

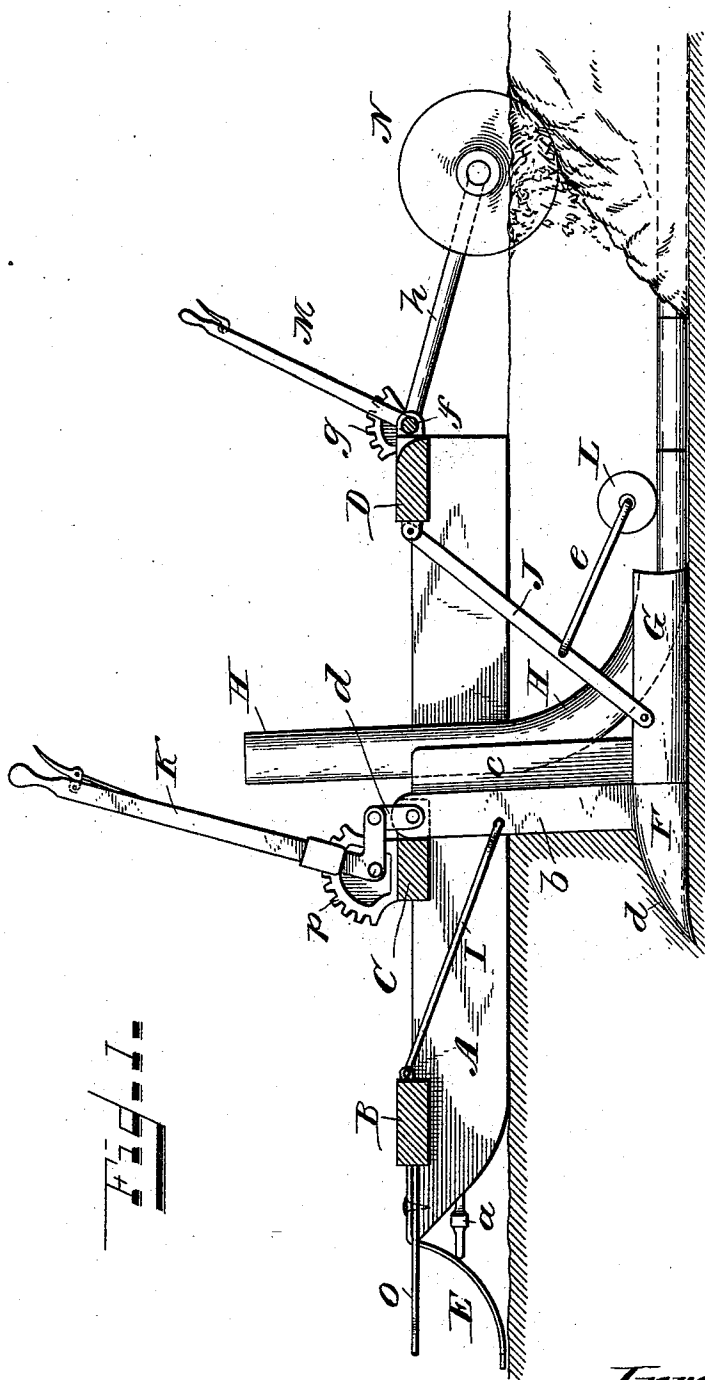
(No Model.)

2 Sheets—Sheet 1.

G. E. BLAINE.
DITCHING AND TILE LAYING MACHINE.

No. 516,750.

Patented Mar. 20, 1894.



Witnesses.
Thomson Cross
Bernard Hausfeld

Inventor:
George E. Blaine
by *Chas. M. Beck*
his Attorney.

