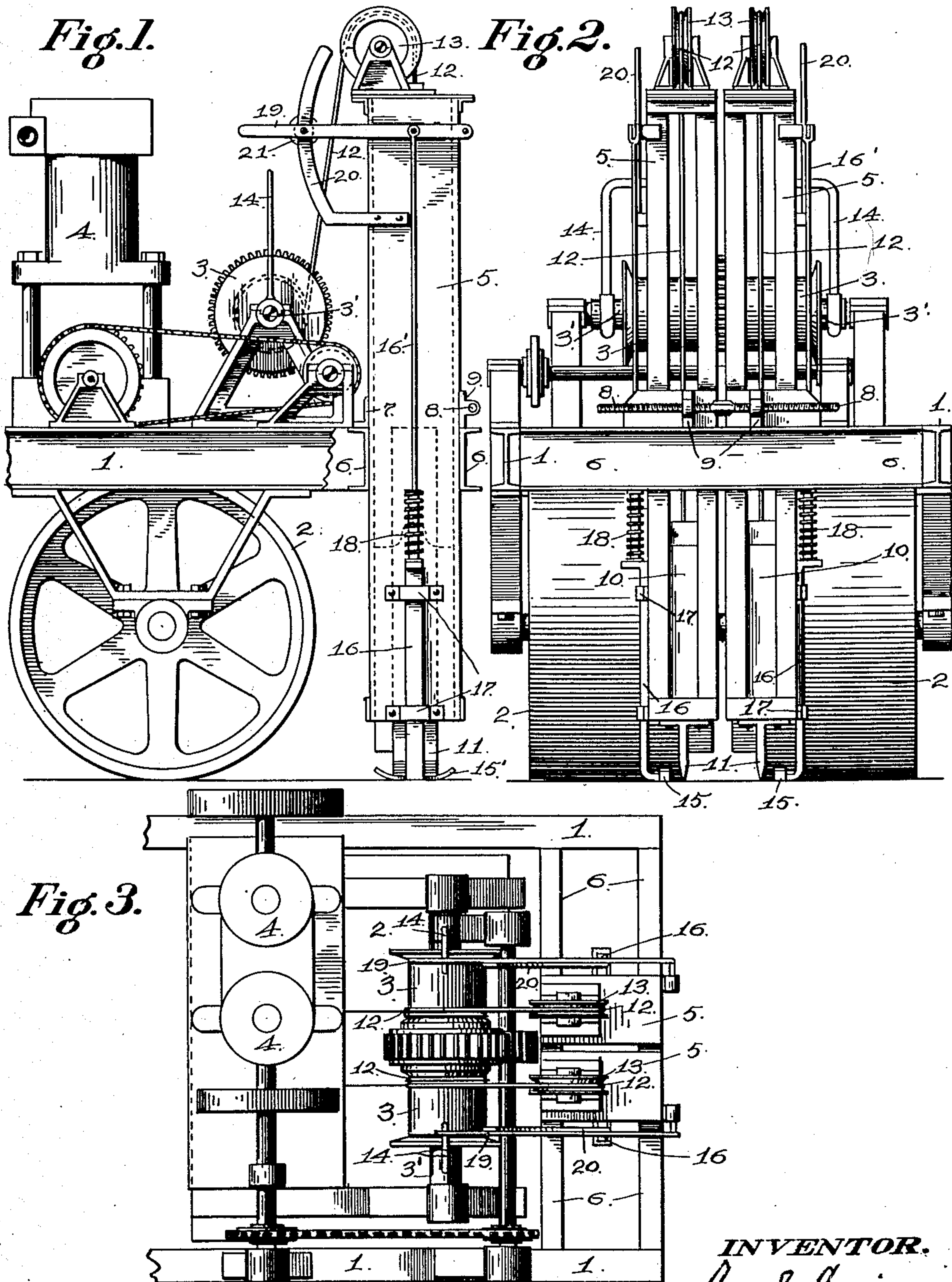


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 APPARATUS FOR CUTTING ROAD BEDS.  
 APPLICATION FILED JUNE 16, 1908.

916,676.

Patented Mar. 30, 1909.



WITNESSES.  
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# UNITED STATES PATENT OFFICE.

LEE D. CRAIG, OF SAN FRANCISCO, CALIFORNIA.

## APPARATUS FOR CUTTING ROAD-BEDS.

No. 916,676.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed June 16, 1908. Serial No. 438,873.

**REISSUED**

*To all whom it may concern:*

Be it known that I, LEE D. CRAIG, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Apparatus for Cutting Road-Beds, of which the following is a specification.

The hereinafter described invention relates to an improved portable apparatus for the cutting of the surface of asphaltum, bituminous, or macadamized streets or roadbeds, for the digging of ditches, trenches, or narrow runways within which to lay sewer, gas, and water pipes generally, or for the laying of conduits for telephone and telegraph wires; the object being to cut through the artificial layer or layers of the roadbed along the line of the trench to be formed, without disturbing the surface of the roadbed adjacent the line of cut.

At present the asphaltum or bituminous surface of the roadbed, also the concrete foundation therefor is cut through by hand, which is not only slow and tedious work, as a gang of men make but slow progress per day, but it is likewise exceedingly expensive work.

By the use of the invention forming the subject of the present application, the expense incident to the digging of trenches in roadbeds for the laying of pipes generally is not only reduced to a minimum, but the progress of the work is materially advanced over the cutting of the surface of the layers of asphalt or bitumen, and the concrete constituting the foundation for the outer covering surface by hand labor.

To comprehend the invention reference should be had to the accompanying drawings, wherein—

Figure 1 is a side view of the improved apparatus. Fig. 2 is a rear end view of the same. Fig. 3 is a top plan view of the machine, partly broken away.

