

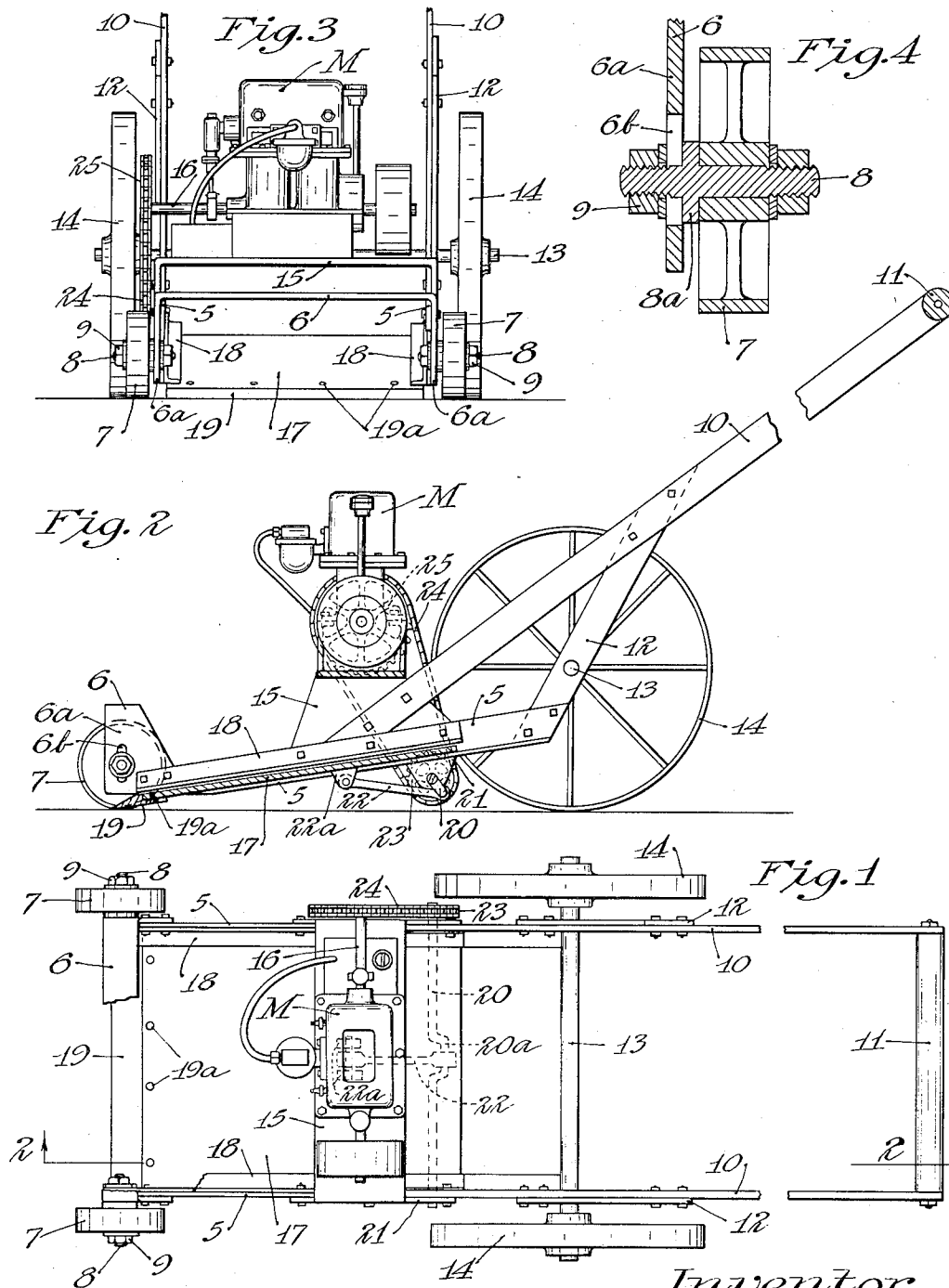
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CUTTING AND STRIPPING MACHINE FOR PAVEMENT JOINTS AND THE LIKE

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CUTTING AND STRIPPING MACHINE FOR
PAVEMENT JOINTS AND THE LIKE

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This invention relates to cutting and stripping machines adapted for wide general use and particularly adapted for cutting, stripping and removing the excess material or filling from expansion joints between pavement sections.

