

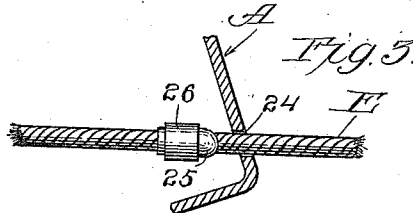
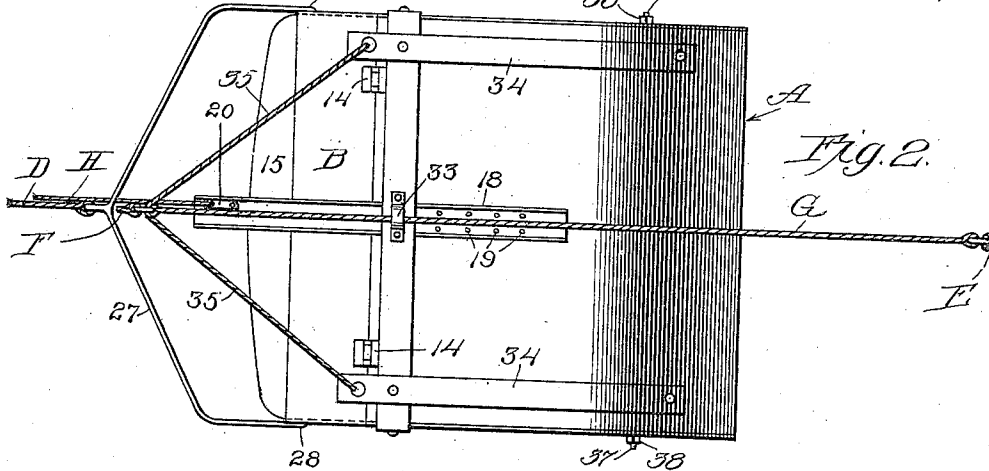
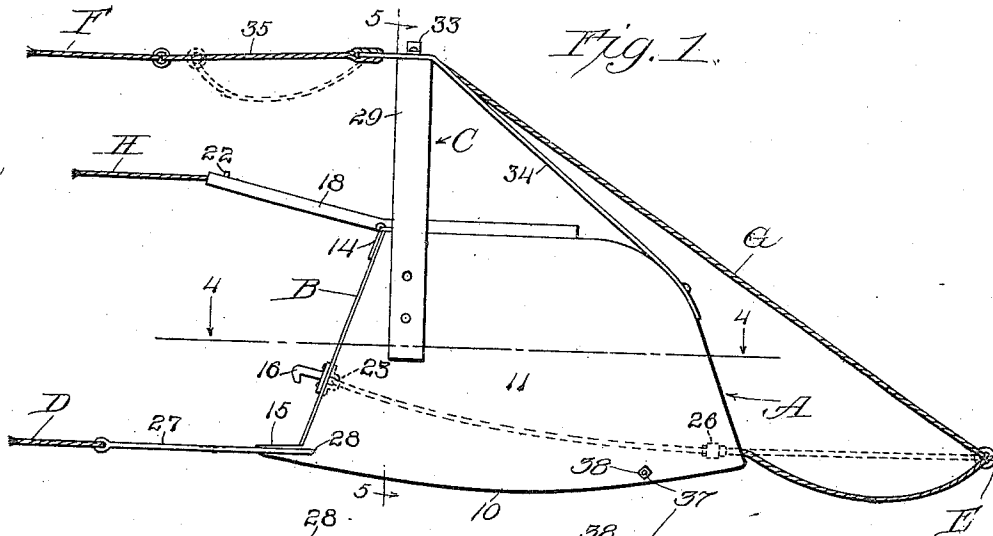
F. ELLIOTT.
SCRAPER.

APPLICATION FILED JAN. 26, 1911.

987,798.

Patented Mar. 28, 1911.