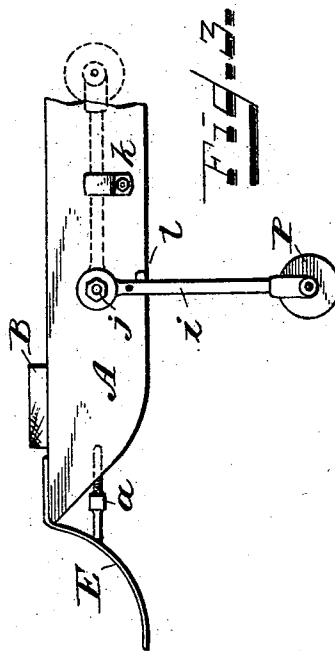
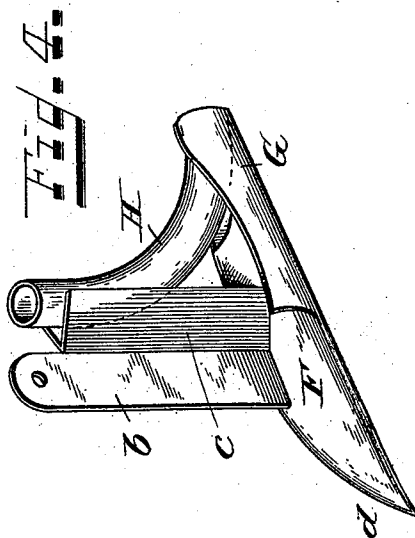
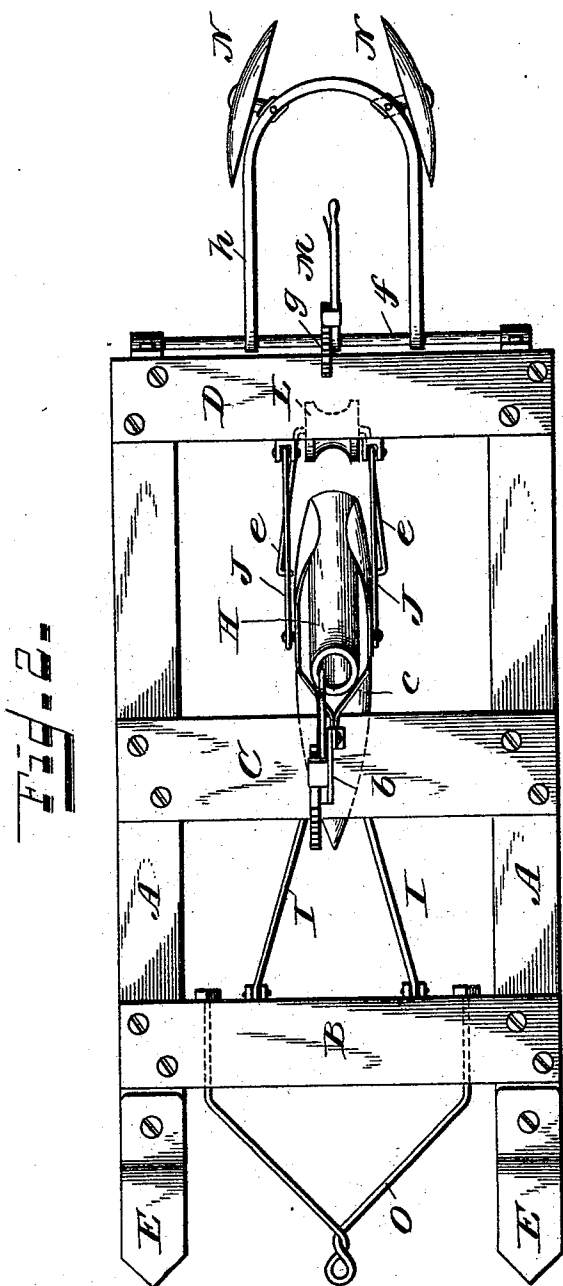
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2 Sheets—Sheet 2.

G. E. BLAINE.
DITCHING AND TILE LAYING MACHINE.

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Thomson Cross
Bernard J. Hauefeldt

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UNITED STATES PATENT OFFICE.

GEORGE E. BLAINE, OF ALLIANCE, OHIO, ASSIGNOR OF TWO-THIRDS TO RAY S. KAYLER, FRANK TRANSUE, AND CHARLES W. ROEPER, OF SAME PLACE.

DITCHING AND TILE-LAYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 516,750, dated March 20, 1894.

Application filed March 15, 1893. Serial No. 466,153. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. BLAINE, a citizen of the United States, residing at Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Ditching and Tile-Laying Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a class of machines intended to be drawn along the ground and form a ditch in the same, into which the tiles carried on the machine are fed and properly guided so as to lie uniformly in the bottom of the ditch which is finally filled by the machine to cover the tiles, and it has for its object the improved construction of such machines.

