No. 704,181. Patented July 8, 1902.

A. D. FOOTE.

METHOD OF BUILDING DAMS.

(Application filed Mar. 17, 1902.)

(No Model.) 2 Sheets—Sheet 1.

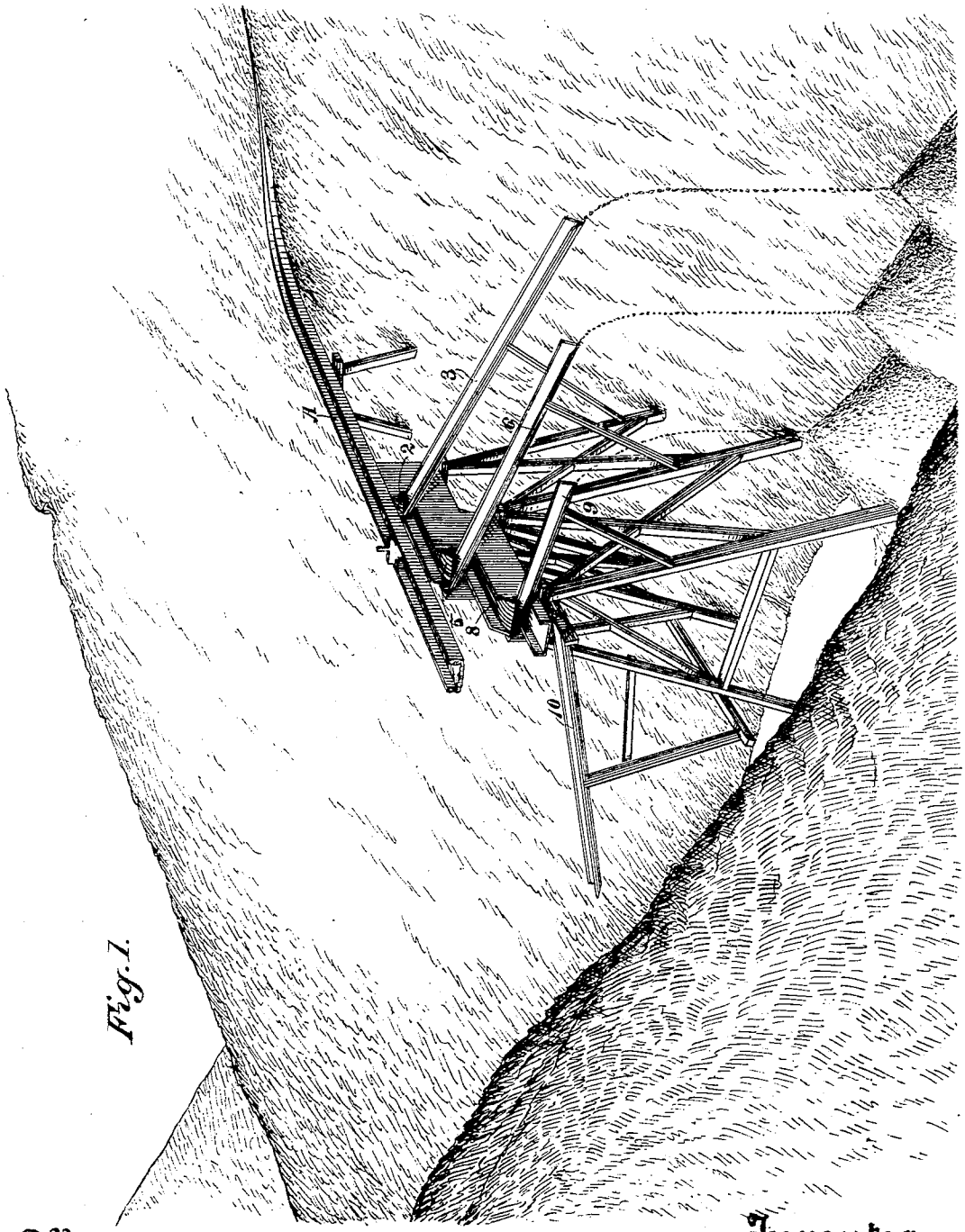


Fig. 1.

