(No Model.) 2 Sheets—Sheet 1.

W. BAPTIST.

APPARATUS FOR HOLDING ENDS OF AND CLOSING CREVASSES.

No. 529,580. Patented Nov. 20, 1894.

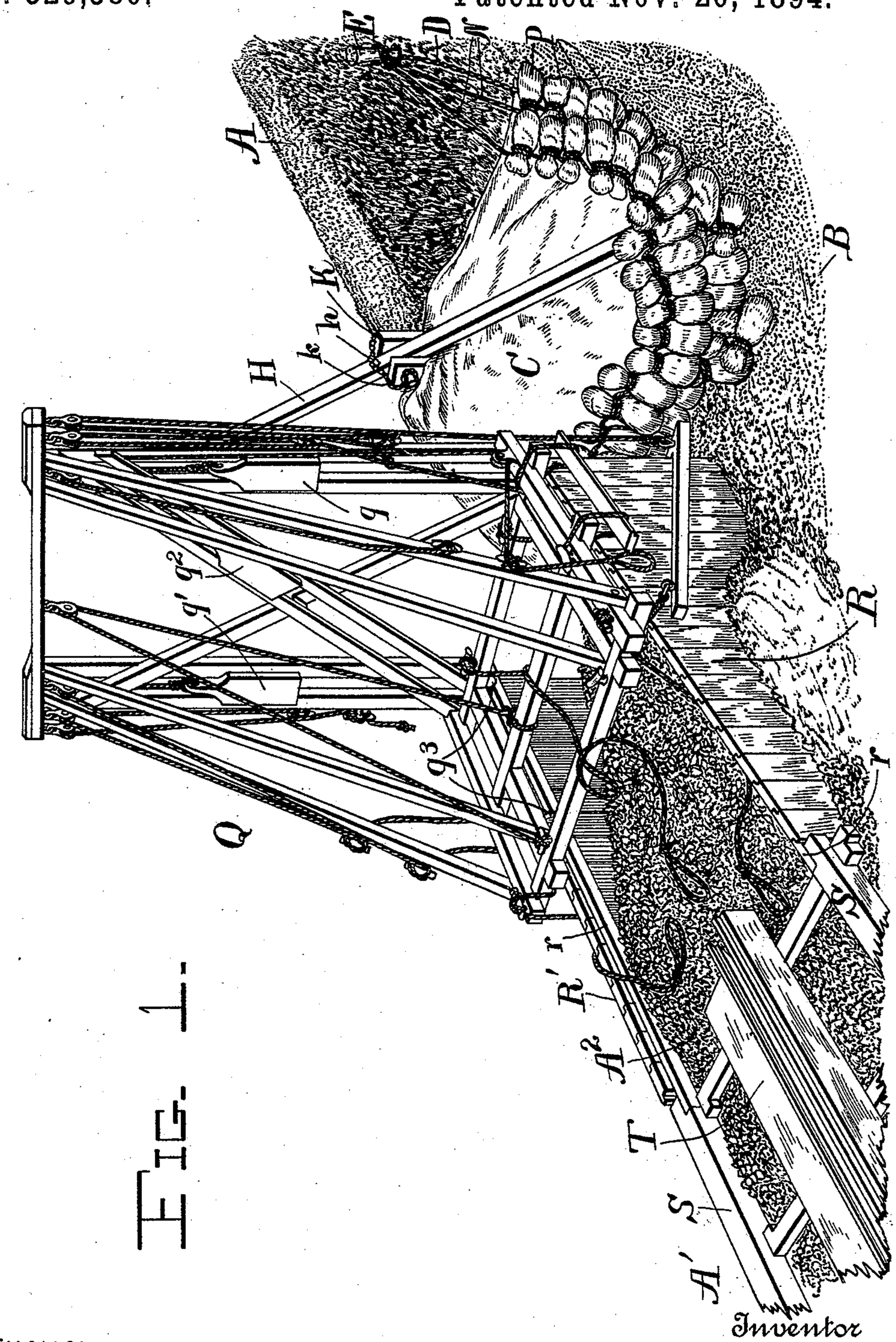

FIG. 1.

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 2.