In the drawings, the numeral 1 is used to indicate any suitable form of a supporting frame or truck, which is mounted on the wheels 2. On the supporting truck 1 is contained the hoisting drums 3, which are loose on the drive shaft 3', and, in the present case, are driven by the drive shaft from the gasoline engine 4. This engine through the medium of the usual power transmitting mechanism, is utilized as the motor power to actuate the wheels 2 for imparting travel

to the supporting truck 1. At the rear end of the supporting truck or platform 1, the vertically disposed parallel frames 5 are located, which frames are laterally movable on the supporting cross beams 6, between which beams the frames 5 work, being supported thereon by means of the flanged bearing plates 7, projecting from the said frames 5. The frames 5 are laterally adjustable toward and from each other by means of the right and left hand screw threaded adjusting bolt 8, which works through the screw threaded bearing blocks 9 projecting from the said frames 5, Fig. 2 of the drawings. The purpose of permitting lateral adjustment of the frames 5, is to vary the position thereof relative to each other in accordance with the width of the trench or ditch to be excavated.

Within each of the vertically disposed parallel frames 5 is movably located a hammer 10, of a weight of approximately five hundred (500) pounds, which hammer, at its lower end, carries one or more cutting tools 11. Said cutting tools, on the drop of the hammers 10, penetrate under considerable force the surface of the roadbed, to free the same for easy removal by those employed for removing the dirt. The hammers 10 are raised by means of the cables 12, which pass over the sheaves 13 situated at the upper end of the frames 5, and wind onto the hoisting drums 3, thrown into engagement with the drive shaft 3' by means of the clutch levers 14, which levers are under the control of the operator of the machine. When the operator releases the clutch levers 14, the hoisting drums 3 are freed and the hammers 10 fall by gravity, the weight of the said falling hammers forcing the cutting tool or tools carried thereby into the surface of the roadbed.

On the withdrawal of the cutting tool or tools by the upward movement of the hammers, there is a tendency of the asphaltum or bituminous covering of the roadbed adjacent the line of the cut being made to pull upwardly or away from its foundation, and to prevent such disturbance of the surface of the roadbed adjacent the line of cut under the pulling strain of the hammers, the pressure plates or shoes 15 are utilized, which plates or shoes are arranged at each side of the cutting tool 11 so that when depressed they will bear onto the surface of the roadbed at each side of the line of work. The



said pressure plates or shoes are carried by the slide bars 15', which are connected by the stem 16 to the lift rod 16', the said stem 16 working through the guides 17 secured to the frames 5. The stem 16, for each of the pressure plates or shoes, is held down by the pressure of the heavy spring 18, and the same are raised clear of the surface of the roadbed, as the machine is advanced along the line of work, by means of the lift rod 16', which rod is operated by means of the fulcrumed lever 19, to which the upper end of the lift rod 16' is connected, the said lever 19 being under the control of the operator. This lever works over the quadrant 20, and is held in adjusted position by means of the pawl 21 carried by the lever engaging with the said quadrant.

After the machine has been positioned for the work to be performed, and the frames 5, within which work the hammers carrying the cutting tools, have been properly alined and adjusted relative each other, the pressure plates or shoes are then lowered to bear onto the surface of the roadbed adjacent the line of work, and the machine maintained in such position until the artificial layers of the roadbed, *i. e.* the asphaltum covering and the concrete foundation, have been penetrated by the cutting tool or tools, after which the machine is advanced a given distance, during such forward movement of the apparatus the pressure plates or shoes being raised clear of the surface of the roadbed.

By the use of the herein described machine the hard resisting layers of the roadbed are quickly penetrated by the cutting tool or tools carried by the hammers, and the work of placing the said portion of the roadbed in condition for removal along the line of the trench easily accomplished, and this at but slight expense in comparison with the hand means at present employed, and the cutting of the mentioned layers of the roadbed secured without any resultant injury to the surface of the roadbed adjacent the line of cut.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is—

1. In an apparatus for the described purpose, the combination with the supporting platform, of a vertically disposed frame carried thereby, a hammer carrying a cutting

tool movable within the said frame, a hoisting drum for raising the hammer, of connection between the said hammer and the hoisting drum, means for actuating the hoisting drum, and devices for acting against the surface of a roadbed adjacent the line of cut during the working movement of the hammer.

2. In an apparatus for the described purpose, the combination with the supporting frame, of a plurality of vertically disposed parallel frames carried thereby, of means for imparting lateral adjustment to the said frames, a hammer carrying a cutting tool movable within each of the said frames, hoisting drums for raising the said hammers within the frames, connections between the hammers and the hoisting drums, means for actuating the said hoisting drums, and devices for acting against the surface of the roadbed adjacent the line of cut during the working of the hammer.

3. In an apparatus for the described purpose, the combination with a portable supporting platform, of devices carried thereby for cutting the surface of a roadbed along the line of trench work, mechanism for actuating said cutting device under pressure to cause the same to penetrate the surface of the roadbed, and means for acting against the surface of the roadbed adjacent the line of work during the action of the cutting devices, said means preventing the surrounding or adjacent surface of the roadbed being disturbed as the cutting devices are withdrawn.

4. In an apparatus for the described purpose, the combination with a portable supporting platform, of a plurality of vertically disposed parallel frames carried thereby, of cutting devices working within the frames, of mechanism for actuating said cutting devices, and means for imparting lateral adjustment to the said vertically disposed frames to move the same toward and from each other in accordance with the width of a trench to be cut in the roadbed.

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

LEE D. CRAIG.

Witnesses:

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D. B. RICHARDS.