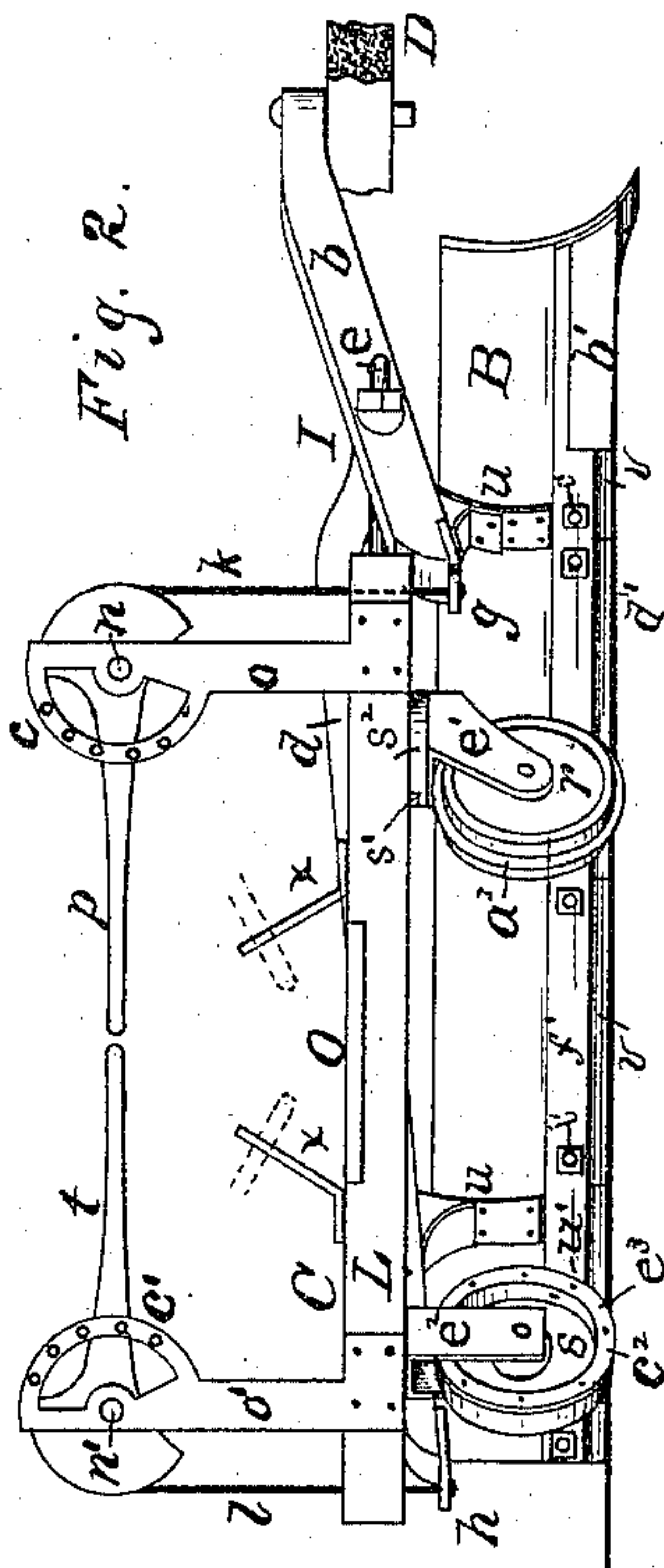
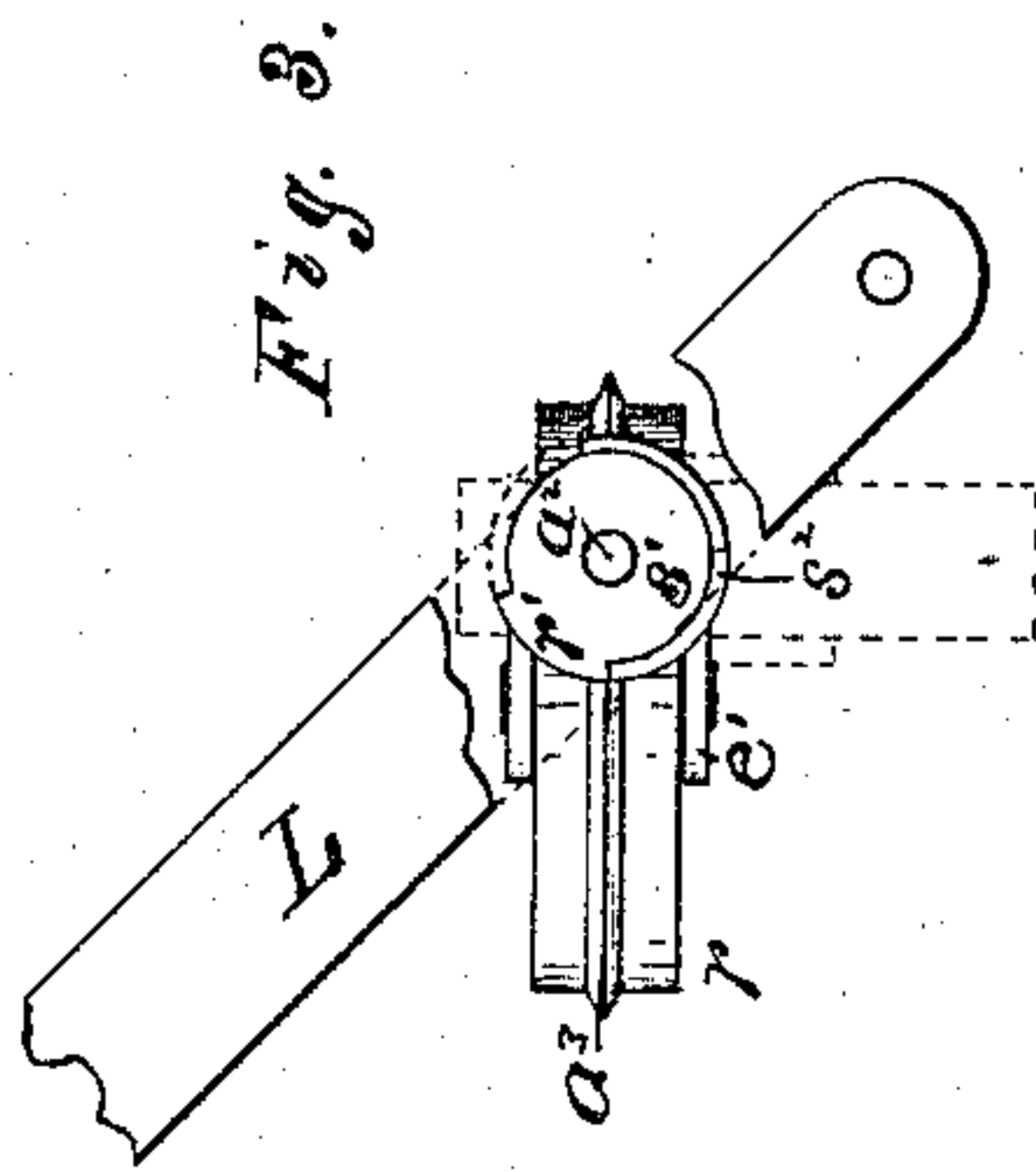
