

United States Patent

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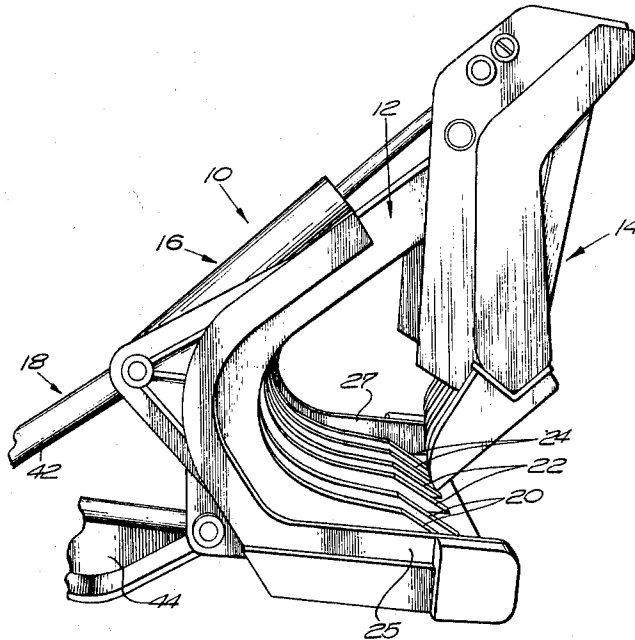
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[54] **DEMOLITION SHOVEL**
4 Claims, 4 Drawing Figs.

[52] U.S. Cl..... **214/147,**
 294/104, 214/145
 [51] Int. Cl..... **B66c 1/48**
 [50] Field of Search..... 214/147,
 147 (G), 145; 294/104, (GE), 88

ABSTRACT: The invention comprises a shovel having a pair of jaws adapted to be mounted on a bulldozer or the like for operation. One of the jaws is an elongated channel member of U-shaped cross section which can be lifted and/or tilted by its connections with a bulldozer. The second jaw is pivoted along the top edge of the first jaw and has a toothed free edge adapted to cooperate with the bottom edge of the first jaw. Power cylinders cooperate between the first and second jaws to effect opening and closing relative movement.



