

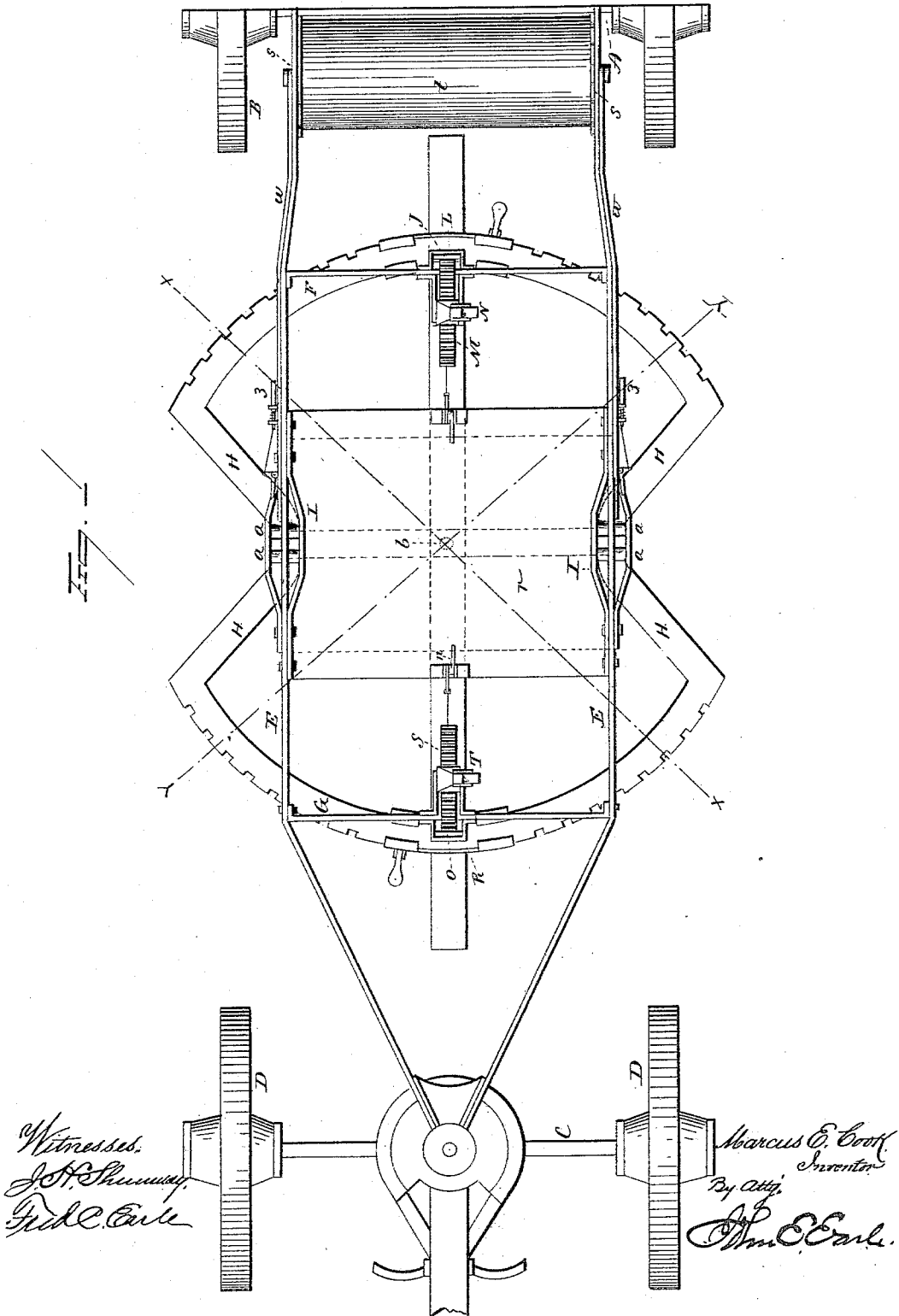
(No Model.)

2 Sheets—Sheet 1.

M. E. COOK.
ROAD SCRAPER.

No. 359,849.

Patented Mar. 22, 1887.



