May 4, 1965 N. DISCENZA 3,181,256

BACK-FILLING BLADE FOR A POWER SHOVEL

Original Filed June 30, 1960

FIG. 1

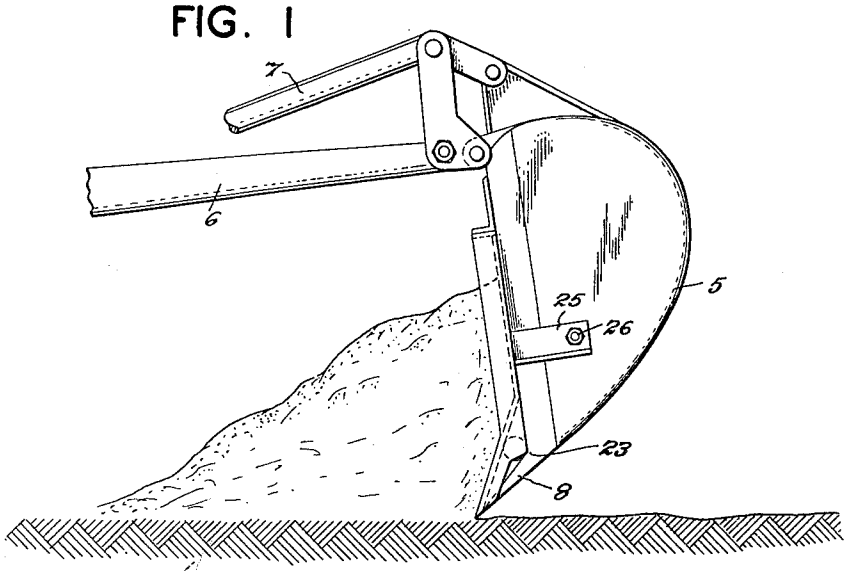


FIG. 2

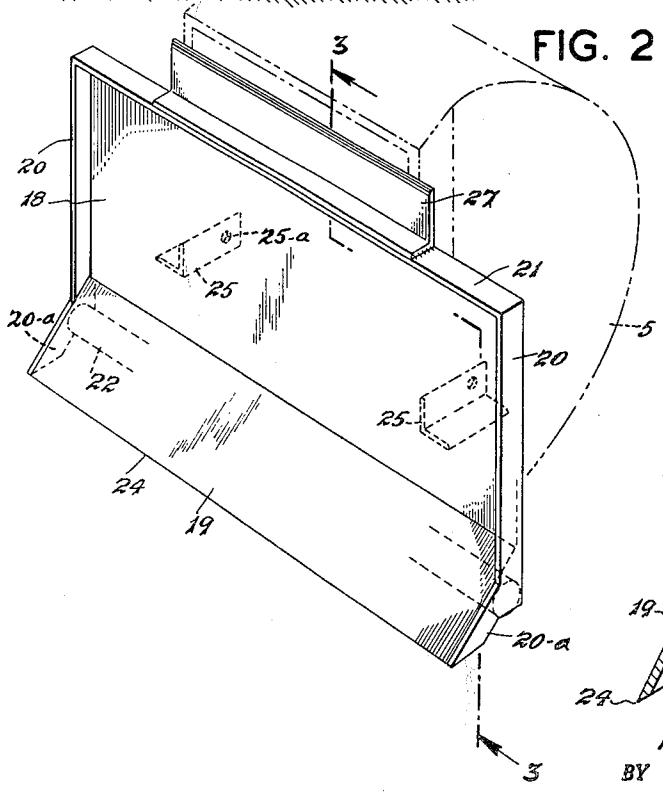
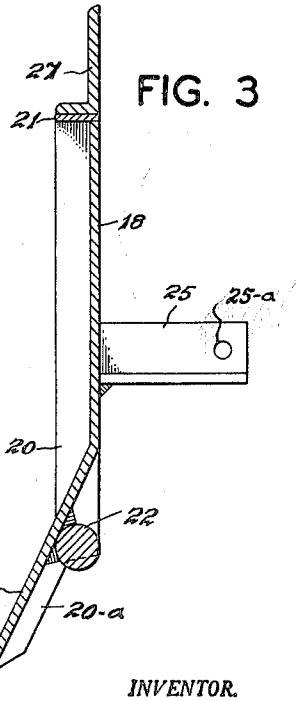


FIG. 3



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BACK-FILLING BLADE FOR A POWER SHOVEL

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Original application June 30, 1960, Ser. No. 40,001, now Patent No. 3,043,032, dated July 10, 1962. Divided and this application Mar. 28, 1962, Ser. No. 191,385
4 Claims. (Cl. 37—117.5)

This invention relates to earth moving equipment and more particularly to back-filling blade attachments for the bucket of a power shovel for extending its range of effective operation to back-filling and grading work. This application is a division of my co-pending application Serial No. 40,001, filed on June 30, 1960, now Patent No. 3,043,032.

