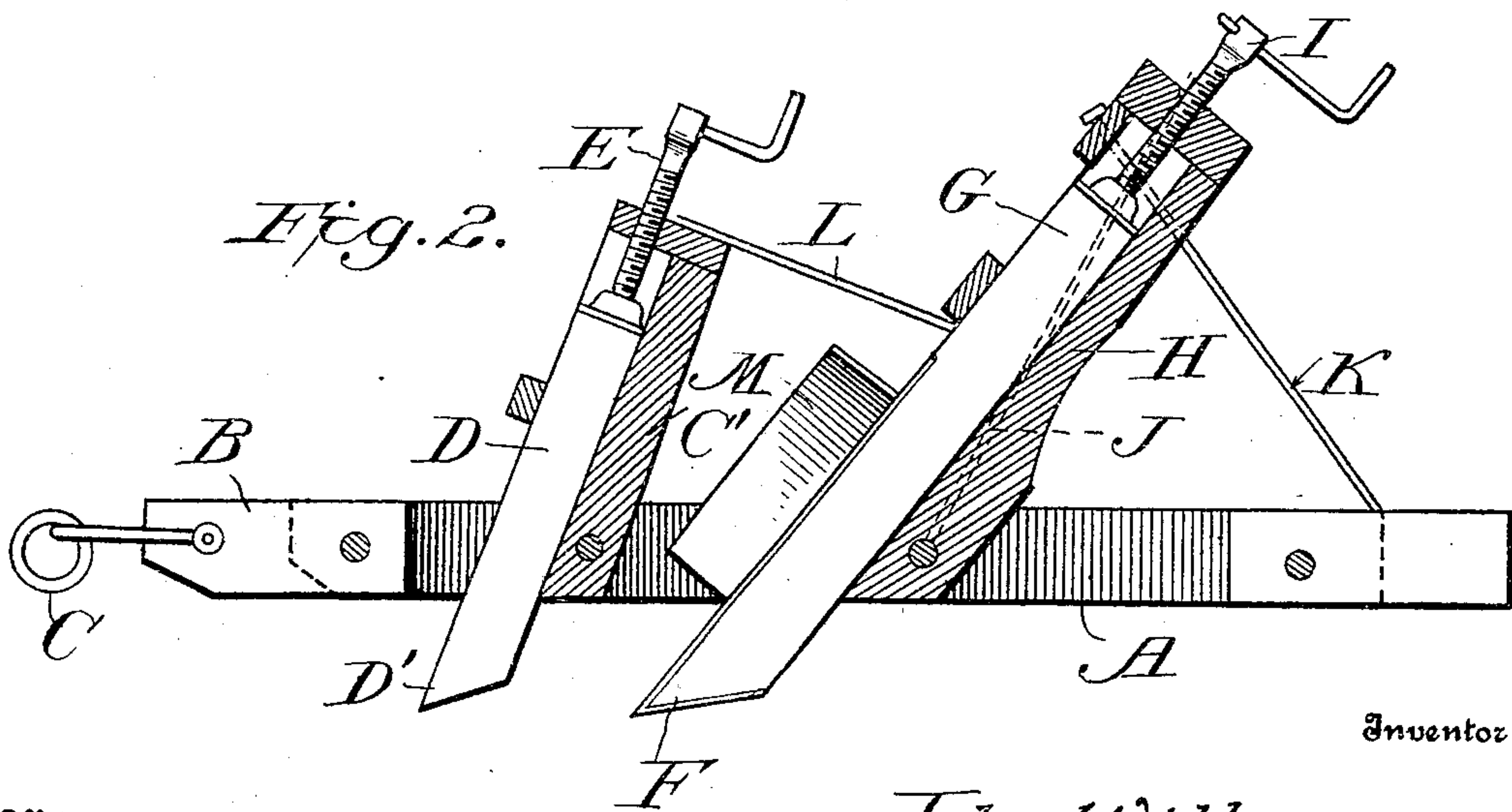
