

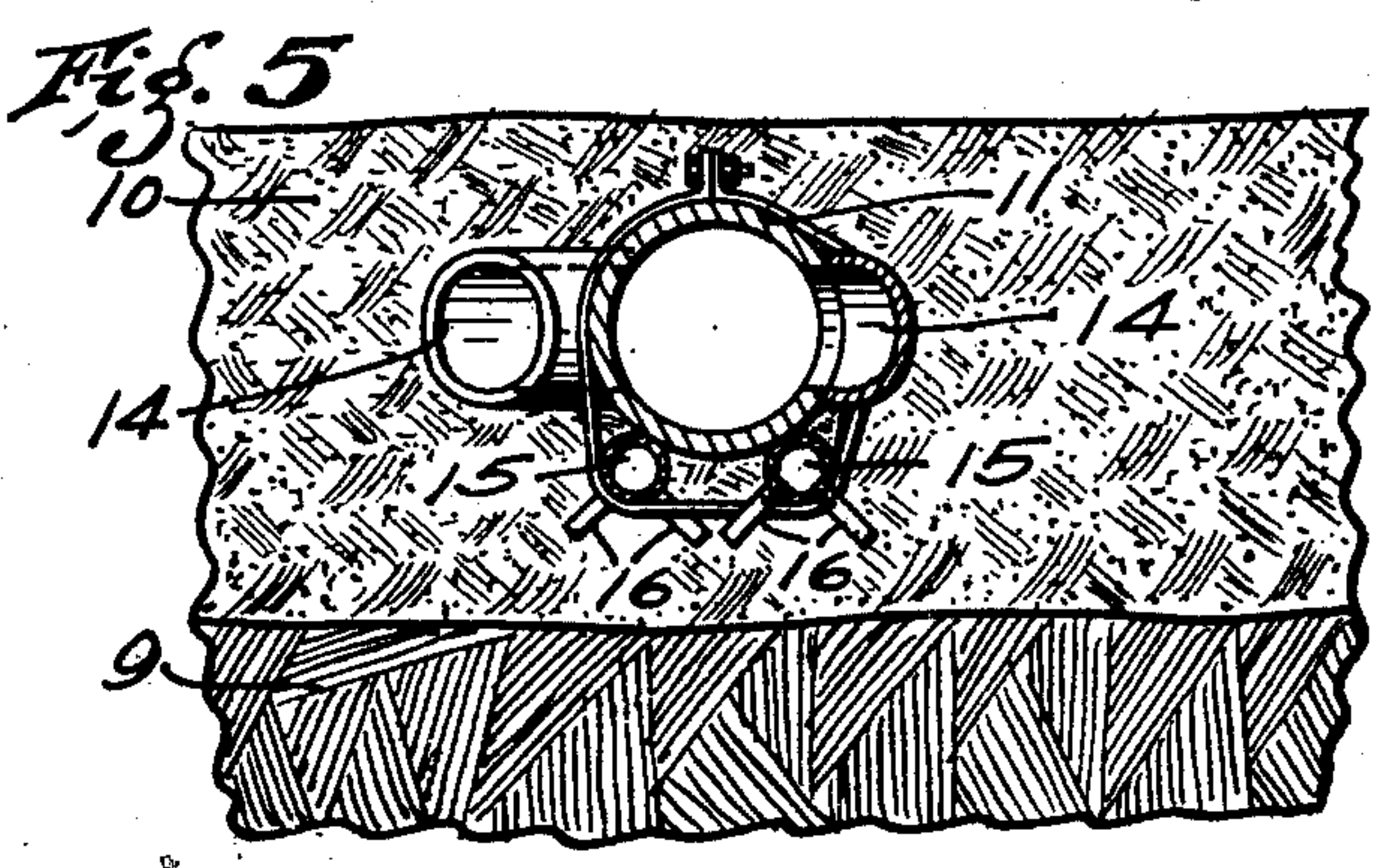
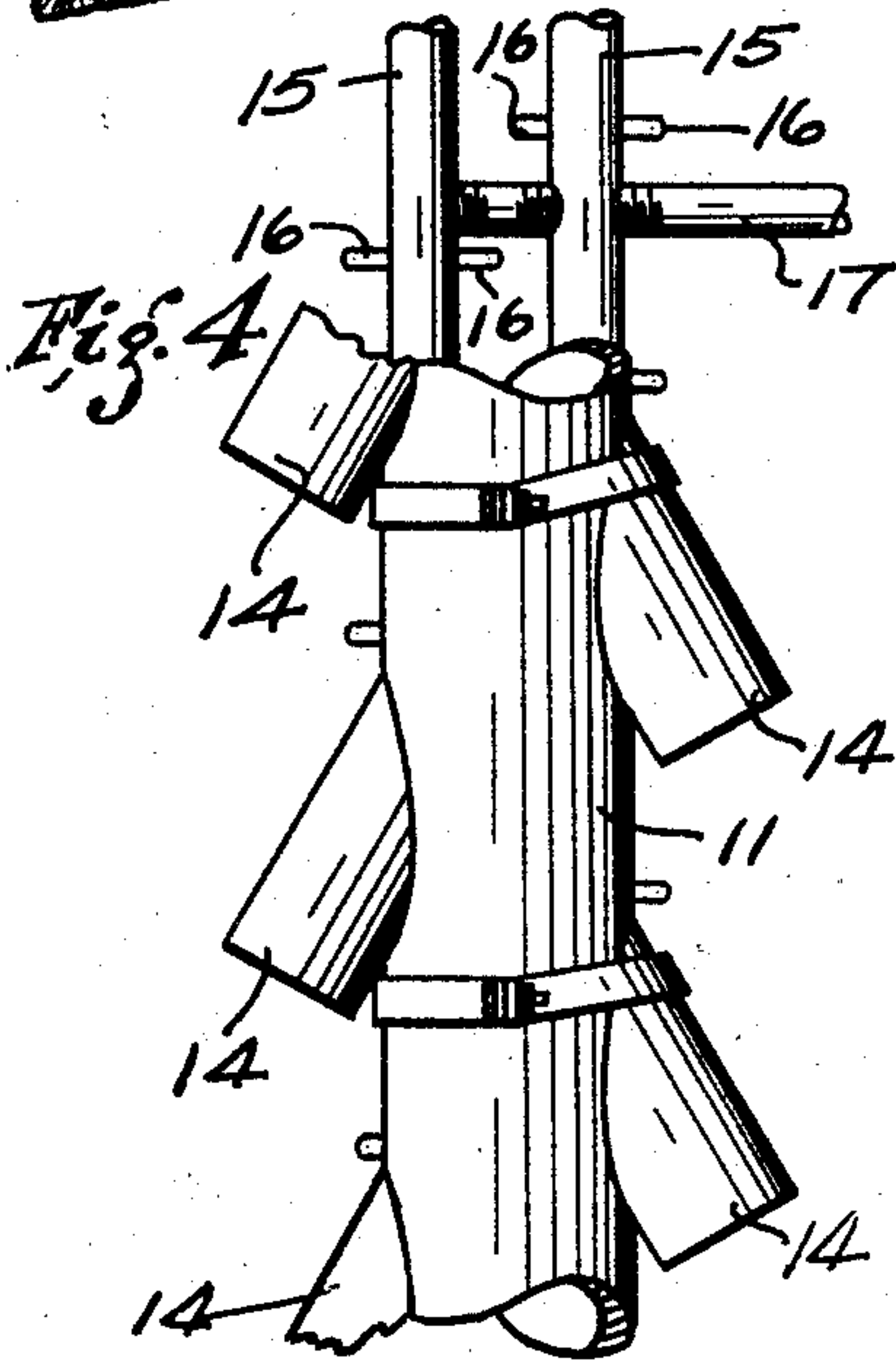
