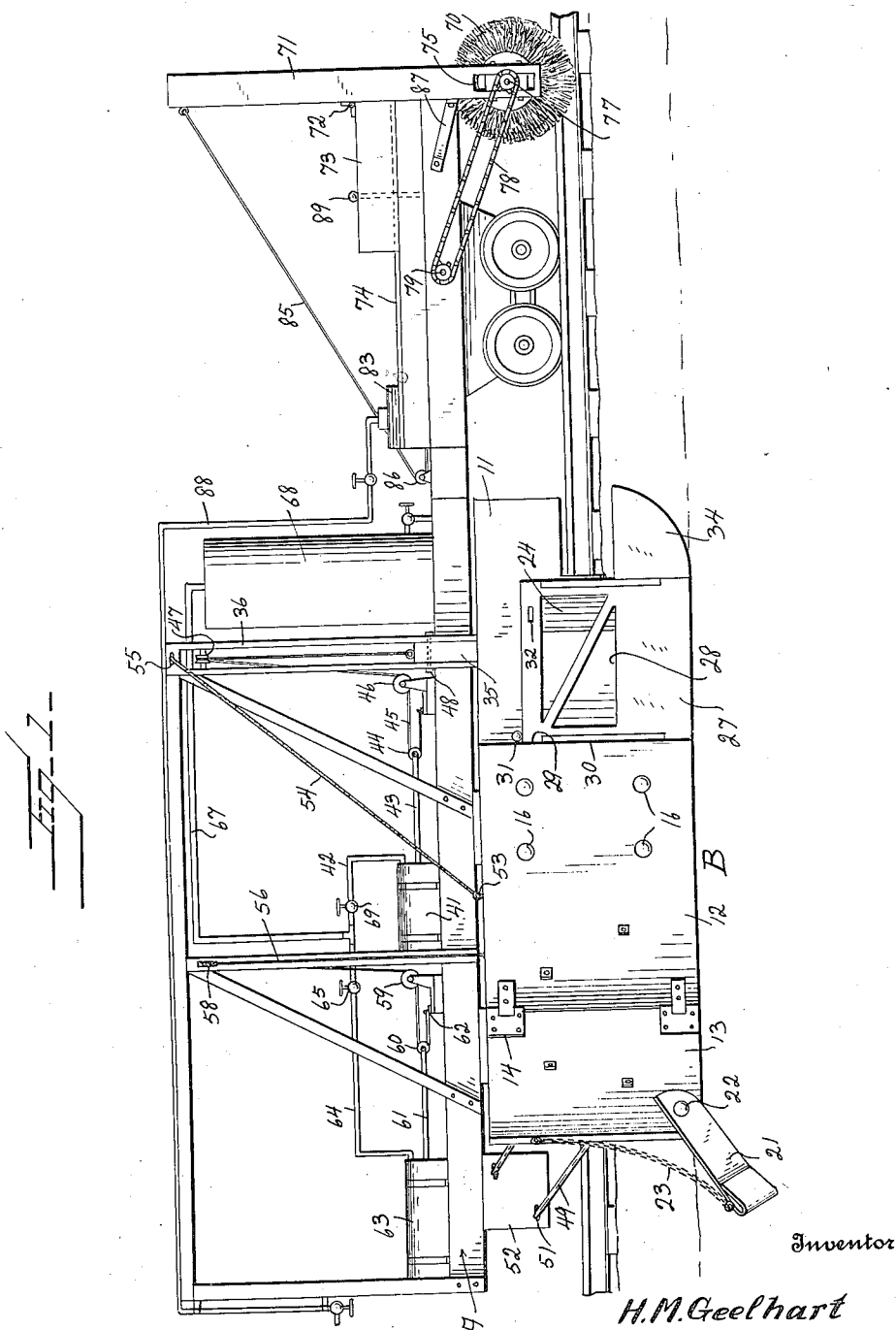


H. M. GEELHART.
 TRACK DRESSING MACHINE.
 APPLICATION FILED DEC. 28, 1918.

Patented Nov. 25, 1919.

5 SHEETS—SHEET 1.

1,322,688.



