

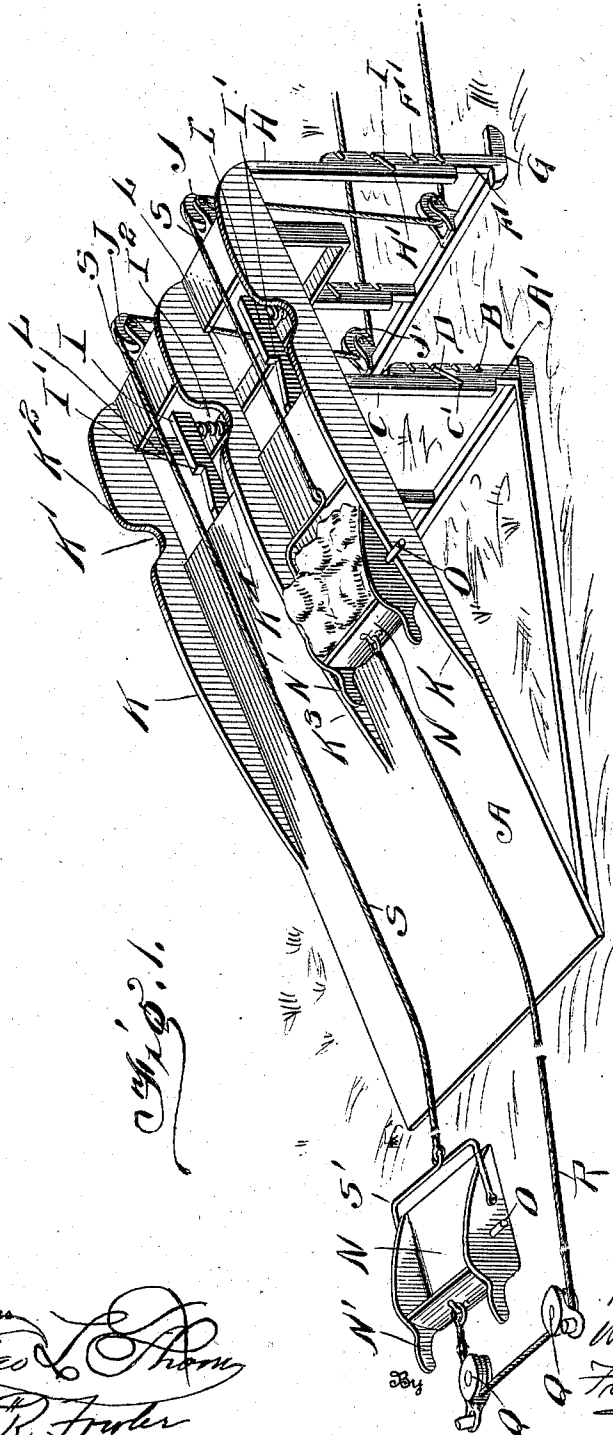
B. CURTISS & W. A. MONROE.  
EXCAVATING APPARATUS.

APPLICATION FILED APR. 14, 1909. RENEWED APR. 18, 1910.

967,733.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 1.