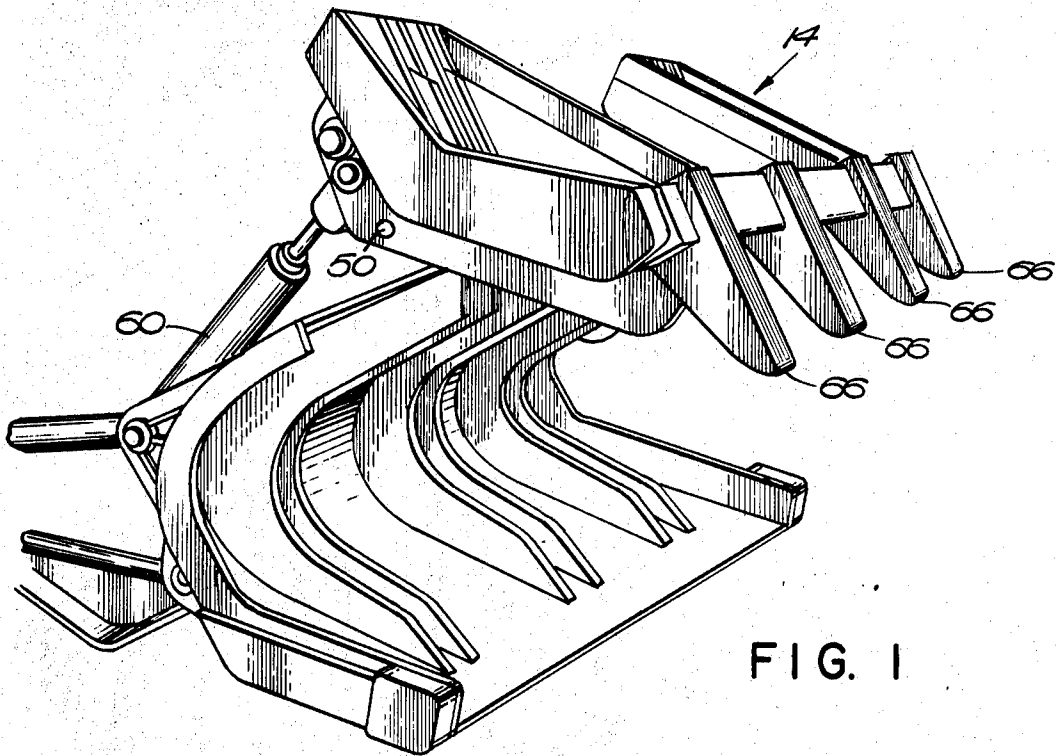


FIG. 1

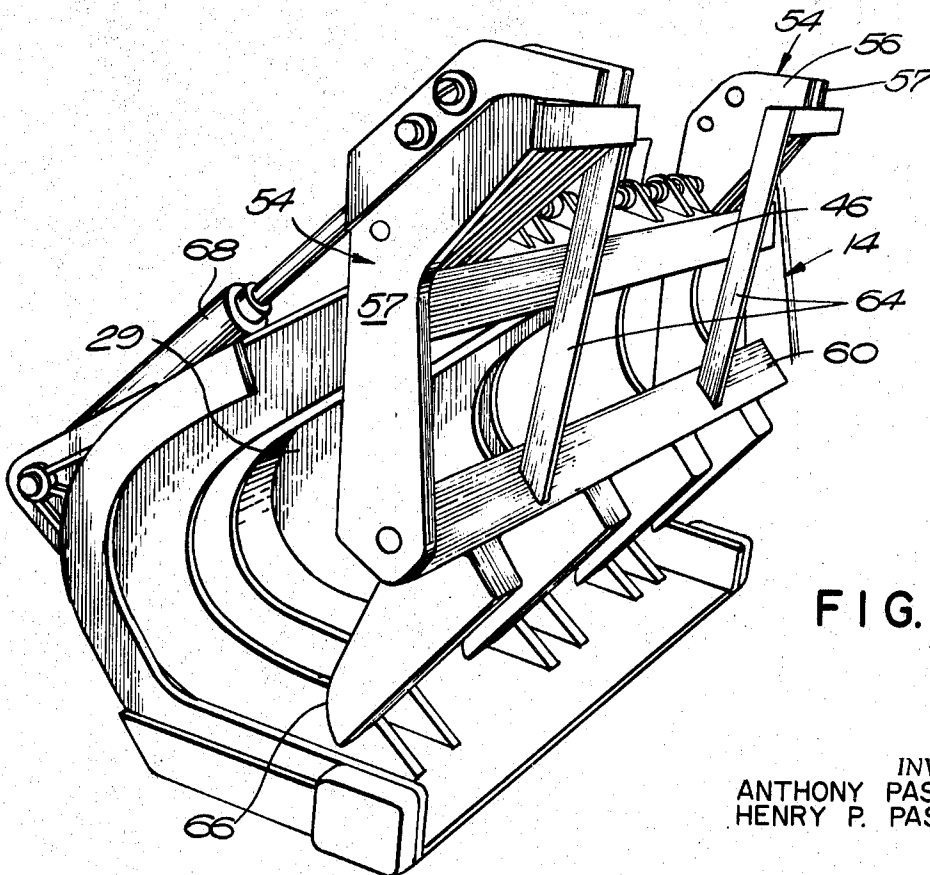


FIG. 2