Inventor

H.M. Geelhart

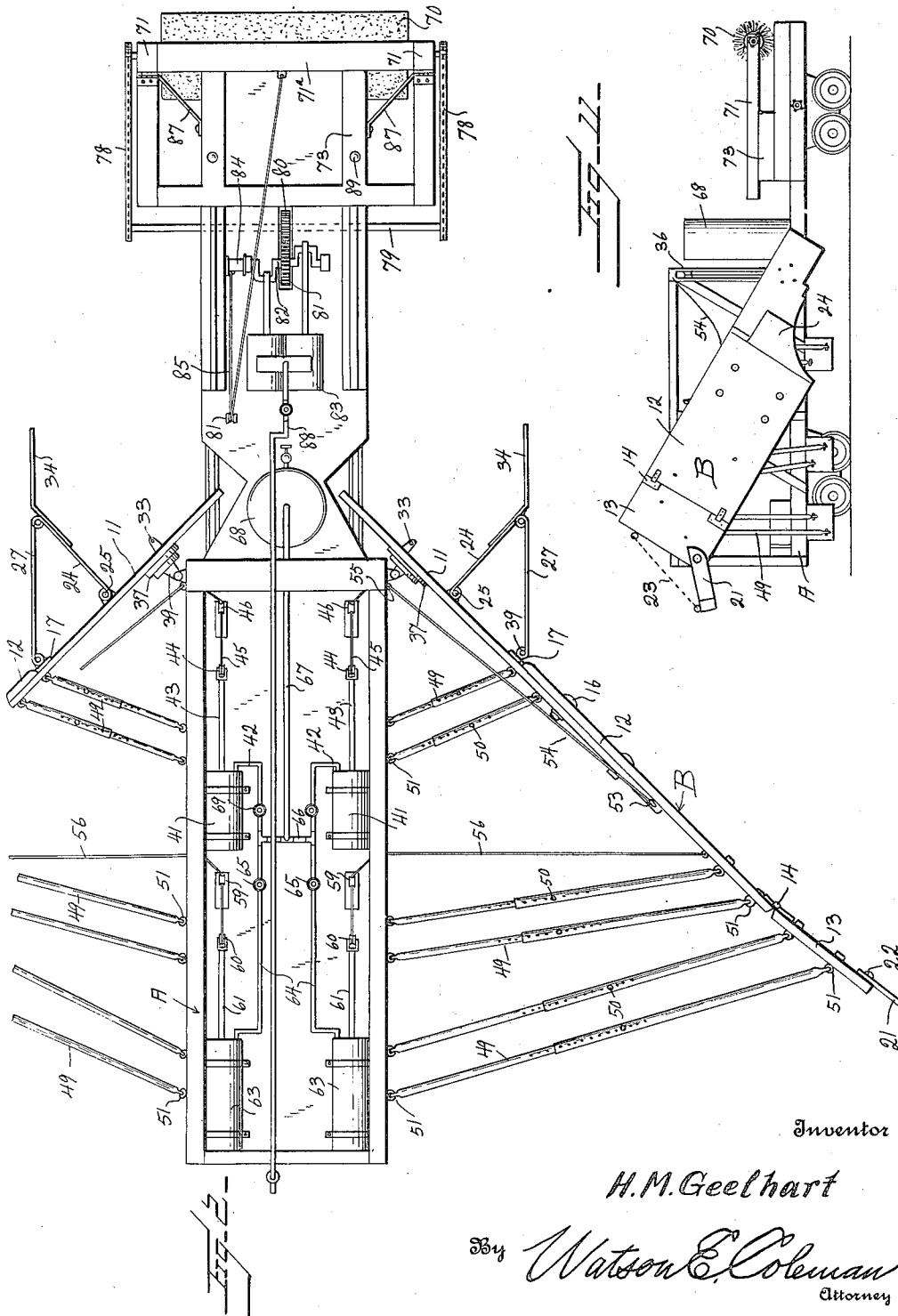
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Watson & Coleman
 Attorney

