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CUSHIONED MOUNTING FOR SCRAPER ELEVATING MECHANISM

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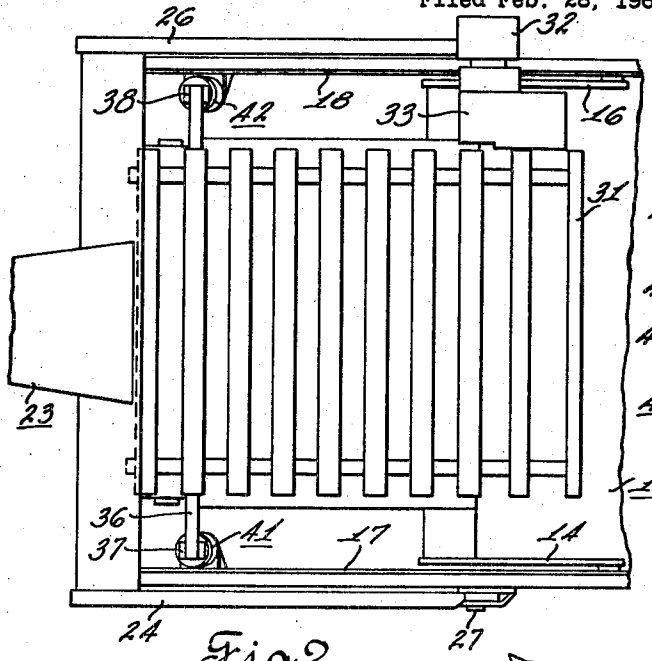


