No. 843,397. PATENTED FEB. 5, 1907.

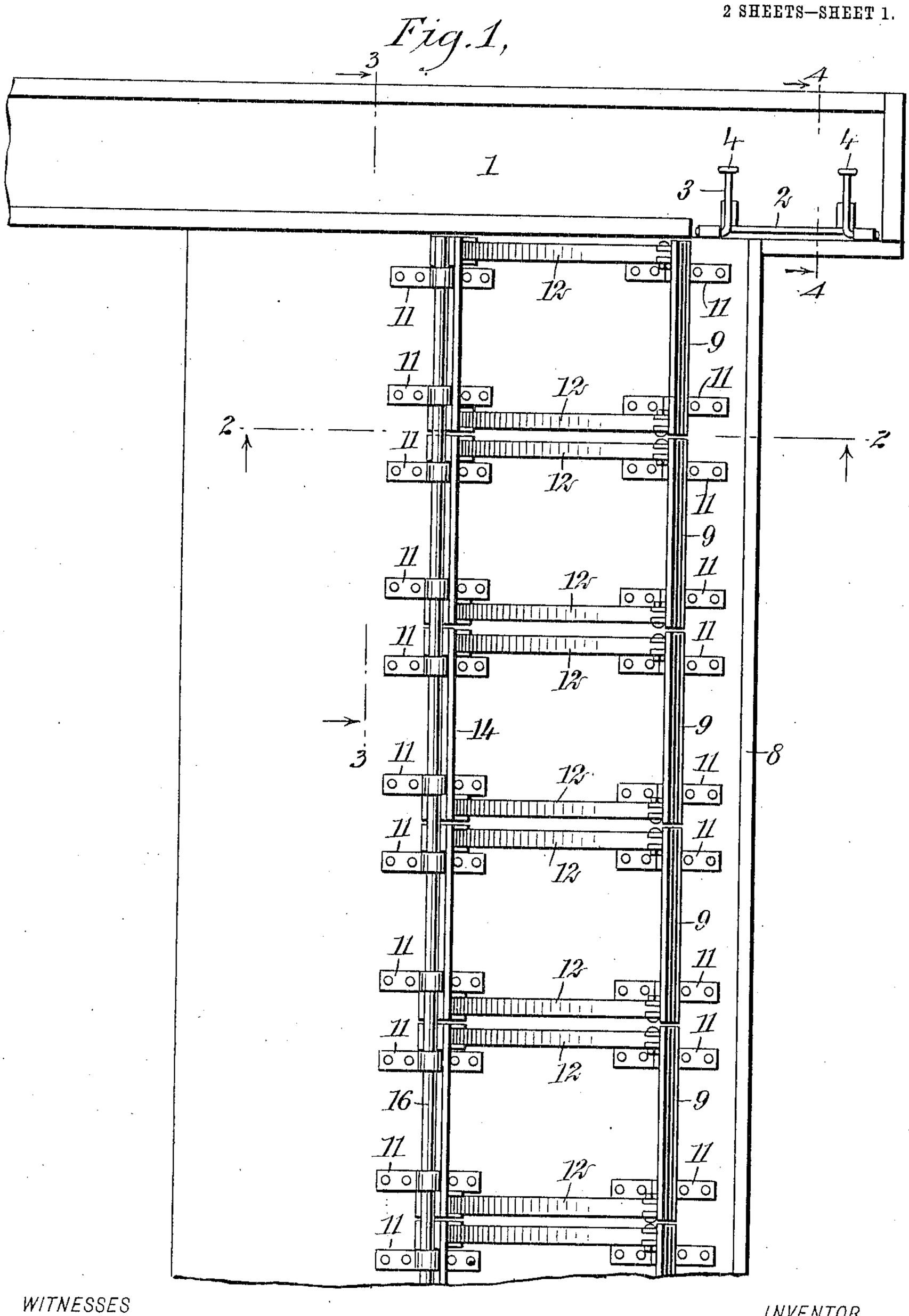
W. W. JONES.

COLLAPSIBLE DAM.

APPLICATION FILED NOV. 5, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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Fig. 2.

