

(No Model.)

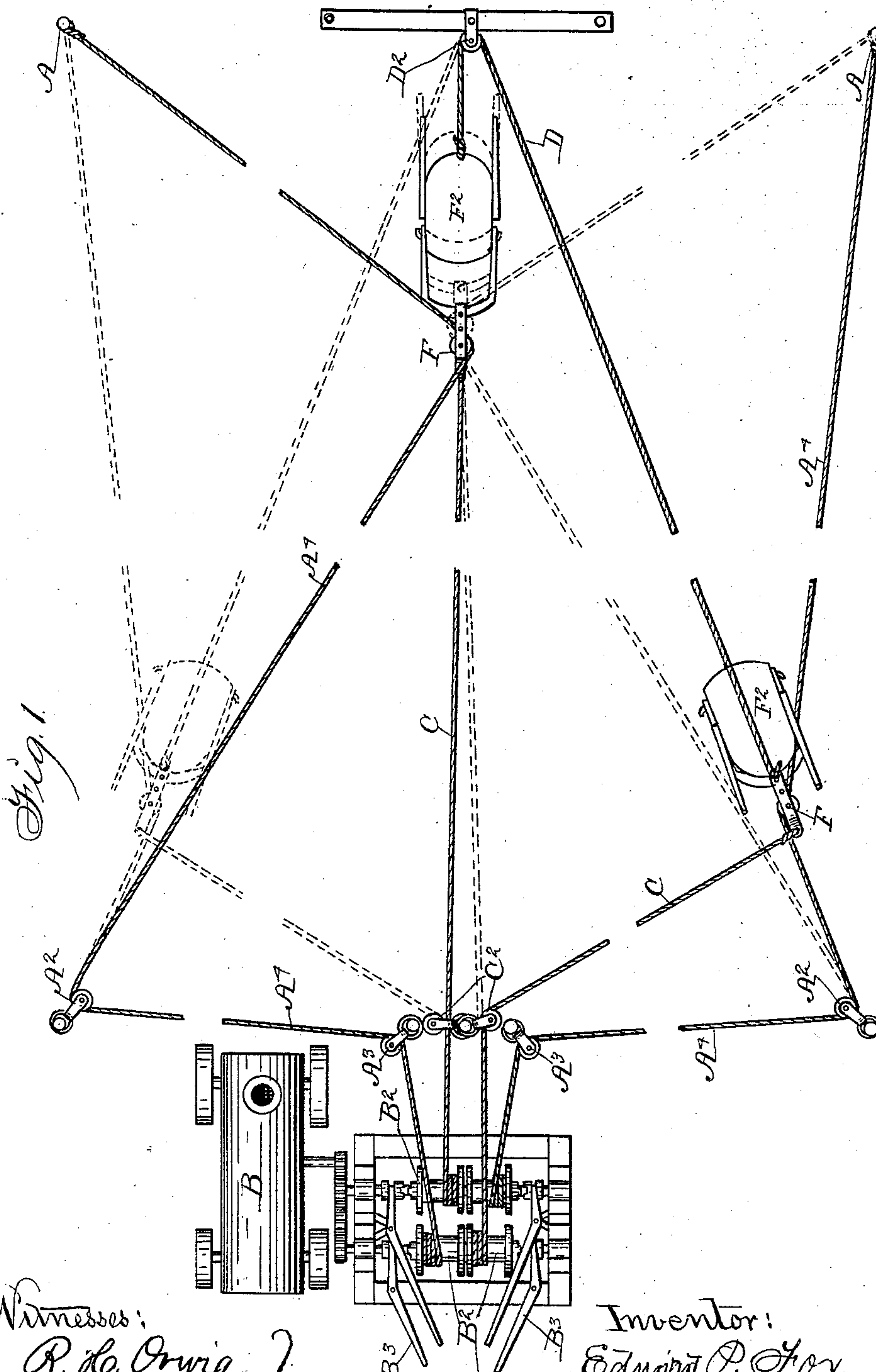
3 Sheets—Sheet 1.

E. P. FOX.

APPARATUS FOR DITCHING OR GRADING.

No. 529,026.

Patented Nov. 13, 1894.



Witnesses:

P. H. Orwig.

C. F. Wilson.

Inventor:

Edmund P. Fox

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Attorneys.