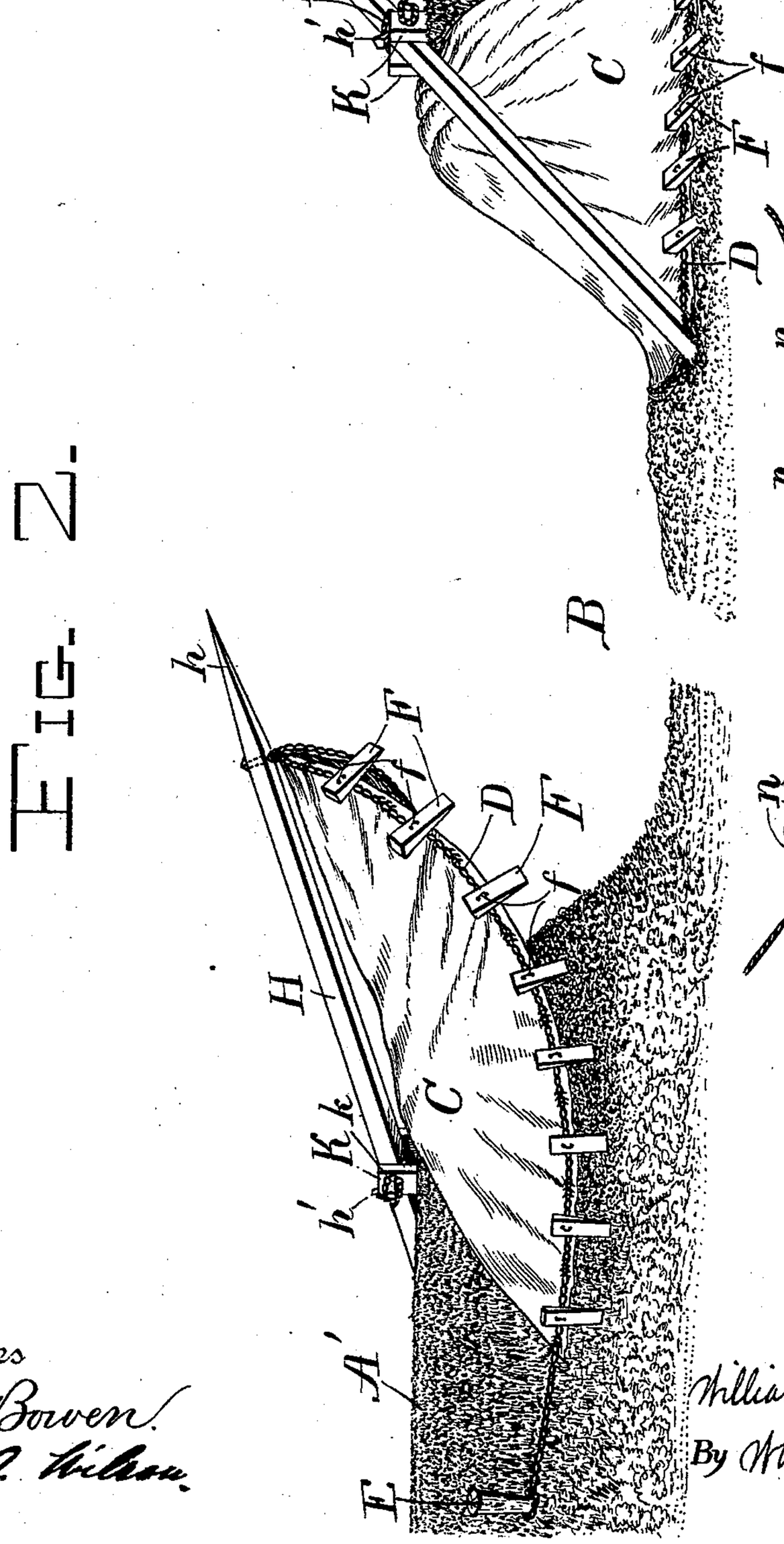

FIG. 3.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR HOLDING ENDS OF AND CLOSING CREVASSES.

SPECIFICATION forming part of Letters Patent No. 529,580, dated November 20, 1894.

Application filed July 18, 1894. Serial No. 517,915. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BAPTIST, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Methods of and Apparatus for Holding the Ends of and Closing Crevasses; 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 appertains to make and use the same.