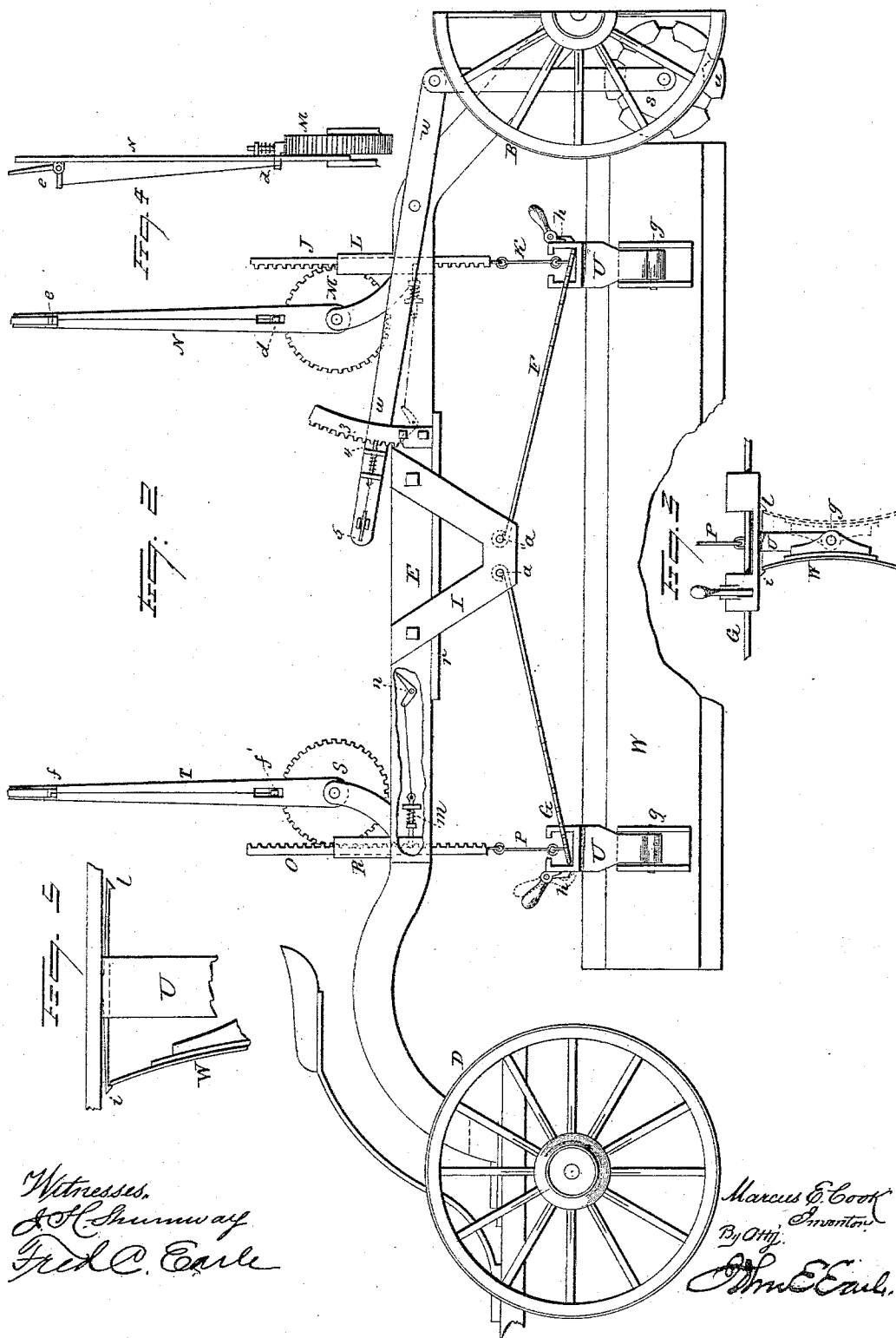
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Witnesses.
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Fred C. Earle

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UNITED STATES PATENT OFFICE.

MARCUS E. COOK, OF WALLINGFORD, CONNECTICUT, ASSIGNOR TO THE
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ROAD-SCRAPER.

SPECIFICATION forming part of Letters Patent No. 359,849, dated March 22, 1887.

Application filed May 19, 1886. Serial No. 202,614. (No model.)

To all whom it may concern:

Be it known that I, MARCUS E. COOK, of Wallingford, in the county of New Haven and State of Connecticut, have invented a new Improvement in Road-Scrapers; and I do hereby declare the following, when taken in connection with accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a top or plan view; Fig. 2, a side view, part broken away; Fig. 3, a side view of one of the hangers, showing an end view of the scraper; Fig. 4, an edge view of one of the adjusting-levers; Fig. 5, a detached view showing locking device for the scraper.

This invention relates to an improvement in the machines commonly called "road-scrappers"—that is to say, a carriage arranged upon wheels, carrying a scraper, made adjustable as to its elevation and also adjustable to different angles to the path of movement of the carriage, and so that as the carriage is drawn over the surface the scraper will serve to level, grade, or even that surface—and particularly to that class in which the carriage consists of a frame supported upon a pair of wheels at the rear and upon a corresponding pair at the front, the animals being attached to the axle at the front and the scraper supported and made adjustable between the front and rear wheels, the object of the invention being to make the scraper readily adjustable to different elevations, and also to make the scraper convertible from a right to a left hand—that is to say, so that the scraper may be turned either edge down to the work; and the invention consists in the construction as hereinafter described, and more particularly recited in the claims.