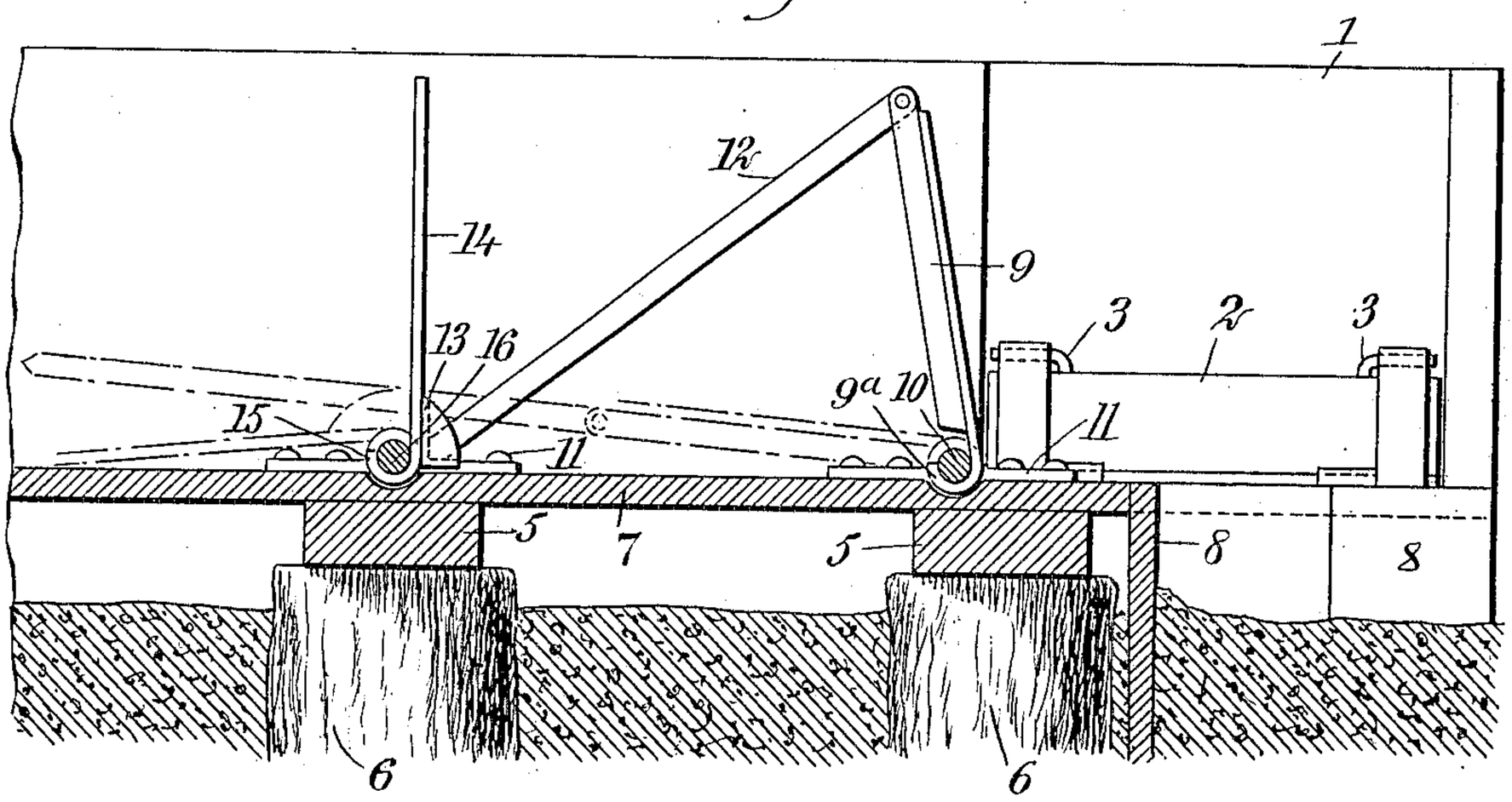


Fig. 3.

