

[54] ROOFING REMOVAL APPARATUS

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[57] ABSTRACT

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[58] Field of Search ..... 299/37

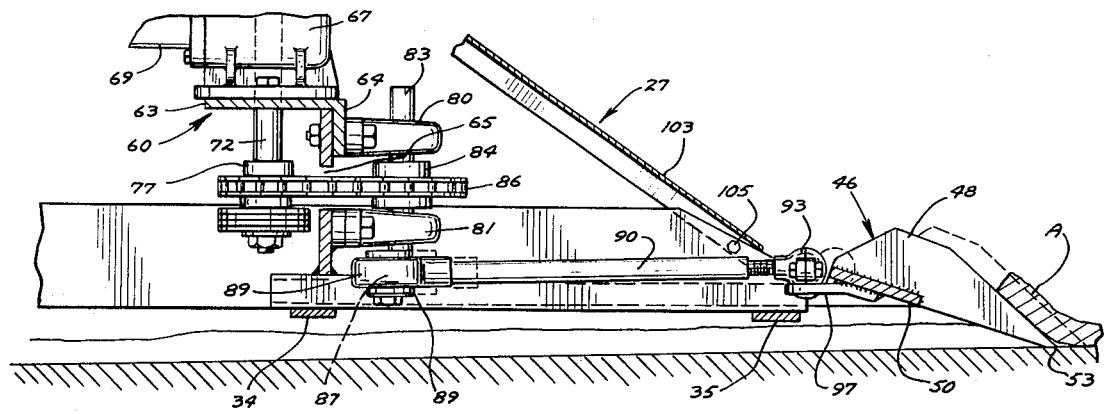
This invention relates to a tractor having detachably secured thereto a roofing removal apparatus, said apparatus comprising a frame having slidable guide rods carrying a cutting head forwardly of said apparatus and a vertically disposed eccentric driving shaft carried by said apparatus and driven by said tractor, said driving shaft having a connecting rod connecting said cutting head thereto for reciprocating action of said cutting head.