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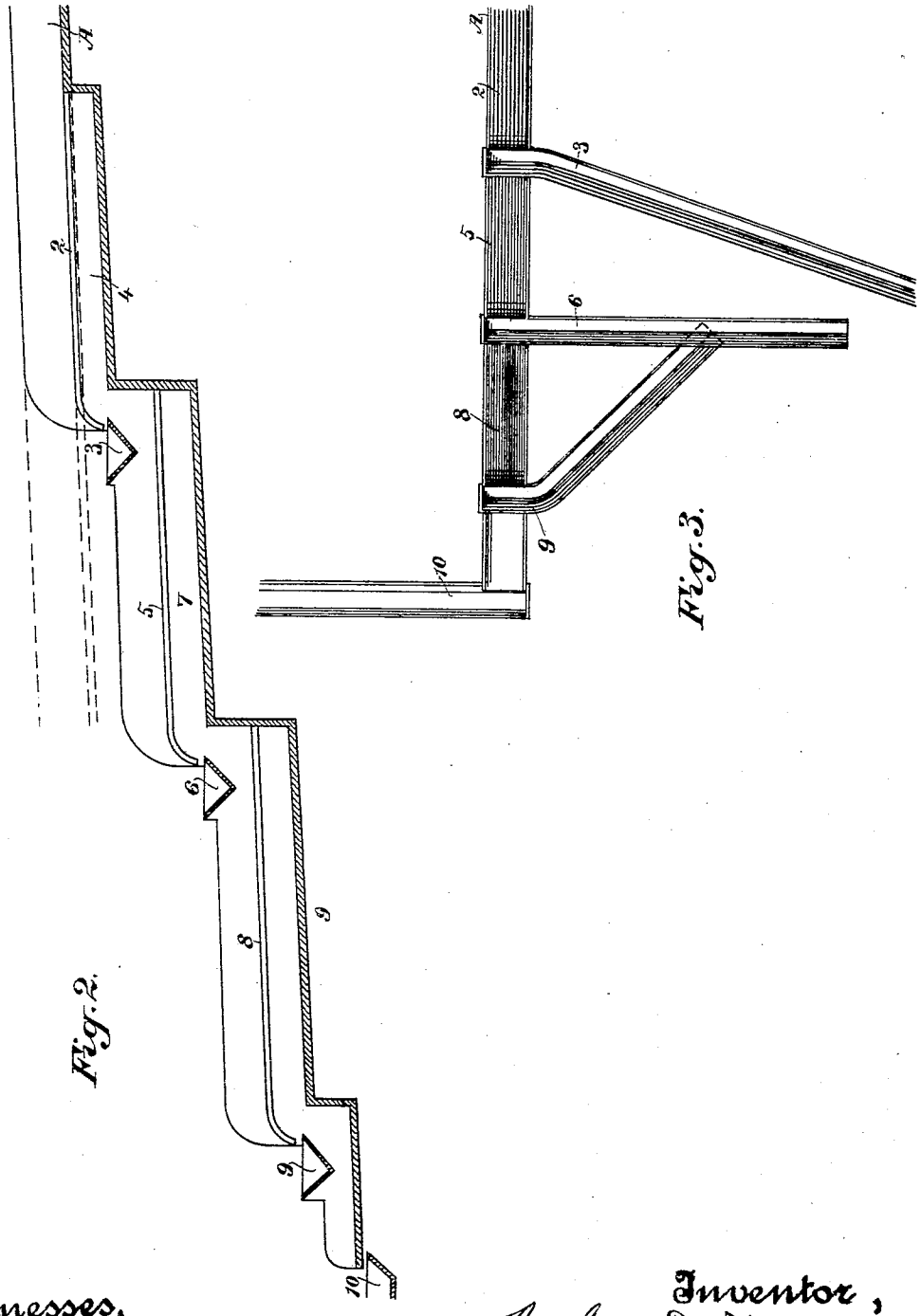


Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

ARTHUR D. FOOTE, OF GRASS VALLEY, CALIFORNIA.

METHOD OF BUILDING DAMS.

SPECIFICATION forming part of Letters Patent No. 704,181, dated July 8, 1902.