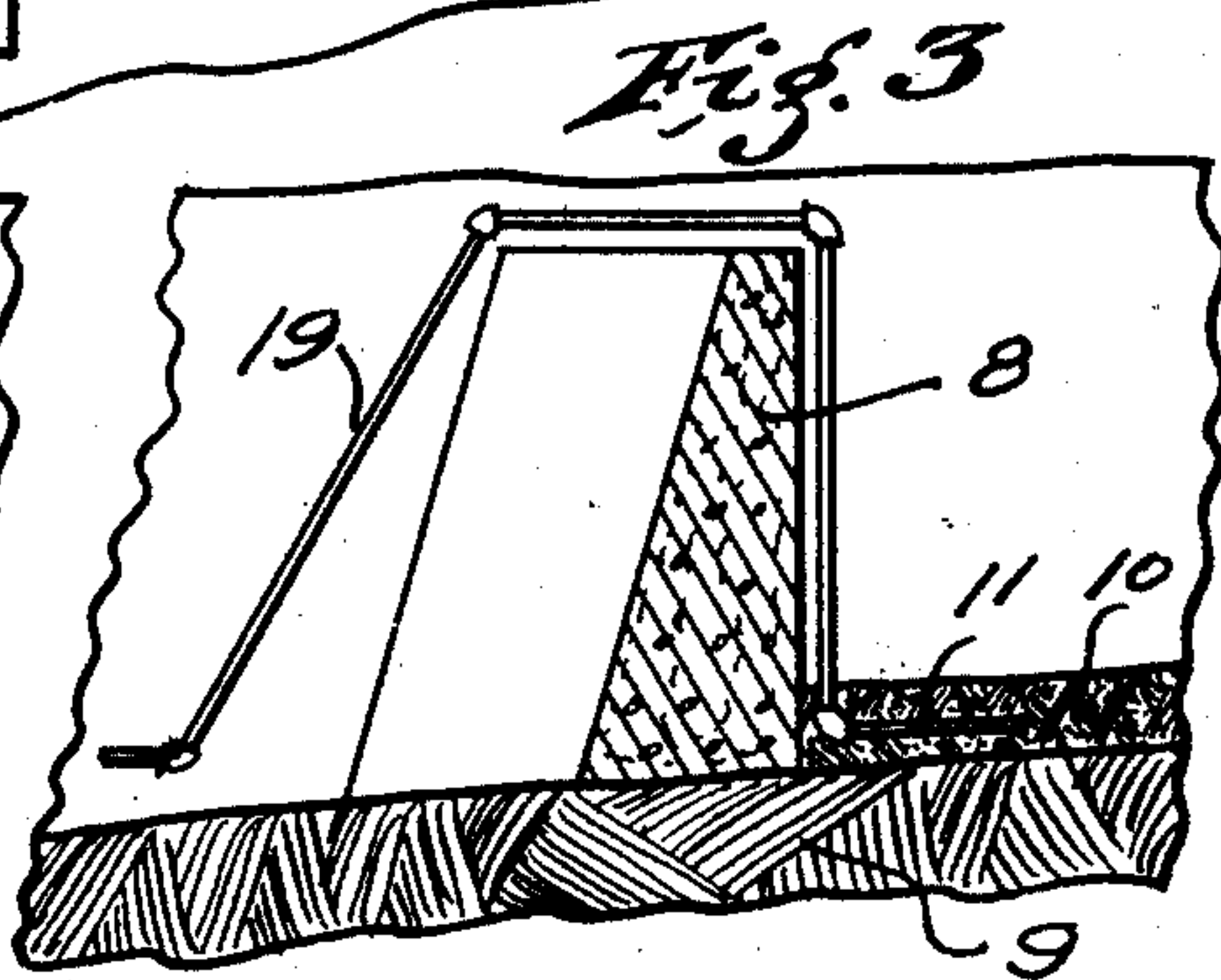