2 SHEETS—SHEET 1.



WITNESSES

Harry S. Gaither
Caroline Weber

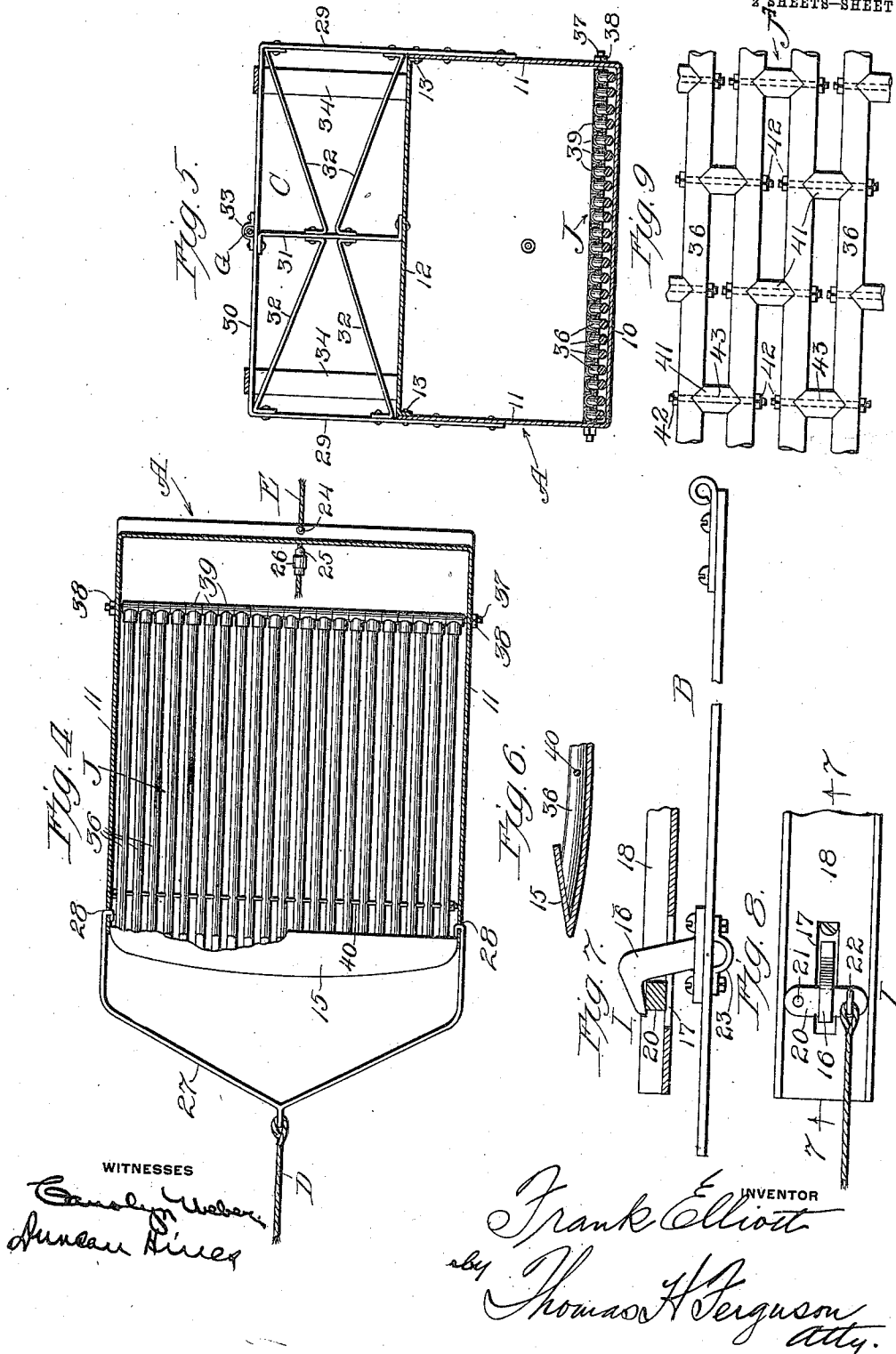
INVENTOR

Frank Elliott
Thomas H. Ferguson atty

987,798.

Patented Mar. 28, 1911.

2 SHEETS-SHEET 2.



UNITED STATES PATENT OFFICE.

FRANK ELLIOTT, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO SAGINAW GOLD AND PLATINUM DREDGING COMPANY, A CORPORATION OF ILLINOIS.

SCRAPER.

987,798.

Specification of Letters Patent.

Patented Mar. 28, 1911.

Application filed January 26, 1911. Serial No. 604,774.

To all whom it may concern:

Be it known that I, FRANK ELLIOTT, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Scrapers, of which the following is a specification.

