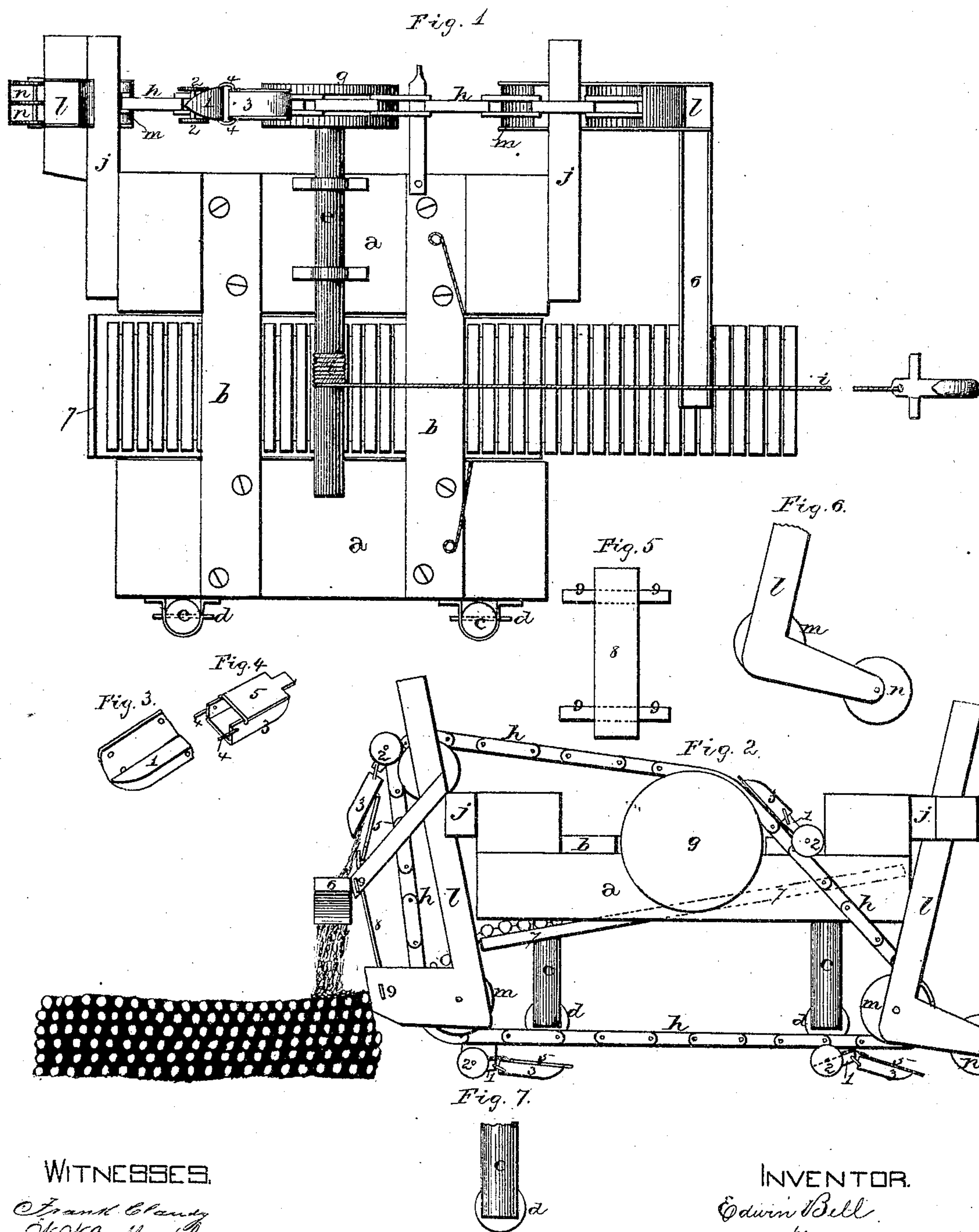


E. BELL.  
Devices for Building Dams.

No. 152,322.

Patented June 23, 1874.



WITNESSES.

Frank Clancy  
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INVENTOR.

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per  
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# UNITED STATES PATENT OFFICE.

EDWIN BELL, OF ST. PAUL, MINNESOTA.

## IMPROVEMENT IN DEVICES FOR BUILDING DAMS.

Specification forming part of Letters Patent No. **152,322**, dated June 23, 1874; application filed May 8, 1874.

*To all whom it may concern:*

Be it known that I, EDWIN BELL, of St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Devices for Building Dams; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

The nature of my invention relates to an improvement in wing-dam builders, for improving rivers and harbors, and building brush and rock wing-dams; and it consists in the manner of building the dam by having the machine move back and forth over certain distances, and deposit alternate layers of brush and dirt or stone, one upon the top of the others. It further consists in the arrangement and combination of devices, which will be more fully described hereafter.