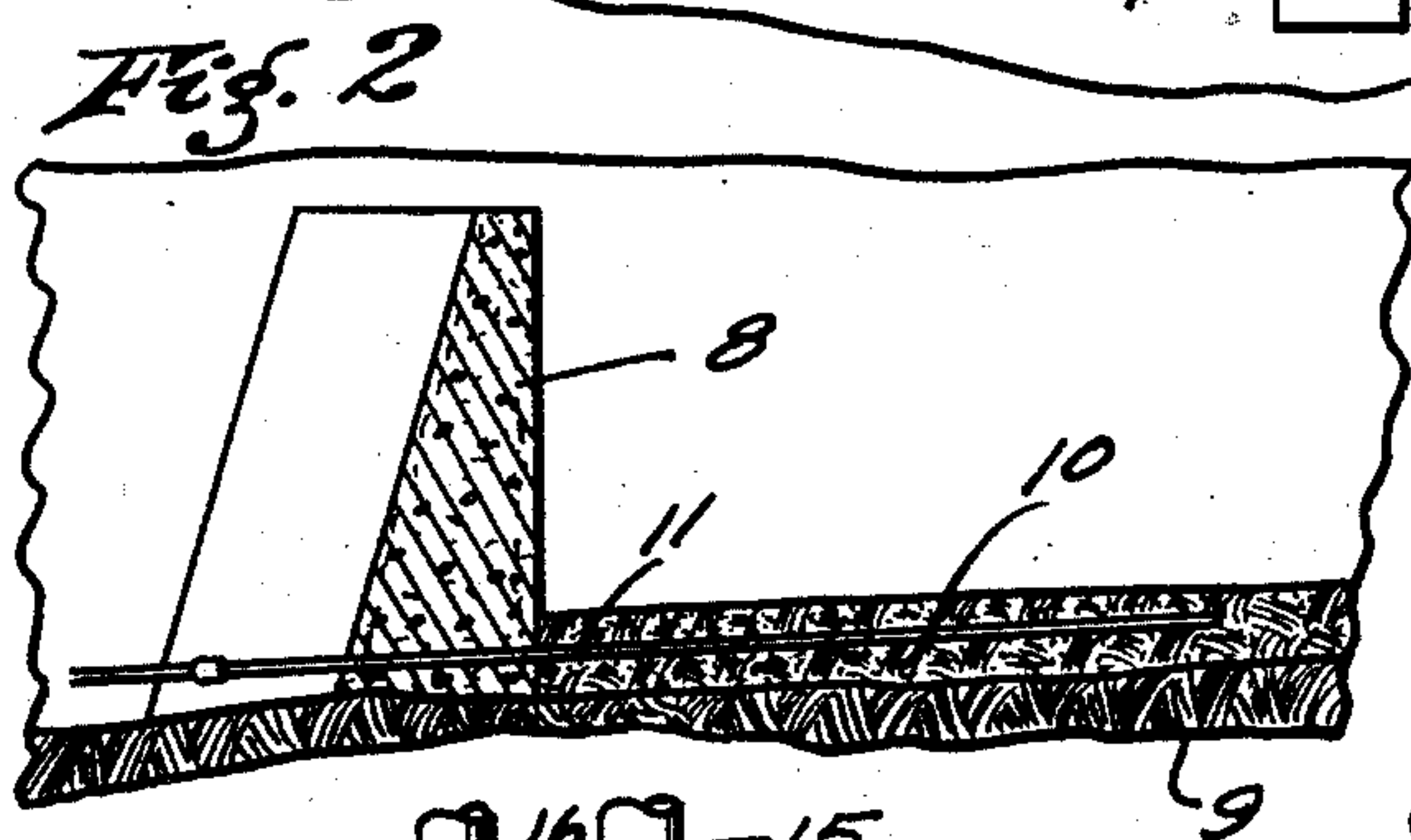
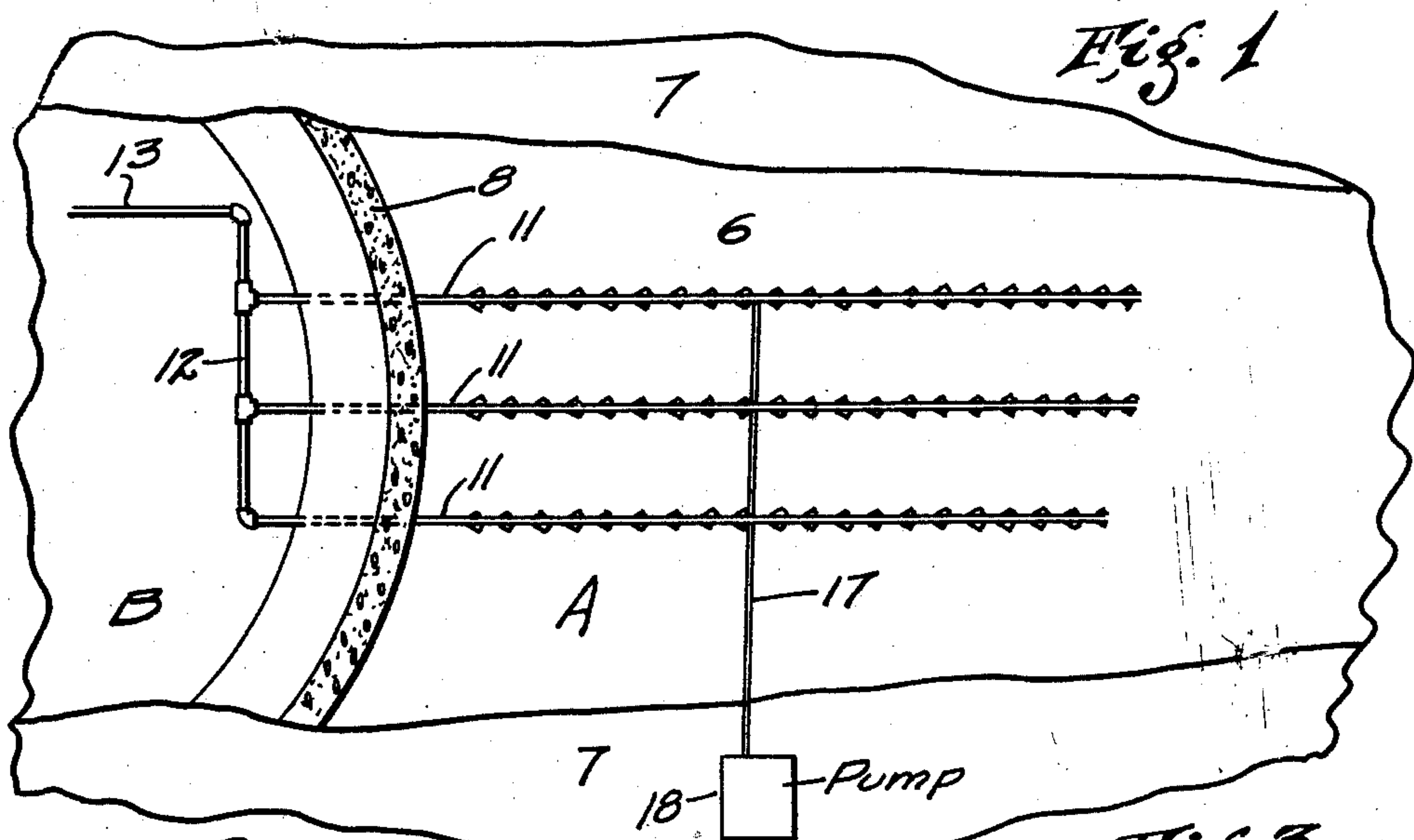
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C. B. HARP

