

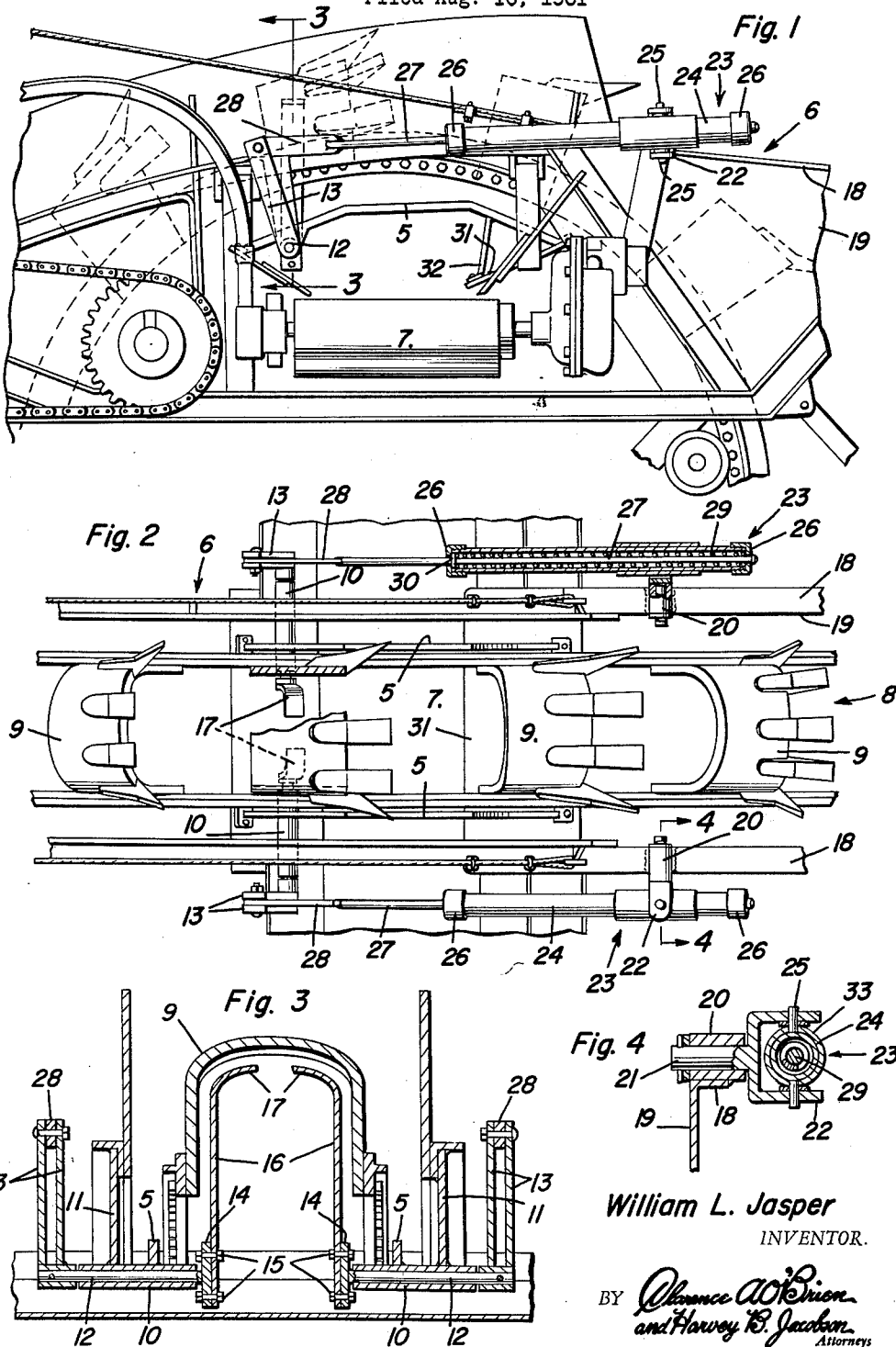
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TRENCHING MACHINE BUCKET CLEANER

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TRENCHING MACHINE BUCKET CLEANER
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This invention relates to new and useful improvements in ditch digging or trenching machines particularly although not necessarily, of the rotary excavating wheel type and has for its primary object to provide, in a manner as hereinafter set forth, novel improved means for cleaning the usual buckets of such machines.

Another very important object of the present invention is to provide an improved excavating bucket cleaner of the character described which will automatically yield when engaged by an obstruction in the bucket, thus avoiding breakage or other damage with consequent stoppage, delay and expensive repairs and permitting continuous operation under substantially all soil conditions.

Still another important object of the invention is to provide a bucket cleaner of the aforementioned character which will automatically reset or return to operative position when the obstruction has cleared, thereby further obviating the necessity of stopping.

Another object of this invention is to provide an improved bucket cleaner or dirt ejector of the character set forth which may be expeditiously and economically installed for operation on various sizes and types of excavating machines without necessitating material structural alterations or modifications therein.

Still another important object of the invention is to provide a cleaning apparatus of the character described comprising a pair of units, one on each side of the machine, each of said units being operable independently of the other.

Other objects of the invention are to provide an excavating machine bucket cleaner which will be comparatively simple in construction, strong, durable, compact, of light weight and which may be manufactured at low cost.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a view in side elevation of a portion of a rotary wheel type excavating machine equipped with bucket cleaning means embodying the present invention;

FIGURE 2 is a top plan view thereof with portions of one of the units being shown in section;

FIGURE 3 is a view in transverse section on an enlarged scale, taken substantially on the line 3-3 of FIGURE 1; and

FIGURE 4 is a fragmentary view in transverse section on an enlarged scale, taken substantially on the line 4-4 of FIGURE 2.

