Dec. 20, 1932. W. V. CORNETT 1,891,222

TOOL FOR DEMOLITION MACHINES

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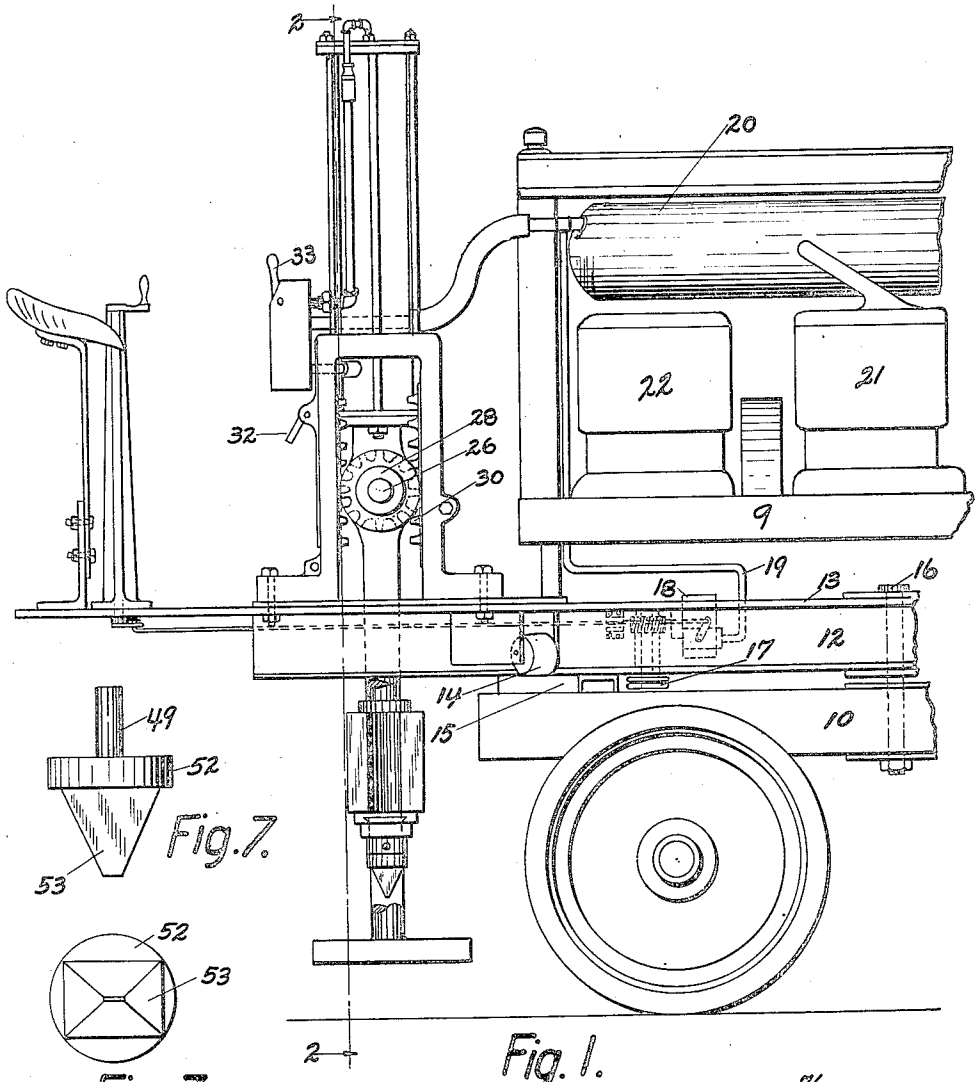


Fig. 1.

Fig. 7.

Fig. 7a.

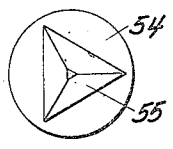


Fig. 8a.

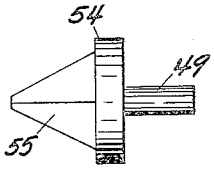


Fig. 8.