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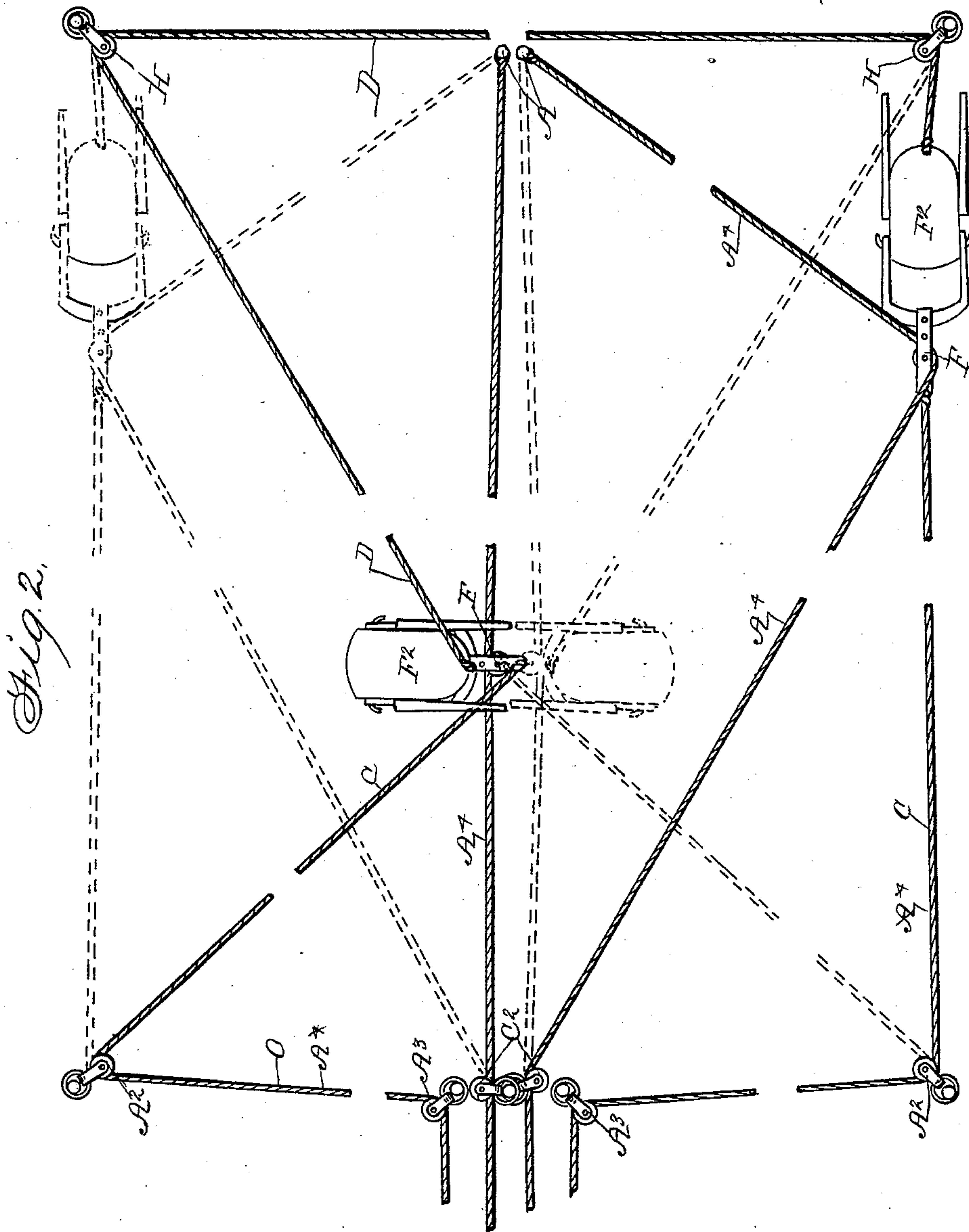
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Witnesses:
R. H. Orwig,
G. F. Wilcox.

Inventor: Edward P. Fox,

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Attorneys.