The art of earth moving has undergone revolutionary changes within recent years. Innovations and improvements in equipment and technique have taken place which heretofore were undreamed of. Huge, self-propelled vehicles are now available which are capable of transporting tons of earth easily, quickly and conveniently over terrain which would formerly have been impassable. Great giants of machinery can now level or move whole hills with relative ease. Earth moving equipment is available today which can accomplish in a single day what formerly required weeks or even months of arduous hand labor.

My invention, however, relates to a category of earth working apparatus and technique which has remained relatively unchanged while such great forward strides were being accomplished in development of heavy equipment and its use. Considered individually, the magnitude of small excavation projects such as trench digging or residential excavating does not compare with that of highway installation or industrial development. Collectively, however, many thousands of man hours of hand labor are required to dig and fill small excavations—labor which might otherwise be put to use in a far greater productive capacity. The installation of water or sewer pipes, for example, extending between a typical urban residence and a street main, necessitates digging a trench therebetween approximately four to eight feet in depth. Small, mobile power shovels designed for work of this general type efficiently dispose of the necessary excavation, depositing the dirt removed therefrom on the surface adjacent to the trench. Once the trench is dug, however, and the pipe laid, hours of laborious hand work must be spent by men with shovels back-filling the trench, and an even greater number of hours spent shoveling and raking in an effort to "clean up" and return the area of excavation to its former condition.

By using my improved back-filling blade attachment, however, the same power-shovel used to dig the trench may be speedily converted for use to efficiently, quickly and economically return the excavated dirt to the trench from whence it was removed. By simply attaching my back-filling blade to the bucket of the power shovel, the shovel may be used either to push or pull the mounds of dirt previously deposited along the edge of the trench into the excavation. Since my back-filling blade shields the digging teeth of the bucket, there is no danger of their gouging or scarring an established lawn as the edge of the blade is drawn along the surface thereof.

Earth moving equipment of the bulldozer type is frequently employed in an effort to minimize the hand work associated with back-filling. Effective use of such equipment, however, is restricted because of the relatively large amount of operating area required therefor, and is prohibited in areas having established lawns and landscaping unless there is no concern for probable damage thereto.

At best, the conventional bulldozer can accomplish only "rough" grading leaving a substantial amount of "finish" work to be accomplished by hand labor. The use of a bulldozer also involves bringing another piece of heavy equipment to the job site which not only compounds scheduling problems but is also an additional expense.

The use of my improved back-filling blade attachment, however, permits a power shovel operator of ordinary skill to perform, in addition to the excavating operation, both the back-filling of the bulldozer and the "clean-up" finish grading heretofore of necessity done by hand labor using picks, shovels and rakes. A trench or the like may be rapidly and inexpensively back-filled, and rough and finish grading may be accomplished with the same equipment and with the economy and efficiency of modern mechanization—utilizing only one piece of equipment for excavating, back-filling and grading.

A primary object of the invention is to provide an attachment for power shovels and the like which will extend their field of effective operation and permit their use for back-filling and grading.

A further object of the invention is the provision of such an attachment having means cooperable with the teeth on the bucket for positioning the attachment thereon.

Another object of my invention is to provide an attachment that can be conveniently and securely affixed to the bucket of a power shovel and which will greatly increase the utility thereof.

Still another object is to provide an improved attachment for a power shovel, the use of which will virtually eliminate the expense of costly hand labor in back-filling trenches and like excavations.

A still further object is to provide such an attachment which may be detachably secured to the bucket of a power shovel.

Another object is to provide such an attachment cooperable with the teeth on the bucket whereby said teeth may be sheathed to prevent scarring or gouging of established lawns.

Further objects and advantages of this invention will be more clearly understood from the following description and accompanying drawings in which:

FIG. 1 is an elevational side view showing my attachment mounted upon the bucket of a conventional power shovel.