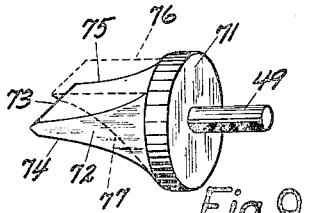


Fig. 9.

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TOOL FOR DEMOLITION MACHINES

Filed March 18, 1930 2 Sheets-Sheet 2

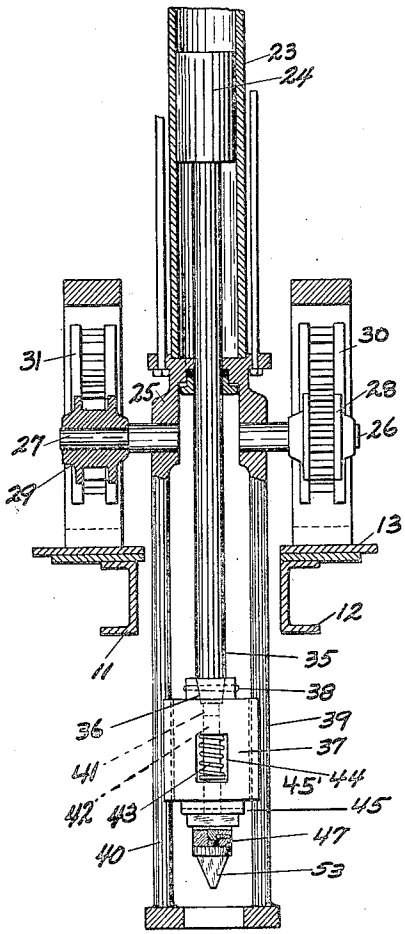


Fig.2

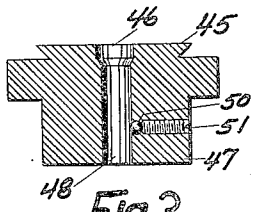


Fig.3.

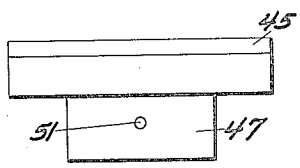


Fig.3a.

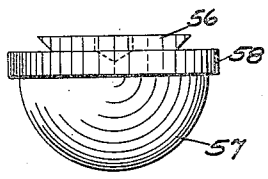


Fig.4.

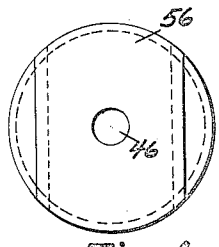


Fig.4a.

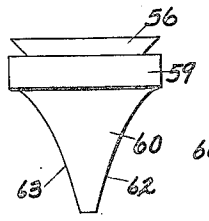


Fig.5.

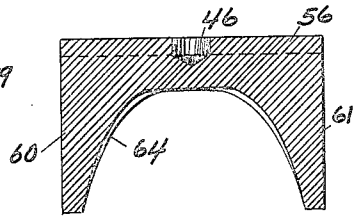


Fig.5a.

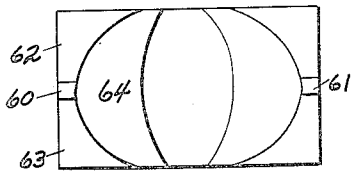


Fig.5b.

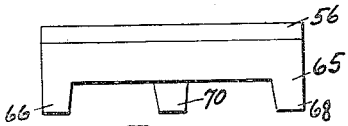


Fig.6.

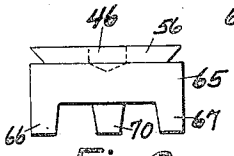


Fig.6a.

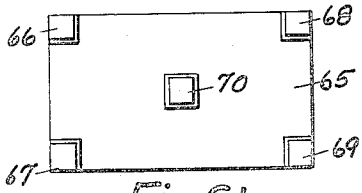


Fig.6b.

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Patented Dec. 20, 1932 1,891,222

UNITED STATES PATENT OFFICE

WALTER VANCE CORNETT, OF BROOKLYN, NEW YORK, ASSIGNOR TO RAPID PAVEMENT BREAKER CORPORATION, A CORPORATION OF NEVADA

TOOL FOR DEMOLITION MACHINES

Application filed March 18, 1930. Serial No. 436,662.