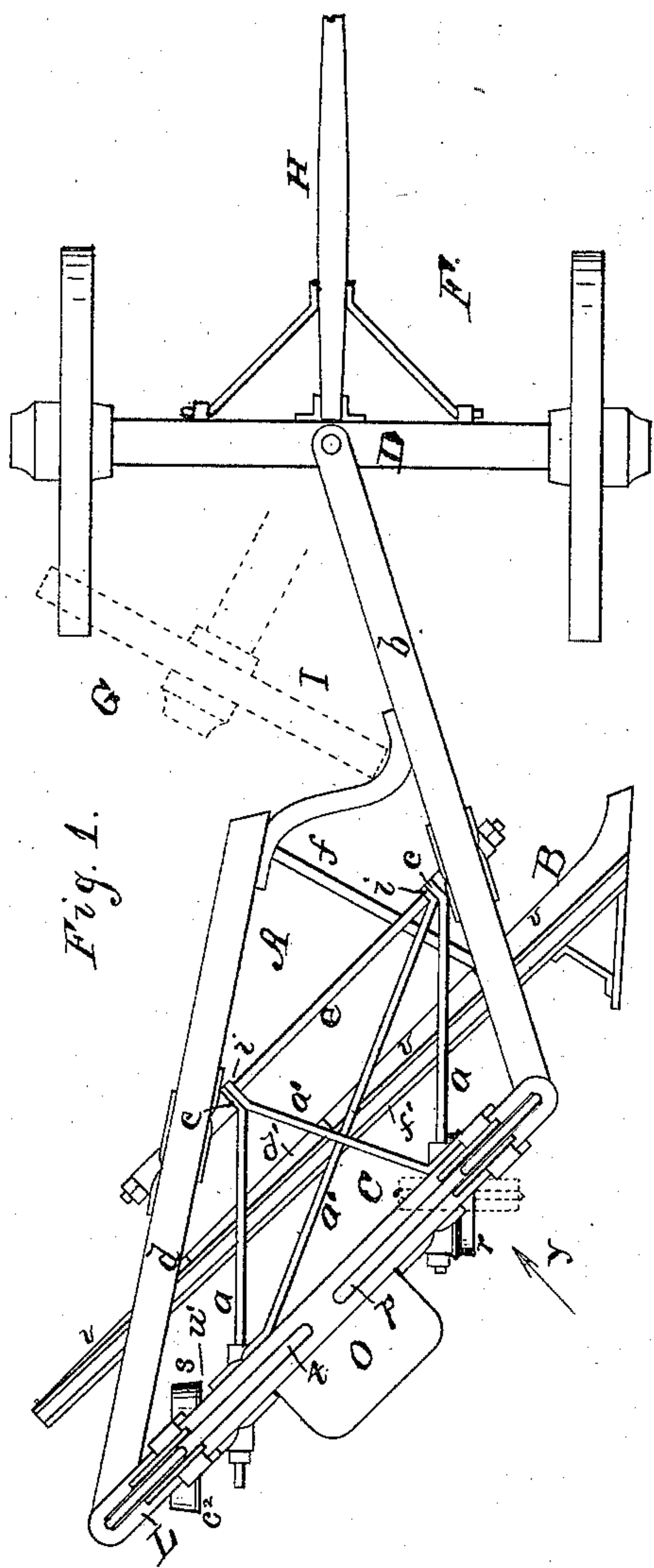