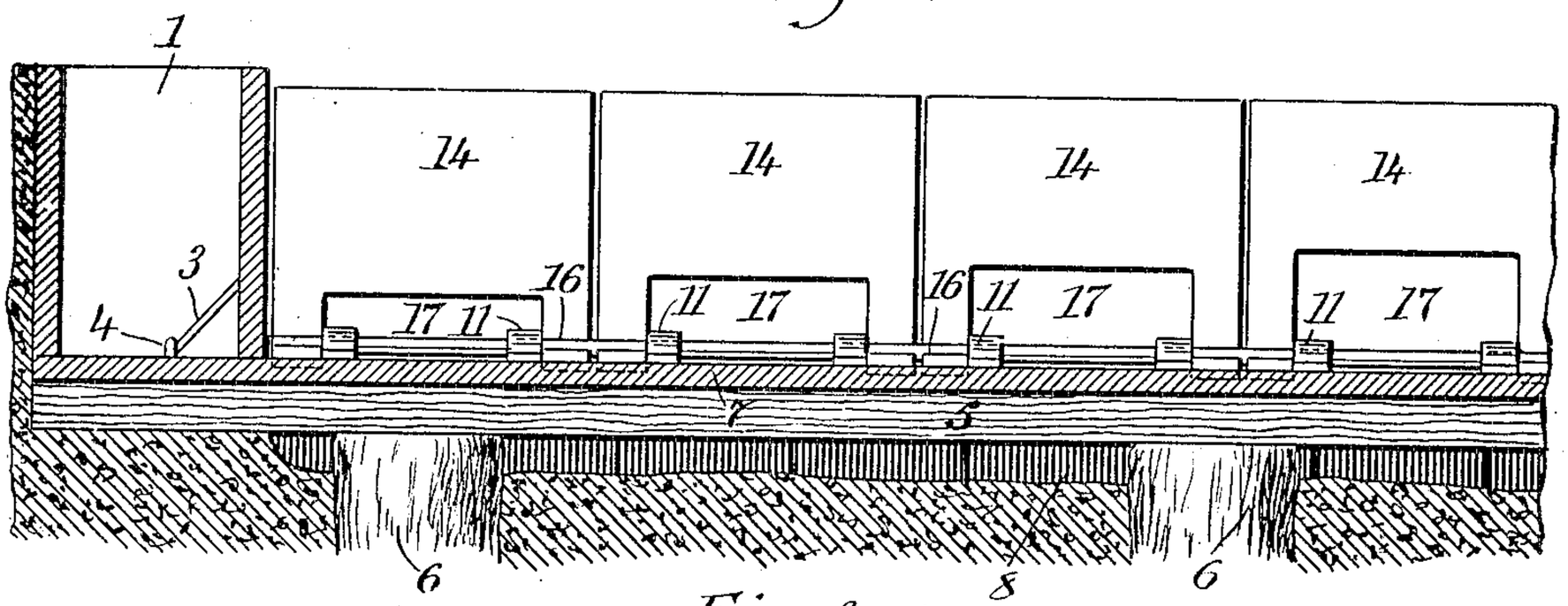
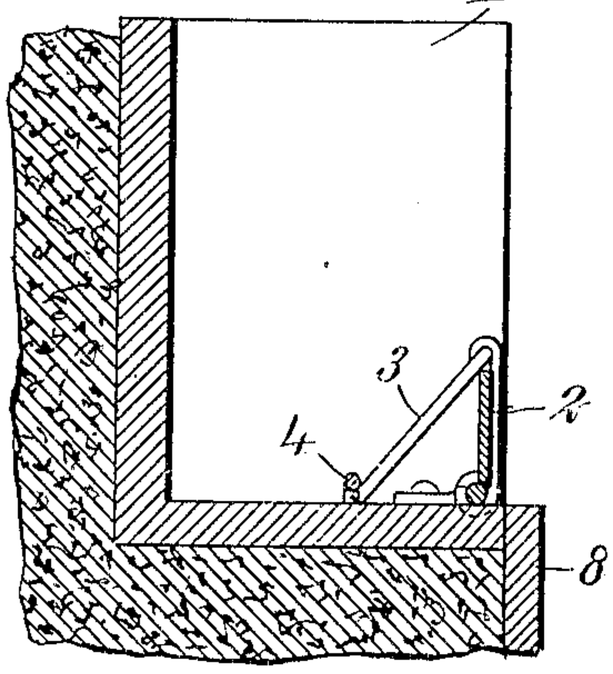


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM WALACE JONES, OF GRANADA, COLORADO.

