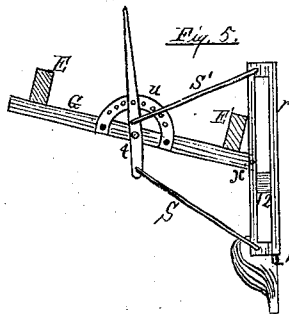
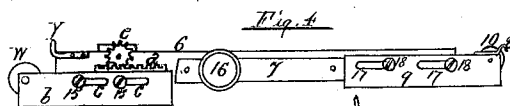
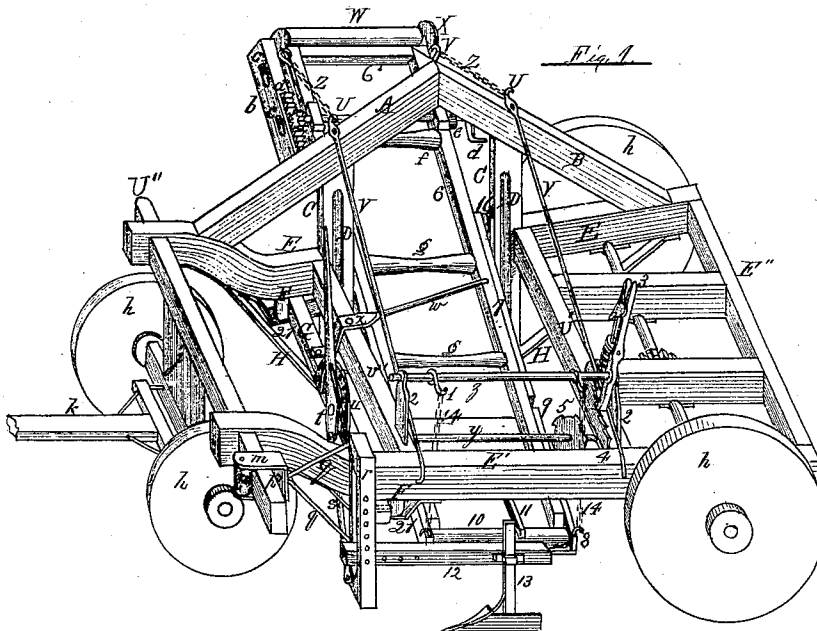
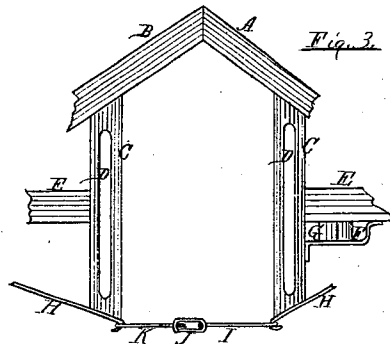
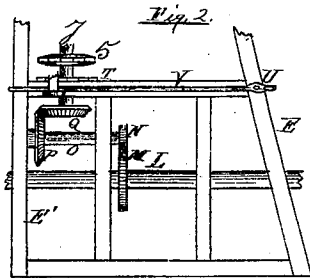


Gilmore & Forrest, Excavator.

No. 110,753.

Patented Jan. 3, 1871.



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Inventors.
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UNITED STATES PATENT OFFICE.

DAVID GILMORE AND WILLIAM W. FORREST, OF PEOTONE, ILLINOIS,
ASSIGNORS TO GEORGE LAIDLAW, OF SAME PLACE.

IMPROVEMENT IN EXCAVATORS.

Specification forming part of Letters Patent No. 110,759, dated January 3, 1871.

To all whom it may concern:

Be it known that we, DAVID GILMORE and WILLIAM W. FORREST, of Peotone, in the county of Will and State of Illinois, have invented an Improved Excavator; and we do hereby declare that the following is a full and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, and letters marked thereon, making a part of this specification, in which—

Figure 1 is a perspective representation of our improved excavator. Fig. 2 is a broken plan view of the rear part thereof; Fig. 3, a broken elevation of the truss that supports the frame of the endless belt or carrier; Fig. 4, a side elevation of the frame of the endless belt or carrier; Fig. 5, an elevation, showing how the plow is made to retain its upright position when the frame of the excavator is inclined.

The present invention relates to an improved earth-excavator, which takes the earth at one side of the machine and deposits, by means of a carrier, into a wagon or other vehicle; and its nature consists, first, in the novel construction of the mechanism whereby the plow is kept in an upright position when the frame of the excavator is inclined, and in the mechanism employed to adjust the plow to and from the elevator; second, in the novel construction of the extension-elevator; third, in the novel construction of a truss-frame, by means of which the machine is made very strong, and so as to admit of any desired adjustment of the elevator, and allow the latter to be readily removed for repairs or other purposes, as the whole is hereinafter described.