(No Model.)

N. VARS.
ROAD SCRAPER AND DITCHER.

No. 305,491.

Patented Sept. 23, 1884.



Attest:

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UNITED STATES PATENT OFFICE.

NATHAN VARS, OF DUNELLEN, NEW JERSEY.

ROAD SCRAPER AND DITCHER.

SPECIFICATION forming part of Letters Patent No. 305,491, dated September 23, 1884.

Application filed May 8, 1884. (No model.)

To all whom it may concern:

Be it known that I, NATHAN VARS, of Dunellen, in the county of Middlesex and State of New Jersey, have invented a new and useful
5 Improvement in Road Scrapers and Ditchers, which improvement is fully set forth in the following specification and accompanying drawings.

The object of my invention is to produce a
10 road scraper and ditcher that may be easily managed and operated, and one in which the frame carrying the scraping-blade may be readily raised and lowered at will, so as to either carry said blade above the earth without oper-
15 ating thereon or allow it to cut into and move the earth on the surface passed over, with means to prevent sidewise motion of the machine on account of the obliquity of the cut with reference to the line of draft; and it consists of parts and their combination, fully described in the following specification, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a plan of the machine and other parts shown in two
25 positions; Fig. 2, a rear elevation of the same, viewed as indicated by arrow Y in Fig. 1, parts being broken away and omitted, and other parts indicated in dotted positions; and Fig. 3, a plan of a portion of a timber of the frame
30 over the caster-wheel, showing more clearly the manner in which the latter is hung to the frame, said figure being drawn to a larger scale than that to which the first and second figures are drawn.

