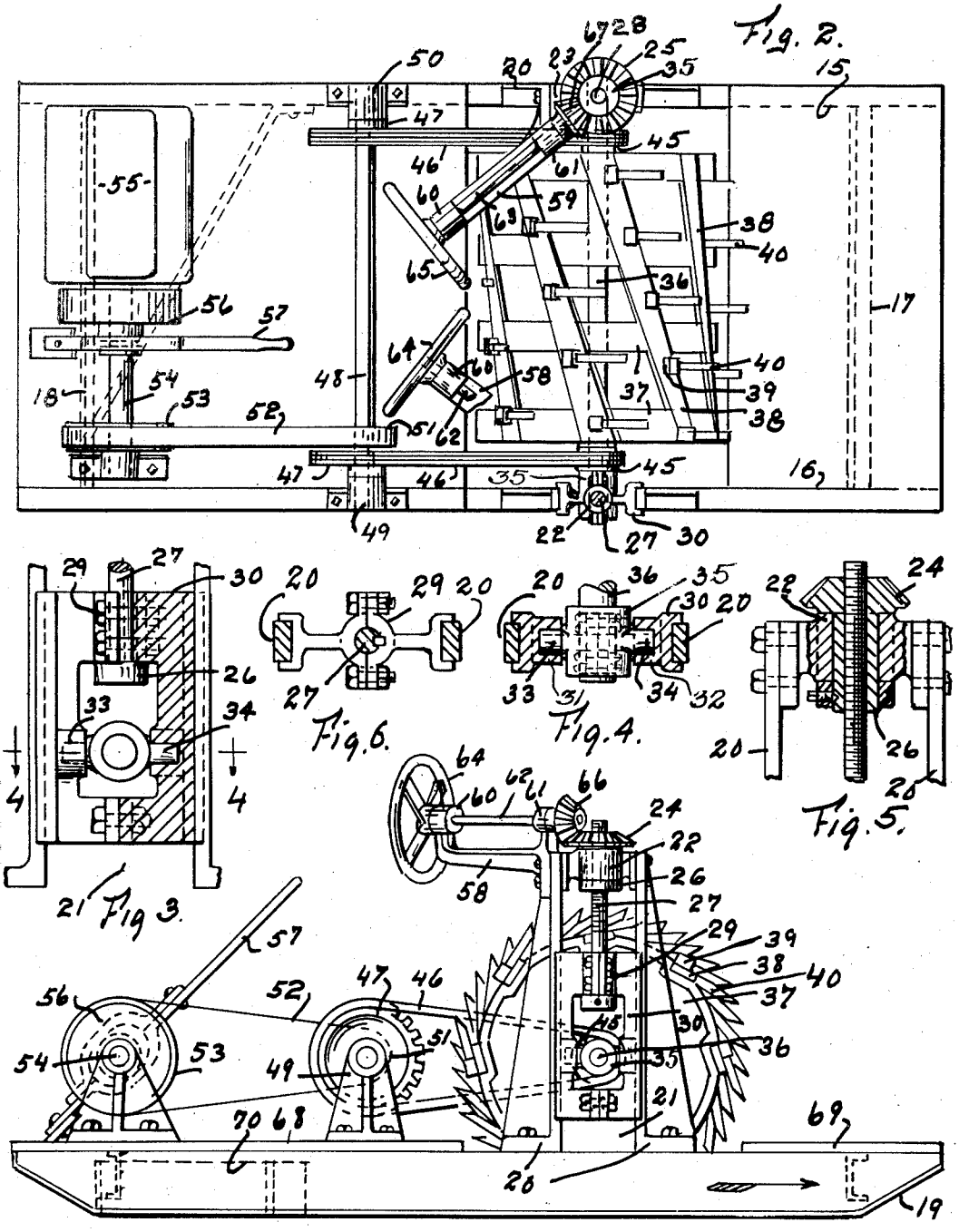
May 22, 1928. 1,670,502

T. L. GRAY

ROAD PLANING MACHINE

Filed Aug. 29, 1927 2 Sheets-Sheet 1



INVENTOR.

Percal L Gray

May 22, 1928. 1,670,502

T. L. GRAY

ROAD PLANING MACHINE

Filed Aug. 29, 1927 2 Sheets-Sheet 2

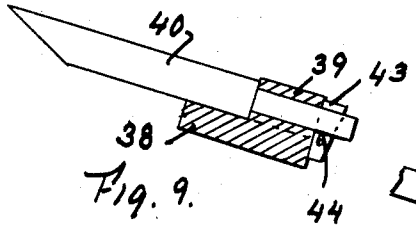


Fig. 9.