FIG. 2 is an isometric front view of said attachment.

FIG. 3 is a sectional side view taken on line 3—3 of FIG. 2.

As shown in the drawings, the numeral 5 denotes the bucket of a conventional power shovel. Said bucket is pivotally mounted on a boom 6 and is operated by a control bar 7 in the well-known manner. The bucket is provided with a series of spaced teeth 8 which project from the lower edge thereof and are adapted to bite into the earth when said bucket is used for digging operations.

Referring to the drawing, the said attachment comprises a plate 18 having a forwardly inclined lower portion 19. The two side and upper edges of said plate 18 are provided with forwardly extending flanges 20—20 and 21 respectively to confine, insofar as possible, the fill or earth to said plate and thereby increase the capacity thereof. If desired, the flanges 20—20 may be extended along the edges of the portion 19, as at 20—*a*. The said flanges further tend to increase the strength and rigidity of the device.

The said lower portion 19 of the plate 18 is inclined farwardly and is provided on the rear side thereof with a supporting bar 22 rigidly secured thereto. Said bar extends longitudinally of the plate and is positioned so as to rest in the angle 23 formed by the front surface of the

teeth 8 and the side of the bucket 5 as shown in FIG. 1 when the back-filling blade of my invention is positioned on said bucket. The angle formed by the front plate and the lower portion thereof is such that the rear surface of the plate 18 rests in abutting engagement with each of the front edges of the sides of the bucket while the lower or marginal edge 24 of the lower portion 19 thereof rests upon the upper surface of said teeth and extends slightly forward thereof.

The said plate 18 is provided with rearwardly extending flanges 25—25 adapted to receive the bucket 5 therebetween and to be secured to said bucket by means of suitable belts 26 which extend through holes 25–*a*—25–*a* in the flanges 25—25 and through aligned holes in the sides of said bucket.

A guard plate 27 may be provided to extend upwardly from the plate 18 and across the upper portion of the bucket 5 whereby to prevent the spilling of earth into the bucket during the back-filling operation. The weight of earth is well known and if the bucket were to become filled, the productive efficiency of the power shovel would be greatly reduced since much of its usable horsepower would be wasted in merely carrying about the dead weight of a bucket filled with earth.

When mounting my back-filling attachment to the bucket of a conventional power shovel it is simply positioned thereon with the bar 22 resting in the angle 23 and removably secured thereon by the bolts 26—26 as aforementioned.

I claim:

1. In combination with an excavating bucket of the type having opposed sides, an open front, and a plurality of laterally spaced digging teeth along the lower forward edge thereof, a back-filling attachment comprising a blade including an elongated front plate of generally rectangular form attached to said bucket in a substantially upright position and extending outwardly of said opposed sides thereof with its longitudinal axis substantially parallel to the ground, said blade having a relatively flat upper portion and a forwardly angled lower portion, said

angled lower portion overlying and shielding said plurality of teeth to prevent scarring of the ground when said shovel is converted to back-filling purposes, a longitudinally extending supporting bar along the back of said angled portion in engagement with the base of said teeth, said blade having upper abutment surfaces in engagement with the sides of said bucket, and means for removably securing said abutment surfaces to said opposed sides.

2. In combination with an excavating bucket of the type having opposed sides, an open front and a plurality of laterally spaced digging teeth along the front edge thereof, a back-filling attachment comprising an elongated front plate having a lower portion inclined forwardly therefrom, a longitudinal bar secured to the rear surface of said lower portion inwardly of the lower front edge thereof and in abutting engagement with the front surface of said teeth and the front edges of said opposed sides of said bucket for locating and positioning said attachment on said bucket, and attaching means secured to the rear surface of said front plate and extending rearwardly thereof and detachably connected to the opposite sides of said bucket whereby the said bucket is adapted for use in back-filling trenches and the like.

3. An attachment as set forth in claim 2 wherein portions of said front plate extend laterally beyond said opposed sides of said bucket.

4. An attachment as set forth in claim 3 wherein the said supporting bar extends for the full length of said plate thereby supporting the extending portion thereof.

References Cited by the Examiner

UNITED STATES PATENTS

1,712,853	5/29	Taylor.	
1,765,892	6/30	Wagner	37—144
2,644,251	7/53	Smith	37—117.5
2,965,989	12/60	Hibbard.	

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