[56] References Cited

UNITED STATES PATENTS

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2 Claims, 4 Drawing Figures



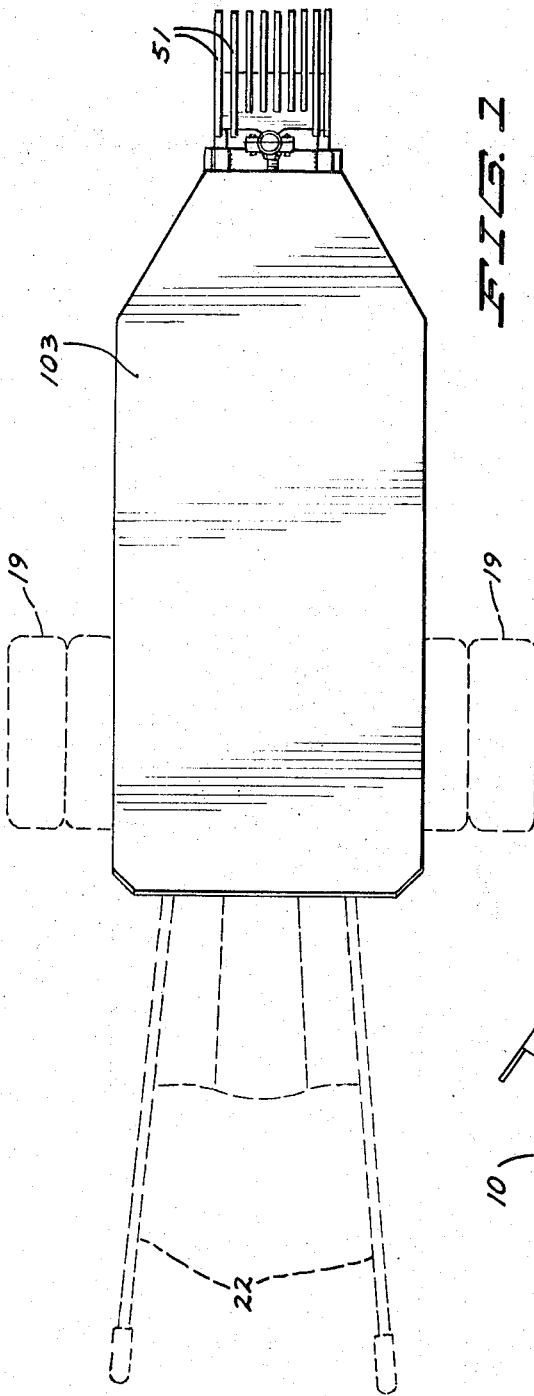


FIG. 1

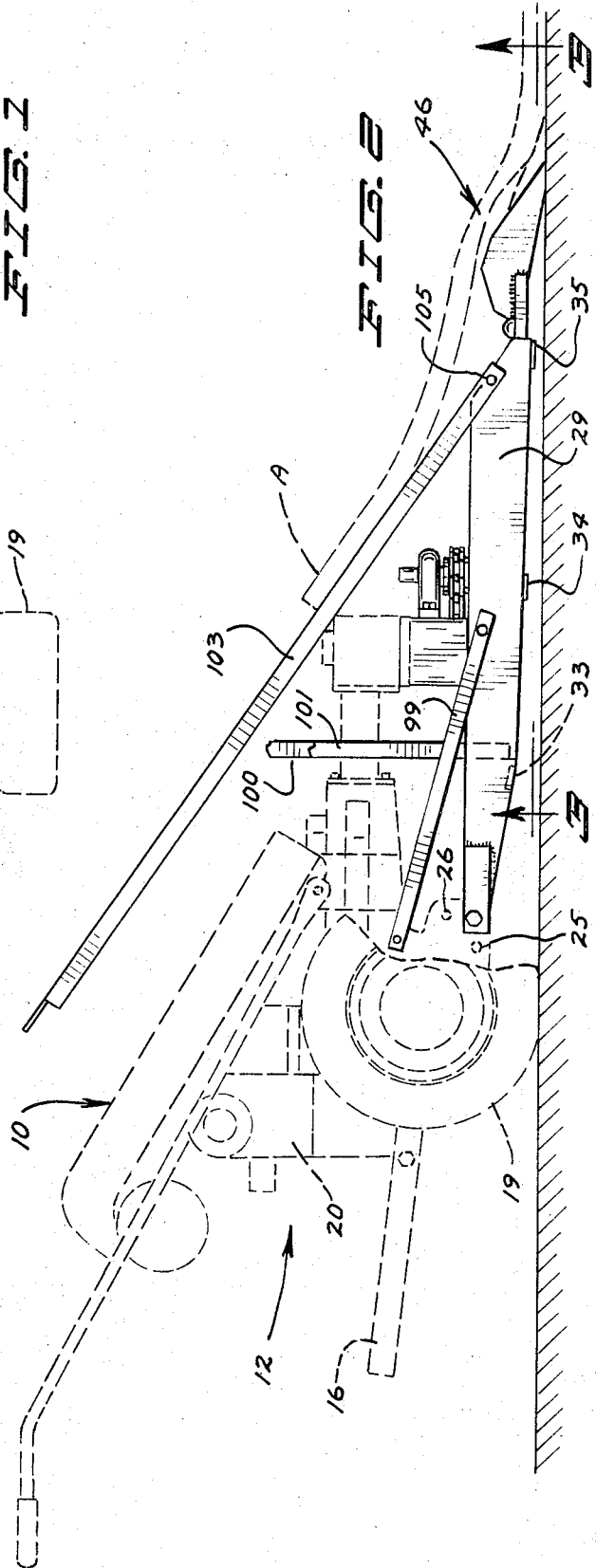


FIG. 2

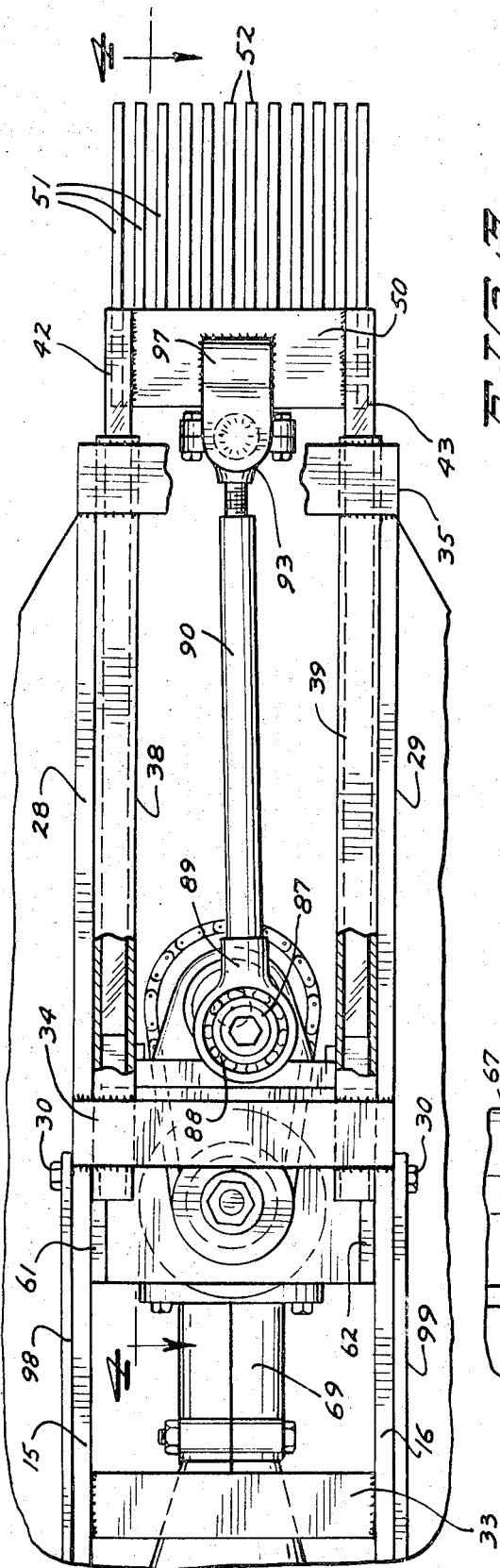


FIG. 1

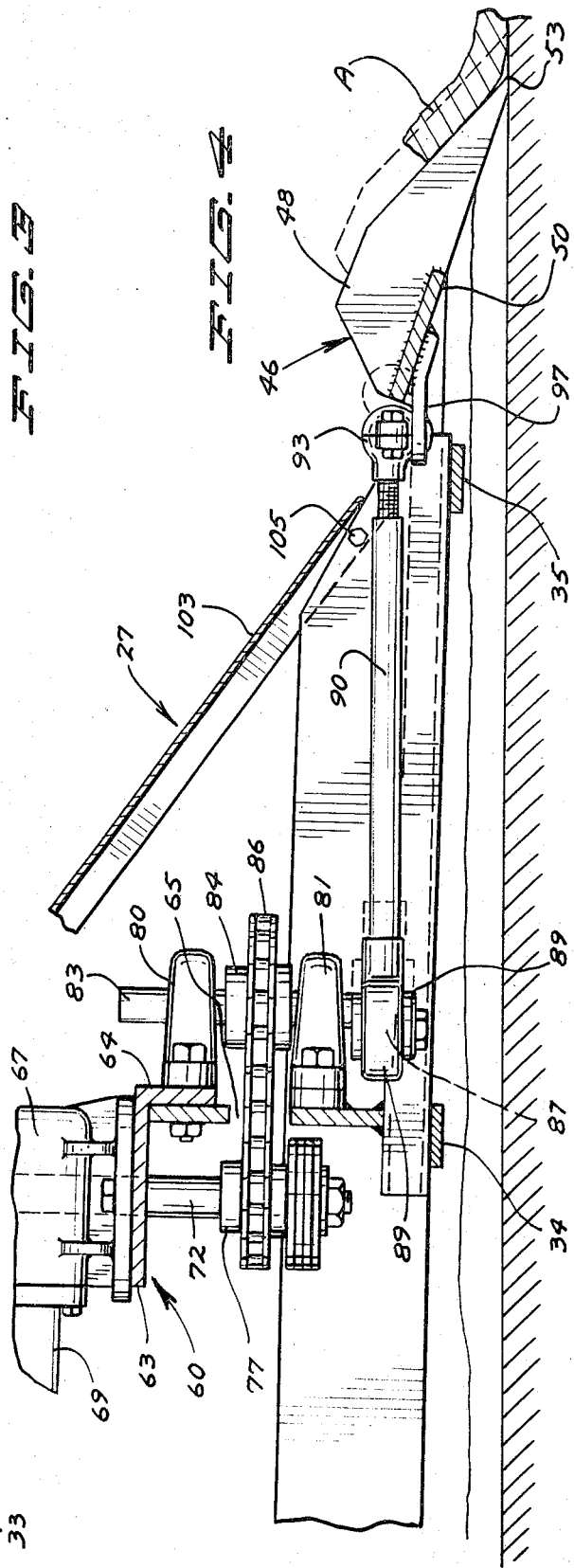


FIG. 2

## ROOFING REMOVAL APPARATUS

### SUMMARY AND BACKGROUND OF THE INVENTION

The type of roofing for removal made reference to herein is commercial roofing made up of alternate layers of tar and felt with an overlay of gravel disposed on a substantially flat roofing surface. The removal of this type of roofing for repair or for replacement is a laborious and time consuming job.

It is an object of this invention therefore to provide a sturdy simply constructed apparatus for the removal of commercial roofing.

It is another object of this invention to provide a commercial type roofing removing apparatus arranged and constructed for attachment to a commonly used type of a walking tractor.

It is a further object of this invention to provide a roofing removal apparatus having a thrust assembly operated by a tractor and having said thrust assembly include a roofing removal cutting head member said head member bearing the forward weight of said tractor in undercutting said roofing.

More generally stated, it is an object of this invention to provide a roofing removal apparatus comprising a walking tractor, a thrust assembly attached to said tractor, said thrust assembly including a tapered toothed cutting head member for undercutting or removing roofing material, means guiding said head member in operation and means driven by said tractor reciprocating said head member.

