

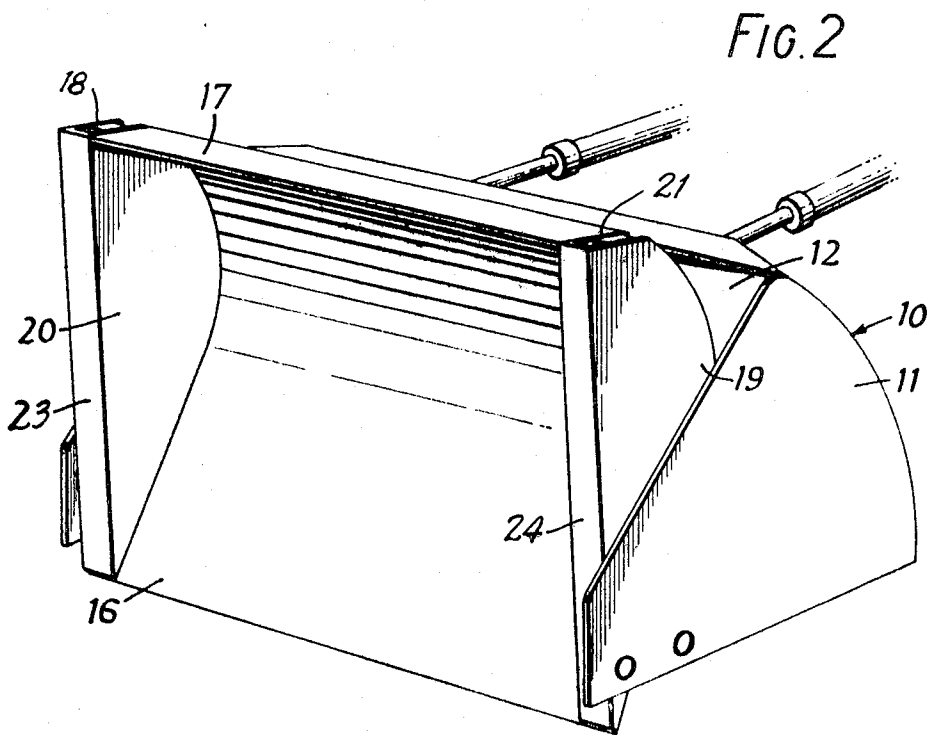
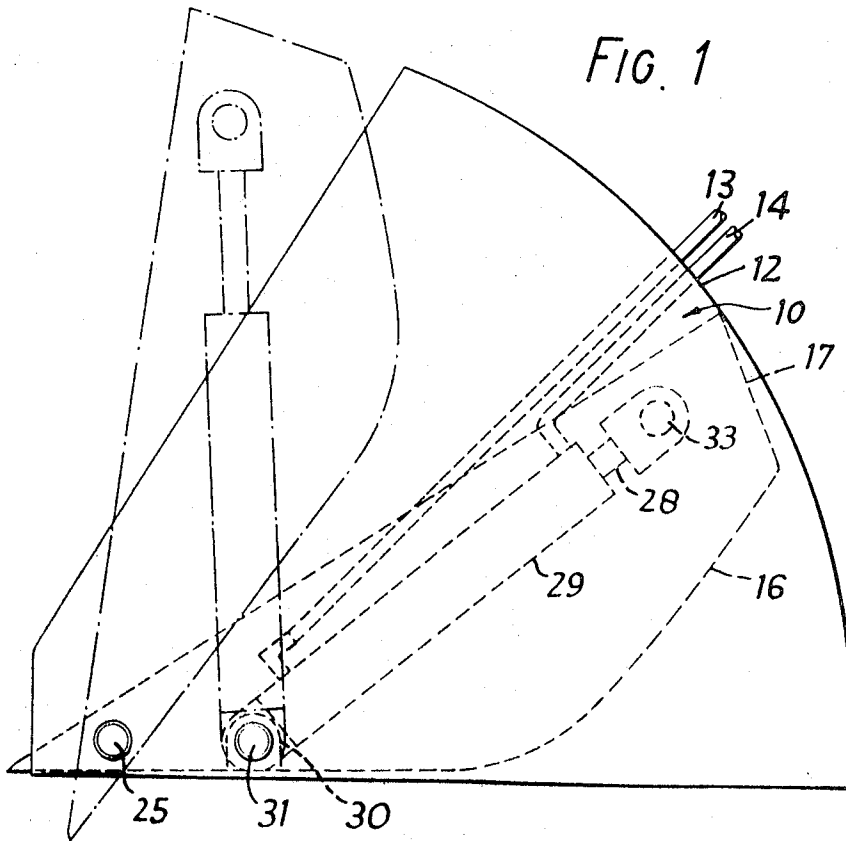
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3,626,612

TILTABLE TRACTOR BUCKET

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3,626,612

## TILTABLE TRACTOR BUCKET

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2 Claims

### ABSTRACT OF THE DISCLOSURE

The invention provides a tractor bucket comprising a main housing support structure to which a tiltable bucket is pivoted by means of jacks that are housed in pairs of walls which form the end walls of the bucket, the jacks lying at all times within the side view area of the bucket.

This invention relates to earth and like material moving means. Commonly known means consist of a bucket type shovel pivoted on a fixed pivot on a bucket arm which is pivoted on the frame of a tractor. The tractor is run toward a heap of the material so that the bucket is driven into the material by the force of the tractor. The bucket arm is then swung about the pivot on the frame to move the bucket in an upward curve.