The novelty of my invention will be hereinafter set forth and specifically pointed out in the claims.

In the accompanying drawings:—Figure 1, Sheet 1, is a longitudinal sectional elevation of a machine embodying my invention. Fig. 2, Sheet 2, is a plan view of the machine. Fig. 3, Sheet 2, is a side elevation of the forward end of the machine. Fig. 4, Sheet 2, is a perspective view of the ditch former and tile guide.

The same letters of reference are used to indicate identical parts in all the figures.

A A, represent two runners or side bars parallel to each other and connected by cross bars B, C, D. When the machine is at work the runners A rest and travel on the ground and they are provided at their forward ends with shovel blades E adapted to cut down any hillocks in the path of travel of the runner and to remove any stones or rubbish. These blades are rendered adjustable by set screws *a* engaging the rear sides of the blades and the front end of the runners, as seen in Fig. 1.

The ditch-former, hung about the center of the machine, is composed of a substantially vertically cutting edge *b* with two rearwardly diverging wings *c* whose outer edges are parallel and just the distance apart that the ditch is to be wide. At the lower end of the blade *b* and wings *c* is secured a horizontal

metal plug or mole F terminating at its forward end in a point and the upper side of which is beveled as seen at *d* Fig. 1 so that its tendency in entering the earth is to pull downward. The rear part of the plug where it joins the wings *c* is of the same width as their outer edges are apart as seen in Fig. 2. The rear end of the plug F terminates in a horizontal trough or support G to which and the wings *c* is secured a curved guide spout H open at both ends. The ditch former thus constructed is hung by a hinged drag-bar I to the cross bar B, the drag bar being pivoted to the blade *b* just at or above the ground line, and by rear supporting links J pivoted at their lower ends to the trough G and at their upper ends to the bar D. The upper end of the blade *b* is connected by a pivoted link *d* to a bell crank lock hand lever K pivoted to a segment rack *p* on the bar C and with which rack the lock of the lever engages. By means of this lever the ditch former can be raised and lowered to regulate the depth of the ditch. Hung by arms *e* pivoted to the links J is a roller L with a concave periphery, and this roller is suitably journaled so as to travel just in rear of the spout H as seen in Figs. 1 and 2.

Upon the rear of the machine is journaled a rock shaft *f* to which is rigidly secured a hand lock lever M engaging with a segment rack *g* fast on the bar D. Rigidly secured to and extending back from the shaft *f* are two bars *h* carrying at their rear ends two concavo-convex cutting disks N journaled on stub spindles on the bars and set to throw the earth inward.

The machine thus constructed is intended to be drawn by power, such as an engine or horse power, across the field by a chain or cable from such power connected to a draft link O at the front of the machine. The tiles carried on a platform on the machine are fed, by an operator riding on the machine, into the upper end of the spout H so that the end of one tile rests directly against the end of the next tile so that the weight of the tiles in the spout will force them out into the ditch formed by the plug F, blade *b* and wings *c*. The roller L riding over the top of the tiles as they are deposited in the ditch will force

them down uniformly so as to lie in a straight line on the bottom of the ditch, while the following disks N will turn in the earth at each side of the ditch to cover the tiles and partially fill the ditch. By means of the wings c the earth at the sides of the ditch is compacted so that it will not fall in until the cutters N perform their office.

For convenience in transporting the machine I employ four caster wheels P one of which is shown in Fig. 3. These may be journaled in arms i whose upper ends are pivoted as at j to the outer sides of the runners at each end. When the arms i are vertical the runners A and ditch-former are lifted above the ground and the machine can be transported from place to place and when brought into position ready for work the arms i and caster wheels are swung around as indicated by the dotted lines in Fig. 3 and may rest in

brackets k. When the arms i are vertical their rear edges bear against projections l to prevent their swinging backward.

Having thus fully described my invention, what I claim is—

1. In a ditching and tile laying machine, the combination of a draft frame, a ditch former and tile guide carried thereby, and covering disks for filling in the ditch after the tiles are laid, substantially as described.

2. In a ditching and tile laying machine, the combination of a draft frame a ditch former and tile guide carried thereby, and a pressing roller in rear of the discharge end of the tile guide, substantially as described.

GEORGE E. BLAINE.

Witnesses:

R. S. KAYLER,
WM. M. ROACH.