These and other objects and advantages of the invention will be set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which:

FIG. 1 is a top plan view showing phantom portions thereof in dotted line;

FIG. 2 is a view in side elevation with a phantom portion thereof shown in dotted line and a portion thereof being broken away;

FIG. 3 is a broken bottom plan view taken on line 3—3 of FIG. 2 as indicated; and

FIG. 4 is a broken view in longitudinal vertical section taken on line 4—4 of FIG. 3 as indicated.

#### DESCRIPTION OF A PREFERRED EMBODIMENT

Referring to the drawings, the apparatus herein is indicated generally by the reference numeral 10. Comprising a portion of said apparatus is a walking tractor 12 as representative of a commonly used type of a walking tractor which consists generally of a frame having side members 15 and 16 supported by wheels 19 and having mounted thereon a motor or engine 20 and in connection therewith is a pair of handles 22.

Upstanding from the forward end portions of said frame members 15 and 16 are plate members 25 of which only one is shown in FIG. 2. Said plate members have vertically spaced apertures 26 which will be further described.

The structure for roofing removal which comprises the essential subject matter of the invention herein and which may be regarded as an attachment to said tractor is indicated generally as thrust assembly 27 and is hereinafter further described.

Extending forwardly of said members 25 and being secured respectively thereto through an aligned pair of