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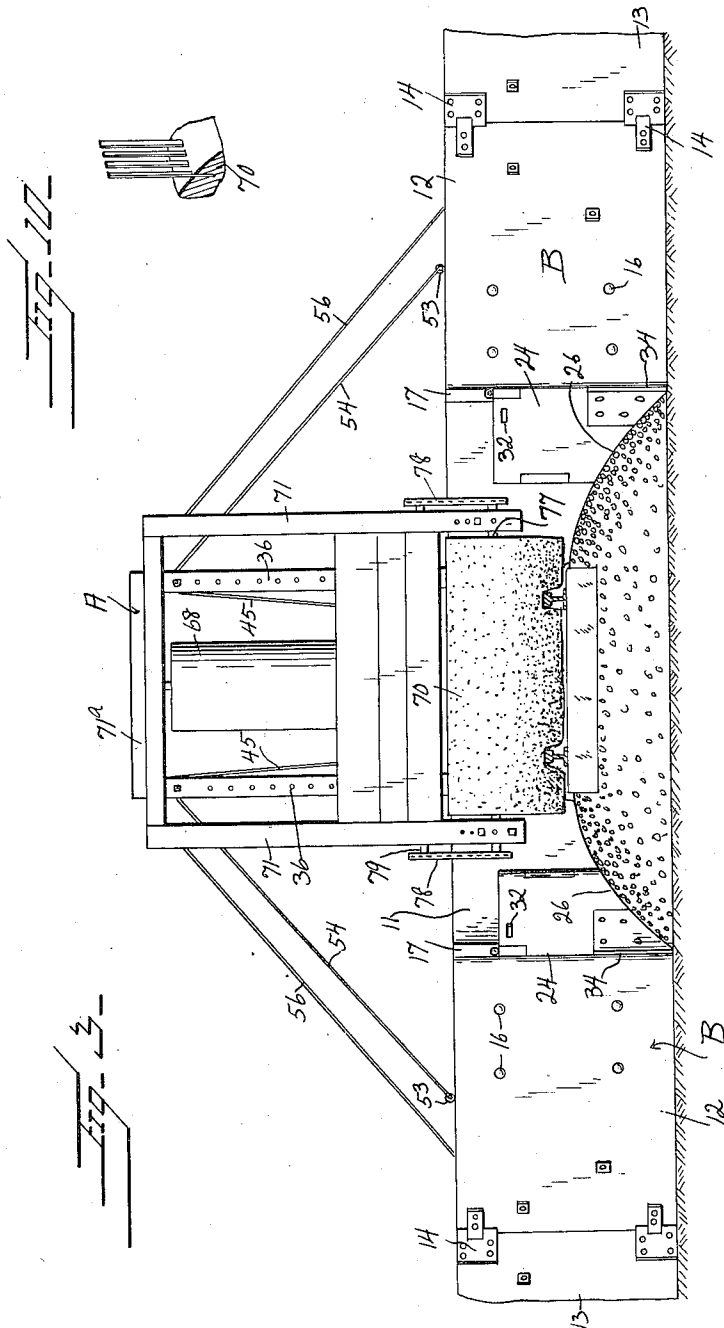
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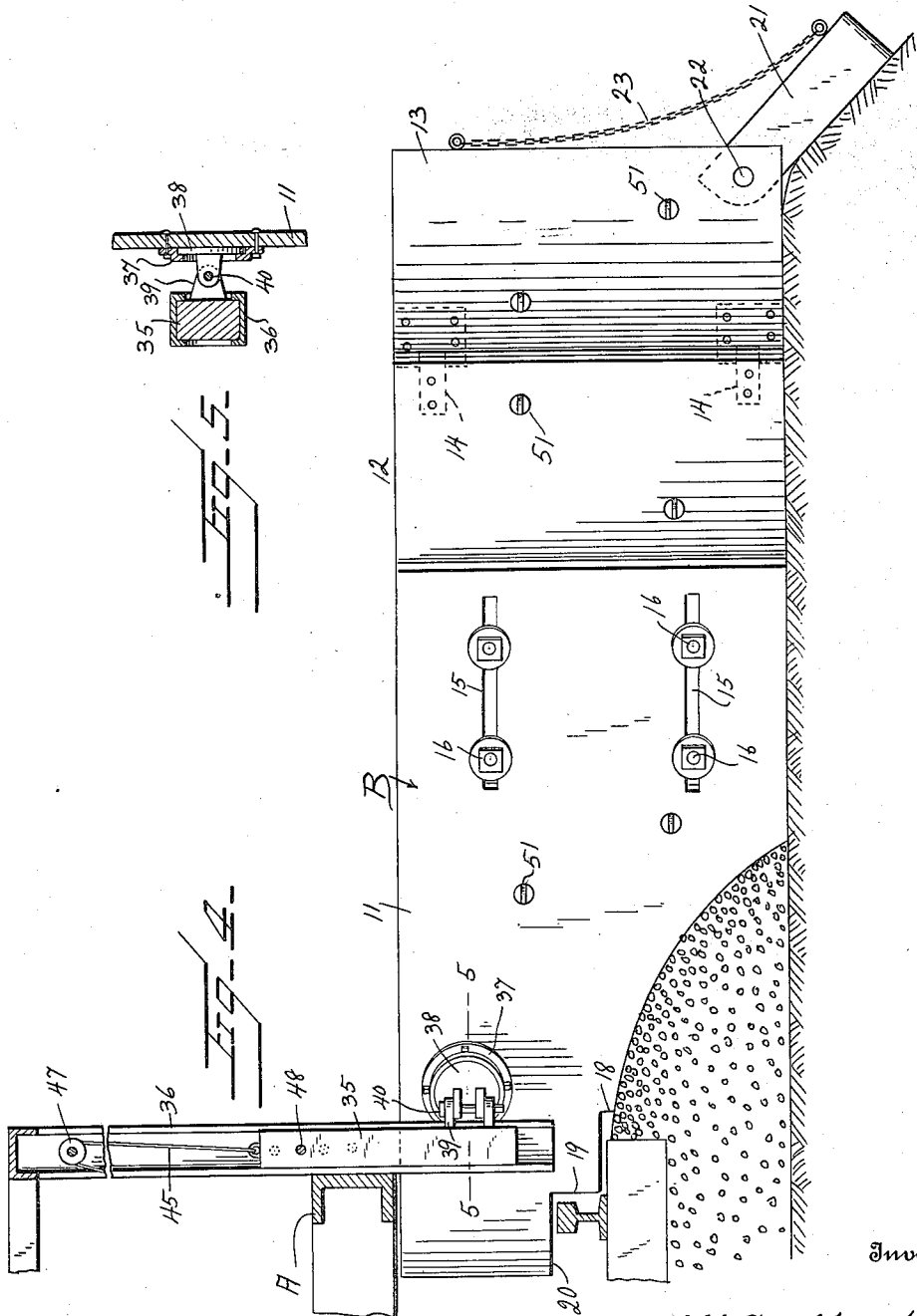
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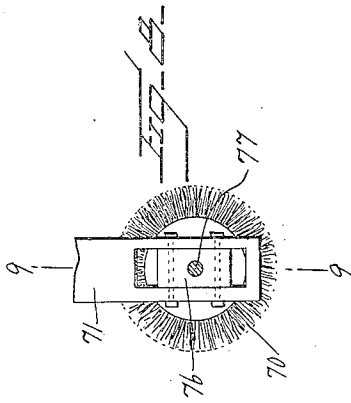
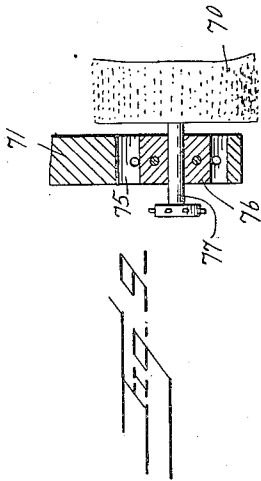
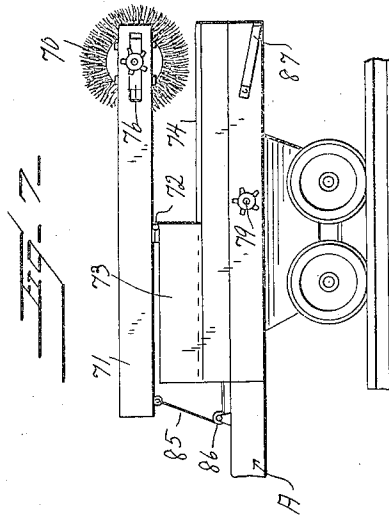
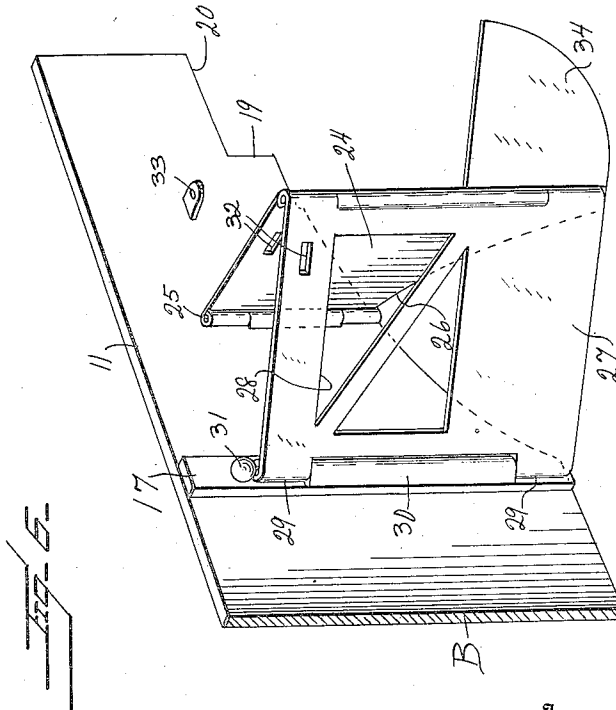
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5 SHEETS—SHEET 5.