A represents the rear axle, to which a pair of wheels, B B, are applied; C, the forward axle, to which the forward wheels, D D, are applied in the usual manner for this class of machines, the forward axle being adapted for the attachment of the animals which are to propel the machine, which attachment (not shown) may be of any known or convenient character.

E is the frame, which is best made from iron,

and consists of two sides, their rear ends fixed to the rear axle and, extending forward, terminate near the center of the forward axle, with which they are connected, so as to permit the forward axle to turn freely in giving direction to the path of the machine.

F G are two substantially-flat segments beneath the frame, the two segments at each end terminating in similar arms, H. The said arms, extending inward, are hung to brackets I, extending downward from the frame, and upon pivots *a*, so that the two segments are adapted to be raised or lowered toward or from the frame, as may be required. The two segments are parts of a circle, the center of which is common to both, and may be represented as at *b*, these segments being designed to form the track upon which the scraper shall be adjusted to its various angles and by which it may be adjusted vertically.

To the rear segment, F, a vertical toothed rack, J, is hung by means of a link, K, the rack extending up through a guide, L, in the frame, and into the teeth of which a gear, M, hung on the frame, works, and upon the shaft of the gear M, or concentric therewith, a lever, N, is hung, so as to turn freely upon the axle of the gear, and in the lever a dog, *d*, is arranged to move radially toward or from the teeth of the gear and adapted to engage the teeth of the gear at any point at which it may stand. This dog is operated by a hand-lever, *e*, hung upon the lever N, (see Fig. 4,) and so that the operator by turning the said lever may draw the dog from the teeth of the gear, thereby leaving the lever free to turn independent of the gear, but permitting the dog to engage the teeth of the gear. The gear will be turned with the lever and so that the operator, thus turning the lever in one direction, may raise the rack J and with it the segment F, connected thereto, or, moved in the opposite direction, the rack and segment will be lowered accordingly. This dog-connection of the gear is a common and well-known device for engaging a hand-lever with a toothed gear, whereby rotation may be imparted to the gear in either direction. To the forward segment, G, a like rack, O, is hung by a link, P, the rack arranged in the vertical guide R in the frame, and in connection with

the rack is a toothed gear, S, provided with the operating-lever T, and with the dog *f'* and lever *f*, like the same devices before described with relation to the rack and segment at the rear. By this arrangement either of the segments may be raised or lowered, as required.

U U are two hangers, alike in construction, one arranged upon each segment, as seen in Figs. 2 and 3, and so as to slide on the said segments. To the hangers U the scraper W is hung by means of a pivot, *g*, at each hanger. These pivots are upon the back side of the scraper, and should be midway of its height. The forward surface of the scraper is curved substantially alike both sides of the center, and so as to make the front surface concave in vertical section, as seen in Fig. 4. The scraper, being hung to the pivots *g*, is adapted to be turned thereon, so as to bring either edge up, say, as from the position seen in solid lines, Fig. 3, to broken lines in the same figure. The hangers U, thus carrying the scraper, may be turned or moved upon the respective segments in either direction, and so as to carry the respective ends of the scraper accordingly, and so that the scraper may be held, say, in a direct longitudinal line, as seen in Fig. 1, which is its inoperative condition or turned to either side, as indicated by the broken lines *x y* in Fig. 1, or to any intermediate position. The hangers are supported by the segments so as to permit such rotative movement as to adjust the scraper to the various angles required. Each hanger is provided with a locking-dog, *h*, adapted to engage corresponding notches in their respective segments, and so that the hangers may be locked to hold the scraper when set to any desired position. When the scraper stands in the position of line X, Fig. 1, and facing toward the forward wheels, if the scraper then be adjusted to take the position of the broken line Y the reverse side of the scraper would be presented. If, therefore, the scraper be set, say, on the line X X, and it be desired to change it in the opposite direction, then the scraper is inverted, as indicated in Fig. 3, and so as to bring the other edge of the scraper downward and preserve the concave or face side of the scraper forward. In either position the scraper should be locked, so as to prevent its accidentally turning. To this end, each hanger is provided with a securing device—say in the form of a latch, as seen in Fig. 5—*i* representing the bolt to engage one edge, and *l* to engage the other edge. The bolt may be a spring-bolt, as represented, or otherwise, to securely hold the scraper whichever edge may be upward, and yet permit the scraper to be turned as occasion may require.

