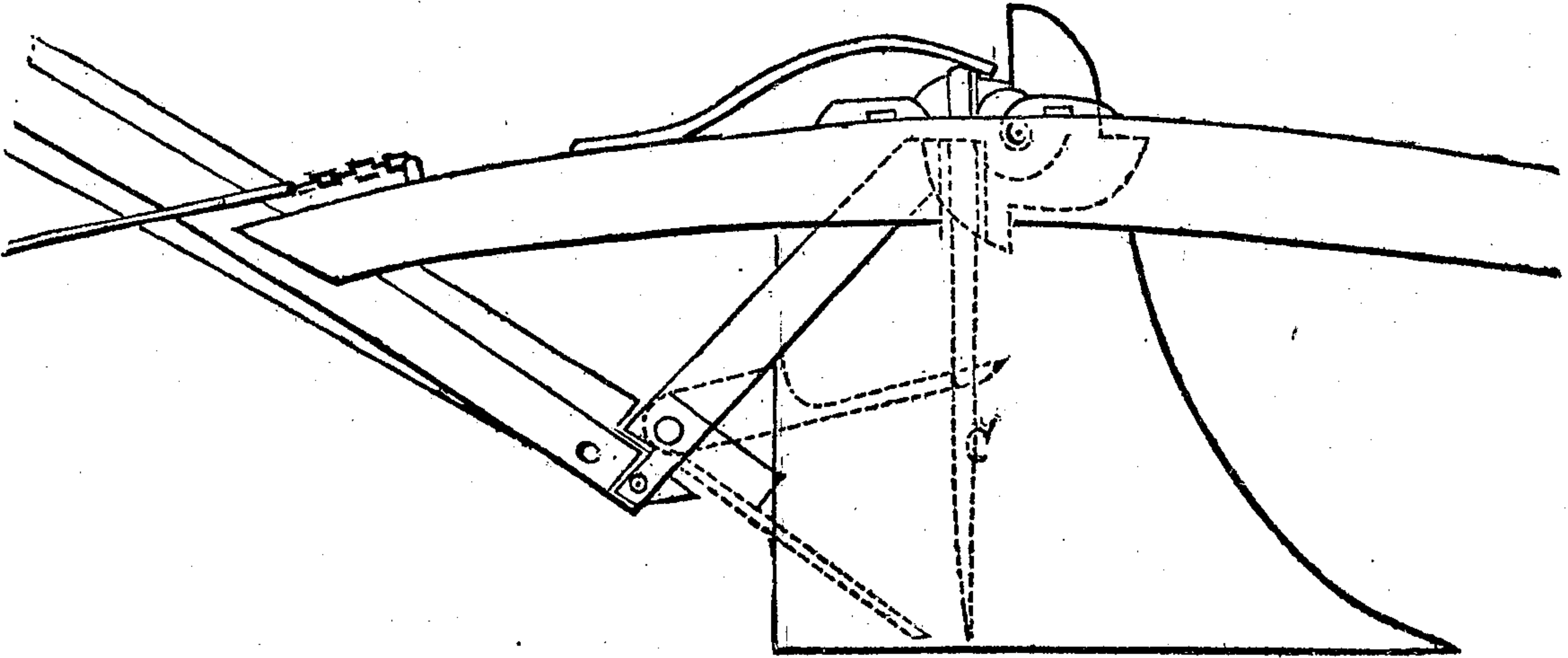


C. A. ROBBINS.

EXCAVATOR AND DITCHING PLOW.

No. 11,948.

PATENTED NOV. 14, 1854.



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UNITED STATES PATENT OFFICE.

CHARLES A. ROBBINS, OF IOWA CITY, IOWA.

EXCAVATOR AND DITCHING-PLOW.

Specification of Letters Patent No. 11,948, dated November 14, 1854.

To all whom it may concern:

Be it known that I, CHARLES A. ROBBINS, of Iowa City, in the county of Johnson and State of Iowa, have invented a new and
5 Improved Excavator and Ditching-Plow; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings,
10 making a part of this specification, in which—

Figure 1, is a plan or top view of my improved machine. Fig. 2, is a side view of ditto. Fig. 3, is a transverse section of
15 ditto, taken at the line (*x*), (*x*), Fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and improved excavator and ditching plow, and
20 consists, 1st, in the employment or use of a vertical reciprocating cutter, so arranged and adjusted to the share, as to cut the earth into sods or pieces, as the machine is drawn along, and thereby rendering the earth easy
25 of removal, either by hand or by endless aprons.

To enable others skilled in the art, to fully understand and construct my invention, I will proceed to describe its construction.

30 A, A, represent the beams constructed in the usual manner, and provided at their outer ends with gauge wheels for regulating the depth of plowing.