Inventor

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UNITED STATES PATENT OFFICE.

HERMAN M. GEELHART, OF ROUNDUP, MONTANA.

TRACK-DRESSING MACHINE.

1,322,688.

Specification of Letters Patent.

Patented Nov. 25, 1919.

Application filed December 28, 1918. Serial No. 269,716.

To all whom it may concern:

Be it known that I, HERMAN M. GEELHART, a citizen of the United States, residing at Roundup, in the county of Musselshell and State of Montana, have invented certain new and useful Improvements in Track-Dressing Machines, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to scrapers, and particularly to track dressing machines.

The general object of this invention is to provide a track dressing car or truck having laterally disposed rearwardly inclined scraping wings mounted thereon, and so formed as to shape the ballast on each side of the ties, shape the sub-grade, carry gravel into holes where gravel is lacking, make a perfect grass line at the proper distance from the rail on each side, and in a general way to form a uniform road bed.

A further object is to provide a scraper of this character which, while simple in construction, may be increased or decreased in length to thereby adjust it for different conditions of service, and further provide means whereby the wings or scrapers may be adjusted as a whole toward or from the car or lowered or raised into or out of operative position.

A further object is to provide improved means for raising or lowering the scraper which may be operated by train line air pressure.

35 Still another object is to provide a brush mounted upon the forward end of the truck or car which will act to sweep gravel or ballast off of the rails or top of the ties and to level the ballast between the rails of the track.

Still another object is to provide a scraper of this character with an auxiliary scraper which, when adjusted to operative positions, will assist the main scraper in giving the proper curvature to the face of the ballast laterally of the rails, which will bring gravel up toward the ties, shape the gravel at the shoulder of the embankment, and drag gravel or ballast into low spots, and further to provide this auxiliary scraper with a forwardly extending blade which acts to hold the gravel, when there is an excess of gravel or ballast, in front of the auxiliary scraper so that the gravel will not be wasted any more than possible.

Still another object is to make this auxil-

iary scraper foldable upon the main scraper so that it may be folded flat upon the main scraper when the machine is not in use or where the car is passing over bridges by any obstruction which is closer than six feet to the track.

A further object is to so mount the rotatable brush upon the forward end of the car or truck that it may be readily shifted by power into or out of operative position.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of a track dressing machine constructed in accordance with my invention;

Fig. 2 is a top plan view of the construction illustrated in Fig. 1;

Fig. 3 is a front elevation of the dressing machine in use;

Fig. 4 is a side elevation of one of the main scrapers showing in section a portion of the truck frame;

Fig. 5 is a section on the line 5—5 of Fig. 4;

Fig. 6 is a fragmentary perspective view of the forward section of one of the main scrapers showing the auxiliary scraper and the forwardly projecting blade thereof;

Fig. 7 is a fragmentary front elevation of the forward end of the truck showing the brush and its supporting frame disposed in an inoperative position;

Fig. 8 is a detailed side elevation of the supporting frame for the brush, the brush shaft being in section showing the manner in which the brush may be adjusted;

Fig. 9 is a section on the line 9—9 of Fig. 8;

Fig. 10 is a fragmentary perspective view of a portion of the brush; and

Fig. 11 is a side elevation of the track dressing machine showing the scraper elevated and the brush elevated and in inoperative position.

