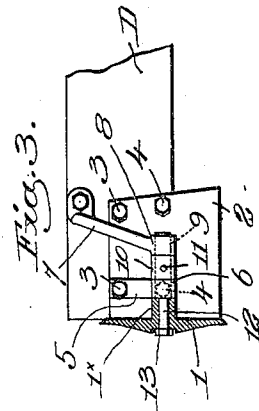
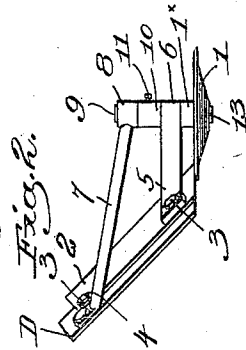
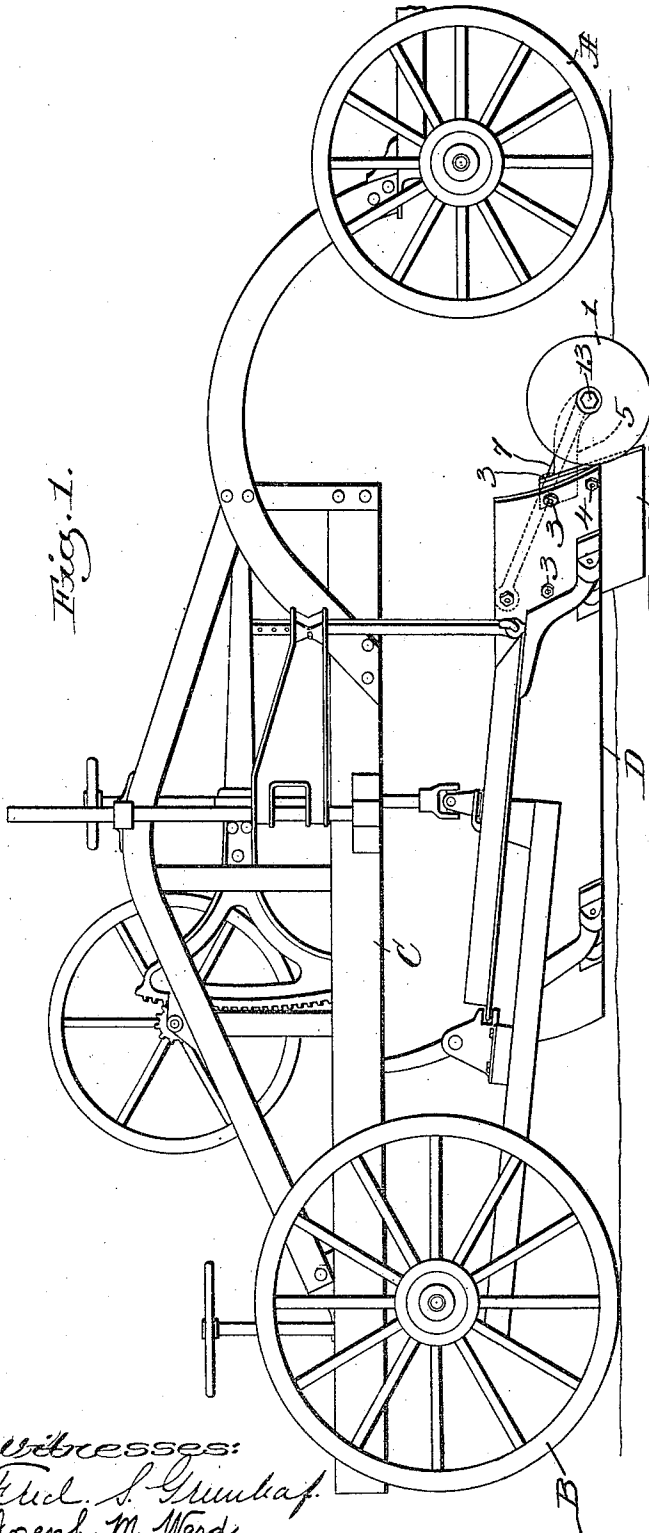


J. A. FERGUSON.
ROAD MACHINE.
APPLICATION FILED SEPT. 18, 1909.

949,117.