Witnesses  
*Geo. L. Thorne*  
*A. R. Fowler*

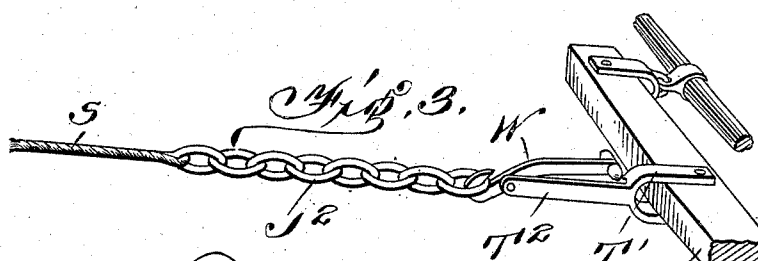
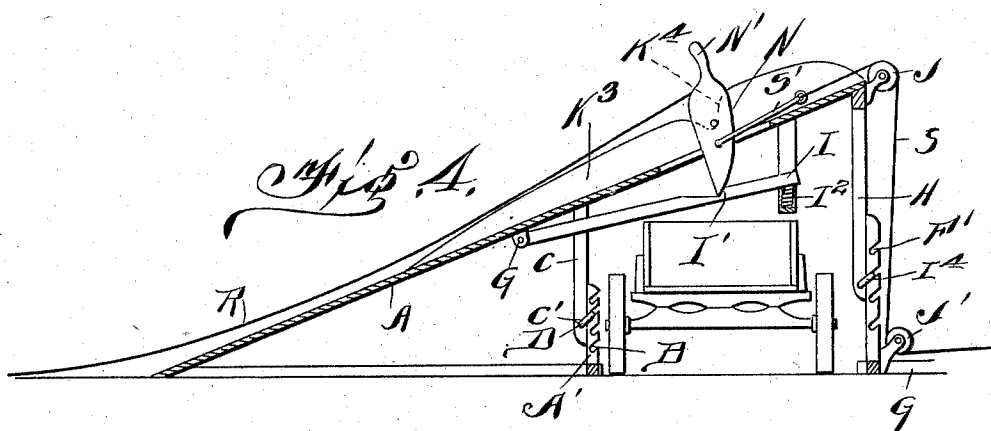
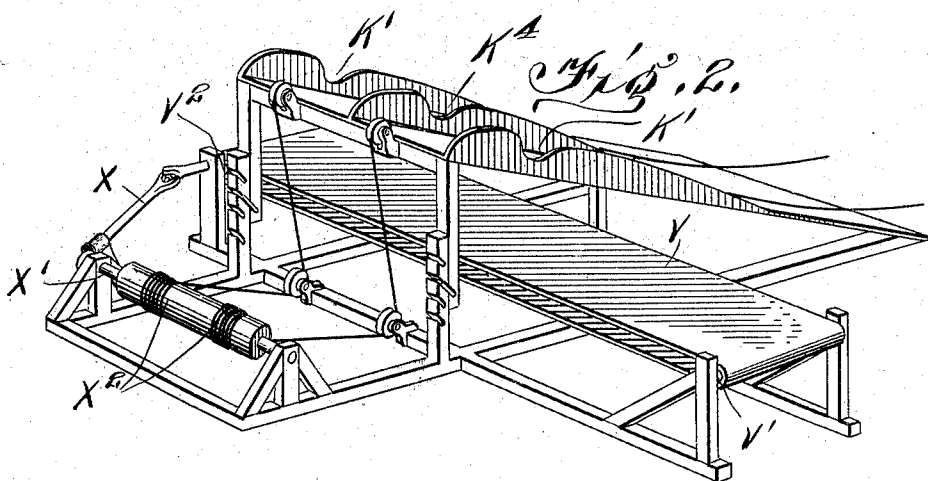
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## EXCAVATING APPARATUS.

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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

BIRD CURTISS AND WILLIAM A. MONROE, OF SPOKANE, WASHINGTON.

## EXCAVATING APPARATUS.

967,733.

Specification of Letters Patent.

Patented Aug. 16, 1910.

Application filed April 14, 1909, Serial No. 489,947. Renewed April 18, 1910. Serial No. 556,240.

*To all whom it may concern:*

Be it known that we, BIRD CURTISS and WILLIAM A. MONROE, citizens of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Excavating Apparatus; and we 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in excavating apparatus and comprises various details of construction, combinations and arrangements of parts which will be hereinafter fully described and then specifically defined in the appended claims.

We illustrate our invention in the accompanying drawings, which with the letters of reference marked thereon form a part of this application and in which:—

Figure 1 is a perspective view of the excavating apparatus. Fig. 2 is a perspective view showing a modification of the power apparatus for operating the device, Fig. 3 is a detail view of means for connecting the cable with a whiffle tree and Fig. 4 is a vertical sectional view, parts being shown in elevation.

Reference now being had to the details of the drawings by letter, A designates a double inclined track having posts A' with inclined notches B formed therein. Beams C project from the under surface of said inclined track and has apertures C' therein in which the loops D are mounted and which are adapted to engage one or another of the inclined grooves B in the posts A' for the purpose of determining the inclination of said tracks. Additional posts F having inclined notches F' are provided, which posts F are fixed to the beams G and beam H also fastened to the under edge of the inclined tracks are provided with apertures H' for the reception of the links or loops I which are adapted to engage the slots F' for the purpose of cooperating with the loops or links D to hold the tracks securely at given inclinations. Along the opposite marginal edges of the inclined tracks are the vertically disposed flanges K, each of which

has a recess K', one of the marginal edges of each of which K<sup>2</sup> is curved as shown and is adapted to serve as a stop to limit the movement of a scraper which will be presently described. Intermediate the two inclined tracks is a similar flange, designated by letter K<sup>3</sup>, and also provided with a recess K<sup>4</sup> similar to the recess K' above described. Said tracks have openings, designated by letter L, at their upper ends through which the dirt may be dumped.

N, N designate scrapers having handles N', and pins O project in alinement with each other from the opposite sides of the scraper, said pins being adapted to ride upon the upper marginal edges of said flanges K and K<sup>3</sup> as the scrapers are drawn up the inclined tracks.