We have previously proposed to provide a shovel device comprising a bucket having a bottom plate pivotally mounted on the bucket about an axis adjacent its lower edge and means for moving the bottom plate about its pivot for ejecting the contents of the bucket and to bring the plate forward so that it can be used as a bulldozer plate, said means including an hydraulic jack connected to the bottom plate through a system of levers. While this initially operates quite well, the levers are somewhat complicated and expensive and after a period of use the wear at the pivots may result in failure to operate.

According to the present invention the bucket comprises a main structure or housing, a bottom plate structure pivoted to the main structure or housing adjacent the front lower part thereof and at least one fluid-pressure e.g. hydraulic jack having its lower end pivoted directly to the lower front part of the main structure or housing to the rear of the pivot of the bottom plate structure, the upper end of the jack being pivoted direct to the upper end of the bottom plate structure at such a height in the lowest position of said bottom plate structure that extension of the jack raises the bottom plate structure.

By this geometrical arrangement the jack can raise and lower the bottom plate structure without the use of links or levers.

The bottom plate structure in its simplest form could be merely a flat plate with the jack located behind it. It is however preferred that the bottom plate structure comprises a curved plate with upstanding side walls and provided with at least one box-like structure in front of the jack and housing the jack and closed in front of the jack so that the jack is above the curved plate in the lowered position and the jack is protected from contact with earth during operation. Two such box-like structures and jacks may be provided, one on each side with the curved plate between them. Alternatively a single central box-like structure and jack may be provided between two halves of the curved plate.

A constructional form of the invention is illustrated in the accompanying drawings in which

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FIG. 1 is a side elevation of a bucket made in accordance with the invention; and

FIG. 2 is a perspective view thereof.

The bucket comprises a main structure or housing 10 having side plates 11 and a back plate 12. The housing may be mounted on a tractor for movement in usual manner.

The bottom plate structure consists of a curved plate 16 having an upwardly extending back plate 17 and side plates 18, 19. Two inner side walls 20, 21 are provided parallel to the plates 18, 19 and spaced therefrom. Front plates 23, 24 are welded across the front edges of the plate 18 and wall 20, and plate 19 and wall 21 so as to form two box-like structures. The plates 18, 19 are in contact or nearly in contact with plates 11. The plates 16, 17 extend only between the walls 20, 21.

The bottom plate structure is pivotally attached to the side plates 11 by pivot studs 25 adjacent the lower front parts of said plates so that the structure can be moved to a lower position by jacks 29 supplied with fluid pressure through pipes 13 and 14 when the bucket is used as such and can be raised and moved forward to serve as a dozer plate. Stops may be provided to limit the movement of the structure at its upper and lower positions.

In each box-like structure is a double-acting hydraulic jack having a piston rod 28 and cylinder 29.

The jack is pivoted at its lower end at 31 to a pair of lugs 30 welded to the curved plate 16. The upper end of the jack is pivoted at 33 to the plate 18 and wall 20 (and 19, 21). Pivots 25, 31 are in approximately the same horizontal plane in the front quarter of the depth front to back of the bucket and spaced apart sufficiently to ensure that extension of the jack will raise the bottom plate structure. The pivot 33 must also be of sufficient height for this purpose.

I claim:

1. A tractor attachment comprising a main housing support structure, a bucket including a bucket bottom plate pivoted at its lower front end to the support structure adjacent the front lower part thereof, a box-like structure carried by one side of the bottom plate and comprising a pair of vertical walls spaced apart from each other and a front plate connected to the front edges of said walls, the inner of said walls being connected at its rear edge to the bottom plate, the inner of the two vertical walls forming one side wall of the bucket, another side wall at the other side of the bucket, a fluid pressure jack having its lower end pivoted to the lower front part of the support structure on an axis which is located to the rear of the pivot of the bottom plate and near to said pivot, the upper end of the jack being pivoted to said walls within the box-like structure whereby extension of the jack raises the bottom plate so that both the jack and the front plate are approximately vertical, said jack being housed within the box-like structure in the collapsed condition of the jack, and said jack being located within the combined side view area of said main housing support and said bucket at all times.

2. A tractor attachment comprising a main housing support structure, a curved bucket bottom plate pivoted at its lower front end to the support structure adjacent the front lower part thereof, a pair of vertical walls at each end of the bottom plate, the rear edge of each of the inner walls of said pairs of walls being secured to the bottom plate, said bucket bottom plate and said pairs of walls together forming a bucket, the inner walls of said two pairs of walls constituting the side walls of said bucket, the walls of each pair being spaced apart from

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each other, two front plates attached one to each pair of walls at their front edges, so that each pair of walls and their front plate form a box-like structure, two fluid pressure jacks, each jack being pivoted at its lower end to the lower front part of the support structure on an axis which is located to the rear of the pivot of the bottom plate and near to said pivot, the upper end of the two jacks being pivotably mounted on said pairs of walls within the respective box-like structure at the upper end thereof where-by extension of the jacks raises the bottom plate so that the jacks and the front plates are all approximately vertical, said jacks being housed within said box-like structures in the collapsed condition of the jacks, and said jacks being located within the combined side view area of the said main housing support and said bucket at all times.

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## References Cited

## UNITED STATES PATENTS

2,303,379	12/1942	Mork	-----	37—117.5
2,530,414	11/1950	Wells	-----	37—117.5
3,175,312	3/1965	Reynolds et al.	----	37—117.5
3,197,048	7/1965	Hayes	-----	214—78
3,460,280	8/1969	Batson et al.	-----	37—129 X

## FOREIGN PATENTS

915,640	1/1963	England	-----	37—117.5
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EDGAR S. BURR, Primary Examiner  
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214—146; 37—117.5