Patented Feb. 15, 1910.

2 SHEETS—SHEET 1.



Witnesses:
Edw. S. Grunkef.
Joseph M. Ward.

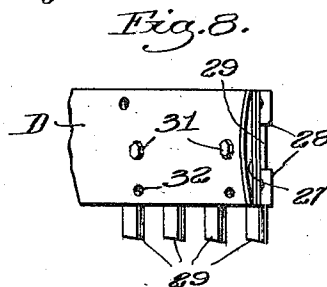
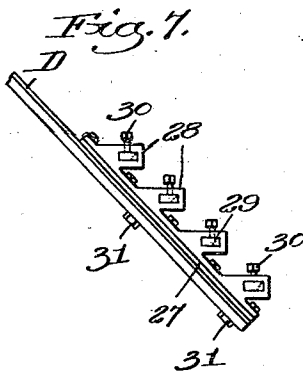
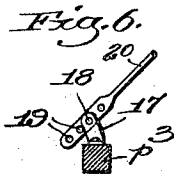
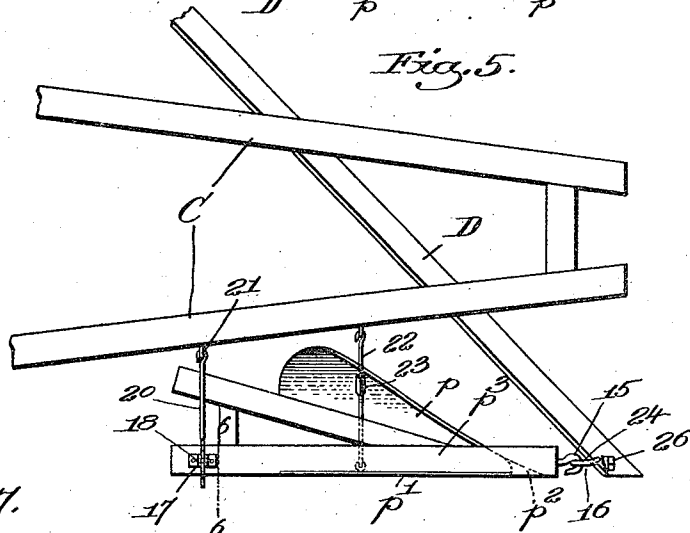
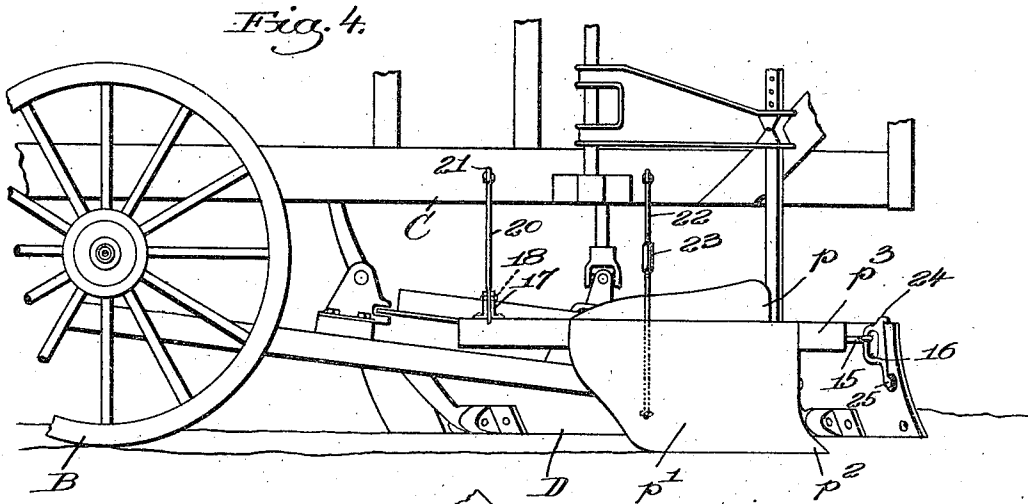
Inventor.
James A. Ferguson,
by Wesley Ferguson.