This invention relates to demolition machines as used in the demolition of pavements, concrete floors, and the like and has for its object the improvement of such machines as described in the Patent No. 1,830,751, dated November 10, 1931.

Further objects are:

To provide an easy and positive means of securing various types of tups or tools to the reciprocating member of such machines; the provision of interchangeable tools therefor, and the provision of various tools each one suited to a particular class of work.

Other objects will be apparent from the following specification:

While this invention may be used with demolition machines of any type, it will, for the sake of illustration be described as applied to a pavement breaking machine of the type shown and described in the pending application hereinbefore mentioned.

In the accompanying drawings:

Figure 1 is a side elevation of the rear end of an automotive truck having a pavement breaking machine mounted thereon equipped with the invention;

Figure 2 is a vertical section taken on the line 2—2, Figure 1;

Figures 3 and 3[a] are respectively, a sectional view and side elevation of the tool holder for round shank tools;

Figures 4 and 4[a] are respectively, a side elevation and view looking down on the top of a ball tool for cracking pavement without upsetting; and can be used for reducing concrete to fineness;

Figures 5, 5[a] and 5[b] are respectively a side, sectional, and bottom view of a flared cutting tool for cutting trenches in concrete with asphalt top;

Figures 6, 6[a] and 6[b] are respectively, a side, end, and bottom view of a five prong trenching tool;

Figures 7 and 7[a] are respectively side and bottom views of a square cutting tool;

Figures 8 and 8[a] are respectively side and bottom views of a triangular cutting tool; and

Figure 9 is a side view of a chisel tool.

The chassis 10 of the vehicle—preferably a self propelled truck, carries a swinging frame or turn-table composed of side rails 11, 12 and a platform 13, the underside of which carries rollers or wheels 14 which are adapted to travel on an arcuate track 15 secured to chassis 10. The turn-table as a whole is movable about the center axis 16.

The turn-table may be moved about its axis by any suitable means, such as the air motor 17 connected via valve 18 and pipe 19 with the air supply tank 20, connected to air compressor 21 driven by a suitable engine 22. The engine, compressor fuel and water tanks, (not shown) air storage tank 20, and all other apparatus necessary therewith are mounted upon and movable with platform 9 which is mounted upon and movable with the turn-table.

A suitable impact tool is also mounted upon the turn-table. This may consist of the air hammer shown in Figures 1 and 2 which comprises a cylinder 23 within which is the reciprocating piston 24. The cylinder is mounted upon a frame 25 having stub shafts 26—27 equipped with pinions 28, 29 engaging the racks 30, 31. Each rack has a cut away portion which may be swung open by means of handle 32 in order to release the pinions and thereby vertically adjust the whole hammer. This method of adjustment is described in detail in Patent No. 1,830,751, dated November 10, 1931.

A valve 33 is connected via pipe 34 with an air tank 20. By manipulating this valve, air is admitted above or below the piston 24 and the same is thereby caused to reciprocate in cylinder 23.

To the lower end of the piston is secured the rod 35 having a tapered end 36 fitting a taper hole in block 37 where it is secured by

a pin 38. Block 37 runs in guides 39, 40 which serve to guide the entire piston assembly during its operation.

Block 37 has a central aperture 41 therein extending therethrough in which is positioned a plunger 42 which is pressed downward by means of spring 43 confined in the recess 44 in the block, the spring engaging a collar 45′ secured to the plunger.

The bottom of block 37 has a dovetail groove across its face to engage the dovetail portion 45 of the tool holder shown in Figures 3—3ª or the dovetail portion of any tool that may be attached to the block.

To insert the tool holder or any tool in the block, spring 43 is pressed upwardly thereby moving plunger 42 upwards. The tool is pushed into position and the spring released. This brings the lower end of plunger 42 into the hole 46 provided therefor and the tool or holder is thereby prevented from sliding off the block 37.

The tool holder has a body portion 47 having an aperture 48 therein adapted to hold the shank 49 of any round shank tool; a ball 50 and set screw 51 are provided in the tool holder to engage the shank of the tool and hold it firmly in place.