Concrete or other types of conventional pavements and roads are usually constructed in sections or slabs spaced a slight distance apart, usually an inch or two (to allow for expansion in hot weather). Joints are formed between the sections with a suitable plastic filling material, usually a coal tar product or pitch, which is very tough and difficult to cut when hard. In warm weather this material swells upwardly due to the expansion of the pavement sections as well as its own expansion and produces objectionable ridges in the pavement.

Heretofore State and county highway departments have removed these ridges by manual labor and the task has been laborious, difficult, has required considerable time and the employment of a large number of men.

It is an object of my present invention to provide a simple, compact and highly efficient machine which will cut and strip material from the ground, road or pavement quickly and efficiently.

It is a further object to provide a machine of the class described which will have a high capacity for work, which is portable and which may be pushed or pulled over the ground carrying its own source of power.

It is a further object to provide such a device wherein the material is efficiently cut and stripped without chopping or disintegration thereby enabling the removed material to be readily collected and if desired to be conserved.

Another object is to provide a device of the class described wherein the height of the cutting blade may be adjusted within reasonable limits.

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

Fig. 1 is a top plan view of an embodiment of my invention designed for pavement work;

Fig. 2 is a side elevation of the same;

Fig. 3 is a front end elevation of the machine, and

Fig. 4 is a detail sectional view showing the adjustable mounting of one of the front wheels of the frame.

The form of my invention illustrated includes a portable wheeled frame comprising a pair of

slightly inclined parallel angle bars 5 having inwardly extended webs and vertically extending outer webs. The forward ends of angle bars 5 are connected together by a rigid strut 6 which, it will be noted, has widened depending ends 6a portions of which project forwardly of the forward ends of the angle bars. A pair of small wheels 7 are adjustably connected with the depending portions 6a of the strut, said wheels being disposed exteriorly of the strut and being revolvably mounted upon fixed stub axles 8 the inner ends of which are disposed in slots 6b and are threaded to receive clamping nuts 9. A clamping flange 8a is provided some distance outward of the inner end of each stub axle adapted to engage the outer side of the strut. It will be obvious that the wheels may be adjusted vertically within the slotted portions of the struts and rigidly clamped in a desired adjusted position. The medial portions of the angle bars 5 are secured to the forward and lower ends of elongated inclined push bars 10 which extend for some distance rearwardly of the machine and at their upper ends are connected by means of a suitable handle 11. A pair of brace members 12 connect the medial portions of push bars 10 with the rear ends of angle bars 5 forming a strong frame structure. A rear axle 13 is connected with the medial portion of the brace members 12 and may or may not, as desired, be journaled in suitable bearings, said axle projecting outwardly of said frame members and having revolvably mounted thereon at its projecting ends the relatively large rear wheels 14.

A second strut or bridge member 15 rigidly connects the medial portion of the angle bars 5 and has its main portion spaced some distance thereabove. A suitable motor or source of power, indicated as an entirety by the letter M is fixed to the top of strut 15, said motor having a power shaft 16 which projects slightly beyond one side of the frame. The motor illustrated is of conventional internal combustion type.

