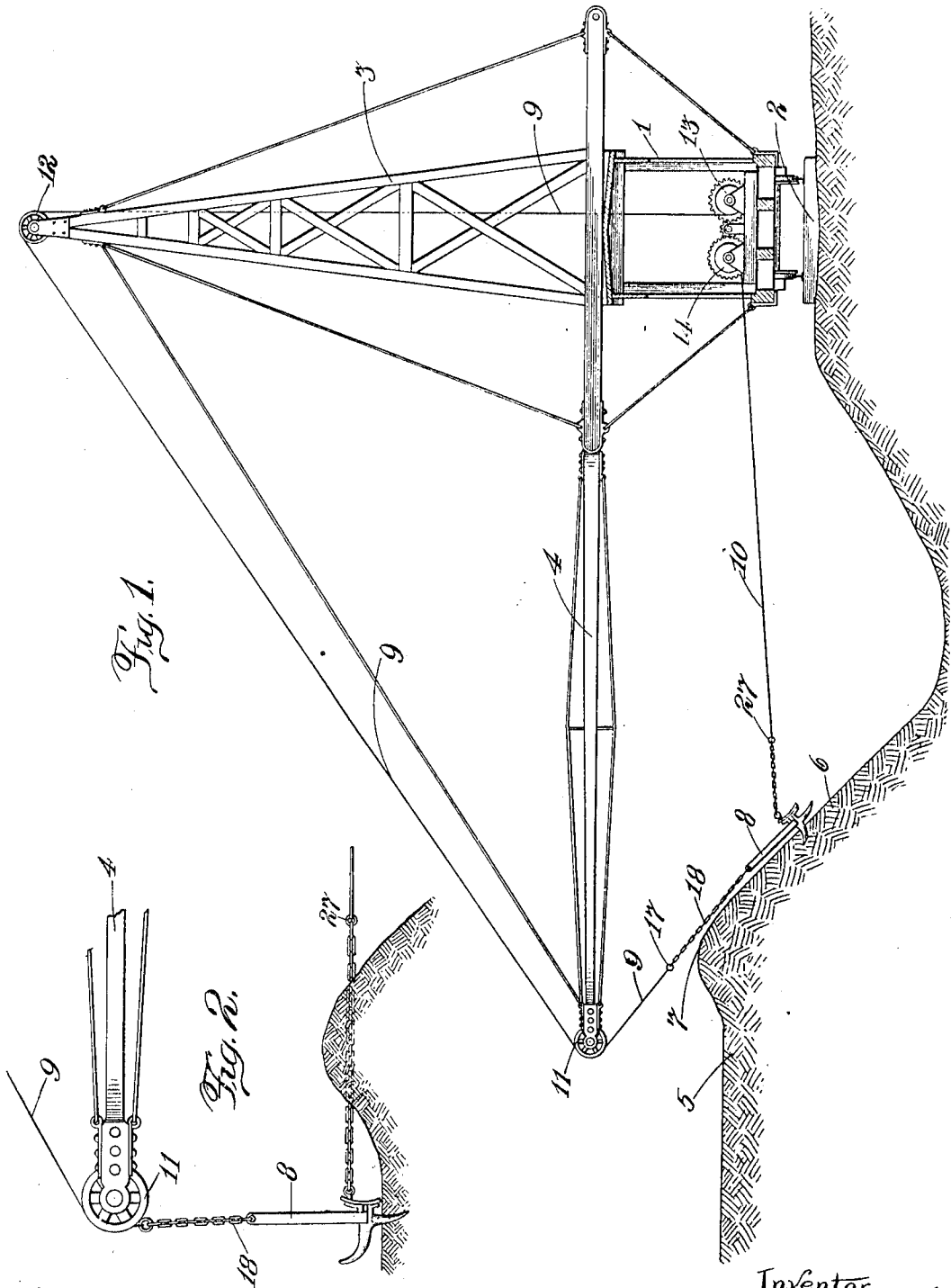


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 DEVICE FOR USE IN PRODUCING BURNT CLAY BALLAST.
 APPLICATION FILED OCT. 8, 1909.

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Patented Feb. 15, 1910.