Application filed March 17, 1902. Serial No. 98,501. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR D. FOOTE, a citizen of the United States, residing at Grass Valley, county of Nevada, State of California, have invented an Improvement in Methods of Building Dams; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a method of building dams of rock, gravel, sand, and finer material; and it consists, essentially, in the separation of a mass of material into larger rock or cobbles, smaller gravel, sand, earth, and silt and in depositing them successively so as to form, first, the front, then a layer of finer material, then a deposit of silt or fine material upon the inner back surface of the dam, whereby it is made tight.

It also comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a view of the structure for building a dam. Fig. 2 is a longitudinal section of the same. Fig. 3 is a plan view.

In mining for gold and the like where the material to be saved is mixed with gravel and other material, forming what is known as "placer mining," it has been customary to wash down the banks of auriferous earth and to separate the finer particles from the coarser and finally to recover the gold. In this process large quantities of worthless material or tailings must be provided for in the form of dumps or with impounding-dams to prevent the material being washed into the rivers and impeding navigation or carried out over previously-fertile land, which would be destroyed thereby. It is therefore necessary in the same manner to form these impounding-dams, which is usually done by building them at some narrow place, so as to include above them a large settling-reservoir, into which the most of the silt will be deposited, while the water is allowed to run off and eventually find its way into the rivers without doing damage. It is the object of my invention to utilize this waste material in the construction of dams, and it will also be manifest that any material containing the gravel and finer earth may be employed to build dams or like structures at any point where it may be desired.

In carrying out my invention I employ a flume or sluice A, through which the material is transported in conjunction with a body of water sufficient for the purpose. At the point where I desire to commence my dam or structure I cause the material to pass over a grating, as at 2, this grating having a mesh of such size that the smaller material will fall through and the larger cobbles and rocks will be retained and delivered into a chute 3. This chute extends, as here shown, at right angles or in equivalent direction from the sluice A and may be of any desired length and preferably of such inclination that the cobbles or coarse material will roll or slide down by gravitation and be discharged from the outer end of the chute. The water and finer material pass through the grating 2 into another sluice 4, which in turn discharges this material upon another grating, located as shown at 5. This grating arrests the next larger grade of gravel or like material and delivers it into a chute 6, which is essentially parallel with the chute 3 and also stands at such an angle as to discharge its contents by gravitation. This chute 6 may be sufficiently shorter than the chute 3 so that it will form an independent bank of the material discharged by it adjacent to and lying upon the larger material discharged by the first chute. The still finer material, which passes through the grating 5, falls into another sluice 7, and from this it is delivered upon the still finer grating, as at 8, which separates the next larger grade of material and delivers it into a chute 9, parallel with the chutes 3 and 6 and also shorter, so that this grade of material will be discharged upon the back of the second grade. In this way the material will be graded automatically, so that the coarse rock or cobbles form the outer face of the dam, the next finer gravel is piled upon the first layer to form a backing therefor, then the finer silt, and finally the finest silt may be discharged from the end of the sluice, as at 10, into what will be the interior of the dam or reservoir, and this silt piling upon the back of what has already been deposited will serve to seal and make the dam tight.

The sluice A is so disposed that it may be lengthened as occasion requires, and after the piles of material have been raised to the desired height at one spot by lengthening the sluice and changing the discharge-chutes

other piles are formed contiguous to the first and extending across the space where the dam is to be formed.

If any water be running in a channel where the dam is being built, a wasteway of any suitable construction may be employed to carry away this water and dispose of it while the dam is being built.

In this manner I am able to automatically separate material which may be found intermixed and to automatically deposit it in proper relative positions to form successive layers, commencing with the coarsest and heaviest material for the outside face of the dam, with successively smaller and finer material until the silt is finally deposited, which serves to cement and make the dam tight, this being all done with the minimum of labor.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The method herein described of building dams and like structures consisting in first separating and grading the material from the coarser to the finer while said material is in motion, and then depositing the separated materials successively from the front to the back of the structure.

2. The method herein described of building dams and like structures, consisting in first separating associated material into its coarser and successively finer elements, then delivering these separated materials by chutes or the like to form successive embankments, commencing with the coarser and terminating with the finer material.

In witness whereof I have hereunto set my hand.

ARTHUR D. FOOTE.

Witnesses:
S. H. NOURSE,
JESSIE C. BRODIE.