A reciprocable blade head in the form of a flat rectangular plate 17 is mounted between the angle bars 5 and guided by the inwardly extending longitudinal webs thereof and also guided at its upper longitudinal edges by angle irons 18 the lower webs of which are extended inwardly and spaced in parallel relation a short distance above the lower webs of angle irons 5. Blade head 17 carries at its forward transverse edge a detachable blade 19 which, as shown, is rabbeted at its upper surface and along its inner edge and said blade may be conveniently attached by means

of screws 19a. Blade 19, as clearly shown in Fig. 2, has a bevel at its upper surface and its sharpened edge is disposed substantially at the ground in the extreme forward position of the blade head. The blade head and blade are reciprocated, as shown, by means of a crank shaft 20 which is mounted transversely beneath the frame, the ends thereof being journaled in suitable depending brackets 21 secured to the sides of the angle bars 5. The crank 20a of crank shaft 20 is connected by a pitman 22 with the central portion of blade head 17, as shown, a depending lug 22a being provided on the blade head to facilitate this connection. The end of crank shaft 20 adjacent the power shaft 16 of the motor, as shown, is provided with a sprocket 23 and an endless chain 24 is trained about said sprocket and a relatively large sprocket 25 which is fixed to the outer end of the power shaft 16.

In operation the stub axles 8 for the front wheels 7 are adjusted and secured within the slot 6b of the front strut to position the cutting edge of blade 19 properly with reference to the ground or pavement. The motor M is then started and the machine is pushed across the surface to be treated. The rapid reciprocation of the cutting blade in a direction longitudinal of the frame quickly and efficiently cuts the swelling or ridges in the joint between the pavement sections, stripping the tough material and guiding the same rearwardly over the blade head beneath the struts 6 and 15. The cut strip of material drops down between the rear wheels 14 at the rear of the machine and may be easily collected or removed as it is not chopped into pieces or disintegrated.

It will be obvious that my improved machine may be put to various uses where it is desirable to cut or strip material from a supporting surface over which the machine may be pushed.

The cutting edge of blade 19, it will be noted, is disposed in its forward position directly below the axis of the front wheels 7 whereby the blade will cut and strip uniformly regardless of inclination or irregularities in the pavement or other surface over which the machine is pushed.

Blade 19 may be readily removed and sharpened or if necessary a new blade substituted.

From the foregoing description it will be apparent that I have provided a compact portable machine which will very quickly and efficiently cut and strip material from a surface, such as a pavement and which will effect a substantial economy over methods heretofore used for removing the swelled joints between pavement sections.

It will, of course, be understood that various changes may be made in the form, details, pro-

portions and arrangement of the parts, without departing from the scope of my invention, which, generally stated, consists in a device capable of carrying out the objects above set forth, and in the novel parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:—

1. In a cutting and stripping machine, a wheeled frame, a stripping blade mounted transversely of said frame and inclined somewhat with respect to the horizontal from its forward or cutting edge to its rear longitudinal edge, means for reciprocating said blade longitudinally of the machine, said frame having a pair of wheels, the axis of which is disposed some distance above the forward or cutting edge of said blade and substantially in vertical alignment therewith.

2. In a cutting and stripping machine, a frame, a pair of front wheels, a pair of rear wheels supporting said frame, a stripping blade mounted in said frame for reciprocating movement longitudinally thereof, said blade being inclined from its forward to its rear end and having a cutting edge at its forward end disposed approximately vertically below the axis of said front wheels and a source of power mounted on said frame for reciprocating said blade.

3. In a cutting and stripping machine, a wheeled frame, a stripping blade mounted in said frame for reciprocating movement longitudinally thereof, said blade being inclined somewhat from its forward end to its rear end, and having its forward end disposed adjacent the ground line, a motor support mounted on said frame and spaced some distance above said blade to allow material cut to pass therebelow and a motor mounted on said support for reciprocating said cutting blade.

4. In a cutting and stripping machine, a frame including a pair of spaced longitudinal members, longitudinal guides in said members inclined from the front to the rear of said frame, a reciprocating blade head mounted in said guides and having a cutting edge at the forward end thereof disposed adjacent the ground level, a pair of front wheels disposed outwardly of said blade head for supporting the forward end of said frame and a pair of rear wheels disposed outwardly of said frame for supporting the rear thereof, a motor support mounted on said frame and spaced above said blade head to enable cut material to pass over said blade head and under said support, a motor mounted on said support for reciprocating said blade head and means connected with said frame by which the device may be moved over a surface to be treated.

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