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METHOD OF DESILTING CHANNELS

Filed Jan. 25, 1928



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METHOD OF DESILTING CHANNELS

Application filed January 25, 1928. Serial No. 249,307.

This invention relates to a method of desilting water basins such as channels and streams, and is especially applicable to streams having barriers either natural or artificial, such as dams.

In streams of water having barriers, silt deposits upon the bed of the stream upon the upside zone of the barriers and eventually would form a very appreciable and objectionable deposit for reasons which are apparent.

The primary object of this invention is to provide a method of carrying off silt to a place where it is less objectionable or where it may be moved by the flow of the stream. Another specific object of this invention is to provide a method of the character described characterized by the agitation of the silt being produced by the projection of a fluid into the bed of silt.

A further specific object of this invention is to provide a method of the character described wherein the natural fall of the stream is resorted to for carrying off the slush produced by agitation of the silt.

Other objects and advantages will be made fully apparent from the following specification considered in connection with the accompanying drawings in which:

Fig. 1 is a plan view of a portion of a stream having a dam therein and equipped with apparatus whereby the method may be carried out; Fig. 2 is a vertical section through the dam showing a section through the stream and the instrumentalities illustrated in Fig. 1; Fig. 3 is a section similar to Fig. 2 showing another means of carrying off the slush; Fig. 4 is a plan view showing a fragment of the slush conducting pipe with a portion broken away to show the slush producing pipes; and Fig. 5 is a vertical section through the pipes and bed shown in Fig. 4.

It will be understood that the instrumentalities shown herein are merely illustrative of means for carrying out the steps of the method. These instrumentalities may be varied without parting from the invention.