Sheaves Q are positioned at any suitable location where the excavating is to take place and have a cable R passing thereabout, which cable has one end secured to one of the scrapers and its other end to the other scraper, and a second cable S is fastened at one end to the bail S' of one scraper and its other end secured to the bail S' of the other scraper. Sheaves J are mounted upon the upper edge of the inclined tracks and over which the cable S is adapted to pass, the latter pulling underneath the sheaves J'. A chain J<sup>2</sup> is fastened at its ends to the end of the cable S, and T designates a double tree having a clevis T' fastened thereto, said clevis having projecting shank portions T<sup>2</sup> to which a hook W is pivotally connected. Said hook is adapted to engage one of the links of the chain J<sup>2</sup> and so arranged that, by swinging the hook upon its pivot, the double tree may be easily and quickly detached from the cable S. Pivotaly connected to the inclined tracks are the tripping bars I, each having a shoulder I', and I<sup>2</sup> designates a spring which is fastened at one end to the tripping member and its other end to a hinge G and serves to normally hold the tripping member at its farthest upper throw.

In Fig. 2 of the drawings, I have shown a slight modification of my invention in which power from any suitable motor is adapted to be applied to the apparatus for operating the scrapers and also an endless carrier. Positioned underneath the openings in said inclined tracks is an endless conveyer V passing about the rollers V' and V<sup>2</sup>, the latter of which has gear connec-

tion with a shaft X which is driven by gear connection with a shaft X' carrying the winding drums X<sup>2</sup>, said shaft X' being adapted to be driven by any suitable power.

- 5 In operation, it will be noted that, as one scraper is drawn up an inclined track, the other moves downward and, as the scraper rides up the inclined track, the pins O projecting from the ends of the scraper riding  
10 upon the inclined edges of the flanges will cause the scraper to rise slightly from the track and, when the pins enter the recesses K' and K<sup>4</sup>, the front edge of the scraper coming in contact with the shoulder I' will  
15 cause the trip member to be depressed and a further forward movement of the scraper will cause the scraper to dump through the opening in the inclined track. The upright wall forming the upper edge of the recesses  
20 K' and K<sup>4</sup> will arrest the further forward movement of the scraper after it has been dumped and, as the second scraper is drawn up the inclined track, the empty one will return, being drawn back by the cable connected thereto.  
25

By the construction shown, it will be observed that, when it is desired to move the apparatus from one place to another, it may be skidded upon rollers passed underneath  
30 the framework of the apparatus.

What we claim to be new is:—

1. An excavating apparatus comprising inclined tracks, vertically disposed flanges adjacent to said track and having recesses  
35 therein, scrapers and means for alternately drawing the same up said inclined tracks, pins projecting from the ends of said scrapers and adapted to ride upon said flanges, said flanges having recesses therein into  
40 which said pins move, a spring-pressed tripping member positioned underneath the scraper and adapted to be engaged by the forward edge thereof, and means for limiting the upper movement of the scraper, as  
45 set forth.

2. An excavating apparatus comprising inclined tracks, vertically disposed flanges adjacent to said track and having recesses therein, scrapers and means for alternately  
50 drawing the same up said inclined tracks,

pins projecting from the ends of said scrapers and adapted to ride upon said flanges, said flanges having recesses therein into which said pins move, a spring-pressed tripping member positioned underneath the  
55 scraper and adapted to be engaged by the forward edge thereof, the upper edge of said recesses adapted to form stops for limiting the forward movement of the scraper, as set forth.  
60

3. An excavating apparatus comprising inclined tracks, vertically disposed flanges adjacent to said track and having recesses therein, scrapers and means for alternately  
65 drawing the same up said inclined tracks, pins projecting from the ends of said scrapers and adapted to ride upon said flanges, said flanges having recesses therein into which said pins move, a spring-pressed tripping member positioned underneath the  
70 scraper and adapted to be engaged by the forward edge thereof, the upper edge of said recesses adapted to form stops for limiting the forward movement of the scraper, a cable connecting said scrapers, pulleys upon  
75 which said cable travels, and a cable connected to and adapted to raise alternately the scrapers upon the inclined tracks, as set forth.

4. An excavating apparatus comprising  
80 inclined tracks, an adjustable framework upon which the same are mounted, vertical longitudinal flanges upon said tracks and provided with recesses, said tracks having openings therein, scrapers having pins pro-  
85 jecting from the opposite sides thereof, a cable fastened at its ends to said scrapers and passing over pulleys, a cable connected to each scraper for raising the same, and means for automatically dumping the  
90 scraper, as set forth.

In testimony whereof we have hereunto affixed our signatures in the presence of two witnesses.

BIRD CURTISS.  
WILLIAM A. MONROE.

Witnesses:

GEORGE W. ANSLEY,  
ANDERSON BIRD RAILTIN.