Referring now to the drawing in detail, it will be seen that the embodiment of the present invention which has been illustrated comprises a pair of spaced, parallel angled bars 5 which are mounted longitudinally on the rotary wheel excavating machine 6 over the usual transverse endless conveyor 7 thereof. The excavating wheel of the machine 6 is indicated generally by reference numeral 8 and has mounted thereon at circumferentially spaced points the usual buckets 9. It will be noted that the bars 5 are located adjacent the sides of the wheel 8.

Secured transversely on the forward portions of the bars 5 (see FIGURE 3) are tubular bearings or sleeves 10 for which braces 11 are provided. Shafts 12 are journaled in the sleeves 10 and project beyond the ends thereof. Fixed on the outer end portions of the shafts 12 are pairs of arms 13. Heads or the like 14 are fixed

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on the inner ends of the shafts 12. Secured at 15 on the heads 14 for engagement in the buckets 9 as they pass are scrapers or ejectors 16 comprising inwardly curved upper or free end portions 17.

Fixed transversely on the top flange 18 of the frame members 19 of the machine 6 are bearings 20. Journaled in the bearings 20 are the spindles or stems 21 of forks or yokes 22. Spring cushioning devices or shock absorbers 23 are mounted in the yokes 22. The shock absorbers 23 comprise elongated cylinders 24 having fixed on intermediate portions thereof, in the embodiment shown, sleeves 33 having thereon trunnions 25 which are journaled in openings provided therefor in the yokes 22 for swivelly mounting the shock absorbers 23 on said yokes. End caps 26 are provided for the cylinders 24.

Extending slidably through the cylinders 24 and the caps 26 thereof are rods 27 to one end of which the arms 13 are operatively connected by the links 28. Coil springs 29 encircle the rods 27 in the cylinders 24. The springs 29 are engaged at one end with flanges or collars 30 on the rods 27 for yieldingly resisting actuation of said rods by the arms 13.

Mounted beneath the rear end portions of the bars 5 is a forwardly and downwardly inclined deflector 31 which prevents dirt from passing over the rear of the conveyor 7. Hangers 32 depend from the bars 5 and support the lower end portion of the deflector 31.

It is thought that the use or operation of the invention will be readily apparent from a consideration of the foregoing. Briefly, the scrapers 16 are yieldingly retained in the position shown by the springs 29. Thus, as the buckets 9 of the machine pass the scrapers 16 said scrapers remove or reject the usual dirt, etc., therefrom, said dirt, etc., falling to the conveyor 7 to be carried off. However, should a rock, for example, be lodged in one of the buckets 9 the scrapers or ejectors 16 are engaged and swung rearwardly thereby thus tensioning the coil springs 29. Then, when the rock or other obstruction has cleared or passed, the scrapers 16 are immediately and automatically returned to an operative position by the springs 29 in an obvious manner. It will thus be seen that damage is avoided and the necessity of stopping is obviated. It also will be seen that either of the cleaners or ejectors is adapted to function independently of the other.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. An excavating machine bucket cleaner comprising a shaft rotatably mounted on the machine, a scraper fixed on said shaft and engageable in the buckets for removing dirt therefrom and swingable to inoperative position by obstructions lodged in said buckets, and means for yieldingly resisting swinging movement of the scraper toward inoperative position and returning said scraper to operative position, said means including an arm fixed on the shaft, a cylinder mounted for universal swing adjustment on the machine, a rod slidable in the cylinder and operatively connected to the arm, and a coil spring in the cylinder operatively connected to the rod for actuating same in one direction.

2. An excavating machine bucket cleaner comprising a pair of aligned sleeves mounted transversely on the machine, spaced shafts journaled in said sleeves, scrapers fixed on the inner end portions of said shafts and includ-

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ing intumed free end portions engageable in the buckets for removing dirt therein and swingable to inoperative position by obstructions lodged in the buckets, arms on the outer ends of the shafts, and resilient means connected to the arms for yieldingly retaining the scrapers in operative position and for returning said scrapers to said operative position, said means including cylinders swivelly mounted for universal swinging adjustment on the machine, slidable rods extending longitudinally through said cylinders, links connecting the arms to one end of the rods, and coil springs in the cylinders operatively connected to the rods for actuating same in a direction to return the scrapers to operative position.

3. An excavating machine bucket cleaner including spaced aligned sleeves mounted transversely on the excavating machine, a pair of spaced shafts journaled in said sleeves, a pair of scrapers fixed on the inner end portions of said shafts and including intumed free end portions engageable in the buckets for removing dirt therein and swingable to inoperative position by obstructions lodged in the buckets, arms on the outer ends of the shafts, and resilient means connected to the arms for yieldingly retaining the scrapers in operative position and for returning said scrapers to said operative position, said resilient means comprising transversely aligned bearings mounted on the machine, yokes including stems jour-

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naled in the bearings for rockably mounting said yokes for oscillation in a vertical plane on the machine, a pair of generally horizontal cylinders including closed ends, means for mounting said cylinders for oscillation in a generally horizontal plane in the yokes, longitudinal rods extending slidably through the cylinders, links connecting one end portion of the rods to the arms, collars fixed on the rods and operable in the cylinders, and coil springs in the cylinders encircling the rods and engaged with the collars for yieldingly urging the scrapers toward operative position.

4. The combination of claim 3, wherein the second-named means comprises sleeves fixed on intermediate portions of the cylinders, and generally vertical trunnions on the second-named sleeves journaled in the yokes.

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