Referring especially to Figs. 1 and 2 a stream is indicated by 6, it having banks 7. Extending between the banks is a dam 8. The bed of the stream is indicated by 9 and

has a slope so that on the up stream side there is a higher gravitational potential than on the downside of the dam 8. There are two zones formed, one indicated by the letter A on the upside and in which the deposits of silt occur. The other zone is indicated by B and is on the downside of the dam and constitutes a waste. The body of water in zone A is comparatively quiescent so that silt will settle on the bed of the stream and build up the upside of the dam.

In order to carry off the deposited silt, conductor pipes for silt indicated by 11 are extended through the dam. These conductor pipes extend along the upside portion of the stream to any desirable point, preferably the point at which the objectionable deposits of silt begin. If desired, these conductor pipes may end on the downside of the barrier so as to discharge directly into the stream, or they may, as shown herein, be connected to a manifold 12 and a discharge pipe 13 leading to any point at which the slush may be desired to be discharged hereinafter broadly termed a waste. For illustration, there may be a separate slush receiving basin which forms a waste. The pipes 11 are of relatively large size. There may be any number of pipes 11 and arranged in any form. Each conductor pipe 11 is preferably provided with intakes 14 consisting of short sections of pipe communicating with the conductor pipe and having their open ends directed upstream.

Disposed on the under side of each conductor pipe are slush producing pipes 15. There are shown two pipes, one for each conductor pipe. These pipes have discharge nozzles 16 communicating with the silt agitating pipe and arranged to direct fluid downwardly into the bed of silt. The pipes 15 are connected to a common pipe 17 which is in turn shown connected to the discharge of a pump 18. However, any source of fluid under pressure may be employed.

The operation of the system is as follows: At times when the silt strata has become sufficiently deep to warrant removal, the pump 18 is started. This pump may pump liquid such as the clear water of the stream or it may

5 pump air or gas discharging it into the slush producing pipe 15 and from thence through the nozzle 16 into the silt strata 10. This causes agitation and stirring up of the silt so that it becomes suspended in the water at the bed, producing a slush. The slush thus produced enters the arms 14 of the slush conducting pipes, carrying it from the bed to the point of waste.

10 In Fig. 3, I have shown the slush conductor pipe carried over the top of the dam to produce a siphon. This siphon 19 may be started in any well known manner, not shown herein. It is obvious that the dam must be low enough so that siphoning may occur. In some instances, it may be found desirable to place a pump in the conductor pipe 13 to carry the slush to a higher level.

What I claim is:—

20 1. The method of desilting the bed of a water basin which consists in providing a path of travel for said slush from said basin to a waste, projecting fluid into the silt of said bed to agitate said silt and mix it with water to produce slush comprising water carrying silt in suspension, and conducting the slush so created from said basin to said waste in a path separated by walls from the water in said basin.

30 2. The method of desilting the bed of a water channel in which there is a first zone of higher gravitational potential with respect to the earth and having a deposit of silt and a zone of lower gravitational potential constituting a waste for slush, which consists in providing a path of travel for said slush from said first zone to said waste, said path of travel having walls separating the slush therein from the remaining liquid projecting fluid into the silt of said bed to agitate said silt and mix it with water to produce a slush, and conducting the slush so created from said first zone to said waste.

45 3. The method of desilting the bed of a water stream in which there is a barrier to the flow of water which consists in providing a path of travel for slush from the upside of said barrier to the downside, said path of travel having walls separating the slush therein from the remaining liquid projecting fluid into the silt of said bed on said upside to agitate said silt and mix it with water to produce a slush, and conducting said slush comprising water carrying silt in suspension through said path from the upside of said barrier to the downside.

60 4. The method of desilting the bed of a stream of water in which there is a dam, which consists in providing a path of travel for slush around said dam from the upside thereof to the downside, said path of travel having walls separating the slush therein from the remaining liquid the inlet of said path being adjacent the bed of said stream on said upside, projecting fluid into the silt

of said bed to agitate said silt and mix it with water to produce a slush comprising water carrying silt in suspension, and conducting said slush through said path from the upside of said dam to the downside.

In witness that I claim the foregoing I have hereunto subscribed my name this 19th day of January, 1928.

CHARLES B. HARP.

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