As illustrated in the drawings, my track dressing machine includes a truck or car body designated generally A which may be of any suitable construction and which is mounted upon wheels designed to run upon the rails of the track. Disposed on each side of the truck, as illustrated in Fig. 2, is a main scraper designated generally B which is made up of a plurality of sections, as will be later stated, and each scraper be-

ing so mounted that it may be turned into parallel relation to the truck A or into angular relation thereto and being further so mounted that the scraper may be turned upward at their rear ends, so as to carry the scrapers entirely out of operative position.

Each of these scrapers, as illustrated particularly in Figs. 2 and 4, is composed of three sections 11, 12 and 13. The section 11 is about fourteen feet long and has a height of about four feet at its widest part and is preferably made of four inch oak reinforced with a sheet of boiler iron on each side. The section 12 is approximately ten feet long and has the same height as the section 11 and the same thickness and is preferably of the same construction. The section 11 overlaps the section 12. The section 13 is four feet long and has the same height as the sections 11 and 12 and is preferably connected to the sections by heavy hinges 14, so that the section 13 may be swung out at an angle to the section 12.

The section 12 is adjustable with relation to the section 11 by forming the section 11 with longitudinally extending slots 15, which may be of any suitable length and bolts 16 are connected to the section 12 and pass through these slots 15 and thus by means of these slots and bolts, the total length of the sections 11 and 12 may be adjusted. These sections 11, 12 and 13 are held in angularly adjusted positions with relation to the truck by means of adjustable braces which will be later described and the forward end of the section 11 is pivotally connected to the truck, as illustrated in Figs. 4 and 5.

Midway of the length of section 11 is a vertically disposed strengthening iron 17 and the lower edge of the section 11 is curved upward from the lower end of the iron 17 toward that end of the section 11 which is adjacent the car, that is, to the point 18. At the point 18, the lower edge of the section 11 extends upward and then extends longitudinally or forward so as to extend over the ties, then extends upward, as at 19, to clear the rail, and then again forward, as at 20, so as to extend over the top of the rail, thus providing for about a half inch clearance between the head of the rail and the section 20. The curvature of the lower edge of the section 11 is the curvature given to the ballast on each side of the ties.

The section 13 is hinged to the section 12, as before stated, and the free end of the section 13 carries a relatively small scraper section 21 which is pivoted at 22 for free vertical movement, the free end of this scraper 21 being connected to the free edge of the section 13 by means of a chain 23. The sections 12 and 13 are designed to scrape and level the sub-grade on each side

of the ballast line and the auxiliary strip 21 rises and falls as the occasion demands to level off what little ridge of dirt may be left by the scraper 13 and to slope the fill. This scraper 21 should be about one foot wide and in practice about four feet long.

Attached to the section 11 near its middle is the auxiliary scraper 24. This scraper is hinged by means of pintle 25 to the outer face of the section 11 forward of the rear end of the curved under edge of the scraper and this auxiliary scraper 24 when in use extends out at approximately a right angle to the face of the section 11. The lower edge of the scraper 24 is downwardly and laterally curved as at 26 and the free end of the auxiliary scraper is connected to a rearwardly extending brace plate 27, the middle of which is cut away as at 28 and the free edge of this brace plate 27 is formed with spaced beads 29 adapted to be disposed in alinement with a bead 30 formed upon the member 17 and designed to receive a pivot pin or pintle 31, this pintle 31 being detachable so as to disconnect the brace plate 27 from section 11. The auxiliary scraper 24 and the brace plate 27 are both formed with slots 32 to engage a staple 33 projecting from the member 11 so that when it is necessary to pass obstructions which are closer than six feet to the track, the auxiliary scraper and its brace plate may be turned flat against the section 11 and held in place by a locking pin passing through the perforation in the staple.

Preferably the forward face of the auxiliary scraper 24 is provided with a sector shaped blade 34 which extends from the scraper 24 approximately at right angles thereto. The forward edge of this blade is upwardly and forwardly curved. This auxiliary scraper is designed with the upwardly and inwardly curved edge of the section 11 to form the ballast line and to bring the gravel up to the ties. It further shapes up the gravel or ballast shoulder dragging the gravel from high spots to low spots and covers up or cuts off weeds. The blade 34 holds the gravel from too great lateral displacement in front of the scraper 24 and thus prevents the gravel from being wasted. The blade 34 also follows the grass line as it is termed, that is, the line of junction of the ballast with the sub-grade, and makes a clean line of demarcation between the ballast and the sub-grade. This blade 34, in practice, is approximately two feet, four inches in length. The auxiliary scraper 24 in practice will be about two feet nine inches in length.