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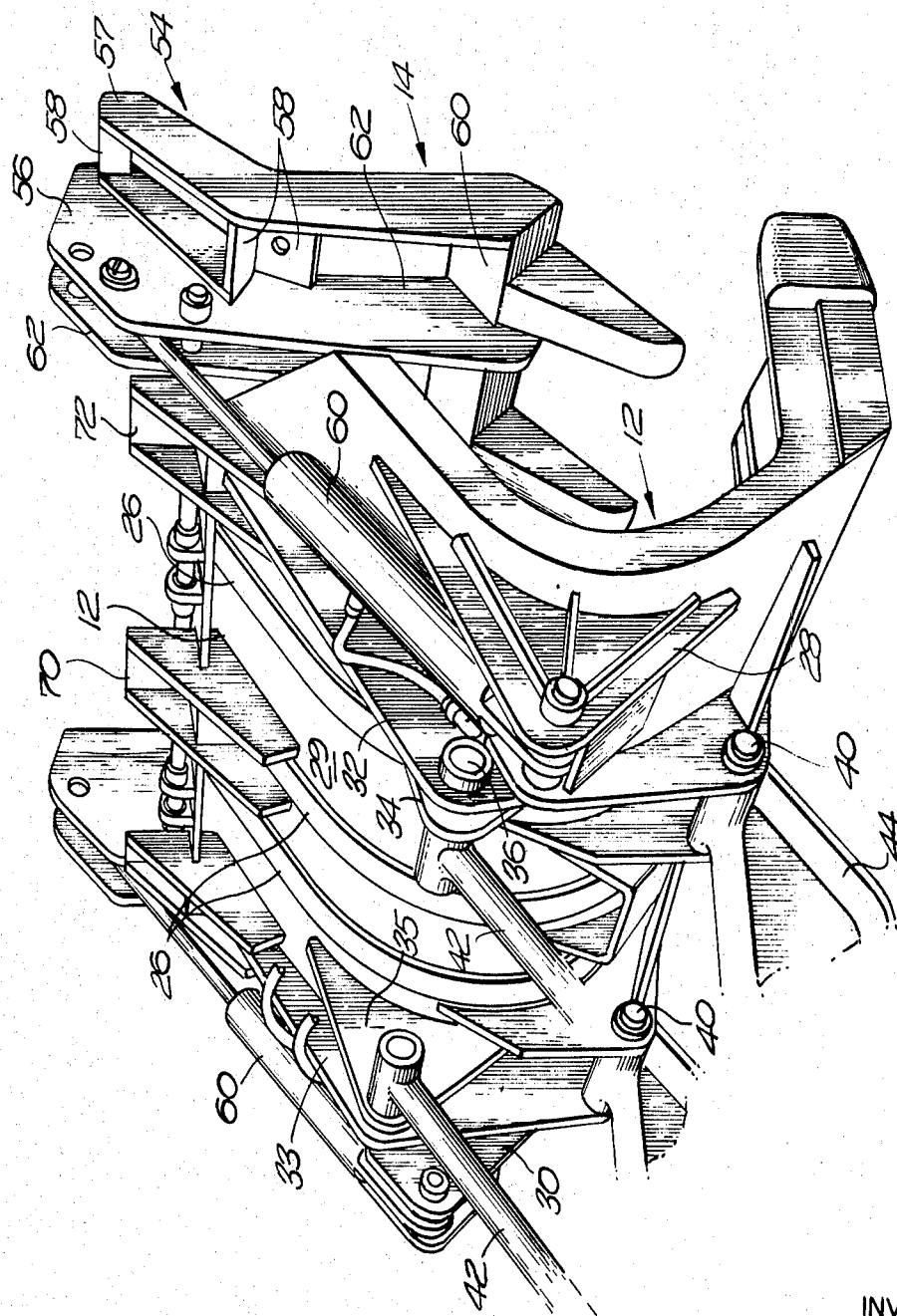