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2 SHEETS—SHEET 2.



Witnesses:
Fried. S. Grunkaf.
Joseph M. Ward.

Inventor,
James A. Ferguson,
by Lewis J. Gregory.

allies

UNITED STATES PATENT OFFICE.

JAMES A. FERGUSON, OF CAMBRIDGE, MASSACHUSETTS.

ROAD-MACHINE.

949,117.

Specification of Letters Patent.

Patented Feb. 15, 1910.

Application filed September 18, 1909. Serial No. 518,374.

To all whom it may concern:

Be it known that I, JAMES A. FERGUSON, a citizen of the United States, and resident of Cambridge, county of Middlesex, State of Massachusetts, have invented an Improvement in Road-Machines, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to machines employed for scraping and smoothing off the surfaces of roads, for removing snow and ice therefrom in the winter, and in general for maintaining road surfaces in good condition.

My present invention has for its object the production of means whereby the effectiveness of such machines is enhanced and its work made more complete.

In many small cities and suburban localities the road bed is bordered by turf, which has to be trimmed or edged by hand from time to time, the road machine having no means for effecting such trimming.

Herein I have provided a simple and effective turf trimmer or edging device, which is mounted on the road machine in such manner that as the scraper blade acts upon the surface of the road-bed the turf at the side is trimmed, and the strip, or parts of turf so cut off, are collected and deposited in readiness to be gathered up with the scrapings from the road bed.

The turf trimming device is readily detachable so that in winter, or when there is no occasion for acting upon the turf at the road side, the road machine can be used without it.

I have also provided means for cleaning out the gutters, particularly in winter, so that the snow and ice therein can be removed therefrom without additional labor at the time the main roadway is being cleared.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a side elevation of a road machine of usual construction, with the turf trimming device applied thereto embodying my invention; Fig. 2 is a top plan view of the outer end of the scraper blade of the machine, with the attached turf trimming

device; Fig. 3 is a front elevation of the structure shown in Fig. 2, but with the cutting or trimming blade in section; Fig. 4 is a side elevation of a portion of the road machine with the gutter clearer applied thereto; Fig. 5 is a top plan view of a portion of the apparatus shown in Fig. 4; Fig. 6 is a detail, to be referred to, on the line 6-6, Fig. 5, looking toward the left; Figs. 7 and 8 are top plan and rear views of an ice-breaking device applicable to the scraper blade, for use in very icy weather.

In the drawing, Fig. 1, the road machine, mounted on wheels A, B, the frame C, and the diagonal scraper blade D, adjustably mounted on the frame, may be and are all of usual and well known construction, the machine being driven slowly along the road while the loose dirt and refuse on the road bed is scraped up by the blade D and left in windrows or piles, to be subsequently gathered up.

The turf trimming device is shown in Figs. 1, 2 and 3, and comprises a rotatable cutting or trimming blade 1, and an auxiliary collecting blade 2, the latter being shown as a substantially flat blade detachably secured to the front face of the scraper blade by bolts 3, 4 at its outer or forward end, and projecting below the edge of the blade D, as shown. Bracket-arms 5, 6 rigidly mounted on the scraper blade extend forward therefrom and at their free ends provide aligned bearings 7, 8 for a shaft 9 rotatably mounted therein and held from longitudinal movement by a collar 10 held on the shaft by a set-screw 11.

In practice the shaft is sustained substantially at right angles to the path of movement of the road machine, and as shown in Fig. 3, the outer end of the shaft is reduced at 12 to receive the hub 1^{*} of the circular cutting blade 1, a nut 13 securing the blade firmly upon the shaft.