COLLAPSIBLE DAM.

No. 843,397. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed November 5, 1906. Serial No. 342,026.

To all whom it may concern:

Be it known that I, WILLIAM WALACE JONES, a citizen of the United States, and a resident of Granada, in the county of Prowers and State of Colorado, have invented a new and Improved Collapsible Dam, of which the following is a full, clear, and exact description.

This invention relates to dams designed to be used for many special purposes, but particularly in connection with irrigating canals and ditches.

It has been found absolutely necessary to use a dam of some character to successfully divert water from its natural course into an irrigating-ditch. Stationary dams, moreover, have been found to be expensive in construction, inefficient in operation, and not durable for any length of time when in use. This is so because of the fact that silt, quicksand, and mud soon accumulate to a level with the top of the dam, thereby necessitating an expensive sluiceway to keep the channel open at the head-gate of the ditch, so that the water may be diverted into the irrigating canal or ditch. During floods and periods of high water especially sand and silt accumulate so as to necessitate cleaning out the ditch after the water has receded, so that the water can flow through the ditch when at a medium or low stage. This cleaning-out process is not only very expensive, but is thoroughly disagreeable and obnoxious in many ways. Again, it has been found that only a portion of the water can be controlled when at a low stage by reason of the silt above the dam causing the water to run over the dam in little rivulets and become wasted. This condition invariably prevails when the water is most needed.

My invention has for its object, therefore, to provide a dam which is simple in construction, effective in operation, and durable in use, and particularly adapted to be used for irrigating purposes.

Other objects relating to the specific construction and special arrangement of the several parts of my invention will be understood by the following description and accompanying drawings, in which drawings—

Figure 1 is a plan view of a device embodying my invention arranged in connection with an irrigating-ditch. Fig. 2 is a transverse section taken on the line 2 2 of Fig. 1. Fig. 3 is a longitudinal section taken on the line 3 3 of Fig. 1; and Fig. 4 is a transverse section of an irrigating-ditch and sand-gate, taken on the line 4 4 of Fig. 1.

As illustrated in the drawings, 1 represents a ditch, which may be of any suitable construction, having a head-gate 2 connected therewith, preferably by hinging the lower edge of the gate to the bottom of the ditch, as shown in Fig. 4, and providing said gate with brace-bars 3, adapted to engage at their free end staples or stops 4, so as to hold the gate upright in position or when desired allow the gate to fall backward by releasing the free end of the braces 3 from engagement with the staples 4. The head-gate is arranged at one side and slightly in front of the dam and is preferably arranged so as to bring the bottom of the ditch on a level with the bed of the dam. The dam is preferably mounted on rows of piling extending transversely of the stream and driven firmly into its bed. The length of the piling 6 will of course be governed by the nature or formation of the river-bed. In most instances piling from eight to eighteen feet long will be found sufficient, and such piling may be made of cotton-wood or soft pine, for the reason that it is cut off at low-water level and being continuously under water is not liable to rot or decay. The upper two rows of the piling should be spaced about four feet apart from center to center, measured on a line transversely of the stream. The third or lower row may extend across the stream at a distance of about seven feet or more below the second row of piling. Mud-sills 5 are secured on the top of the upper two rows of piling 6, as shown in Fig. 2. A joist of suitable dimensions is extended across the lower row of piling, adapted to support the lower portion of the dam-bed. Flooring-planks 7 are secured to the mud-sills, and thereby form a substantial bed for the same. An apron is attached to the upper end of the bed, consisting, preferably, of planking 8, arranged closely together with the upper ends of the planks secured to the upper end of the dam-bed and flush therewith, as shown in Fig. 2. The planks are driven down firmly into the bed of the stream, so as to obtain a firm hold therein and prevent the stream from forcing a channel underneath the bed of the dam. By means of such construction all the water flowing down the stream will be forced over the bed of the dam,

which is arranged approximately about five inches above the low-water level, sufficient to keep the bed free from accumulations of sand or silt during floods or high waters. At a medium or low stage of the water there is but little silt or sand moving, hence here is no obstruction to prevent such sand and silt from flowing over the dam and drifting downstream without giving any annoyance.