The present invention relates to scraping or digging apparatus particularly intended for removing sand, gravel and like material from the beds of streams and other bodies of water where such material contains gold, platinum or other valuable minerals, and bringing the same to shore to be washed for the purpose of obtaining such minerals. In apparatus of this type, a receptacle is commonly employed for digging and conveying the material under a control exercised from the shore by means of cables, a draft cable and a re-haul cable being employed to draw the receptacle to and from shore, respectively.

The principal object of the present invention is to provide an apparatus of the above type, which may be readily and accurately controlled, which may be completely closed when once filled so as to prevent the seas from washing out the material in the scraper, and which will collect such "values" in the bottom of the scraper as may be deposited by the wash of the water while the scraper is being filled. To this end, I employ a scraper which may be completely closed by a door at its forward end. This door is set in open position on shore and held open until the scraper is filled and is then tripped and closed, the rehaul cable cooperating in this latter action. By this construction, the objectionable wash of the water during the hauling of the scraper shoreward is avoided. I also employ a set of riffles in the bottom of the scraper, which are so constructed that they may be readily removed. By this means, I am enabled to retain those "values" which may have settled as a result of the wash occurring during the digging operation and before the door has been closed.

In controlling the scraper in its digging operation, I employ a control cable in conjunction with the draft and re-haul cables. This control cable is preferably secured to the upper portion of a frame extending upward from the scraper and, by varying the pull upon it relative to that upon the draft cable, the depth of the layer removed by the

scraper may be readily determined. In this connection, I also employ a connecting cable which joins the control cable and the re-haul cable in such a way as to remove the weight of the latter from the rear of the scraper when the control cable is drawn forward, to cause the scraper to dig into the bed of the stream or to increase the thickness of the layer being dug.

For a fuller understanding of the invention, attention is directed to the following detailed description taken in connection with the accompanying drawing, the scope of the invention being particularly pointed out in the appended claims.

In said drawings, Figure 1 is a side elevation of a scraper and its associated cables, constructed and arranged according to the present invention; Fig. 2 is a plan of the same; Fig. 3 is a detail view illustrating the re-haul cable passing through the guide-opening in the rear of the scraper; Fig. 4 is a horizontal longitudinal section through the scraper, illustrating particularly the riffle structure, the section being taken on a plane indicated by the line 4—4 of Fig. 1; Fig. 5 is a vertical transverse section of the same, taken on a plane indicated by the line 5—5 of Fig. 1; Fig. 6 is a detail view, illustrating particularly the fitting of the riffles under the overhanging lip of the cutting edge of the scraper; Fig. 7 is a detail view illustrating the door of the scraper and the latch mechanism by which it is held in open position, the latch and associated arm being shown in section, the plane of which is indicated by the line 7—7 of Fig. 8; Fig. 8 is a plan view of this latch mechanism; and Fig. 9 is a modified form of riffle structure.

Throughout these parts, like characters refer to like parts.

In the drawing, A designates the body of the scraper; B the door at its forward end; C the frame extending from its upper side; D the draft cable secured near its forward lower edge; E the re-haul cable secured to the door B and extending through an opening in the rear of the body A; F the control cable secured to the upper end of the frame C; G the connecting cable uniting the control cable F and the re-haul cable E so as to provide slack in the latter when the former is drawn tight; H the trip cable for tripping the latch mechanism I by which the door is held in open position.

The body A is composed of any suitable metal shaped so as to provide a bottom 10, sides 11 and top 12, which may be united by rivets 13 or otherwise, so as to provide an inclosure of the general shape illustrated, having an opening at its forward end. The door B comprises a single sheet of like material pivotally secured to the forward edge of the top 12 by hinges 14 and adapted to fit closely against the forward ends of the side walls 11 and against the lip 15 which extends rearward from the forward end of the bottom 10 and forms with it the cutting edge of the scraper. The door B is provided with a hook 16 extending from its outward side and adapted to pass through a slot 17 in an arm 18 extending forward from the upper part of the body A and firmly secured to the top 12 of said body by rivets 19 or otherwise. As clearly illustrated in Figs. 7 and 8, this arm 18 is composed of a channel iron, and the slot 17, through which the hook 16 passes, is located in its web well toward the outer end of the arm. As here shown also, this hook coöperates with a latch 20, which is pivoted at 21 to the web of the arm 18 and is provided with an eye 22 at its opposite end to which the trip cable H is attached. It will be apparent that the door may be latched in its open position by rotating the latch 20 into the position illustrated in Fig. 8, so as to engage the under side of the overhanging portion of the hook 16. When thus positioned, the weight of the door will tend to hold the latch from being moved from its engaging position. However, when it is desired to trip the door and allow it to close, a pull on the cable H will rotate the latch 20 about its pivot 21 and free it from hook 16, to thereby allow the door to close. The re-haul cable E is secured to an eye 23 on the inside of the door B and extends through a guide-opening 24, as illustrated in detail in Fig. 3. When the door is in closed position, the opening 24 is closed by a stopper 25 of rubber or like material, held in place upon the cable E by any suitable means such as a band 26 of metal. This stopper is so positioned that it will close the opening 24 when the cable E is taut and the door B is closed. The draft cable D is secured to the center of a bail 27, which is provided with hooks 28 at its ends, which pass into suitable openings in the sides 11 of the body A adjacent to the cutting edge of the scraper, as clearly illustrated.