The accompanying drawings represent my invention.

*a* represents two ordinary flat-boats, which are joined rigidly together by the cross-timber *b*, there being a space left between the boats of any desired width. Attached to the side of one of the boats, by means of any suitable devices, are two or more vertically-adjustable posts or bars, *c*, which have the wheels *d* attached to their lower ends, and which wheels, or other similar devices, catch in the bottom of the stream or harbor, and thus prevent the boats from drifting with the currents. Journaled upon the top of one of the boats is the horizontal shaft *e*, having the driving-wheel *g*, for operating the endless chain *h*, secured to its outer end. This shaft will be made to revolve by any suitable power, and has attached to it the rope or chain *i*, said rope having its other end secured to an anchor or stay on the shore. As the boats move out from the shore the shaft unwinds the chain or rope; but after they have gone their prescribed distance the movement of the shaft is reversed, and the boats are drawn back to the shore again by the chain or rope being again wound upon the shaft. Upon the same boat to which the shaft

is journaled may be placed a suitable heavy block at each end, to which will be pivoted the arms *j*, and to these arms *j* are attached the standards *l*, provided with pulleys *m*, over which passes the endless chain, the outer standard being made vertically adjustable, so that the scoops or buckets attached to the chain can be raised and lowered at will. To the lower end of this adjustable standard, extending in front and below the pulley *m*, are secured several rotary plows, *n*, which not only cut and break the crust of mud and gravel, so that the scoops will work more easily, but they protect the scoops from snags and stones. Secured at regular intervals along the endless chain are plows *1*, having an inclined plane up each side, and to which a pair of friction-rollers, *2*, are journaled at their front ends, and have the buckets or scoops *3* attached to their rear ends by means of bails or links *4*. Pivoted to the top of each bucket is a flat cover, *5*, the lower end of which is sharpened or pointed, and made to project down below the end of the bucket. As this mud, gravel, or sand is thus plowed up, it rises up the inclined planes on the plow and falls into the bucket, and is then carried on up the incline and emptied into the trough *6*, placed there to receive it. Just at the point in the front of the roller where the buckets begin to ascend is placed an inclined plane, *8*, which is attached to and held in position by two springs, *9*, which keep the incline pressed backward, so as to hold the covers of the buckets pressed tightly against them, to prevent their contents from dropping out. As the buckets rise up above the plane, the points on their covers catch against its upper end, and are held pressed back for a moment from the buckets, so as to allow the buckets to discharge their loads into the trough. These buckets are made, preferably, somewhat deeper or thicker at their rear ends, so that the incline plane will hold the covers pressed against the buckets more firmly while they are being raised upward with their loads. In the space between the two boats is pivoted an inclined chute or board, *7*, upon which the brush is placed, this chute being provided at its free end with chains or cords, so that it can be



raised or lowered at will. The brush out of which the dam is to be formed is composed of sticks bound together in any suitable manner by cords, so as to form one continuous strip or belt.

As the boats move out from the shore, and the buckets bring up their loads of mud and gravel and empty them in the trough, the mass slides down from the trough and falls upon the brush, and, by its weight, draws the brush down from off the incline, and sinks it to the bottom and holds it there. After the boats have moved their length they are drawn back again, as above described, laying a fresh layer of brush upon what has already been deposited, when they are again moved out, laying a fresh layer of sand and gravel upon another layer of brush.

If so desired, stones may be dropped upon the brush also, so as to more securely hold it in place, and thus form a stone and brush dam.

Instead of two boats being used, as here shown, only one can be used, if so preferred; and, instead of a single endless chain, two may be used for carrying up the buckets.

Having thus described my invention, I claim—

1. A machine for building wing-dams, composed of one or more boats, *a*, and a shaft, *e*,

for operating the endless chain and drawing the boat back over its course, so as to deposit the layers of brush, substantially as set forth.

2. Brush for building dams, composed of a series of sticks secured together, as shown, so as to form a continuous belt or strip, which can be doubled back and forth upon itself, substantially as specified.

3. The combination of the endless chain, plows 1, rollers 2, buckets 3, and covers 5, substantially as specified.

4. The adjustable standard *l*, provided with the cutters *n*, substantially as shown and described.

5. In a dredging-machine, an inclined plane, 8, for holding the covers pressed against the buckets to prevent the load from dropping out, substantially as set forth.

6. In a dredging-machine, a bucket or scoop provided with a hinged cover, 5, which prevents the load from dropping out while the bucket is being drawn up, substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand.

EDWIN BELL.

Witnesses:

G. A. VANDERSLINE,  
FRED. THEO. CALL.