The periphery of the cutting blade travels along a path slightly below that of the lower edge of the auxiliary blade 2, see Figs. 1 and 3, and as the machine is driven along the roadway the rotatable blade 1 cuts and trims or edges the turf at the road side, the strip, or portions of turf, thus cut off being gathered up by the auxiliary blade 2 and swept inward toward the center of the road, to be shoveled up later, or if the gutter is of such

a depth to permit it the turf cuttings will be moved inward by the blade 2 into the path of the scraper blade D.

It will be understood that the scraper blade D can be tilted more or less to conform to the road surface, and as the latter is scraped the turf is neatly and effectively trimmed, obviating the use of manually operated turf-cutters, which is now the usual practice. Thus time and labor are saved and the edging or trimming of the turf is very perfectly and quickly performed.

As the cuttings sometimes tend to pile up in front of the auxiliary or collecting blade 2 I carry the bracket arm 7 well upward and inward, the cutter shaft 9 being sustained at quite a distance in front of the blade 2, so that the turf refuse cannot clog up between blade 2 and the shaft bearings 6 and 8.

If there is no occasion for using the turf trimming device the cutter and the auxiliary blade can be easily and quickly detached from the scraper blade.

The axis of the turf cutter 1 is shown as on very nearly the same plane as the lower edge of the scraper blade D, and this is done to insure the proper depth of cut through the turf, and provide for effective trimming thereof with a clean edge.

Road machines are used in winter, in higher latitudes, to clear the roads of snow and ice, and at such time the turf trimming device described will be removed, and I apply to the machine means to clear the gutters of accumulated snow and ice as the main road bed is cleared.

Manifestly the straight-edged blade D cannot properly enter the gutter, and at present the gutter-cleaning is done by a separate gang of employees provided with a horse-plow, which latter is drawn along through the gutter before or after the road machine passes. To obviate this second gang of men I connect the plow with the road machine, back of the scraper blade near its outer end, the plow traversing the gutter and clearing it as the blade D scrapes the snow off the road bed.

Referring to Figs. 4 and 5 I have shown a gutter-plow having a mold-board p , land-side p' , share p^2 , and beam p^3 , the mold-board turning over toward the middle of the road the snow and ice cut out by the plow, there being no novel features about the plow, *per se*. The front end of the beam has a hook 15 which loosely enters a clevis 16 extended from the rear side of the scraper blade D, so that while the plow is drawn along by and behind said blade it is so connected therewith that it can rise and fall with relation thereto, and can have a slight lateral swinging movement as it traverses the gutter. At its rear end the beam p^3 has an attached bifurcated and upturned ear

17 apertured to receive a pin 18 which extends through any one of several holes 19 in a stay-rod 20, Fig. 6, hooked at its upper end into an eye 21 on the frame C of the road machine.

The blade D is vertically adjustable with relation to the frame C, and by making an adjustable connection between the rear end of the plow-beam and the stay-rod 20 changes in adjustment of the scraper blade can be accommodated, the stay-rod serving to properly support the rear end of the beam p^3 and also preventing improper lateral movement thereof.

No particular attention need be paid to the plow as the machine is driven along, for it will follow along after the scraper blade D and traverse the gutter to clear the same of the ice and snow therein, the mold-board of the plow turning over and toward the middle of the road the furrow of snow and ice.

To prevent the bottom of the plow from swinging outward, away from the machine, as it might do upon hitting an obstruction, I connect the frame C and the lower part of the land-side by a longitudinally-adjustable guide-rod 22, the adjustment being effected by a turnbuckle 23.

The deeper cut of the plow is shown in Fig. 4, where the paths respectively traversed by the lower edges of the scraper blade D and the plow are clearly indicated.

Referring to Figs. 4 and 5 the clevis 16 has a hook 24 which catches over the upper edge of the blade D, and a depending shank 25 on said clevis is arranged to pass through one of the holes in the blade which receives the bolts 3, Fig. 3, and said shank is clamped by a nut 26, Fig. 5. By this arrangement I obviate the necessity for an additional bolt-hole in the scraper blade, and either the clevis 16 or the turf trimming device can be applied with equal facility.