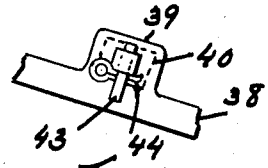


Fig. 10.

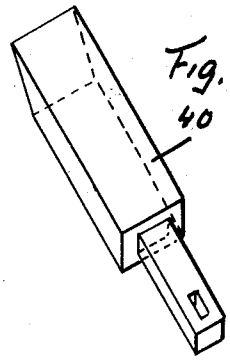


Fig. 11.

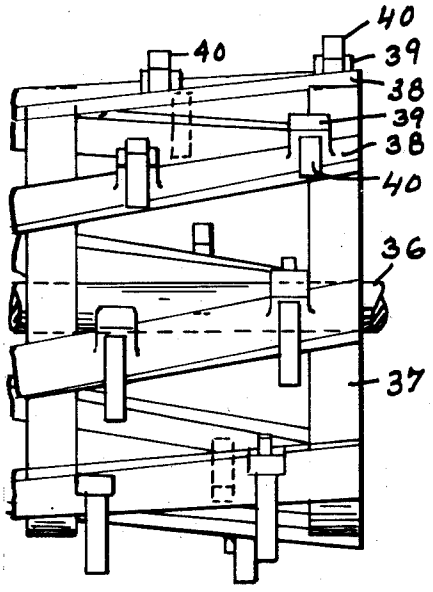


Fig. 8.

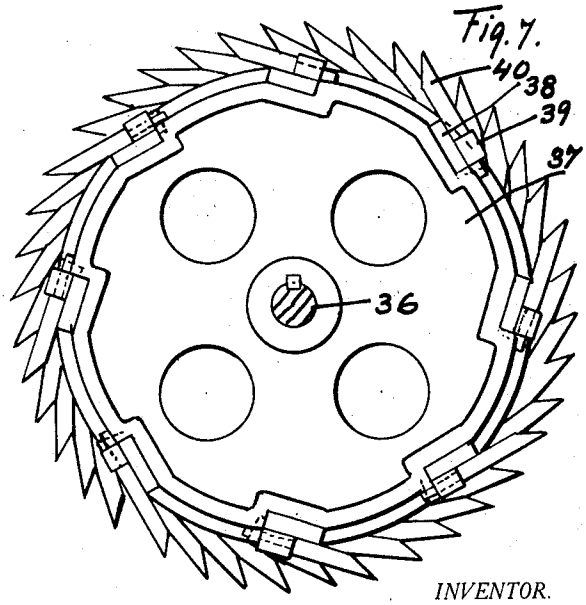


Fig. 7.

INVENTOR.

Terrell L. Gray.

Patented May 22, 1928. 1,670,502

UNITED STATES PATENT OFFICE.

TERREL L. GRAY, OF LONG BEACH, CALIFORNIA.

ROAD-PLANING MACHINE.

Application filed August 29, 1927. Serial No. 216,298.

My invention relates primarily to a machine for refinishing paved roads and comprises mechanism and means for operating the same for planing off the bumps or projections formed in the pavement by the passage thereover of heavy traffic or otherwise, and using the material planed off to fill the depressions in the pavement, and this application is a new application covering the invention as originally described and claimed in the application filed April 2, 1923, under Serial Number 629,379.

It is the object of my invention to provide a machine for the above purpose which will be simple in construction and very efficient in operation.

Other objects and advantages will appear hereinafter and while I have shown and will describe the preferred form of my invention, it will be understood that I do not limit myself to such preferred form but that various changes and adaptations may be made therein without departing from the spirit of my invention.

In the drawings accompanying and forming a part hereof:

Fig. 1, is a side elevation of my machine ready for use.

Fig. 2, is a top plan of Fig. 1.

Fig. 3, is an enlarged side elevation, partly in section, of the planer roll shaft bearing.

Fig. 4, is a section on the line 4—4 of Fig. 3.

Fig. 5, is an enlarged vertical section, partly in elevation, of the planer roll elevating bearing and mechanism.

Fig. 6, is a transverse section through Fig. 5, just beneath the bevel gear.

Fig. 7, is an enlarged side elevation of the planer roll detached from its place of use.