2 SHEETS—SHEET 1.



Witnesses
 Milton Lenoir
 F. L. Belknap

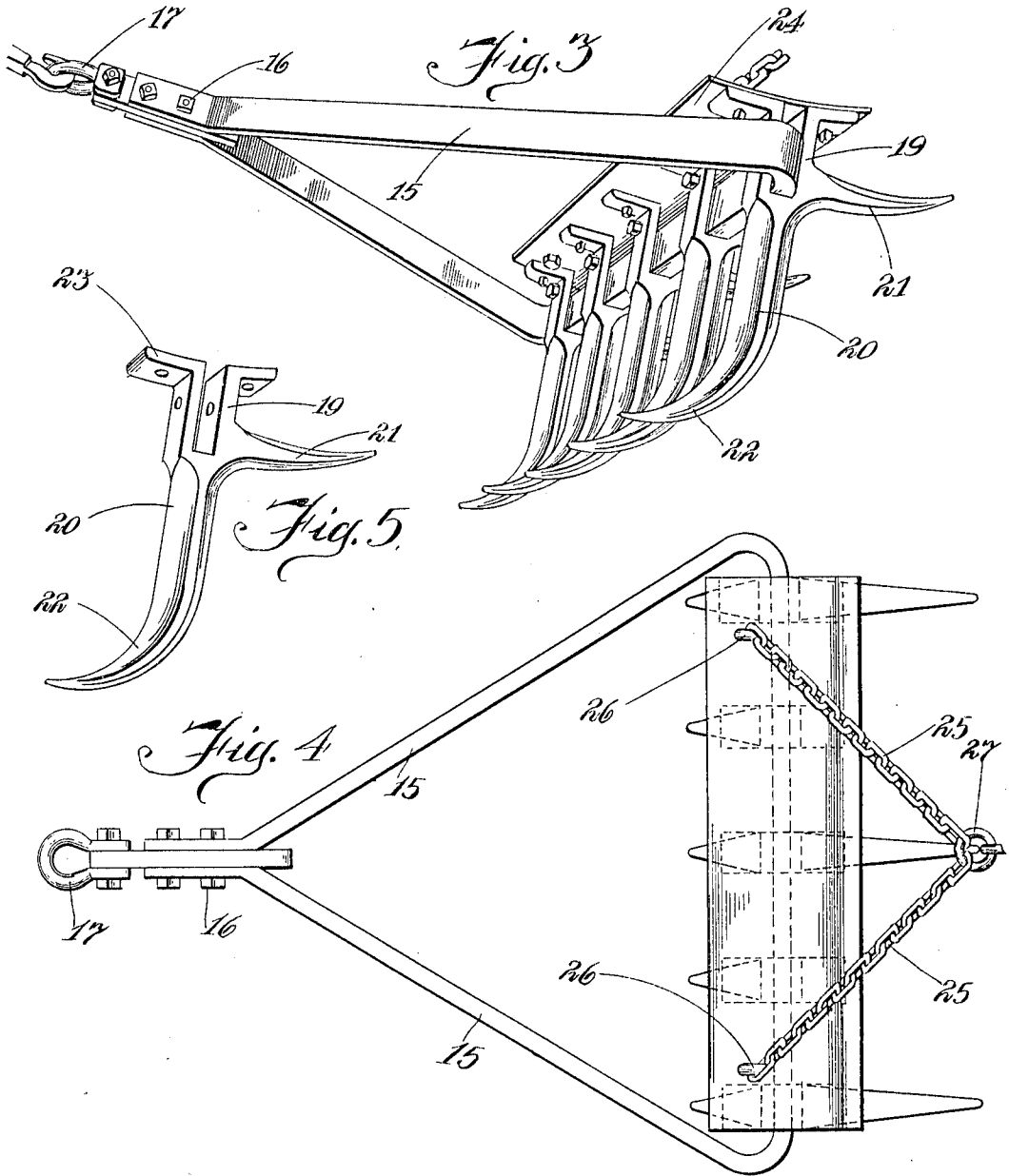
Inventor
 George M. Bennett
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UNITED STATES PATENT OFFICE.

GEORGE M. BENNETT, OF KENOSHA, WISCONSIN.

DEVICE FOR USE IN PRODUCING BURNT-CLAY BALLAST.

949,141.

Specification of Letters Patent. Patented Feb. 15, 1910.

Application filed October 8, 1909. Serial No. 521,717.

To all whom it may concern:

Be it known that I, GEORGE M. BENNETT, a citizen of the United States, residing in the city of Kenosha, county of Kenosha, and State of Wisconsin, have invented certain new and useful Improvements in Devices for Use in Producing Burnt-Clay Ballast, of which the following is a specification.

This invention relates to improvements in devices for use in producing burnt clay ballast and relates more particularly to a device of that general character described in Letters Patent No. 686964 of November 19, 1901, heretofore granted to Bennett and Forgham.

In production of burnt clay ballast, a bank of any desired length is formed where the firing and burning operations are carried on. After firing the mass, there remains a surface crust of considerable depth throughout which the clay is only dried or partially burned. It is accordingly necessary to break up this crust and mix fresh fuel therewith and recover with clay. In practice it is also necessary to draw the partially burned material at the top of the bank over onto the slope of the latter for the reason that it is impossible to develop sufficient heat near the surface to thoroughly burn the top layer of clay. Heretofore the above ends have been accomplished by drawing a harrowing or scraping tool over the inclined slope of the bank and then manually changing the cables, reversing the tool and drawing it in the opposite direction over the top of the bank.

The salient object of the present invention is to provide a device of the general character referred to in which the operations of breaking the crust on the slope and leveling the shoulder or top of the bank may be carried on successively and continuously without necessitating any manual changing of parts and incident delay in operation.

Other objects of the invention are to provide a device which is so constructed and mounted that it is always in operative position whether it be desired to level the shoulder or top of the bank or harrow the slope; to provide a construction which is preferably supported by cables and may be operated in either direction by simply reversing the direction of movement of the cables; to provide an extremely simple and durable construction which is peculiarly adapted to accomplish the above objects and in general to

provide an improved construction of the character referred to.