Should the road be very icy and rough the scraper blade and plow may not be adapted for breaking up the ice, and in such case I apply an ice breaking device, shown in Figs. 7 and 8.

A base plate 27 adapted to be bolted to the front of the blade D is provided with a series of upright, open holders 28, four holders being shown in Fig. 7, each holder receiving the shank of a depending chisel-like tool or breaker 29, the set of breakers extending below the scraper blade and ripping or smashing the ice in their path as the machine moves along the roadway.

The holders are made in separated, upper and lower parts, see Fig. 8, to more firmly support and retain the breakers, which are preferably fixed in the holders by set-screws 30, Fig. 7.

As heavy and rough ice accumulations are sometimes found in the street and gutters

the ice-breaking device is mounted at the outer end of the scraper blade, to traverse the ice, and by suitably locating the attaching bolts 31, 32 they pass through the holes in the blade D provided for the bolts 3 and 4, previously referred to.

It will be apparent that the application of my invention to a road machine does not involve any reconstruction of the latter, or any change therein other than the boring of the necessary group of bolt-holes near the outer end of the scraper blade.

My invention is not restricted to the precise construction nor the arrangement herein shown and described as the same may be modified or varied by those skilled in the art without departing from the spirit and scope of the invention as set forth in the annexed claims.

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

1. In a road machine, a scraper blade extended diagonally to the path of the machine, a rotatable turf cutter parallel to the path of the machine, and supporting means for the cutter mounted on the scraper blade near the leading end thereof, and projecting forward therefrom.

2. The combination, with the scraper blade of a road machine, of a turf cutter mounted on said blade at one end thereof, and an auxiliary blade carried by the scraper blade and projecting below it, to collect the trimmings cut from the turf.

3. In a road machine, a diagonally extended scraper blade having a series of bolt-holes therein adjacent its leading end, a turf trimming device comprising a rotary cutter and an auxiliary collecting blade, and connecting bolts adapted to cooperate with the bolt-holes in the scraper blade and detachably secure the trimming device thereto.

4. In a road machine, a scraper blade, a gutter plow, a draft connection between it and the machine, and means to operatively position the plow to travel behind said scraper blade.

5. In a road machine, a scraper blade, a gutter plow having a draft-hook on the front end of its beam, a clevis detachably mounted on the scraper blade, to be engaged by the hook, and means to sustain the rear end of

the plow and prevent outward movement of the bottom thereof.

6. In a road machine, a scraper blade, a gutter plow, a draft connection between it and said blade, an adjustable stay-rod to sustain the rear end of the plow, and a guide-rod connecting the machine and the plow, to prevent outward movement of the bottom thereof.

7. In a road machine, a scraper blade, a base plate bolted thereto near its end and having a series of holders, and ice-breakers detachably mounted in the holders and depending therefrom below the bottom edge of the scraper blade.

8. In a road machine, a diagonally disposed scraper blade, a base-plate detachably mounted thereon at its leading end, a series of upright, open holders on the base-plate, a depending ice-breaker mounted in each holder and extending below the scraper blade, and means to retain said ice-breakers detachably in the holders.

9. In a road machine, a diagonally disposed scraper blade, forwardly extended bracket arms fixed thereon at its leading end and having alined bearings, a cutter-shaft rotatably mounted therein substantially at right angles to the longitudinal axis of the machine, and a turf cutter mounted on the outer end of said cutter-shaft, to make a clean cut in and thereby trim the roadside turf as the road is traversed by the machine.

10. In a road machine, a diagonally disposed scraper blade, bracket arms fixed thereon at its leading end and having alined bearings, a cutter-shaft rotatably mounted therein substantially at right angles to the longitudinal axis of the machine, and a turf cutter mounted on said cutter-shaft, to trim the roadside turf as the road is traversed by the machine, combined with an auxiliary blade mounted on the scraper blade adjacent the turf cutter and adapted to scrape up and collect the refuse from the cut turf.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JAMES A. FERGUSON.

Witnesses:

THOMAS J. DRUMMOND,
BESSIE G. MORRIS.