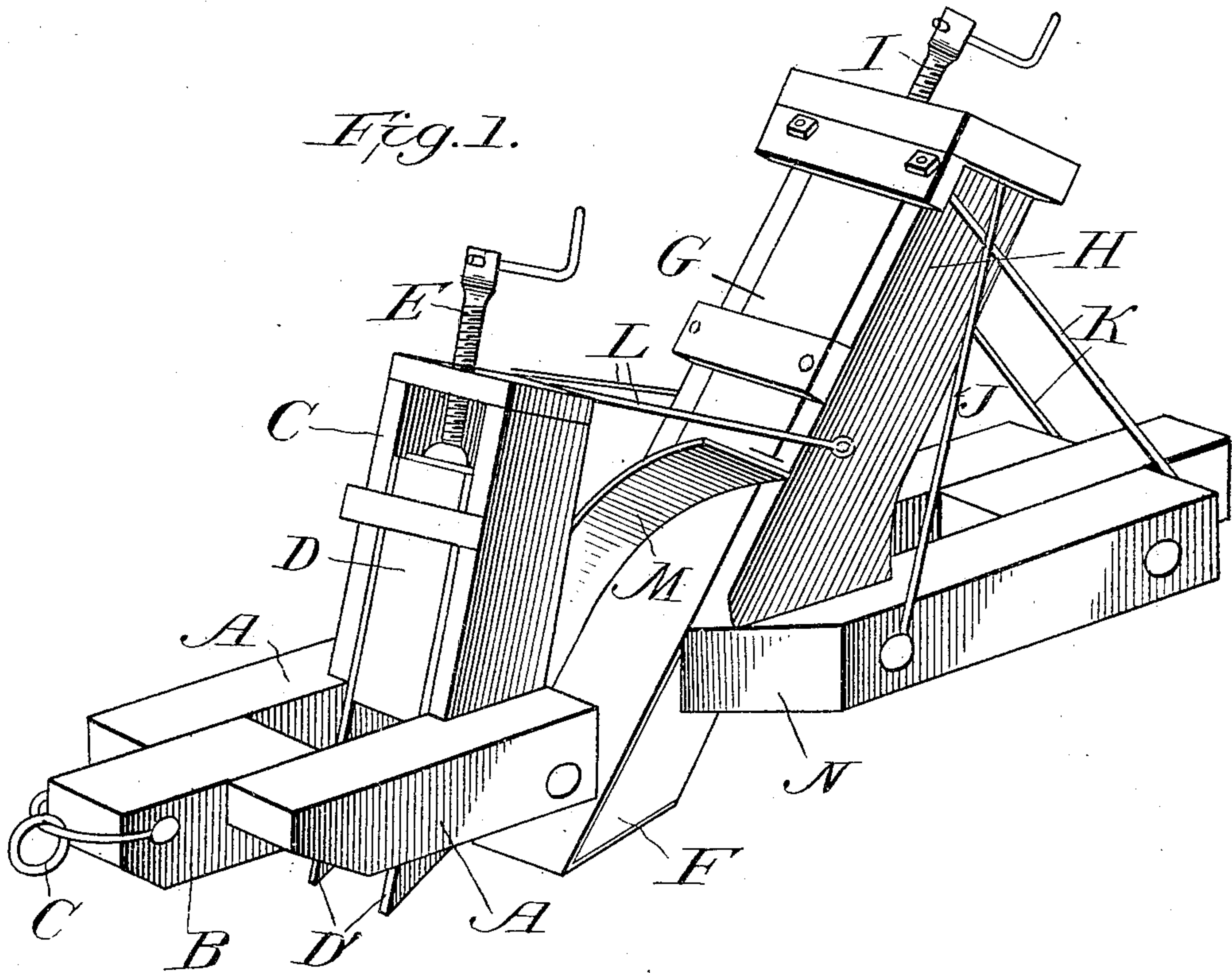