FIG. 3

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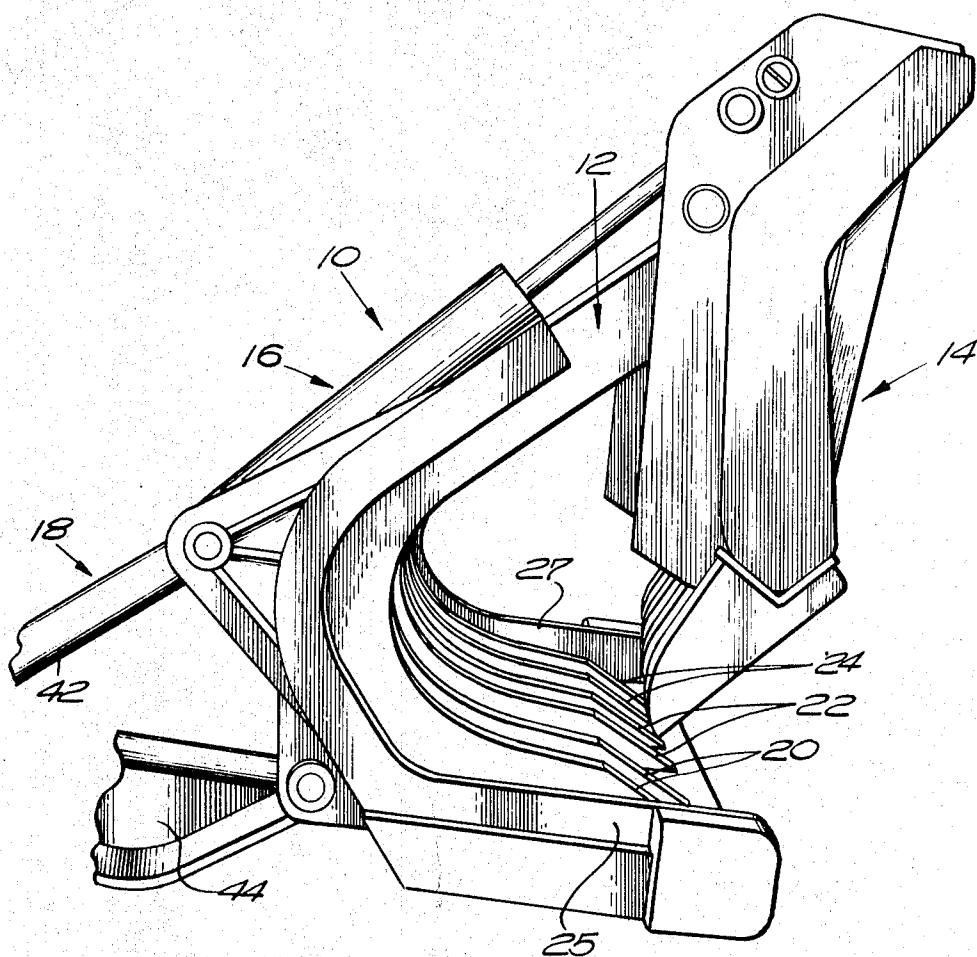


FIG. 4

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DEMOLITION SHOVEL

An object of the present invention is to provide an improved demolition shovel which can function to knock down walls and the like and to grip the demolished rubble for transfer to a truck or the like.

A further object of the present invention is to provide an improved demolition shovel wherein two relatively movable jaws of unique design cooperate in a novel fashion so as to more expeditiously function in demolition and clearing work.

Still another object of the present invention is to provide an improved demolition shovel which is simple yet rugged in construction, easily fabricated and which is simple to use.

Various other objects and advantages will become apparent from the detailed description to follow.

In the drawings:

FIG. 1 is a perspective view showing the jaw in an open relationship;

FIG. 2 is a view similar to FIG. 1 but showing the jaws in open relation;

FIG. 3 is a perspective view of the demolition shovel as viewed from the rear; and

FIG. 4 is a side view of the shovel.

Referring more particularly to the drawings wherein like numerals apply to like parts throughout, it will be seen that we have provided an improved demolition shovel 10 which comprises a pair of jaws 12, 14 with operating means 16 for cooperative operation of the jaws and actuating means 18 for tilting and lifting the jaws.

The jaw 12 is of channel shape of U-shape cross section made of heavy steel stock with three pair of rigidifying ribs 20, 22, 24, welded on the inside. End flanges 25, 27 also are welded onto the jaw.

Flat barstock pieces 26 are bent and welded onto the back or outside of the jaw shell for further strength.

The shell 29 of jaw 12 has a set of flanges at 28 and a set at 30 welded thereto providing a pair of pivot brackets for a purpose to be described.

A pair of elongated plates 32, 33 are welded to the shell 29 parallel to the flanges 28, 30 and between the two sets providing additional pivot flanges. Small secondary plates are provided at 34, 35 close to the plates 32, 34 for the pivot pins 36. Similarly the plates 38 are welded to the shell to provide trunnions for the pivot pins 40.