The frame C may be of any suitable construction. It should be strong enough to withstand the strains transmitted from the cables F and G. It preferably consists of uprights 29 connected at their top by a transverse member 30, which is here shown as composed of the same strip of material. A central vertical member 31 is connected between the center of the strip 30 and the

top 12 of the body A. Diagonal members 32 connect the center of the strip 31 with the uprights 29. The strip 30 is provided on its upper side with a guide 33 for the connecting cable G. The framework C also includes braces 34 which extend from the upper portion of the framework, being connected in the illustration to the strips 30, to top 12 of the body A near its rear. These several braces are connected together by any suitable means such as rivets. The braces 34 extend slightly forward of the frame C and are there apertured to receive the ends of a bail cable 35, which is connected at its center to the control cable F. The connecting cable G is also secured to the control cable F at its point of attachment to the bail 35. This connecting cable is secured at its opposite end to the re-haul cable E at some distance in the rear of the scraper. The connecting cable G is of such a length that when the control cable F is taut, the re-haul cable E will be drawn up so as to provide slack between its point of attachment to the connecting cable and the scraper, as illustrated in Fig. 1. On the other hand, when the re-haul cable E is taut, then the bail 35, being made up of a piece of cable, will also provide slack between the point of attachment of the control cable F to the connecting cable G and the scraper, as illustrated by the dotted line position in Fig. 1.

In operation, the door B will be set in open position on shore, and the re-haul cable will be used to pull the scraper seaward. When the scraper has been moved to the proper point for digging, the draft cable D and the control cable F will be used to draw the scraper landward. By varying the relative pull upon these two cables, the scraper may be fully controlled in its digging operation. When the cable F is pulled so as to draw the upper end of the frame C forward, the cutting edge of the scraper will dig into the material to be dug and collected. A letting up of the pull on the cable F will allow the upper end of the frame C to move rearward and thereby turn the cutting edge of the scraper slightly upward, and when this relief upon the cable F is sufficient, the scraper will pass entirely out of the material it has been operating upon. In operation, this would be done when the scraper has been sufficiently filled with the material. When this point in the operation is reached, the hand cable H would be pulled on to release the latch I and allow the door B to close under the action of the re-haul cable E, which would then be free to take up all its slack, inasmuch as the cable F would not need to be further used during that digging operation. With the re-haul cable thus pulling against the door B, it would be held tightly closed during the entire shoreward movement of the scraper and its contents

and all slack, necessitated by the presence of the cable G, would be found in the bail 35. With the scraper and its contents thus drawn to shore, it can be dumped in any suitable way and the door again manually set in open position and the operation just described repeated. It will be apparent that while the scraper is being filled, the water will produce a certain wash upon the material in it. Accordingly, the riffle structure J is employed. This structure comprises a plurality of riffles 36 which extend lengthwise of the scraper and are beveled at their forward end so as to fit under the overhanging lip 15 of the cutting edge of the scraper. At their rear ends, each riffle 36, which is preferably a pipe or rod of metal, is secured to a transverse member. This transverse member is preferably a bolt 37 extending through the sides 11 of the body A and secured in place by means of nuts 38, screwed onto its ends. This bolt carries a number of T-connections 39, through which the bolt 37 extends and into the shanks of which the riffles 36 are threaded. A bolt 40 also extends through the riffles 36 at a point near their forward ends. This bolt does not extend through the sides 11 of the body of the scraper, but is merely employed to hold the riffles in place. As the material in the scraper is subject to wash, the gold, platinum and other valuable minerals settle and are collected between these riffles. When it is desired to clean out the scraper, this riffle structure J may be readily removed by withdrawing the bolt 37 and the interior of the scraper cleaned out.