Fig. 8, is a left hand elevation of Fig. 7.

Figs. 9 and 10, are respectively, a side elevation of one of the cutters used with my device with its mounting in section, and a right hand elevation of Fig. 9.

Fig. 11, is a perspective view of one of my cutters.

Referring to the drawings my machine comprises a carrying frame, preferably rectangular in top plan and being composed of side members 15 and 16 connected together at their ends by cross members 17 and 18. The ends of the side members 15 and 16 are beveled at the lower corners the object of which will be readily apparent and these side members are also shod with replaceable shoes 19 which take the wear. Suitable corner and other braces may be provided to provide the necessary strength and rigidity, but are not shown to provide clearness of illustration. Extending upwardly from side members 15 and 16 near one end are standards 20 and 20 in which are provided vertically extending guideways 21, 21, the upper ends of these guideways being closed by vertical bearings 22 and 23. Rotatably mounted in bearings 22 and 23 are bevel gears 24 and 25 which gears are provided with elongated hubs, the lower ends of which project beyond the lower ends of said bearings 22 and 23 and have provided thereon collars 26 which serve to prevent upward movement of said gears relative to said bearings. Gears 24 and 25 are interiorly screwthreaded for engagement with the screwthreaded upper end of the elevating screws 27 and 28. The lower ends of said screws 27 and 28 are slidably but not rotatably mounted in bearings 29 provided in the upper ends of the elevating carriages 30. Carriages 30 are slidably mounted in the guideways 21, 21, to slide vertically and are provided intermediate their length with opposed bearings 31 and 32 and in these bearings are rockably mounted the pintles 33 and 34 projecting outwardly from opposite sides of the planer roll shaft bearings 35. The planer roll shaft 36 is revolubly mounted at its ends in the bearings 35 to extend transversely of the carrying frame, and rigidly mounted upon said shaft, between the side members 15 and 16 and at equally spaced distances are the discs 37. Rigidly secured to the outer periphery of discs 37 at equally spaced distances around the same to extend spirally are a plurality of cutter holding bars 38. Each of these bars is provided upon its outer face with a plurality of spaced substantially square sockets 39 and in these sockets are mounted the cutters 40. Cutters 40 are preferably square in transverse section, have their outer ends beveled on one side to form a chisel point and have their other ends reduced in size to fit the sockets 39. These reduced ends project beyond the sockets 39 and are provided with tapered slits therein for the reception of tapered keys 43, cotter pins 44 being used to prevent displacement of said tapered keys accidentally. It will be noted that the cutters 40 are so positioned upon their respec-

tive bars 38 that, when said bars are positioned for use the said cutters will be positioned in staggered relation to each other, the object being to have one cutter only effective at a time, but that the next adjacent cutter will begin to cut as the previous cutter finishes its cut and producing in effect a continuous cutting operation with the minimum effort and expenditure of power.

Rigidly mounted upon shaft 36 at the inner ends of the bearing 35 are sprocket wheels 45 which are operatively connected by chains 46 to sprocket wheels 47 rigidly mounted upon a shaft 48. Shaft 48 is revolubly mounted at its ends in bearings 49 and 50 mounted at opposite sides of the frame and has rigidly mounted thereon, near one end a pulley 51. Pulley 51 is operatively connected by a belt 52 to a pulley 53 rigidly mounted upon one end of the drive shaft 54. Shaft 54 is adapted for connection to the shaft of the prime mover 55 by means of a clutch 56. A lever 57 provides means for manually connecting shaft 54 to the shaft of the prime mover 55 by operating the clutch 56. Secured at one end to the upper end of the standards 20, 20 to project angularly therefrom are brackets 58 and 59, at each end of which are provided bearings 60 and 61, and in these bearings are revolubly mounted shafts 62 and 63 on the outer ends of which are rigidly secured hand wheels 64 and 65 by means of which said shafts may be manually rotated. Rigidly mounted upon the inner ends of shafts 62 and 63 are bevel gears 66 and 67 which are in mesh with the bevel gears 24 and 25 so that as wheels 64 and 65 are rotated to rotate shafts 62 and 63, gears 66 and 67 will rotate gears 24 and 25 and raise or lower screws 27 and 28 and with them the carriages 30, thus raising or lowering the planer roll shaft and its complement parts. A suitable flooring or decks 68 and 69 will connect the upper edges of the side members. A scraper member 70 is mounted beneath the deck 68 to extend angularly and serves to scrape the surplus planed material to the side of the roadbed.