U U' U'' E E' E'' represent the principal part of the main frame of the machine, which is mounted on wheels *h h*, in the ordinary manner, the axle-tree of the forward wheels being pivoted to a bolster projecting down from that part of the frame shown at U'', Fig. 1, so as to allow the machine to turn around.

Fastened to the frame-piece U U' are slotted standards D, which project above and below the main frame, and which are fastened at their top ends to a truss, A B, whose outer ends have a firm fastening on the top of the

frame-pieces E, and whose lower ends are provided with braces H, which fasten to the under sides of the frame-pieces E, and have on their lower ends hooks, by means of which a swivel connecting-rod, I K, provided with a tightening-nut, J, is made to complete a compound truss both light and strong.

An elevator-frame (shown in Figs. 1 and 4) consists of an inner rectangular frame, 6 6', which supports anti-friction rollers *g g*, &c., over which an ordinary endless belt is carried. To the lower and upper ends of this frame are fixed slotted extension-pieces *b b* 9, the pieces 9 supporting a lower belt-roller, 10, and the pieces *b b* an upper roller, W. The lower pieces 9 are moved by hand after loosening the set-screws 18; but the pieces *b b* are moved by means of racks *a*, Figs. 1 and 4, and pinions *c* on both sides of the main frame 6 6'. The latter adjustment is used to tighten the endless apron, a crank, *d*, on the shaft of pinions *c* being arranged for that purpose.

The forward end of the elevator-frame is suspended by means of chains 14 14, Fig. 1, and a rotating bar, *z*, the latter being held in a fixed position by means of a spring-catch, 3, and a concave ratchet, 4, and the rear end of the frame is adjusted to any desired height by means of chains Z; and to facilitate this adjustment anti-friction rollers 16 are pivoted to the sides of frame 6 6', so as to bear against and travel on the outsides of slotted standards C D.

It will be seen at Fig. 1 that the rear part of main frame is much wider than the forward part. This is done to give the rear wheels the proper width of track; and in order to have both rollers 16 bear against the standards C D the roller opposite the rear wheels is placed farther back upon the frame 6 6'.

To remove the elevator-frame for putting on belt, &c., loosen the nut J, Fig. 3, and chains 14 Z, and it will fall between the machine.

The endless-belt roller W is driven by means of a chain passing through a slot, D, and around a drive-wheel, 5, Figs. 1 and 2, whose journal *y* has bearings in frame-pieces U' U'.

The shaft *y* is driven by means of bevel-gear Q, which has motion communicated to it by means of bevel-gear P, and the gear P is put in mo-

tion by means of a pinion, N, which is driven by a wheel, M, on the rear axle-tree of the machine.

A bar, G, is held in place at the front part of the machine by means of two straps, 21, fastened to the under side of the frame-pieces E E', and it is so arranged as to have a longitudinal reciprocating movement on anti-friction rollers F, placed on its opposite sides near the ends.

To one end of the bar G is pivoted a slotted draft-bar, r, through which the beam 12 of a plow 13, is put, and adjusted by means of a series of holes both in the beam and standard.

Braces q q are swiveled to a sliding frame, m, Fig. 1, to which an anti-friction roller, n, is pivoted, said roller traveling on the projecting end of the frame-piece U'', when the standard r is moved to or from the main frame of the machine, or swung on its central pivot, x', Fig. 5.

From this description it will be seen that roller n sustains the main draft of the plow, and that it very much lessens the power required to adjust the plow.

The means for adjusting the standard r to a vertical position when the machine is moving on an incline, as shown by the position of bar G, Fig. 5, consists of brace-rods S S' and a lever, t, the latter being pivoted to the bar G, and held in a fixed position by means of a pin put through a disk, u, which is fastened to said bar G.

The means for moving the standard r to and from the elevator consist of a lever, w, which is pivoted both to the bar G and frame-piece U', as shown at Fig. 1, the anti-friction rollers F allowing the bar to be readily moved, even when the draft of the plow is on the standard r.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The slotted standard r, swiveled braces q, sliding frame m, roller n, braces S S', lever t, disk u, for adjusting the plow 12 13 to a vertical position, as set forth.

2. The combination of the slotted standard r, braces q q S S', frame m, roller n, bar G, rollers F, lever w, and projecting frame-piece U'', for moving the plow 12 13 to and from the elevator, as set forth.

3. The combination of the truss-frame A B, slotted standards C D, removable connecting-rod I J K, with the elevator G G', as set forth.

4. The extension-elevator consisting of the inner frame, G G', extension-pieces b 9, rack and pinions c a, and rollers 16, arranged to be adjusted in the truss-frame A B C, as set forth.

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Witnesses:

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