J. WITTER.
TRENCH CUTTING MACHINE.
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935,288.

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UNITED STATES PATENT OFFICE.

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TRENCH-CUTTING MACHINE.

935,288.

Specification of Letters Patent. Patented Sept. 28, 1909.

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To all whom it may concern:

Be it known that I, JOHN WITTER, a citizen of the United States, residing at Bucyrus, in the county of Crawford and State of Ohio, have invented certain new and useful Improvements in Trench-Cutting Machines, of which the following is a specification.

My invention relates to certain new and useful improvements in trench cutting machines, namely, that class of machines which is designed for cutting a trench suitable for the introduction of drain tiles, or for other purposes; and my invention consists of the parts and the constructions, arrangements and combinations of parts which I will hereinafter describe and claim.

The essential object of my invention is to construct a simple and effective machine adapted to be dragged over the ground in the line of the trench to be cut, said machine adapted to be adjusted to cut trenches of different depths in a more facile, and economical manner than has heretofore been done and to deliver the removed earth to one side of the machine substantially coördinately with the uplifting of the earth.

In the accompanying drawing forming part of this specification and in which similar reference characters indicate like parts in the several views:—Figure 1 represents, in perspective, a trench cutting machine embodying the salient features of my invention, Fig. 2 is a vertical longitudinal sectional view.

In carrying out my invention, I provide a substantial frame-work which may resemble in its general character the frame of a cultivator or harrow in that said frame comprises the longitudinal spaced beams A, between the front ends of which is pivotally or otherwise mounted a short beam B, having a clevis or other device C, for the attachment of a team or draft animal.

Between the inner sides of the main beams A, and disposed near the forward part of the machine, is formed a boxing or guide frame C, said boxing or guide frame being fixed to the main beams and inclining upwardly and rearwardly therefrom.

Within the guide frame or boxing C, and which latter may represent and be illustrative of any desired form of guide frame is slidably mounted the forward cutter, said cutter consisting of a pair of parallel spaced blades D', suitably secured to a head or block D, which is slidably mounted in the

guide frame, said blades projecting downwardly from the sides of the inclined head or block and having their front edges presented toward the direction the trench is to be cut, so as to cut the sod or top layer of the ground as the machine is drawn thereover in a forwardly direction. The blades stand at an angle to the vertical, as shown, and their bottom edges are cut at an angle to the inclined front edges thus producing an effective cutting point at the lower front corner of each blade. The blades project below the plane of the lower sides of the main beams A, and the distance they so project determines approximately the depth of the trench to be cut, and which depth may be varied to suit conditions by raising or lowering the blades, which is readily done by the manipulation of the hand-screw E, operating through the upper end of the guide frame C, and connected to the head or sliding block D, of the cutters.

Arranged behind the front cutting elements is a chisel-shaped cutter F, which is arranged at such an angle to the perpendicular that its lower end, which is formed as a wide cutting edge, will cut the bottom of the trench. The transverse width of the cutter, F, may represent the width of the trench to be cut, and said width may be co-extensive with the distance between the front cutting blades whereby the rear cutter digs into and lifts the earth between the two lines of cuts produced by the forward cutter and which cuts represent the vertical sides or walls of the trench. The rear cutter has a shank portion, G, which is slidably mounted in a suitable boxing or guide frame H, and is adjustable in a lengthwise direction to regulate the depth of the trench, by means of a hand-screw I, or other operating means, mounted in or on the guide frame H, and suitably connected to the shank of the cutter. Suitable stays or braces J and K, connect the guide frame to the main longitudinal beams A, to thereby give the necessary strength or rigidity to the guide frame; a similar brace or stay L, connects the upper portions of the front guide frame to the guide frame of the rear cutter and thus serves to stiffen and brace the front frame against the back pressure on the front cutters.

To the front along the side edge of the shank of the back cutter F, I secure a mold-board or plate M, whose upper end is curved transversely across the shank of the cutter,

said plate thereby serving to direct transversely over the side of the machine and out of the line of the trench, the material lifted by the rear cutter. To facilitate the discharge of this material, the main longitudinal beam A, on the discharge side of the machine, is cut away as shown at N.

In operation, the machine is drawn over the ground along the prescribed line of the trench, the front cutters marking the sides of the trench and cutting to the required depth. The rear cutter follows closely the front cutter, its chisel point being flat and cutting the bottom of the trench while its sides are guided by the vertical walls or sides of said trench. The rear cutter elevates the material between the cuts formed by the forward cutter, and this material tends to crowd up the inclined front of the rear cutter; in doing so it meets the mold board or curved plate M, and its direction of movement is changed so that said materials is delivered over the side of the machine and outside the line of the trench.

