

Aug. 30, 1949.

R. W. JENNE

2,480,656

CUTTING ATTACHMENT FOR DRAGLINE BUCKETS

Filed Oct. 20, 1947

2 Sheets-Sheet 1

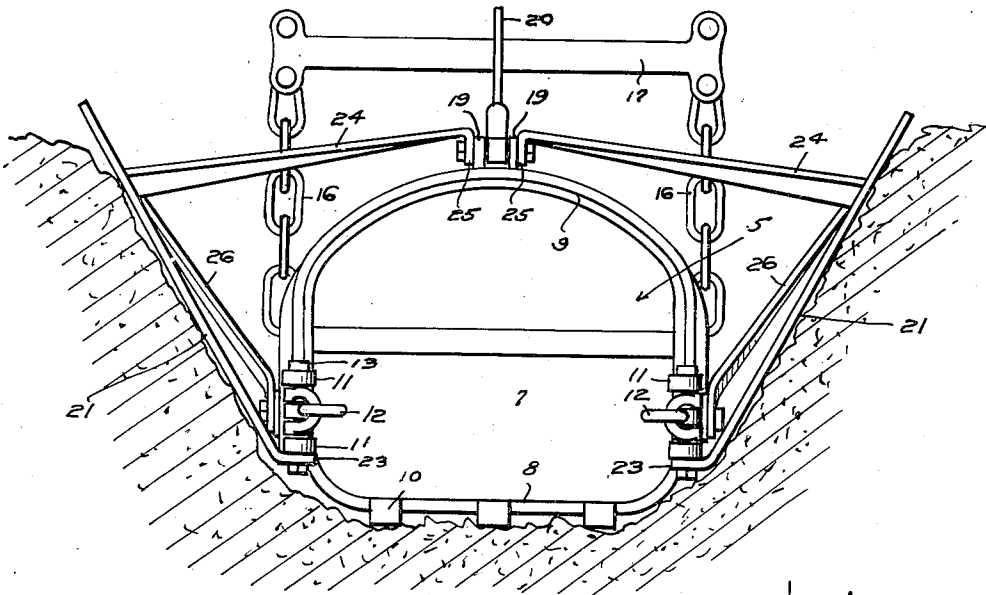


FIG. 1.

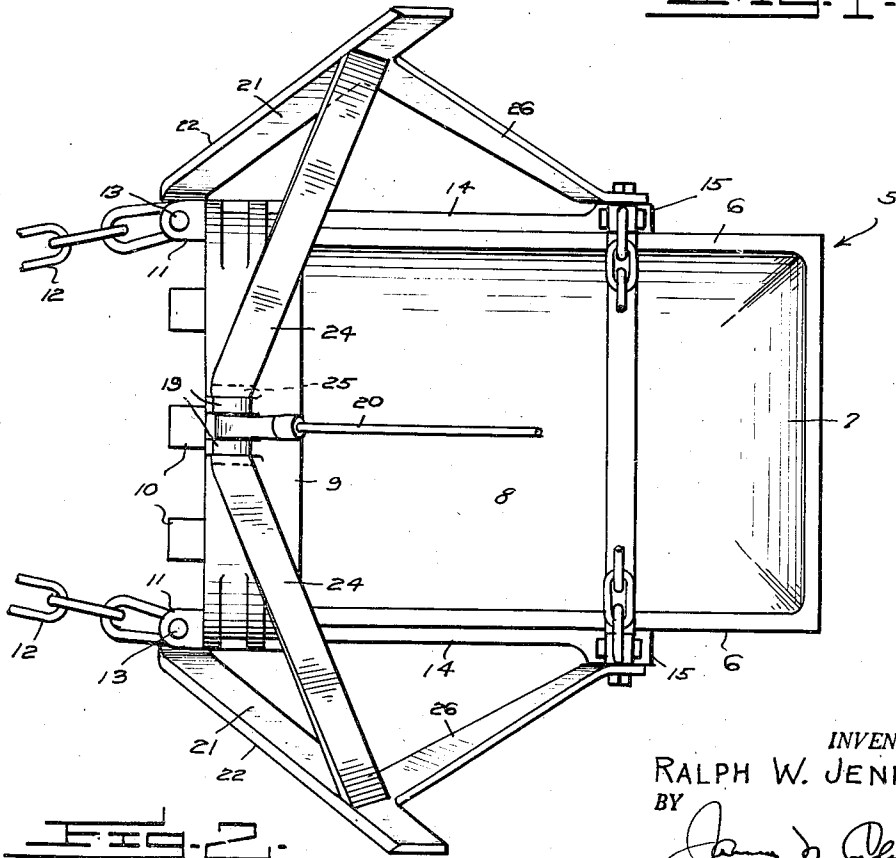


FIG. 2.

INVENTOR.
RALPH W. JENNE,
BY

James H. Glen

ATTORNEY

Aug. 30, 1949.