The section 11 at its forward end, as before stated, is pivotally mounted and it is necessary that this support or mounting for the section 11 shall be one whereby the scraper B may be angularly adjusted and

may also be raised or lowered. To this end I preferably swivel the section 11 to a slide 35 mounted to have sliding engagement upon a vertical supporting column or beam 36. These slides 35 are operatively connected to suitable actuating means. Attached to the inner face of each section 11 is an annulus 37 and rotatable within this annulus and overhung thereby is a disk 38. Thus the section 11 may rotate around the disk 38. This disk 38 and the slide 35 are provided with overlapping eye-bolts or like members 39 and a pintle 40 passes through these eye-bolts and thus there is secured a pivotal engagement between the disk 38 and the slide 35 which permits the scraper to be angularly adjusted with relation to the length of the truck while at the same time the scraper may be rotated upon the pivot formed by the disk 38 so as to permit the rear end of the scraper to be actuated upwardly to any extent desired. Furthermore, the slide may be raised or lowered to raise or lower the forward end of the scraper.

The mechanism whereby the slides may be raised or lowered, preferably consists of cylinders 41, one for each slide, these cylinders being mounted upon the truck and being connected by pipes 42 to a source of air or steam or other fluid under pressure. Disposed in each cylinder is a piston, the piston rod of which is designated 43 and each piston rod carries upon it a pulley 44. As shown in Fig. 1, a cable 45 is attached at one end to the frame of the machines, passes around this pulley 44, then extends forward under a pulley 46, then upward and over a pulley 47, on the column 36, and then downward to the slide 35. This slide 35 is provided with a locking bolt 48 and the column is formed with a plurality of perforations, as illustrated in Fig. 4, with which the locking bolt 48 is adapted to engage so as to hold the slide adjusted and from other downward or upward movement while the scraper is in actual use.

Each scraper B is held in its angularly adjusted position with relation to the truck by means of a plurality of pairs of braces 49, there being a pair of braces or set of braces for each of the sections 11, 12 and 13. The braces 49 are adjustable as to length and to this end I have shown these braces as being formed of telescopic sections, the sections being perforated at a plurality of points and the sections being held in their adjusted relation to each other by means of bolts or pins 50. These braces 49 are connected to eye-bolts 51 projecting from the sections 11, 12 and 13 and from the truck. Preferably one of the braces 49 of each section is connected to the section at a point lower down than the other brace 49 of the same section.

The several braces 49 are connected by

their eye-bolts 51 to transversely extending beams 52. Preferably the longest braces, that is, those braces which are used for the sections 13 are approximately ten feet, three inches in length when the sections of the braces are fully extended. This will permit the scraper or wing B to be adjusted for a five foot gravel shoulder or a five and a half foot gravel shoulder. The remaining braces are enough shorter than the rearward braces as to permit the scraper or wing bead to have an angle of forty five degrees of the length of the car.

Attached to the rear end of each section 11 at its upper edge by means of an eye-bolt 53 is a cable 54 running from the eye-bolt 53 to an eye-bolt 55 on the column 36. This supports each scraper B in its proper operative position when the scraper is lowered. When the scraper is raised, this cable 54 simply flexes to permit the raising of the scraper. For the purpose of raising each scraper there is provided a cable 56 which extends upward and over a pulley 58 mounted upon the frame of the machine in any suitable manner, this cable then extending downward and beneath a pulley 59 as illustrated in Fig. 1, then around a pulley 60 carried by a piston rod 61 and then the end of the cable is attached to the frame of the machine, as at 62. The piston on the rod 61 operates within an air cylinder 63 and it will be obvious that when this piston is moved inward the corresponding scraper will be raised. The cylinders 63 are supplied with air by means of pipes 64, wherein are disposed the valves 65, and these pipes 64 and pipes 42 connect by a common header 66 to a supply pipe 67, which in turn extends to an air storage tank 68, illustrated as mounted adjacent the forward ends of the scrapers, this pipe being in turn supplied with air by a train line not shown.

Suitable controlling valves are provided to control the air passing from the storage tank 68 to the pipes 64 and 42 and it is obvious that the valves 65 and the valves 69 in pipes 42 will control the supply of air to the cylinders 63 and 41 respectively. It is, of course, obvious that the connections between the braces 50 and the truck and between these braces and the scrapers B will be of such character as to permit the scrapers to be raised or lowered and held in their adjusted positions.

Upon the forward end of the truck A there is mounted a rotatable brush 70 which is designed to clear off the gravel from the rails and from the top of the ties and to level this gravel. Thus brush must be made so that it may be raised or lowered and also must be mounted so that it may be shifted into or out of operative position and to this end I have provided the two vertical supporting beams 71 which are piv-

oted at 72 upon sliding blocks 73, these blocks moving on tracks 74 on the frame of the truck. The lower end of each beam 71 is vertically slotted as at 75 for the reception of a sliding bearing box 76 in which the shaft 77 of the brush rotates. This brush shaft carries a sprocket wheel which is connected by means of a sprocket chain 78 to a sprocket wheel on the shaft 79. This shaft 79, as illustrated in Fig. 2, is mounted in suitable bearings and extends transversely of the truck and is driven by means of a gear wheel 80 thereon, in turn driven by a gear wheel 81 mounted upon a shaft 82 having oppositely disposed cranked portions.