My machine is capable of cutting a trench in soft and wet land and sticky clays as well as in dry land. It is usually the wet or moisture-laden lands that the farmer desires to drain of the surplus moisture to thereby render the land fertile, and my machine is especially adapted for such lands as there are no parts, chains, belts, gears or the like to become clogged or choked by the wet and often sticky soil. My machine is also constructed of few parts not liable to derangement; these are made as simple and strong as possible to better resist the strains to which the machine is put, and to enable me to reduce the cost of such a machine to the minimum.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a trench cutter, the combination of a frame including longitudinal spaced beams, of front and rear cutters arranged in line in the interspace between said beams, said front cutter having parallel cutters for forming the side walls of the trench and said rear cutter having a chisel-point for forming the bottom of the trench, and means associated with the rear cutter for directing the removed earth outwardly over the side of the machine.

2. In a trench cutter, the combination of a main frame composed of longitudinal spaced beams, guide frames fixed to said main frame one in front of the other and each inclined upwardly and rearwardly, front and rear cutters slidably mounted in said frames, said front cutter including parallel spaced blades set at an angle to the perpendicular and adapted to form the sides of the trench, and said rear cutter being arranged at an angle to the perpendicular and having a width ap-

proximating the space between the front cutting blades, and having its lower end formed as a broad cutting edge.

3. In a trench cutter, the combination of a main frame composed of longitudinal spaced beams, guide frames fixed to said main frame one in front of the other and each inclined upwardly and rearwardly, front and rear cutters slidably mounted in said frames, said front cutter including parallel spaced blades set at an angle to the perpendicular and adapted to form the sides of the trench, and said rear cutter being arranged at an angle to the perpendicular and having a width approximating the space between the front cutting blades, and having its lower end formed as a broad cutting edge, means for longitudinally adjusting the front cutters, and means for longitudinally adjusting the rear cutter.

4. In a trench cutter, the combination of a main frame composed of longitudinal spaced beams, guide frames fixed to said main frame one in front of the other and each inclined upwardly and rearwardly, front and rear cutters slidably mounted in said frames, said front cutter including parallel spaced blades set at an angle to the perpendicular and adapted to form the sides of the trench, and said rear cutter being arranged at an angle to the perpendicular and having a width approximating the space between the front cutting blades, and having its lower end formed as a broad cutting edge, a hand screw operating through the upper end of the forward guide frame and connected to the front cutter, for regulating the depth of the cut made by said blades, and a hand-screw operating through the upper end of the rear guide frame and connected to the rear cutter, for regulating the depth of the cut thereof.

5. In a trench cutter, the combination of a main frame composed of longitudinal spaced beams, guide frames fixed to said main frame one in front of the other and each inclined upwardly and rearwardly, front and rear cutters slidably mounted in said frames, said front cutter including parallel spaced blades set at an angle to the perpendicular and adapted to form the sides of the trench, and said rear cutter being arranged at an angle to the perpendicular and having a width approximating the space between the front cutting blades, and having its lower end formed as a broad cutting edge, and a mold-board over the front face of the rear cutter in the path of the material lifted by the rear cutter said mold board adapted to direct said material transversely over the side of the machine and exterior to the trench.

6. In a trench cutter, the combination of a main frame composed of longitudinal spaced beams, guide frames fixed to said main frame one in front of the other and each inclined upwardly and rearwardly, front and rear

cutters slidably mounted in said frames, said
front cutter including parallel spaced blades
set at an angle to the perpendicular and
adapted to form the sides of the trench, and
5 said rear cutter being arranged at an angle
to the perpendicular and having a width ap-
proximating the space between the front cut-
ting blades, and having its lower end formed
as a broad cutting edge, and a mold board
10 fixed relative to the rear cutter and curved
across the same, and adapted to direct the

material transversely over the side of the
main frame, the main longitudinal beam on
this discharge side of the frame being cut-
away to form an opening into which the 15
mold board directs said material.

In testimony whereof I affix my signature
in presence of two witnesses.

JOHN WITTER.

Witnesses:

CHAS. E. HIPPE,
CHAS. GRIFFITH.