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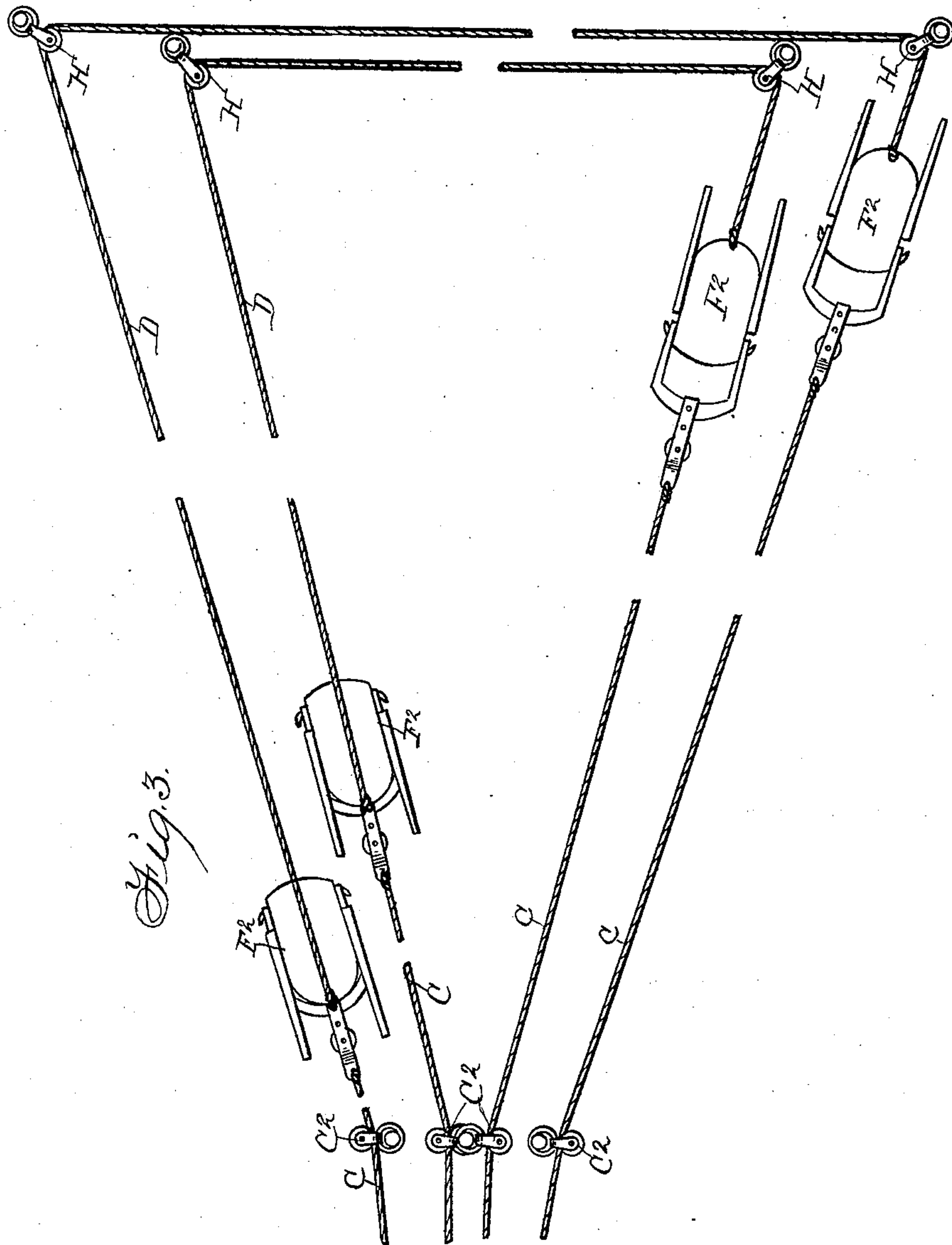


Fig. 3.

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UNITED STATES PATENT OFFICE.

EDWARD P. FOX, OF GARNER, IOWA.

APPARATUS FOR DITCHING OR GRADING.

SPECIFICATION forming part of Letters Patent No. 529,026, dated November 13, 1894.

Application filed February 2, 1894. Serial No. 498,824. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. FOX, a citizen of the United States of America, residing at Garner, in the county of Hancock and State of Iowa, have invented a new and useful Apparatus for Ditching or Grading, of which the following is a specification.

The objects of my invention are to provide means for operating two or more scoops by means of cables run over stationary drums as required to dig a ditch or level the ground surface and so arranged that when one scoop is being filled and advanced the other is being drawn backwardly into position to be filled and my object is further to provide means whereby the movement of the scoops when filled and being advanced may be controlled by an operator stationed at the said drums.