To adjust the scraper to different elevations bodily, or at either end, the wheels M S are turned accordingly to raise or lower the respective segments, which segments, carrying the hangers, rise with the segments and correspondingly raise the scraper. Each rack is provided with a locking-dog, *m*, to engage it at any point of elevation to which it may be

adjusted. This dog is preferably a spring-dog, as shown, and is connected with a foot-pedal, *n*, so that the operator, standing upon the floor *r* of the frame, may, by placing his foot upon the pedal, release the rack accordingly.

In operation, when the scraper stands at an angle, the tendency of the work is to throw the rear wheels or rear end of the machine to the side away from the working-face of the scraper. To avoid this lateral or sidewise movement of the rear part of the frame, I provide a pair of resistance-wheels, *ss*, preferably arranged upon the end of a roller, *t*, hung at the rear between the two rear wheels. These resistance-wheels present a series of blade-like teeth, *u*, which will readily enter the earth as the apparatus advances, and, taking a strong hold in the earth, will prevent the lateral movement referred to and cause the rear wheels to properly follow the forward wheels and maintain the scraper in its proper path. The resistance-wheels *ss* are hung to levers *w* in the frame, the said levers extending toward the center, one upon each side, and for each lever a segment, 3, is fixed to the frame, the segment toothed upon one edge and the levers each provided with a spring locking-dog, 4, similar to the dogs *d* of the levers N, and operated in like manner by a lever, 5, hung to the levers W, so that the resistance-wheels may be adjusted up or down to take a greater or less hold in the earth, or be raised out of contact with the earth, as may be desirable.

The roller *t* between the resistance-wheels may be employed for rolling the surface over which the scraper has passed. The roller itself may be employed as the resistance without the necessary application of the teeth thereto—that is to say, the roller being adjustable, so that either end may be raised and the other lowered, the one end opposite the face of the scraper at work being lowered and the other raised, so as to give an inclination to the scraper and so that the lower end may work into the earth, the end of the roller itself will form a sufficient resistance to lateral movement and hold the rear part of the frame in its direct line.

I claim—

1. In a road-scraper, the combination of a frame carried by wheels, a pair of segments, F G, hung to said frame, one forward of and the other at the rear of a center common to both, and the said segments adapted to swing up and down beneath the frame, a scraper supported by said segments and adjustable thereon to different angles with relation to the path of the moving frame, substantially as described.

2. In a road-scraper, the combination of a frame supported upon wheels, a pair of segments, F G, hung to said frame, one forward of and the other at the rear of a center common to both, and the said segments adapted to swing up and down beneath the frame, a hanger, U, arranged upon each of said segments and adapted to slide thereon around said common

center, the scraper W, hung to the said hangers, substantially as described, and whereby said scraper is adapted to be inverted to present either edge to the earth.

5 3. The combination of a frame supported upon wheels at the rear and wheels at the front, a pair of segments, F G, hung to the said frame, one forward of and the other at the rear of a center common to both, vertically-guided
10 racks J O, respectively hung to the said segments, a gear hung upon the frame at each rack and so as to engage the teeth thereof, a hand-lever hung upon the axis of each of said gears, and each of said levers provided with a
15 dog arranged to engage the teeth of the said wheel, with a scraper hung to said segments and adjustable thereon to different angles, substantially as described.

4. The combination of a frame supported
20 upon wheels at the rear and upon wheels at the front, segments F G, hung to the frame between the rear and forward wheels, one forward of and the other in rear of a center common to both, and the said segments adapted to
25 swing up and down beneath the frame, a scraper hung upon said segments and so as to turn thereon to different angles, the said segments provided with a series of notches, and the scraper with corresponding dogs, by which the
30 said scraper may be interlocked with the said segments, substantially as described.

5. The combination of a frame supported upon wheels at the front and rear, segments F G, hung to said frame between the rear and forward wheels, one forward of and the other
35 in rear of a center common to both, and the said segments adapted to swing up and down beneath the frame, the hangers U, upon each of said segments and adapted to slide thereon, a scraper, W, hung to said hangers and so as
40 to be turned either edge up, and with a lock to engage the said hangers and scraper in either position, substantially as described.

6. The combination of a frame arranged upon wheels at the rear and upon wheels at the front, a scraper hung to the frame between said
45 wheels, with a roller in rear of said scraper, the said roller provided with one or more resistance-wheels, s, substantially as and for the purpose described.

7. The combination of a frame arranged upon
50 wheels at the rear and upon wheels at the front, a scraper hung to the frame between the wheels, a roller in rear of the scraper and hung to adjusting-levers on the frame, substantially as
55 described, and whereby the said roller may be raised or lowered.

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Witnesses:

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