The invention consists in the matters hereinafter described and more particularly pointed out in the appended claims.

In the drawings—Figure 1 is a rather diagrammatic cross sectional view of a bank for producing burnt clay ballast and the apparatus for supporting and actuating the harrowing tool; Fig. 2 is a fragmentary view of the same, showing the harrow in position for drawing the top of the bank down on to the slope; Fig. 3 is a perspective view of the harrowing tool; Fig. 4 is a top plan view of the same with parts shown in dotted lines; Fig. 5 is a detail perspective view showing the manner of assembling the tool.

Referring to the drawings, 1 designates as a whole a car of common construction mounted upon a track 2 and equipped with a mast 3 and horizontally extending boom 4. The latter projects over a clay bank 5 having a slope 6 and top 7.

8 designates as a whole the harrowing device or tool to which is attached cables 9 and 10. The cable 9 passes over a sheave 11 at the end of the boom to a similar sheave 12 at the top of the mast and thence downwardly to an operating drum 13. The cable 10 is connected to a similar drum 14. The car is provided with a motor (not shown) for rotating the drums to wind up the cables.

Describing now the construction of the harrowing tool 8 which forms an important feature of the present invention, 15 designates a triangular supporting frame, the rear ends of which are bolted together as shown at 16, and equipped with a clevis or eye 17. To the latter is fastened one end of the chain 18, the opposite end of which is connected to the cable 9. To the forward side of the frame 15 are secured a plurality of U-shaped brackets 19 to each of which are integrally connected two teeth designated 20, 21 respectively. The teeth 20 are substantially perpendicular to the frame 15, but are curved slightly forwardly at their ends as shown at 22. The rearwardly extending teeth 21 are or may be shorter than the teeth 22. The upper ends of the brackets 19 are provided with outwardly extending flanges or arms 23 and upon these flanges is mounted a scraper 24 which in the present instance takes the form of a substantially flat plate. To the upper end of the plate are connected

chain sections 25 by means of bolt eyes 26. The free ends of these chain sections are connected to a ring 27 to which is fastened one end of the cable 10.

- 5 The operation of the device may be briefly described as follows: When it is desired to harrow the sloping side of the bank, the cable 9 is wound up and the cable 10 gradually unwound until the harrow has been
10 drawn over the top of the bank. The cables are then released sufficiently to permit the teeth to swing into the position shown in Fig. 2 whereupon the direction of the cables is reversed and the harrow drawn over the
15 top of the bank. When the harrow is being drawn up the slope, the teeth 20 operatively engage the bank and break up the crust as heretofore stated. When the harrow is operated in the opposite direction, the
20 teeth 21 engage the bank and hold the device down and cause the scraper to draw the top of the bank over on to the slope. When either one of the cables is acting as a draft-cable, the opposite cable serves as a depth
25 regulating cable. The car is moved parallel with the bank in the ordinary manner.

From the foregoing it will be seen that the arrangement is such that the operations of harrowing the slope and drawing over the
30 top of the bank may be carried on successively and continuously, thus materially decreasing the time of operation and consequently reducing the cost.

In its broader aspects, the invention is
35 not limited to the particular details of construction shown as it is apparent that they may be more or less varied, without in any manner departing from the spirit of the invention.

40 I claim as my invention:

1. In a device of the character described, the combination with a frame structure mounted adjacent a bank, of a harrowing device comprising opposed soil engaging
45 members, each of said members being angularly disposed relative to the line of draft when in operative position, and extending substantially in the line of draft when in inoperative position, and operative connections between said structure and the harrowing device.
50

2. The combination with a frame structure mounted adjacent a bank, of a harrowing device comprising a supporting frame, opposed sets of teeth mounted thereon, each set being angularly disposed relative to the line of draft when in operative position and extending substantially in the line of draft when in inoperative position and a scraper carried by said frame. 55

3. The combination with a frame structure mounted adjacent a bank, of a harrow provided with opposed sets of teeth, and operative connections between said frame structure and harrow, whereby the opposed sets of teeth may successively engage said bank. 60

4. The combination with a frame structure, of a boom carried thereby and extending above a bank, a cable extending from said frame and toward the slope of the bank, a second cable trained over said boom and extending back to the frame, means for drawing said cables in either direction, a harrowing tool to which said cables are connected, said tool having harrowing devices
75 angularly disposed relative to each other.

5. The combination with a frame structure, mounted adjacent a bank, of a harrowing device provided with sets of teeth angularly disposed relative to each other, a pair of operating cables connected to said harrow, and means for drawing said cables in either direction, whereby the sets of teeth alternately and successively operatively engage said bank. 80

6. In a harrowing tool, the combination with a main frame, of opposed sets of harrowing teeth angularly disposed relative to each other, and a scraper carried by said main frame. 85

7. In a harrowing tool, the combination with a plurality of substantially U-shaped bracket members, each bracket having a pair of teeth integrally connected thereto and angularly disposed relative to each other, a supporting frame to which said brackets are connected, and a scraper mounted upon the upper ends of said brackets. 90

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Witnesses:

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