My invention relates to improvements in methods of and apparatus for holding the ends of and for closing crevasses, and it consists essentially in means for holding the broken ends of the levee against the erosion of the water prior to the installation of the pile driver or other means for stopping the crevasse, and in certain novel means for protecting the bottom and ends of the break against erosion, and in lessening the flow of water therethrough while the other means for closing the break are being prepared for operation, or are actually in operation. The levees, constructed to keep out the rising water in streams flowing through alluvial lands where the banks are constantly changing, are ordinarily built of earth or similar material which is easily eroded; and as soon as a break occurs in the levee, the water rushing through the break, or crevasse, as it is most commonly called, rapidly eats away the unprotected ends of the levee causing the crevasse to widen rapidly, and hence rendering the closing of the same much more difficult. It therefore becomes of vital importance to hold the ends of the break as soon and as well as possible against the further widening of the crevasse. As the crevasse widens, it will also deepen due to the erosion of the bottom thereof, and while this deepening is more difficult to prevent so long as the water continues to flow through the crevasse, it becomes important to check this too as much as possible.

My invention consists of the apparatus for accomplishing these purposes, hereinafter described and claimed.

Reference is had to the accompanying drawings in which the same parts are indicated by the same letters throughout the several views.

Figure 1 represents a perspective view of a partly closed crevasse if the water therein were withdrawn. Fig. 2 represents a front view of a crevasse at or near the beginning of the same, but the water flowing therethrough being omitted for the sake of clearness in the drawings, and Fig. 3 represents a rope half-hitched around a number of bags full of earth or similar material to be used in holding down the edges of the canvas guard for the broken ends of the levee, and also adapted to protect the bottom and sides of the break from the erosive action of the water.

A and A′ represent the ends of the levee, which are broken away by the force of the water, forming a crevasse B. The levee being ordinarily made of earth or similar material which is rapidly eroded, it becomes of vital importance to hold the ends of the break until the proper plant can be brought into position, and more especially to hold one end against erosion where it is impossible to perform the positive work of closing the crevasse from more than one end at a time. For the purpose of holding one or both ends I have provided an apparatus similar to that shown in Fig. 2, in which C represents a matting preferably of cotton canvas or similar stout and cheap material, which is provided along a portion of its edge with a heavy chain D which chain is secured on the outside of the levee to a stake or similar holding device E.

To the outer edge of the matting or to the chain secured thereto, I provide heavy metal wedges F perforated and secured to the matting or chain, or both, as at *f*. The points of these wedges fall downward beyond the edge of the matting, and the pressure of the water on the said wedges tends to force them downward, and to hold the edge of the matting down as shown to the right in Fig. 2.

H represents a long beam which is preferably pointed as at *h*, and pivoted at *h′* between the stakes K driven into the levee near the edge of the break. This beam may be held in its pivot by the rope or chain *k*.

M represents a block and tackle of which

the upper block m is secured to the end of the beam H and the fixed block m' secured to the pivot stakes K, while the fall m^2 leads along the top of the levee.

N shown in Figs. 1 and 3 represents a rope of suitable size and strength which is half-hitched around a number of bags P as at n, the bags containing earth or stone or similar heavy material. These bags P are preferably the ordinary corn or oat sacks that are ordinarily to be found in large numbers on the plantations in the neighborhood of the crevasse, or they may be provided in expectation of the occasion.

Q, shown only in Fig. 1, represents one of the triple pile drivers described in my Patent No. 510,873, dated December 12, 1893, of which pile driver the weights q and q' drive the line R and R' of sheet piling, while the weight q^2 drives the brace piling.

r represents one of the tracks on which the wheels q^3 of the pile driver run, which track also serves as a brace for the piles.

S represents a movable track along the top of the levee on which the pile driver is first mounted, before the rows of piling are driven, and T represents timber of any suitable kind, to be used in closing the crevasse. The space between the rows of piling R and R' is filled in with earth A^2, and the back of the piling, not shown, is braced in the ordinary way. This pile driver and the method of using the same are fully described in my application for a reissue of the Letters Patent No. 510,873, aforesaid, which application was filed June 5, 1894.

In practice, I propose to have one or more scows with tugs to tow them, or preferably automobile vessels fitted up with a complete outfit, such as has been described, and stationed at intervals along the lines of levee to be protected; similar to the arrangement of fire engines in great cities.