This device consists, in part, of a frame, A, carrying the scraping-blade B, and a frame, C, carrying the adjusting device for said blade, by means of which the latter may be raised or lowered at will. The forward end of the frame
40 A rests upon the axle D of a truck, F, to the tongue H of which the horses are attached, and the frame C rests upon carrying-wheels *r* and *s* at the rear of the machine. The frame A is made up of inclined timbers *b* and *d*, and a tie or strut, *f*, joining the forward end of the timber *d* rigidly to the timber *b*, thus forming a space or break at I in the frame A, to accommodate the wheel G of the truck when in the act of turning the machine around, as in-
45 dicated in dotted lines. The frame C consists, substantially, of a main horizontal timber, L,

placed obliquely to the line of draft of the machine, and a system of rods and braces, *a a'*, extending out nearly horizontally from the front face of the timber L. The rods *a a'* are parallel
55 with each other and with the line of draft of the machine, and terminate at their ends distant from the timber L in eyes *c c*. The ends of the braces *a' a'* distant from the timber L also terminate in eyes *i i*, which respectively coincide with the eyes *c c* of the rods *a a*, as shown. A hinge-rod, *e*, passes horizontally through the timbers *b* and *d* of the frame A, and through the respective eyes *c* and *i* of the rods and braces *a* and *a'*, parallel with the timber L.
60 The hinge-rod *e*, timber L, and rods *a* and *a'* form, respectively, the four sides of a rhomboid or parallelogram, and the braces *a' a'* form the diagonals thereof, which parts altogether make a strong, rigid frame, C. 65

To the under surfaces of the timbers *d* and *b* the blade B is rigidly secured by means of brackets *u u*, said blade being preferably placed parallel with the timber L, or at an angle of about forty-five degrees with the line
75 of advance of the machine. The rear ends, *g* and *h*, of the respective timbers *b* and *d* are held to occupy positions under the ends of the timber L, and chains or cable *k* and *l*, secured to the ends *g* and *h* of the timbers *b* and *d*,
80 pass vertically up through holes near the ends of the timber L, and are secured to adjusting-levers *p* and *t*. The levers *p* and *t* are hung, respectively, on pins *n n'* upon standards *o o'*, rising from the timber L. The construction
85 of the parts is clearly shown in Fig. 2, and it will be easily understood that by pressing the free ends of the levers downward the frame C will be raised, causing the blade to be lifted from the earth, or, if said ends of the levers be
90 raised, the blade will be lowered to cut into and operate against the earth beneath it. As the frame C is moved upward or downward by means of the levers, the eyes *c i* of the rods and braces *a a'* turn on the hinge-rod *e*, which
95 is fitted to move freely in said eyes, but secured more rigidly to the timbers *b* and *d*.

O is a platform extending backward from the timber L, upon which the attendant operating the lever may stand.

x x are notched catch-pieces or holders of simple form for the levers *t p*, which holders

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extend obliquely upward from the timber L, serving to hold, by means of the notches in the usual manner, the ends of the levers when the latter are brought down under the notches for the purpose of conveniently carrying the blade up out of the way of the earth or other obstacles over which the machine may pass during its removal from place to place.

Circular segments $c\ c'$ at the upper respective ends of the standards $o\ o'$, provided with pin-holes, as shown, serve, in combination with pins passed through the holes of the segments immediately above the levers, to hold the blade B in any position of vertical adjustment.

Instead of the pin-holes and pins described, peripheral notches may be formed in the segments, and a spring-pawl for each lever used to catch in said notches, substantially like the device used with the reverse-lever of a locomotive.

The blade B has a strong landside, b' , extending back from its point in a line nearly parallel with the line of advance of the machine, which tends, like the landside of a common plow, to prevent the machine being drawn toward one side on account of the obliquity of the cut of the blade.

The carrying-wheels r and s are hung to the timber L by means of forks e' and e'' , respectively, secured to the under surface of the timber. The fork e'' is secured rigidly to the timber, while the fork e' , which is turned slightly back, causing the wheel r to trail, has a swivel motion on a vertical pivot reaching up through the timber, giving to the wheel r the nature or movement of a caster-wheel. I prefer to limit the horizontal motion of the caster-wheel to about one-fourth of a complete revolution. The full-line position of the wheel in Fig. 3 shows it when in its extreme left position, and the dotted-line position shows the wheel when turned to the right. When in the full-line position, the plane of the wheel is parallel with the line of advance of the machine. By giving the swivel movement to the right-hand carrying-wheel the turning of the machine, which is always toward the left, is very much facilitated.