B, represents the share formed of two
35 vertical side pieces (*a*), (*a*), having a horizontal bottom plate (*b*), the sides and bottom plate having knife edges. One of the sides (*a*), projects some distance beyond the other side, so that the cutting edge of the
40 bottom plate (*b*), has an oblique or diagonal position compared with the beams A, A, or the line of draught, and consequently the plate (*b*), acts with a "drawing cut" upon the earth, see Fig. 1. The cutting edges of
45 the side pieces (*a*), (*a*), are also curved from their upper ends outward to their lower ends, for the same purpose, see Fig. 2.

C, is a vertical reciprocating cutter, placed transversely between the two side pieces (*a*),
50 (*a*), of the share, and (*c*), (*c*), are rods which are secured to the upper edge of the cutter, and work through guides or sockets (*d*), (*d*), the rods being connected at their upper ends by a cross rod (*e*), shown clearly
55 in Fig. 3.

D, is a transverse shaft running in suit-

able bearings in the beams A. A; and E, is a wiper wheel on said shaft which acts upon the cross rod (*e*), as it rotates, motion being given the wiper wheel by a band (*f*), which
60 passes around a pulley (*g*), on one of the gauge wheels, and around a pulley (*h*), on one end of the shaft D, see Fig. 1.

F, is a spring which acts upon the cross rod (*e*), and depresses the cutter C, as the
65 projections on the wiper wheel, in rotating, pass from underneath the cross rod.

G, is an inclined endless apron placed at the back of the share B, and between the beams A, A, motion is given this apron by
70 means of a band (*i*), which passes around the pulley (*h*), on the shaft D, and also around a pulley (*j*), on the lower roller of the endless apron G, see Fig. 1.

H, is an inclined plate attached at its
75 upper end by pivots (*k*), (*k*), to the lower end of the frame of the endless apron G; the lower end of this plate rests upon the back part of the horizontal plate (*b*), which forms the bottom of the share B, see Figs. 80
1 and 2.

I, is an endless apron which is placed transversely at the back end of the apron G, see Fig. 1. This apron I, is horizontally
85 placed, and communicates with an inclined apron J; the frame K, of which is secured by hinges or pivots (*l*), (*l*), to one end of the frame K', of the apron I, see Fig. 1. Attached to the lower part of the frame K,
90 of the apron J, there is a horizontal frame L, supported at its outer end by a wheel M, which was upon the ground, see Figs. 2 and 3.

N, N, are segment arms attached to the undersides of the frame K, and passing
95 through the sides of the horizontal frame L. The segment arms are provided with set screws or pins, whereby the endless apron J, may be more or less inclined, as desired.

Motion is given the aprons, I, J, by means
100 of a belt (*m*), which passes around a pulley (*n*), on the axis of the wheel M, and around a pulley (*o*), on a shaft in the horizontal frame L; said shaft having a pulley (*p*), at one end, around which, a belt (*q*), passes;
105 said belt also passing around a pulley (*r*), on the lower roller of the apron J. A belt (*s*), also passes around the pulley (*r*), and a pulley (*t*), in one of the rollers of the apron I, as shown in Fig. 1. The machine
110 being drawn along, the share B, penetrates the earth which passes into the share between

the sides (a), (a), and the reciprocating vertical cutter C, cuts the earth into sods or pieces, which pass up the inclined guide plate H, upon the apron G, and are conveyed by said apron upon the apron I, and from thence upon the apron J, which deposits them in a cart or wagon which is driven along underneath the apron J, at the same rate of speed as the machine; said apron J, being raised or lowered by means of the segment arms N, N, so as to suit the height of said cart or wagon, and also to suit the character of the earth, which, if loose or dry, will require the apron J, to be rather depressed to prevent its falling back; but if tenacious and damp, the apron may be considerably elevated.

In cases where it is not desirable to have the earth carried away from the place excavated, as in ditching, where the earth is frequently required for forming embankments at the sides of the ditch, the guide plate H,

is elevated, as shown by the dotted lines in Fig. 2, and the earth passes through the share, and remains cut in pieces in the ditch or furrow, and is removed by hand to the desired place.

I do not claim a series of endless aprons for conveying the earth into carts or wagons, irrespective of forming one or more of them adjustable, for they have been previously used; but

What I claim as new and desire to secure by Letters Patent, is:—

The employment or use of the vertical reciprocating cutter C, arranged substantially as shown, for the purpose of cutting the earth into sods or pieces, for the purpose of rendering the earth easy of removal, either by hand or by endless aprons.

CHARLES A. ROBBINS.

Witnesses:

H. W. FYFFE,
JOS. E. FALES.