In Fig. 9, I have illustrated a modified riffle structure J'. This structure is the same as the structure J except that the riffles 36 are united by transverse pieces 41 arranged in the staggered relation depicted. These pieces are held in place each by a bolt 43 which passes through it and through openings in the adjacent portions of the riffles 36, as clearly illustrated. Nuts 42 on each bolt secure the parts in position. Obviously other means might be employed for securing these transverse pieces in position.

In carrying out my invention, it will be apparent that there may be many alterations and modifications in the size and shape of the parts without departing from the spirit and scope of my invention. I, therefore, do not wish to be limited to the specific details herein disclosed, but aim to cover all such alterations and modifications by the terms of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is:—

1. A scraping or digging apparatus comprising a scraper, draft and re-haul cables for said scraper and a pivoted door for closing said scraper having its closing movement controlled by one of said cables.

2. A scraping or digging apparatus comprising a scraper, draft and re-haul cables for said scraper and a pivoted door for closing said scraper having its closing movement controlled by said re-haul cable. 70

3. A scraping or digging apparatus comprising a scraper, a draft cable secured to the forward end of said scraper, a pivoted front door for closing said scraper, and a re-haul cable secured to said door and extending rearward from said scraper. 75

4. A scraping or digging apparatus comprising a scraper, a draft cable secured to the forward end of said scraper, a pivoted front door for closing said scraper, a latch for holding said door open, means for tripping said latch, and a re-haul cable secured to said door and extending rearward from said scraper. 80

5. A scraping or digging apparatus comprising a scraper, a draft cable secured to the forward end of said scraper, a pivoted front door for closing said scraper, and a re-haul cable secured to said door and extending through the interior of said scraper and out through a guide-opening at its rear. 85

6. A scraping or digging apparatus comprising a scraper, a draft cable secured to the forward end of said scraper, a pivoted front door for closing said scraper, a latch for holding said door open, means for tripping said latch, and a re-haul cable secured to said door and extending through the interior of said scraper and out through a guide-opening at its rear. 90

7. A scraping or digging apparatus comprising a scraper, a draft cable secured to the forward end of said scraper, a pivoted front door for closing said scraper, a latch for holding said door open, means for tripping said latch, a re-haul cable secured to said door and extending through the interior of said scraper and out through a guide-opening at its rear, and a stopper on said re-haul cable for stopping up said guide-opening when said door is closed. 100

8. A scraping or digging apparatus comprising a scraper, forwardly extending draft and control cables secured to said scraper, a rearwardly extending re-haul cable secured to said scraper, and a connecting cable secured at its ends to said control and re-haul cables, respectively, and of such length as to provide slack in either of said cables between its point of attachment to said connecting cable and said scraper whenever the other is taut. 115

9. A scraping or digging apparatus comprising a scraper, a draft cable secured to the forward end of said scraper, a frame extending upward from said scraper, a control cable secured to and extending forward from the upper end of said frame, a re-haul cable secured to and extending rearward from said scraper, and a connecting cable se- 125

cured at its ends to said control and re-haul cables, respectively, and of such length as to provide slack in either of said cables between its point of attachment to said connecting cable and said scraper whenever the other is taut.

10 10. A scraping or digging apparatus comprising a scraper, draft and re-haul cables for said scraper, and a set of riffles fitted within and resting on the bottom of said scraper.

15 11. A scraping or digging apparatus comprising a scraper, draft and re-haul cables for said scraper, said scraper having a cutting edge with a rearward overhanging lip, and a riffle structure fitted to the bottom of said scraper and having its forward end extending beneath said overhanging lip.

12. A scraping or digging apparatus comprising a scraper, draft and re-haul cables 20 for said scraper, said scraper having a cutting edge with a rearward overhanging lip, and a riffle structure fitted to the bottom of said scraper, comprising longitudinal riffles extending at their forward ends under said 25 overhanging lip, a lateral member for securing said riffles at their rear ends, and means for securing said lateral member to said scraper.

In witness whereof, I hereunto set my 30 hand this 23rd day of January, 1911.

FRANK ELLIOTT.

Witnesses:

CAROLYN WEBER,
DUNCAN HINES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