Fig. 2

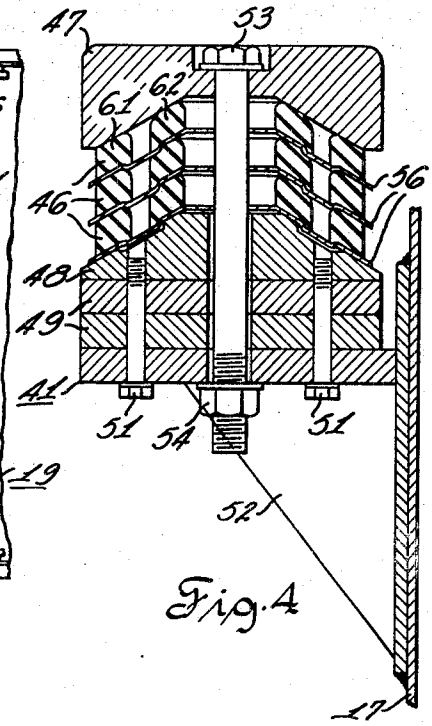


Fig. 4

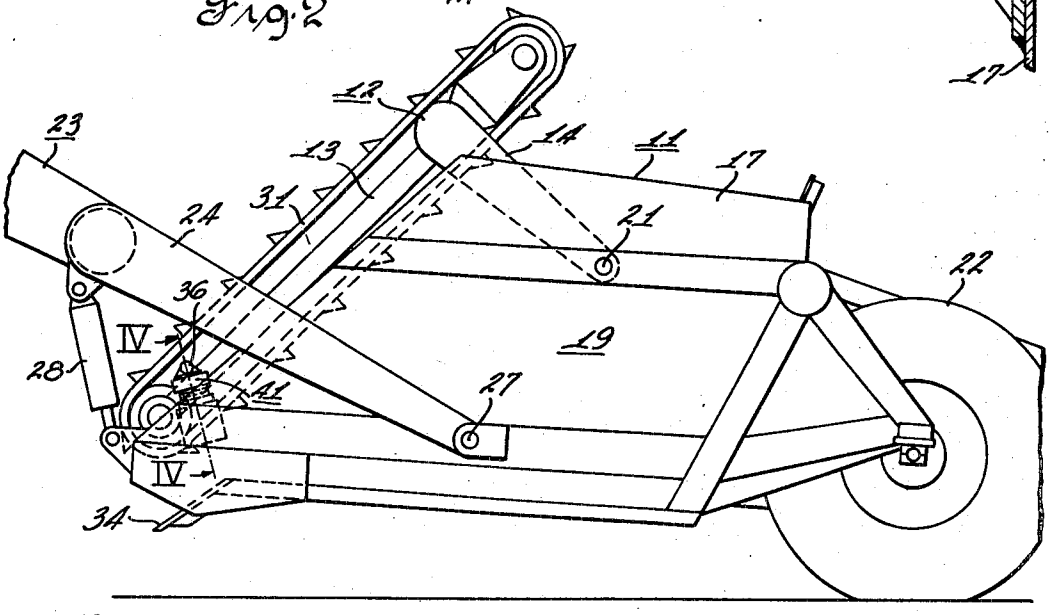


Fig. 1

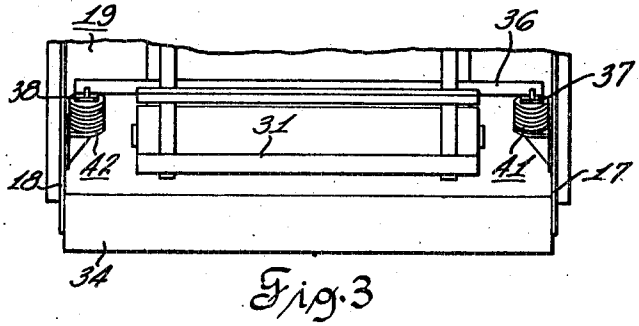


Fig. 3

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CUSHIONED MOUNTING FOR SCRAPER ELEVATING MECHANISM

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Int. Cl. B60p 1/36
U.S. Cl. 37—8 1 Claim

ABSTRACT OF THE DISCLOSURE

A resilient cushioning device is provided on each of the sidewalls of an elevating scraper bowl for supporting the lower end of the elevating mechanism. The elevating mechanism is mounted to swing upwardly away from the cushioning device during loading operations and may drop with considerable impact against the cushioning devices which protect the sidewalls and elevating mechanism against damage.

This invention relates to cushioning devices for dampening the impact imposed on the sidewalls and elevator frame of a scraper when the elevating mechanism swings downwardly against stops on the scraper side walls.

The elevating mechanism for a scraper is commonly mounted on the scraper's sidewalls for pivotal movement about a transverse axis in a manner which permits the forward end of the elevating mechanism to float upwardly when loading material of various content. This permits relatively large boulders to be loaded into the scraper bowl without damage to the elevating mechanism. When a boulder has been loaded, the elevating mechanism may drop with considerable impact against the abutments normally provided on the scraper's sidewalls. Heretofore the common practice was to provide metal pads for receiving the impact load. In using such arrangement, it has been found that considerable damage is done to the abutting parts of the scraper's sidewall and elevating mechanism.

It is an object of this invention to provide improved mounting for the lower end of an elevating mechanism of a scraper.

It is a further object of this invention to provide resilient cushioning devices for receiving the load of a falling elevating mechanism.

It is a further object of this invention to provide a pair of cushioning devices on each of the sidewalls of a scraper which obviate the difficulties heretofore encountered.

It is a further object of this invention to provide a cushioning device for the elevating mechanism of a scraper which is adjustable in height.

These and other objects and advantages of this invention will be apparent to those familiar with the art when the following description is read with the drawings in which:

FIG. 1 is a side view of an elevating type scraper in which the present invention is incorporated;

FIG. 2 is a top view of part of the scraper shown in FIG. 1;

FIG. 3 is a front view of the lower end of the elevating mechanism shown in FIGS. 1 and 2; and

FIG. 4 is a section view of the cushioning device taken along line IV—IV in FIG. 1.

