together, and means for securing the base sections together.

7. A culvert comprising a series of lower 130

sections each of plate form having up-standing side flanges with lateral offsets at one end and also having between said offsets a depressed flange at one end so arranged that the opposite end of said base will engage the depressed end flange of an adjacent section and the lateral offsets in the adjacent base when placed in position, means for rigidly securing the base sections together, a series of top sections the lower edges thereof designed to engage the inner sides of the up-standing flanges of the base and so arranged that the ends of the top sections will overlap, and means for securing the top sections in position relative to the adjacent top section and to the base in such a way that the upper portions of the base of the sections of bases will be substantially in line throughout the entire length of the completely formed culvert and a smooth bottom formed thereby, said side flanges of the different sections also being in line so that the sides of the various base sections will be substantially in alinement with each other to receive the upper sections when placed in position.

8. A culvert comprising a series of lower sections each of plate form having up-standing side flanges with lateral offsets at one end and also having between said offsets a depressed flange at one end so arranged that the opposite end of said base will engage the depressed end flange of an adjacent section

when placed in position and the lateral offsets in the adjacent base, means for rigidly securing the base sections together, a series of top sections the lower edges thereof designed to engage the inner sides of the up-standing flanges of the base and so arranged that the ends of the top sections will overlap, means for securing the top sections in position relative to the adjacent top section and to the base in such a way that the upper portions of the base of the sections of bases will be substantially in line throughout the entire length of the completely formed culvert and a smooth bottom formed thereby, said side flanges of the different sections also being in line so that the sides of the various base sections will be substantially in alinement with each other to receive the upper sections when placed in position, means for securing the top and bottom portions of each section together, and means for securing the complete sections together.

9. As a new article of manufacture, a metal culvert base or metal section of plate form having up-standing side flanges with lateral offsets at one end and also having between said offsets a depressed end flange.

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Witnesses:

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