To this end my invention consists in the arrangement and combination with two or more scoops, of cables and pulleys, &c., and means for advancing said cables, as hereinafter set forth, pointed out in my claims and illustrated in the accompanying drawings, in which—

Figure 1 is a top or plan view of the apparatus arranged to dig a ditch and deposit the earth along its sides, with the operation of the apparatus illustrated by dotted lines. Fig. 2 is a like view of the apparatus arranged to scoop the earth from the side of a ditch into the ditch the movement of the scoops and cables also being illustrated by dotted lines. Fig. 3 is a view of another modification in which four scoops are arranged to move the earth from one point to another.

Referring to Fig. 1 of the accompanying drawings, the arrangement of the pulleys, &c., to accomplish the desired result is as follows: The stakes A, A, are placed in the ground at the sides of the place where the ditch is to be dug at such a distance therefrom as it is desired to dump the earth. Pulleys A², A², are located at the opposite end of the place where the ditch is to be dug the same distance from the ditch as said stake, and the pulleys A³, A³ are located so as to direct the cable from thence to the point where the power is to be applied. A⁴ and A⁴ indicate the cables that are fixed to said stakes and passed around said pulleys.

B indicates an engine and B² are drums

mounted upon shafts that rotate during the operation of said engine and said drums are provided with levers B³ whereby they may be thrown in and out of gear with said shafts.

C C indicate cables connected with the forward ends of the scoops and passed through the direction pulleys C², C² located in the line of the ditch.

D indicates a cable with its ends attached to the rear ends of the scoops and its central portion passed around a pulley D² located at the rear end of the ditch. Pulleys F are attached to the front ends of the scoops F² and have the cables A⁴ passed therethrough. By this arrangement of the pulleys, cables, &c., it will be obvious that the scoops may be drawn out of the ditch and directed to any desirable point in advance of the part of the ditch from that in which it was taken and between the pulleys C² and A³ and while one scoop is being advanced the other is drawn backwardly into the ditch, the cable D being of such a length as to permit the scoop to be at the farthest limit of its movement while the other is in the ditch ready to be loaded.

In the modified arrangement of the apparatus for replacing the earth into a ditch from its sides, the backing cable D is passed over the pulleys H, H, at the rear end of the ditch and in alignment with the piles of earth at the sides thereof. The cables A⁴ are attached to stakes at the center of the ditch and pass through the pulleys C², and the pulleys at the ends of the scoops and the cable C is attached to the scoops and passed through the pulleys A² and A³. It will be observed that the same arrangement of pulleys, &c., is used only the cables are passed therethrough in such a manner that when the scoops are drawn rearwardly they will move away from the ditch and when advanced may be made to enter the ditch.

In the modified arrangement of the apparatus shown in Fig. 3 when it is desired to level off the ground surface but part of the invention is used—that is the backing cables D applied in the same manner as in Fig. 2 and one cable attached to the front of each scoop. Two sets of scoops are shown but both are arranged in a like manner so that further description thereof is deemed unnecessary.

In practical operation it will be seen that in either arrangement of the apparatus as

illustrated by Figs. 1 and 2, certain elements are held in common and whatever the disposition of the pulleys or stakes their functions are the same and I desire to claim the said arrangement and combination without regard to the exact location of the pulleys except as relative to each other for it will be obvious that their location must be slightly changed on almost every ditch or grading to conform with the conditions of the ground and surrounding objects.

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

1. A grading and ditching apparatus, comprising two scoops, one or more pulleys attached to stationary supports at the rear of the ditch, a cable attached to the rear end of each scoop and passed over said pulley or pulleys, two cables fixed to stationary supports located in the rear of the scoops and at the same distance laterally from the said pulley or pulleys as it is desired to convey the earth from the ditch, or vice versa, pulleys attached to the forward ends of the scoops over which said cables are passed, the cables attached to

the forward ends of the scoops and two pulleys located in advance of the scoops, and at such a distance laterally from the aforesaid cables as it is desired to move the earth from the ditch or vice-versa, and means for applying power to any of said cables to advance the scoops.

2. An apparatus for digging ditches, comprising two scoops, a pulley located at the rear central portion of the ditch, a cable attached to each scoop and passed around said pulley, a pulley attached to the front end of each scoop, two pulleys located at opposite sides of the ditch and in advance thereof, cables fixed to stationary supports in the rear of the ditch passed around said pulleys in the scoops and around the latter mentioned pulleys, two pulleys located in alignment with and in advance of the ditch and cables attached to the scoops and run through said pulleys and means for applying power to said cables for the purposes stated.

EDWARD P. FOX.

Witnesses:

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