This crank shaft is driven by means of a steam engine 83 which may be of any suitable character, as for instance, a Lيدger-wood engine such as is ordinarily used in engineering practice. This crank shaft also carries upon it a winding drum 84 over which passes a cable 85 extending rearward over the pulley 86 and then upward and forward to a cross beam connecting the uprights 71. Thus it will be obvious that by rotating the drum, the frame formed of the members 71 and the cross bar thereof will shift to a horizontal position, as illustrated in Fig. 7. It will likewise be seen that the cable 85, after the brush supporting frame has been turned to a horizontal position, will act to shift the slide 73 and the brush supporting frame rearward to the position shown in Fig. 7. The slide blocks 73 are to be of a height sufficient so that the cross bar 71 of the frame formed of the member 71 will pass over the top of the cylinders 83. Of course it is to be understood that before the frame 71 can be turned to its horizontal position, the sprocket chains 78 are to be released from their engagement with the sprockets. The brush supporting frame may be held in its vertical position by means of braces 87 detachably connected to the beams 71 by removable bolts or any other suitable means may be used for detachably holding the beams 71 in their vertical positions.

The engine 83 will be supplied with steam by means of the pipe 88. This may be connected to any suitable source of steam. The slides 73 are held in their adjusted positions when the beams 71 are vertical by means of removable pins 89. When these pins are removed it permits the slides to shift rearward on the tracks 74 to the position shown in Fig. 7. While I do not wish to be limited to any particular form of rotary brush, I preferably form the brush with radiating strips of metal about one-fourth inch thick and a half an inch wide, as illustrated in Fig. 10, these strips having sufficient elasticity to permit

them to spread after they pass over the rails, the middle and end strips of the brush extending down and sweeping against the top surfaces of the ties.

The manner in which this machine is used is evident from what has gone before. After the scrapers are adjusted outward to their full extent they will be disposed at an angle of about 45 degrees with the line of draft, but they may be disposed at less than 45 degrees to the line of draft depending on the width of the sub-grade. The ballast line from the ends of the ties to the side edge of the ballast is approximately the same in all roads but the degree to which the sub-grade extends out beyond the ballast line varies and this is the reason for forming the scrapers so that they may be adjusted in or out.

It will be noted that the scrapers can never be lowered into a downward or lateral inclination to a horizontal plane, unless the supporting chain 54 is increased in length. When the machine is out of operation the scrapers are turned up to an upwardly and rearwardly extending position by drawing inward on the cables 56. This movement is permitted by the swiveled connection between the scrapers and the truck. It will be noted that when the scrapers are shifted to the position shown in Fig. 2, that the inner ends of the scrapers extend inward over the rails. The auxiliary scraper 24 and the blade 34 are very important features of my invention for the reason that if these parts were absent the gravel or ballast carried along in front of the blade 11 would simply shift laterally and discharge onto the sub-grade and holes in the ballast shoulder would not be filled up. By providing the parts 24 and 34 however a pocket is formed immediately in advance of that portion of the scraper which molds the ballast, and thus the surplus ballast which is scraped from the top of the ballast bed is not carried laterally beyond the ballast bed, but is held therein so as to fill up any holes that there may be in the ballast. Regardless of the length of the scraper, it is necessary to get the contour of the gravel or ballast absolutely correct and this being secured, the sections 12 and 13 form the sub-grade regardless of the width of the sub-grade.

While I have illustrated certain details of construction it will be obvious that these may be modified in many ways without departing from the spirit of the invention. It will, therefore, be obvious, of course, that the body of the car with the several uprights, brace beams, etc., may be formed either of wood or of channel or angle iron and that these details of construction will vary depending upon the general construction of the car.

I claim:—

1. A track dressing machine including a wheeled truck and ballast and embankment scrapers mounted upon the truck and supported at an angle thereto, each of the scrapers being made in a plurality of sections, the forwardmost section of each scraper being pivotally connected to the truck and having an upwardly and an inwardly curved lower edge at its forward end to form the shoulder of the ballast, the next section being longitudinally adjustable upon the first section, and the next section being hinged to the second named section for movement in a horizontal plane, means for holding said scrapers in angularly adjusted relation to the truck, and means mounted upon the first mentioned section of each scraper and extending forward therefrom in the direction of motion of the truck for holding the ballast from lateral movement under the scraping action of the first section.
2. A track dressing machine including a wheeled truck and a scraper mounted thereon and extending at an angle therefrom, comprising two overlapping sections longitudinally adjustable with relation to each other, the section nearest the truck having an upwardly and inwardly curved lower edge, a third section hinged to the outer end of the second section, and an auxiliary scraper pivoted to the third section for movement in a vertical plane.
3. A track dressing machine including a wheeled truck, and a scraper carried thereby and projecting outwardly and rearwardly therefrom, comprising a plurality of adjustable sections, the forward end of that section nearest the truck having its lower edge upwardly and inwardly curved, an auxiliary scraper attached to said last named section and extending outwardly therefrom at an angle thereto and having a lower edge curved upward and inward toward the section to which it is attached, and a brace holding said auxiliary scraper in its operative position.
4. A track dressing machine including a wheeled truck, and a scraper carried thereby and projecting outwardly and rearwardly therefrom, comprising a plurality of adjustable sections, the forward end of that section nearest the truck being upwardly and inwardly curved at its lower edge, an auxiliary scraper attached to said last named section and extending outwardly therefrom at an angle thereto and having a lower edge curved upward and inward toward the section to which it is attached, a brace holding said auxiliary scraper in its operative position, and a cutting blade attached to the auxiliary scraper near its outer edge and extending forward at a right angle thereto.
5. A track dressing machine comprising a

wheeled truck, a scraper mounted upon the truck and extending rearward and outward at an angle thereto and composed of a plurality of sections, that section nearest the truck having the lower edge of its forward end portion curved upward and inward, an auxiliary scraper hinged to the outer face of said last named section and having its lower edge curved upward and inward toward the section, and a brace hinged to the free end of said auxiliary scraper and extending rearward to the surface of the wing and being detachably engaged therewith.