In operation the parts will be in the positions shown.

The relative ratio between the prime mover and the shaft 36 is such that the said shaft 36 will rotate at a high speed and as the device is drawn along the pavement in any suitable manner the cutter teeth will plane off or sever the bumps or projections, the scraper acting to scrape the severed material into any depressions and the surplus to the side of the roadway. By rotating the hand wheels the height of the cutters relative to the roadway may be regulated or the cutters may be elevated from contact entirely when desired.

The object in having the lower ends of the elevating screws 27 and 28 slidable in the bearings 29 of the elevating carriages 30 is to permit the planer roll shaft 36 and its associated parts to raise in the event an obstruction is encountered which the cutters are unable to handle. Either end of the shaft 36 may be raised independently of the other end due to the bearings 35 being rockably mounted in the carriages 30.

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

1. A road planing machine comprising a substantially rectangular frame adapted to be drawn along the surface of a pavement in contact therewith; a vertically extending standard at each side of said frame interdiate the ends thereof, said standards being mounted in opposed relation and being provided with opposed vertical guideways; a carriage slidably mounted in each of said guideways; a bearing rockably mounted in each of said carriages to extend transversely of said frame, a shaft revolubly mounted at its ends in said bearings; a plurality of equally spaced discs rigidly mounted upon said shaft; a plurality of equally spaced cutter holding bars mounted upon the outer periphery of said discs to extend therebetween and spirally therearound; a plurality of cutters detachably mounted upon said bars, said cutters being so positioned upon their respective bars that when said bars are positioned for use said cutters will be in staggered relation whereby one cutter only will be in cutting position at a time; vertical bearings in the upper ends of standards; bevel gears rotatably mounted in said bearings; elevating screws passing through said bevel gears in screw threaded engagement; vertical bearings in the upper ends of said carriages in which the lower ends of said elevating screws are slidably but non-revolubly mounted; brackets projecting angularly from the upper ends of said standards; elevating shafts revolubly mounted in said brackets; bevel gears on the inner ends of said elevating shafts in mesh with the gears on the elevating screws and adapted when said elevating shafts are rotated to rotate said last gears and raise or lower said elevating screws; means to rotate said elevating shafts manually; a prime mover, and operative connections between said prime mover and said discs whereby rotated movement is imparted thereto; and means to render said connection inoperative at the will of the operator.

2. A road planing machine comprising a frame adapted to be drawn along the road in contact therewith; a pair of standards mounted, one at each side of said frame intermediate the ends thereof and in register, a vertically extending guideway in each of said standards opening transversely of said

frame and being in register with each other; a carriage slidably mounted in each of said guideways to slide vertically, a bearing rockably mounted in each of said carriages to extend vertically towards each other and to rock vertically; a cutter roll shaft mounted at its ends in said bearings to extend therebetween; a plurality of equally spaced discs rigidly mounted on said shaft between the sides of said frame; a plurality of cutter bars detachably mounted upon the peripheries of said discs to extend therebetween in a spiral path; a plurality of cutters detachably mounted upon each of said cutter bars, said cutters being mounted tangentially to said discs and terminating in sharpened points and being so positioned upon their respective bars that when positioned for use will lie in staggered relation to each other each successive cutter being at the rear and slightly overlapping its preceding cutter whereby but one cutter will be brought into cutting position at a time; vertical bearings in the upper ends of said standards; a vertically extending bevel gear rotatably mounted in each of said bearings; elevating screws having their upper ends passing through said bevel gears in screwthreaded engagement therewith whereby when said gears are rotated said screws will be raised or lowered; vertical bearings in the upper ends of said carriages in which the lower ends of said elevating screws are slidably but non-rotatably mounted; brackets extending from the upper ends of standards having a pair of spaced horizontal bearings thereon; a shaft revolubly mounted in said bearings; a bevel gear on the inner end of said last shaft in operative engagement with said first gear whereby when said shafts are rotated said elevating screws will also be rotated; a hand wheel on the other end of each of said shafts for manually rotating the same; a scraper mounted between the side walls of said frame; a prime mover; and connections between said prime mover and said cutter roll shaft adapted to impart movement from said prime mover to said shaft; and means to render said last connections inoperative at the will of the operator.

In witness that I claim the foregoing I have hereunto subscribed my name this 24 day of August 1927.

TERREL L. GRAY.