The pivot pin 36 served to connect the shell to the tilt arm 42 of the bulldozer whereas the pivot pin 40 serves to connect the shell to the lift arm 44 of the dozer.

The second jaw 14 includes a beam 46 of rectangular cross section.

The beam 46 has a series of ears 48 with sleeves 49 providing bearings for the shaft 50 which extends along its entire length.

Sleeves 52 welded on the upper edge of the shell 29 are located between the sleeves 49 so that the shaft 50 pivotally joins the two jaws.

The jaw 14 has end brackets 54 formed by the pairs of plates 56, 57 joined by the struts 58 and attached to the beam 46.

A second beam at 60 spaced from the first beam 46 is joined thereto by the spaced struts 62. Also the rigidifying bars 64 extend between the beam 60 and the upper ends of the brackets 54.

Beam 60 has a series of teeth 66 projecting there from and adapted to cooperate with the inside of the shell between the rigidifying plates.

Hydraulic cylinders 68 are anchored between the brackets 28 and 30 and the plates 56, 62 so that operation thereof causes jaw 14 to pivot relative to jaw 12, as seen in FIGS. 1

and 2.

Shell 12 has a stop plate assembly 70, 72 welded thereto to limit relative opening pivoting of the jaws as shown in FIG. 3.

It will thus be seen that the demolition shovel can be mounted on a bulldozer or like construction and demolition vehicle with the lift arm 44 connected as shown in FIG. 4 at 40 and the tilt arm 42 connected at the pivot 36. Thus the entire shovel can be lifted, the jaws relatively pivoted and the whole shovel tilted as desired for effective demolition and rubble removal work.

In view of the foregoing it is believed that we have provided an improved demolition shovel which fulfills the objects hereinbefore enumerated.

As this invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, the present embodiment is therefore illustrative and not restrictive since the scope of the invention is defined by the appended claims rather than by the description preceding them, and all changes that fall within the metes and bounds of the claims or that form their functional as well as conjointly cooperative equivalents, are therefore intended to be embraced by these claims.

We claim:

1. A demolition shovel for attachment to a construction vehicle and for use in demolition of a building construction and for handling and transferring of rubble thereafter, comprising a first jaw member defined by a shell formed in substantially a U-shaped configuration, a plurality of ribs formed on the interior surface of said shell and conforming to the U-shaped contour thereof, said ribs being spaced from each other along the width of said shell to define a plurality of U-shaped channels, a second jaw member mounted for pivotal movement with respect to said first jaw member, hydraulically operated control members interconnecting said jaw members and defining means for controlling pivotal movement of said second jaw member from an open to a closed position, said second jaw member including a plurality of teeth that are relatively short and that are located remote from said hydraulically operated control members, said teeth being disposed in spaced-apart relation, and each of said teeth being aligned with a channel in said first jaw member for being received therein when said second jaw member is moved to a closed position, means connected to the rear of said shell and to said vehicle for effecting a lifting movement of said first jaw member and the second jaw member pivotally interconnected thereto, and means pivotally connected to the rear of said shell for tilting said first jaw member around a horizontal axis, said hydraulically operated control members being operable to pivotally move said second jaw member and the teeth joined thereto relative to said first jaw member downwardly in an arcuate path for effecting a demolition stroke, whereafter said second jaw member cooperates with said first jaw member to handle and transfer demolished material.

2. A demolition shovel as set forth in claim 1, said second jaw member including spaced end plates that are interconnected to said hydraulically operated control members, vertically spaced horizontal beams interconnecting the end plates, said relatively short teeth having a generally triangular configuration for strength and being mounted on the lower of the horizontal beams, wherein said teeth are rigidly fixed in position for demolition purposes.

3. A demolition shovel as set forth in claim 2, said ribs on said shell extending substantially from the top to the bottom edges thereof and further acting to rigidify said shell.

4. A demolition shovel as set forth in claim 2, a plurality of ears joined to the upper of said beams, a plurality of bearings joined to the upper edge of said shell, and a shaft extending through said ears and bearings for pivotally interconnecting said jaw members.