Referring to the drawings, the elevating scraper **11** includes an elevating mechanism **12** having a frame **13** with rearwardly extending legs **14, 16** which are pivotally connected to the sidewalls **17, 18** of the scraper bowl **19** to permit upward swinging movement of the elevating

mechanism about a transverse pivot axis **21**. The scraper **11** is supported at its rear end by a pair of wheels **22**, only one of which is shown, and is connected to a tractor, not shown, through a draft frame **23**, the legs **24, 26** of which are pivotally connected to the side walls **17, 18** on a transverse pivot axis **27**. The scraper bowl **19** is raised and lowered to and from an excavating position by a pair of hydraulic jacks **28**, only one of which is shown.

The elevating mechanism includes an endless conveyor **31** which is driven by motor **32** through a change speed transmission **33** to assist in moving excavated material rearwardly into the bowl **19** from the cutting edge **34**. The frame **13** of the elevating mechanism includes a transverse support member **36** which has metal abutments or pads **37, 38** rigidly secured as by welding to its transversely opposite ends.

As illustrated in FIGS. 1, 2 and 3, the abutments **37, 38** on transversely opposite sides of the elevating mechanism **12** abut the top portions of a pair of cushioning devices **41, 42** rigidly secured to the inside of the scraper sidewalls **17, 18**, respectively. When a relatively large lump of earth or a boulder is loaded, the elevating mechanism **12** is free to float upwardly over such material. When such material has been loaded the elevating mechanism may suddenly drop causing the abutments **37, 38** to strike the cushioning devices **41, 42** with considerable impact. In order to absorb the impact load without injury to the elevating mechanism and scraper, I provide resilient cushioning means in the form of nonmetallic conical springs **46** between a metal impact cap portion **47** and a base portion **52** which is welded to the scraper's sidewalls. Construction of the cushioning devices **41, 42** is shown in FIG. 4 which shows device **41** in section.

As shown in FIG. 4, the rubber like conical springs **46** each include a pair of rings **61, 62** which are bonded to a metallic base **56**. The number of springs **46** can be varied to obtain the desired cushioning effect. A conical bottom part **48** and a plurality of spacers **49** are interposed between the springs **46** and base portion **52**. Varying the number of spacers permits the vertical position of the cap portion **47** to be adjusted. The part **48** and spacers **49** are held in assembly by cap screws **51**. Fastening means, including a tension element or bolt **53**, passes through central openings in the cap portion **47**, springs **46**, part **48**, spacers **49** and base portions **52** to hold the cushioning device **41** in assembled condition. The nut **54** is initially adjusted on bolt **53** so that the assembled parts are firmly held in place. The distance which the lower end of the elevating mechanism **12** is held above the cutting edge **34** can be varied by adding or removing spacers **49**, thus permitting the most efficient operation of the elevating mechanism in different soil conditions.

From the foregoing description it is apparent that I have provided a new and useful shock absorbing support for the lower end of an elevating mechanism which absorbs its impact load without damage to either the elevating mechanism or the sidewalls of the scraper. It should be understood that the shock absorbing devices **41, 42** are identical in construction.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In combination with a scraper having an endless conveyor type elevating mechanism pivotally supported on the sidewalls of the scraper bowl for vertical swinging movement about a transverse axis between raised and lowered positions, the combination comprising:

downwardly facing abutments on transversely opposite sides of said elevating mechanism disposed forwardly of said axis, and

a pair of shock absorbing devices on said sidewalls, respectively, having

upwardly facing cap portion in abutting relation to said abutments, respectively,

base portions rigidly secured to said sidewalls, respectively,

resilient cushioning means operatively interposed between said cap and base portions for cushioning the impact load imposed on said devices when said elevating mechanism swings downwardly thereagainst, the cap portion, base portion and resilient cushioning means of said devices being in alignment beneath said abutments, respectively,

rigid removable spacers interposed between said cushioning means and said base portions, respectively,

aligned openings in said portions, cushioning means and spacers, and

releasable fastening means maintaining said shock absorbing devices in assembly including a tension member in each device extending through said aligned openings thereof,

said abutments engaging said cap portions in said lowered position of said elevating mechanism and being disposed in upwardly spaced relation to said cap portions in said raised position of said elevating mechanism.

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