6. In a scraper of the character described, a wheeled truck, a laterally and rearwardly extending scraper mounted thereon and adapted to engage the ballast of a road bed, the lower edge of the scraper at the forward end thereof being cut away to conform to the shape of the ballast bed, and a blade mounted upon said scraper at the rearward end of said cut away portion and extending forward parallel to the line of movement of the truck, said blade preventing undue lateral movement of the ballast under the action of the scraper.

7. A track dressing machine including a wheeled truck, scrapers mounted on each side of the truck and when in operative position extending laterally and rearwardly therefrom, the forward portion of each scraper having an upwardly curved lower edge, and an auxiliary scraper extending laterally from the forward portion of the main scraper intermediate the ends of said upwardly curved portion, the lower edge of said auxiliary scraper being upward and inwardly curved.

8. A track dressing machine including a wheeled truck, scrapers mounted on each side of the truck and when in operative position extending laterally and rearwardly therefrom, the forward portion of each scraper having an upwardly curved lower edge, an auxiliary scraper extending laterally from the forward portion of the main scraper intermediate the ends of said upwardly curved portion, the lower edge of said auxiliary scraper being upward and inwardly curved, and a blade attached to said auxiliary scraper and extending parallel to the main scraper and having an upwardly and forwardly directed lower edge.

9. A track dressing machine including a wheeled truck, scrapers mounted on each side of the truck and when in operative position extending laterally and rearwardly therefrom, the forward portion of each scraper having an upwardly curved lower edge, an auxiliary scraper extending laterally from the forward portion of the main scraper intermediate the ends of said upwardly curved portion, the lower edge of said auxiliary scraper being upward and inwardly curved, and a brace extending from

the outer end of the auxiliary scraper to the main scraper.

10. A track dressing machine including a wheeled truck, a scraper mounted upon the side of the truck and extending outward and rearward therefrom when in an operative position, the forward portion of said scraper having an upwardly curved lower edge, an auxiliary scraper pivotally mounted upon the forward end of the main scraper midway of the upwardly curved edge thereof, means for supporting the auxiliary scraper at right angles to the main scraper, and means for holding the auxiliary scraper flat against and parallel to the main scraper.

11. A track dressing machine including a wheeled truck, a main scraper operatively mounted on the truck and extending rearwardly and laterally therefrom, the forward portion of the scraper having an upwardly curved lower edge, an auxiliary scraper having an upwardly and inwardly curved lower edge and pivotally connected to the main scraper adjacent its forward end, a brace pivotally connected to the face end of the auxiliary scraper, means for detachably engaging the brace with the main scraper to hold the auxiliary scraper in an operative position, the brace and auxiliary scraper having coinciding slots, and a locking member on the main scraper adapted to pass through said slots when the auxiliary scraper and its brace are turned into parallel position to the main scraper.

12. A track dressing machine including a wheeled truck, a vertical member mounted upon the truck, a slide operatively connected thereto, power operated means for raising or lowering the slide, means for locking the slide in its vertically adjusted position, a scraper, a disk having pivotal connection with the slide for movement in a horizontal plane, an annulus mounted upon the forward end of the scraper and having rotative engagement with the disk, and means for angularly adjusting the scraper relative to the truck and for raising or lowering the rear end of the scraper.

13. A track dressing machine including a wheeled truck, scrapers mounted upon the truck, sliding members mounted upon the

forward end of the truck for movement longitudinally thereof, beams pivoted upon said sliding members and normally extending in a vertical plane and below the truck, a rotatable brush mounted upon said beams, means for transmitting rotation to said brush, and power operated means for tilting the beams into a horizontal position upon said sliding members and longitudinally sliding said members to carry the brush rearward over the truck.

14. A track dressing machine including a wheeled supporting truck, vertical beams mounted upon the truck, slides mounted upon certain of said beams, power operated means for raising or lowering the slides, scrapers having swiveled engagement with the slides whereby the scrapers may shift in a horizontal plane or a vertical plane, power operated means connected to the rear ends of the scrapers for raising or lowering the scrapers, and telescopic braces connecting the scrapers to the truck and normally holding the scrapers at an angle to the line of draft.

15. A track dressing machine including a supporting truck, a scraper mounted upon the truck and when in an operative position extending laterally and rearwardly therefrom, the scraper being made in two sections longitudinally adjustable with relation to each other, a section hingedly connected to the rear end of one of said longitudinally adjustable sections for movement in the plane of said section, and an auxiliary scraper pivoted to the last named section for movement in a vertical plane, the lower edge of the forward portion of the first section of the series being formed to shape the ballast laterally of the rails, and extend over the ties and rails of the track, and means mounted upon the scraper extending forwardly therefrom and acting to hold the ballast from too great lateral displacement in front of the scraper.

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

HERMAN M. GEELHART.

Witnesses:

PHILIP S. LEITCH,
KATHRYN HAFNER.