The tools shown in Figures 7, 7ª, 8, 8ª are typical of tools for use with the tool holder just described. The tool shown in Figures 7, 7ª is a square cutting tool useful in cutting or splitting concrete. This tool consists of a body portion 52 and a cutting portion 53, the latter having a plurality of angular faces as shown in Figure 7ª. A blow struck with this tool will crack concrete in all directions radiating out from the angular faces thereof and may be used for heavy demolition work where it is not necessary to cut to line.

The tool, Figures 8, 8ª, has a body portion 54 and a cutting portion 55 the latter being pyramid shaped with three sides as shown in Figure 8ª. This tool is designed for cutting concrete when the same is covered with asphalt. The tool is mountel so that one face of the pyramid parallels the line of cut, and will cut to a line without breaking over.

In some cases it is desirable to dispense with the tool holder and mount the tools directly on block 37. This is accomplished by providing the tools themselves with a dovetail portion 56 to fit the block. The tools are then secured directly to the block in the same manner as described for the tool holder.

In Figures 4 and 4ª is shown a ball tool for cracking concrete pavement and the like without upsetting. It may also be used to reduce the larger pieces to fineness. This tool consists of an hemi-spherical body portion 57 having a flat top 58 adapted to fit snugly against the bottom of block 37. The hole 46 is provided at the center of the top for engagement by plunger 42.

Figures 5, 5ª and 5ᵇ show a two prong tool for trench work and for cutting brittle asphalt. It consists of the body portion 59 having the downwardly projecting teeth 60, 61. Each tooth has two curved surfaces, two of which are numbered 62, 63. The inner face of each tooth is shaped as shown at 64, Figures 5ª and 5ᵇ. The tool is lined up with one of its outside edges on the line of cut, and will not break beyond the line, the cutting or cracking effect being within the confines of the outer face of the tool.

Figures 6, 6ª and 6ᵇ show a five prong tool for reducing concrete to fineness. This tool has a body portion 65, having five downwardly projecting lugs 66, 67, 68, 69, 70. The lugs at the corners of the tool are straight on the outside sides and are slightly tapered, as shown, on the inside sides. The center lug 70 is tapered on all sides. With this tool a considerable surface is covered at a single blow and the concrete broken to substantially the distance between lugs.

Figure 9 shows a tool for use in chopping concrete and asphalt.

This tool has a body portion 71 and the downwardly projecting chisel-shaped cutting portion 72. The cutting edge 73 is positioned directly under the center line of the shank 49 and the sides of the cutting portions indicated by the numerals 74 and 75 may be curved from the cutting edge to the outer edge of the body portion 71 as shown.

A modification of the tool shown in Figure 9 consists in making the downwardly projecting cutting portion with one side substantially flat and parallel to the shank as shown by the dotted line 76 in which case the side 77 may either be straight or curved. When so made the tool comprises in effect a single tooth having the cross section of one of the projecting lugs, such as 66 in Figure 6 except that the lower or cutting edge is sharper.

It will be evident from the foregoing description that this invention comprises a demolition machine having quickly interchangeable tools thereby adapting it to a large variety of work; that these tools are securely held in working position, yet are quickly detachable, and it is not necessary to disassemble any part of the machine proper in order to change them.

While the tools and method of quickly attaching or detaching the same have been shown in connection with a certain type of machine, by way of illustration, the invention is not necessarily limited to this precise type of machine, for many types of impact device can be equipped with these tools and the means herein shown for quickly attaching the same without avoiding the appended claims.

I claim:—

1. In a demolition machine, a tool having a contact face of substantially spherical form,

a flat face opposite said spherical face and a flaring tendon located on said flat face.

2. In a demolition machine, a tool consisting of a disc having a dovetail tongue extending from one face thereof and having the other face thereof formed into a hemisphere.

3. A demolition machine tool as claimed in claim 2 in which a locating socket is provided in the surface of the dovetail tongue.

In testimony whereof I affix my signature.

WALTER VANCE CORNETT.