The dam proper is composed of independent sections 9, having lower ends 9ª looped around a solid or tubular bar 10, which is secured to the bed of the dam by means of straps 11 or by any other suitable means, if desired. The upper ends of the sections 9 are pivotally connected to one end of braces 12, the opposite end of said braces being adapted to be supported by stirrups 13, secured to trip-plates 14. The trip-plates 14 are provided with looped ends 15, which engage a solid or hollow bar 16, extending lengthwise of the dam and parallel with the bar 10, to which the dam-sections are connected. The bar 16 is also secured to the bed of the dam by means of straps 11 or other suitable means. The trip-plates 14 are cut away at their lower portions, so as to form apertures 17 of various dimensions when connected with the bed of the dam, as shown in Fig. 3. The trip-plates 14 are so constructed and arranged in series as to allow a predetermined amount of water to pass through without dropping the plates. For instance, they may be so constructed as to regulate the flow over the dam, so that four inches of water can pass through every twentieth section before it begins to give way under the pressure of the water. A rise of six inches would be sufficient to trip all the twentieth sections, leaving a substantial passage-way for water through the dam unobstructed. A further rise of the water-level would trip all the tenth sections, thereby doubling the unobstructed space over the entire length of the dam, and so the apertures of the trip-plates 14 may be regulated until the volume of water is increased to such an extent as to drop all of the trip-plates 14, thereby raising the braces 16 out of the stirrups 13 and allowing the sections 9 to fall backward and the entire dam to collapse until after the flood has subsided, when the sections can be set up again without any accumulations of silt or sand.

During the periods of flood-water when the dam becomes inoperative the water may be diverted into a ditch without the use of a sluiceway, as is used with all stationary dams. A sand-fender six inches high may be used to protect the ditch and cause the sand and silt to pass over the dam-bed and on down the stream, thus protecting the ditch from filling up during periods of flood-water. At any ordinary stage of water there is very little sand or silt floating, and at such time the sand-fender may be dropped, leaving a clear passage for the water into irrigating-ditch. Having neither sand nor silt to contend with, all the water flowing when the stream is low may be readily controlled. This cannot be done, however, with a stationary dam. This dam, although far more effective in operation than a solid dam, is much cheaper in construction, for the reason that the stationary dam requires more than double the width of bed, longer piling, and must be made doubly strong to withstand the first flood of water that comes down the stream. Such a flood would trip all of the sections of the dam shown herein, leaving a clear and unmolested passage-way over its bed, while a stationary dam would have to support the pressure of the water to the height of the dam. The swirling or rolling motion given the water by reason of dropping over the dam, moreover, causes the water to boil the sand out from under the dam and cause the dam to become a total wreck, while the construction herein shown would be ready to be set up and operated as soon as the flood subsided.

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

1. A dam comprising a plurality of sections hinged to a bed, a corresponding series of trip-plates, and braces intermediate said sections and plates.

2. A dam comprising a plurality of sections having brace-bars pivoted thereto, and a series of apertured trip-plates provided with means adapted to receive the free ends of said brace-bars.

3. The combination with a ditch having a head-gate, of a plurality of dam-sections hinged to a bed, brace-bars pivoted to said sections, and apertured trip-plates loosely connected with said brace-bars.

4. The combination with a pivoted head-gate, of a plurality of dam-sections hinged to a bed, brace-bars pivotally connected with said sections, and trip-plates having apertures of various sizes detachably connected with said brace-bars.

5. A dam-bed supported upon piling, and provided on its upper end with an apron, in combination with a plurality of dam-sections hinged to said bed, brace-bars pivotally connected to said sections, and apertured trip-plates detachably connected with said brace-bars.

6. A collapsible dam comprising a plurality of trip-plates adapted to be dropped by a predetermined height of water, and a series of dam-sections connected with said trip-plates and adapted to fall with the trip-plates.

7. A series of independently-operative dam-sections hinged to a bed and connected

with a corresponding series of trip-plates adapted to operate independently of each other, and braces arranged between said sections and trip-plate, adapted to hold up said sections while the trip-plates are standing, and to permit said sections to fall with the trip-plates.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM WALACE JONES.

Witnesses:

HARRY HAMMOND,

D. JOAN CLOUR.