said apertures 26 by bolts 30 are relatively flat frame members 28 and 29 being held in transversely spaced relation by longitudinally spaced underlying cross members 33, 34 and 35.

Secured to the lower inner side portions of said frame members as by welding are a pair of open ended elongated tubular or channel members 38 and 39.

A pair of guide rod members 42 and 43 are respectively movably disposed within said channel members. Carried by said rods at their forward outer ends as by being welded thereto is a thrust member 46 comprising a tapered vertically angled cutting head member 48 having an underlying cross plate member 50 and having a toothed forward end portion 51 formed into a plurality of elongated tapered teeth 52 forming a sharp leading edge 53. It will be noted in FIGS. 2 and 4 that said cutting head member 48 is designed and arranged to have its toothed portion positioned to be angled downwardly sufficiently to have only its leading toothed edge portions 53 engaging the roof or working surface and forming the forward support for the entire apparatus. The apparatus thus will be supported by said wheels 19 and said leading edges 53. The entire forward weight of the apparatus provides the weight to hold the cutting head 48 in a downward roofing engaging operating position.

Mounted between said frame members 28 and 29 secured thereto as by bolts or as by welding and upstanding therefrom is a housing 60 having side walls 61 and 62, a top wall 63 having an opening therein to accommodate a shaft to be disposed therethrough and a front wall 64 having a central opening 65.