Upon securing information as to the location of the crevasse, the nearest vessel or vessels should proceed at once to the scene of action, and the first work to be done should be to hold the ends against further erosion and consequent widening of the crevasse. This is done as shown in Fig. 2, where the boat lands one of the canvas mats and connected appliances at one side of the crevasse, say to the right as seen in Fig. 2, and then proceeding well clear of the inrushing water lands another of the mats at the other side. The mat first landed is rapidly stretched along the top of the levee near the broken end thereof, the stakes E and K are driven in place, the chain D is secured to the stake E, and to the beam H, the tackle M is hooked in place, and men or teams pull on the fall m^2 while other men guide the inner end of the beam H until the beam and the mat are in the position shown to the left in Fig. 2. Then the inner end of the beam is let go and the outer end swings downward. At the same time the tackle M is hauled on and the sharp point H of the beam is driven deep into the soft soil at the bottom of the crevasse, while the chain causes the lower edge of the matting to sink and the pressure of the water on the wedges will tend to press the edge of the matting down into the softened soil. At this time the canvas matting would be in approximately the position shown to the right in Fig. 2. Now, since the water rushing inward along the edges of the matting might tend to lift the same and allow the earth work beneath to be eroded, I prepare long strings of sacks filled with earth or stone and tied together similar to that shown in Fig. 3, and tying one end of the rope holding these earth-filled sacks to the stake E or any other stake or to one of the saplings often found on the levee front, I roll these sacks down the front of the matting and allow them to rest on the bottom of the crevasse. As many of these strings of bags may be used as desired; and they serve not only to hold the lower end of the canvas mat down and prevent the water from eroding beneath the same, but they also protect the bottom of the crevasse itself from the scouring action of the water. It will be evident that in small crevasses these strings of bags may be so placed as to form arcs of concentric circles extending from each end of the crevasse and stretching out to the middle of the same, and thus protecting the entire bed of the crevasse from excessive erosion; or the whole gap of the crevasse in its early stages may be filled up by like strings of bags between which the water percolates; and thus the force of the water may be largely broken.

It will be evident that the stakes or sheet piling, ordinarily driven in crevasses may be driven quite readily through these canvas mats and through the bags filled with earth or broken stone.

The manner of driving the piles does not form a part of my present invention and any suitable method of driving the same may be adopted.

It will be evident that either end of the crevasse may be held by one of the herein-described mats, while work goes on at the other end for closing the break, as is shown in Fig. 1.

Instead of having a boat with one or more of my improved crevasse-closing outfits carried thereby, each plantation or village near the levee may be provided with one or more of the improved apparatuses, and they may be brought by land to the crevasse from opposite directions, and put in operation as hereinbefore described. The beam H may be operated by hand without the use of the tackle M if desired.

It will be obvious that various modifications of the herein described apparatus might be made which could be used without departing from the spirit of my invention.

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

1. In an apparatus of the character described, the combination with a flexible screen or matting, of a chain secured along the edge thereof, and means for placing said screen so weighted over the broken end of the levee, and of holding it in position, substantially as and for the purposes described.

2. In an apparatus of the character described, the combination with a flexible screen or matting, of a chain secured along the edge thereof, and heavy wedges also secured to the said edge of the screen, and means for placing said screen so weighted over the broken end of the levee, and of holding it in position, substantially as and for the purposes described.

3. In an apparatus of the character described, the combination with a flexible screen or matting, of a chain secured along the edge thereof, and a beam sharpened at one end and attached near said sharpened end to said chain or to the screen, with means for pushing said beam and the screen connected thereto over the broken end of the levee, and then tilting said beam, substantially as and for the purposes described.

4. In an apparatus of the character described, the combination with a flexible screen or matting of a chain secured along the edge thereof, and heavy wedges also secured to the said edge of the screen, and a beam sharpened at one end and attached near said sharpened end to said chain or the screen, with means for pushing said beam and the screen connected thereto over the broken end of the levee, and then tilting said beam, substantially as and for the purposes described.

5. In an apparatus of the character described, the combination with a flexible screen or matting, of a chain secured along the edge thereof, a beam connected to said screen or matting near one edge thereof, guides for said beam secured to the levee, and means for pushing said beam outward through said guides, and then tilting said beam, substantially as and for the purposes described.

6. In an apparatus for holding the broken ends of levees or closing crevasses, the combination with a plurality of bags filled with heavy solid material, of a rope or chain secured to said bags, and means for holding the outer end of said rope or chain, substantially as described.

7. In an apparatus for holding the broken ends of levees or closing crevasses, the combination with a plurality of bags filled with earth, of a rope hitched about said bags and holding same firmly, and means for holding the outer end of said rope, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM BAPTIST.

Witnesses:

WM. H. WRIGHT,

J. L. BRADFORD.