A circumferential ring or ridge, a^3 , of the caster-wheel acts to prevent the machine from sliding sidewise from the obliquity of the cut when the said wheel occupies the positions shown in full lines, and presents a broad face to the earth on the side toward which the machine is inclined to slide. This position will be always assumed by the wheel when the machine is advancing, from the fact that it is made to trail, as stated.

The circular plate s' over the caster is rigidly secured to the timber L, and the upper part of the fork e' is formed with a circular flange, s^2 , covering a part of the edge of the plate s' , as shown in Fig. 3. A projecting part, r' , at the edge of the plate serves to limit the horizontal turning of the caster by forming

stops for the ends of the flange s^2 , as the caster is turned in either direction. This construction is simple and of common kind, and will be readily understood from the figures.

The carrying-wheel s , I prefer to make conical, as shown, the larger part or side of the wheel being toward the right, or on the side toward which the machine is inclined to sway, on account of the shearing cut of the blade. When the wheel is thus made, the sharp corner u' at the larger side buries deeply into the ground, and the lower portion of the right vertical side, e^3 , of the wheel adjacent to said corner presents a broad landside to the earth, and acts with the ridge a^3 of the caster and the landside b' of the blade, to prevent the machine being drawn over to the right by the blade, as stated. I provide the face e^3 of the wheel s with a removable steel ring, c^2 , which may be replaced by a new one when the edge u' gets worn rounding or smooth, and so as not to hold firmly in the earth.

Both wheels r and s may be made conical, like the wheel s , or both may be made with the ridge a^3 , like the wheel r , if found desirable.

I prefer to make the cutting-edge d' of the blade B separate from the body of the blade, so that it may be detached therefrom and renewed when worn, and also to divide said cutting-edge into sections v , with vertical joints, as shown, so that single sections may be renewed without disturbing the rest should there be a greater wear at some points of the blade than at others. The divided cutting-edge is held to place by a longitudinal lapping rib or bar, f' , at the back of the blade, clamping-bolts i' , having countersunk heads, being employed to pass through said rib and sections.

What I claim as my invention is—

1. A road scraper and ditcher consisting of the frames A and C, united in a flexible joint, substantially as described, the frame A having a short timber, d , joined to a long timber, b , by a tie, f , to form a break or space, I, in the frame for the wheel of the truck in turning, substantially as set forth and shown.

2. A road scraper and ditcher formed of the frame A, for carrying the blade or scraper B, said frame consisting of the timbers b and d and tie f for the same, and the frame C, consisting of the timber L and system of rods and braces $a\ a$ and $a'\ a'$, the said frames being united by a hinge-rod or hinge, e , upon which either or both frames may turn, substantially as and for the purpose set forth.

3. A road scraper and ditcher formed of the frame A, for carrying the blade, consisting of the timbers b and d and tie f , and the frame C, consisting of timber L and system of rods and braces $a\ a$ and $a'\ a'$, connected to the frame A by a flexible joint, the respective rear ends, g and h , of the timber b and d being held to occupy positions under the ends of the timber L, and cables k and l , secured to said ends g and h of the timbers b and d , and passing up over the ends of adjusting-levers p and t ,

mounted upon the frame C, substantially as shown and described.

4. A road scraper and ditcher consisting of the frames A and C, substantially as set forth, united by a flexible joint, the frame A carrying the scraping-blade, and the frame C resting upon carrying-wheels *r* and *s*, one or both of said wheels being made conical, substantially as and for the purpose set forth.
5. The frame C of a road scraper and ditcher, resting upon carrying-wheels *s* and *r*, the latter or right-hand wheel being hung so as to trail like a caster, constructed to swing on a vertical axis, or have a limited swivel movement, substantially as and for the purpose set forth and described.

6. The frame C of a road scraper and ditcher, resting upon carrying-wheels *s* and *r*, the latter or right-hand wheel being hung so as to trail, and constructed to swing in a horizontal plane, having the said horizontal movement toward the left limited, so as to prevent the plane of said wheel passing beyond a line parallel with the line of advance of the machine, said wheel being provided with a circumferential ridge, *a*³, substantially as shown.

NATHAN VARS.

Witnesses:

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C. J. TOWNER.