Carried by said housing and secured thereto as by bolts is a gear box 67 of conventional structure and running thereto from said engine 20 is a power take-off or drive shaft 69 here shown having a housing thereabout. Driven by said shaft 69 through said gear box is a vertical shaft 72 journaled in said housing 60 and carrying at its lower end portion a sprocket 77.

Extending forwardly of said front wall 64 from the upper and lower portions thereof are vertically spaced bearing blocks 80 and 81. Journaled in said blocks is a vertical eccentric shaft 83 carrying intermediate said bearing blocks a sprocket 84 in alignment with said sprocket 77 and passing over said sprockets is a chain 86.

Said shaft 83 has its eccentric portion extending below said bearing block 81 formed as a cam head or crank 87 which portion is disposed within a conventional bearing structure 88 which is mounted within the hub or pitman 89 or an eccentric arm or connecting rod 90 which rod extends forwardly being connected at its forward end to a universal ball joint 93 which is secured to a plate member 97 carried by the cross member 50 of said cutting head member 48.

Brace members 98 and 99 extend from said frame members 28 and 29 to said members 25 as indicated with respect to the member 99 in FIG. 2.

A pair of vertical support members 100 and 101 extend upwardly from said frame members 28 and 29 to support an upwardly inclined cover plate or deflection member 103 extending upwardly from the forward tapered end portions of said plate members 28 and 29 being secured thereto by bolts 105.

#### OPERATION

The tractor 12 will be operated in a conventional

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manner and the power take-off or shaft 69 will be used to drive the thrust assembly for the removal of roofing material.

The wheels 19 provide one point of support for the tractor and the weight of the forward portion of the tractor and of the thrust assembly is born by the leading edge portion 53 of the cutting member 48 to provide the weight to hold said head member downward in its operating position. The power take-off 69 by means of the operatively connected shafts 72 and 83 and by means of the cam head or crank 87 orbits the connecting arm 90 which in turn reciprocates the cutting head member 48. The rods 42 and 43 slidably disposed in said channel members 38 and 39 serve to guide said cutting head member 48 in a planar operating position permitting said member to move in a straight forward and rearward motion. Hence the cutting head member 48 is reciprocated forwardly along a roof surface to undercut and remove the roofing material.

The efforts of the operator are reduced to guiding or steering the apparatus and he is not required to exert himself to hold the cutting head member downwardly in operating position. The weight of the tractor and of the thrust assembly is sufficient to hold said head member 48 in its operating position undercutting and freeing said roofing material and in raising the same upwardly to have it move upwardly of said cover plate member 103 and said material then may be pushed off by the operator as loose material. The loose roofing material will be separately handled. The phrase "removal of roofing material" as used herein refers to cutting roofing material free from the underlying roof structure.

This is a simply and sturdily constructed apparatus having a powerful forward thrust applied to the cutting head member 48 and the results of the apparatus in actual operation have been very successful in the rapid and efficient removal of roofing material and in effecting substantial savings in the cost of doing the work.

It will of course be understood that various changes may be made in form, details, arrangement and propor-

tions of the parts without departing from the scope of the invention herein which, generally stated, consists in an apparatus capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is

1. A roofing material removing apparatus in connection with a tractor having a power take-off, having in combination

a supporting structure comprising a pair of spaced frame members detachably secured to said tractor and extending forwardly thereof,

a pair of substantially horizontally disposed guide rod members slidably carried by said frame members and extending forwardly thereof,

a cutting head member carried by said guide rod members,

a housing structure carried by said frame member supporting a gear box, said gear box having said power take-off connected thereto,

a stub shaft depending from said housing, a pair of vertically spaced bearing blocks carried by said housing forwardly of said shaft,

an eccentric shaft journaled in said bearing blocks, driving means connecting said stub shaft and said eccentric shaft, and

a connecting rod connecting said eccentric shaft and said cutting head.

2. The structure set forth in claim 1, including a pair of vertical plate members carried by said supporting structure, said frame members being secured to said plate members, and

said plate members as having vertically spaced apertures therein through which said frame members are secured for vertical adjustment of the height of the adjacent ends of said frame members to adjust the angular position of the cutting head to the surface being worked upon.

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