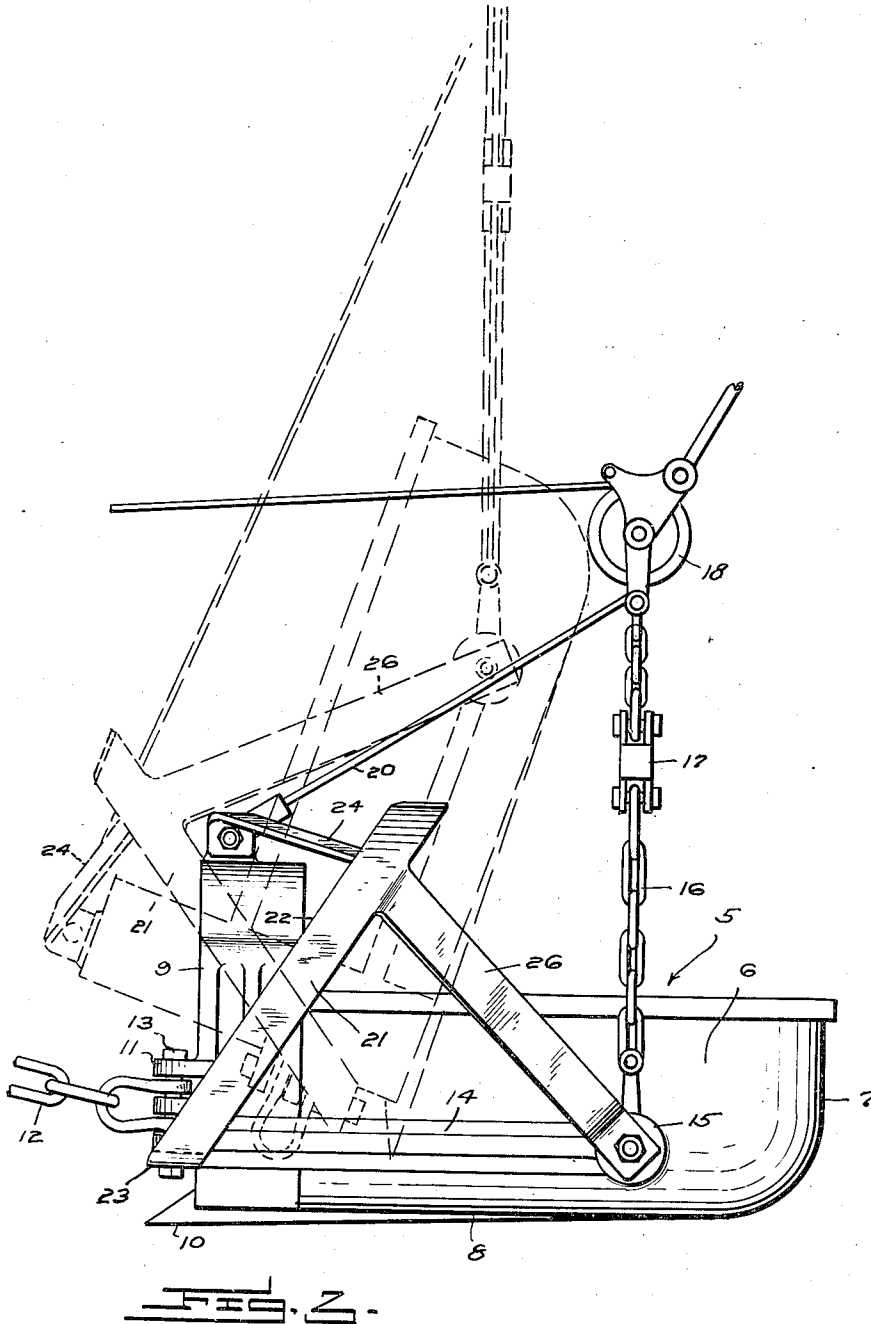
R. W. JENNE

2,480,656

CUTTING ATTACHMENT FOR DRAGLINE BUCKETS

Filed Oct. 20, 1947

2 Sheets-Sheet 2



INVENTOR.
RALPH W. JENNE,
BY 
ATTORNEY

UNITED STATES PATENT OFFICE

2,480,656

CUTTING ATTACHMENT FOR DRAGLINE
BUCKETS

Ralph W. Jenne, Lake Worth, Fla.

Application October 20, 1947, Serial No. 780,847

4 Claims. (Cl. 37-141)

1

This invention relates to improvements in excavating apparatus and has particular reference to detachable cutting blades for use in connection with dragline buckets.

It has been common and relatively expensive practice in excavating ditches or drainage canals to first excavate the ditch and then by a separate operation, go back and bevel or incline the walls of the ditch to avoid unnecessary caving in of the walls, as is common in straight side ditches.

It is an object of the present invention to provide attaching cutters to the conventional dragline bucket, inclined a predetermined degree outwardly and suitably braced, so that a single operation of the dragline bucket will not only excavate the ditch, but will at the same time bevel the side walls thereof, thus avoiding a separate operation.

A further object of the invention resides in the extreme simplicity of the attachment, requiring no alterations of the dragline bucket, is quickly attached or dismounted, will not interfere with the dumping of the bucket, is strong, durable, cheap to manufacture, is highly efficient in use and will result in a considerable saving of the cost of excavating such ditches as require bevelled side walls.

Other and important objects of the invention will readily present themselves during the course of the following description, reference being had to the accompanying drawing, wherein:

Figure 1 is a front elevational view of a dragline bucket with the invention attached and in use,

Figure 2 is a top plan view thereof,

Figure 3 is a side elevation of the bucket, with the invention attached and illustrating a dotted line position of the bucket in dumping position.

Line numerals refer to like parts throughout the several figures of the drawing.

Referring specifically to the drawings, the numeral 5 designates a dragline bucket of conventional scoop form, having side walls 6, a rear end 7, a bottom 8 and a forward open end spanned by an arched reinforcing member 9. The forward edge of the bottom terminates in cutting teeth 10. The forward edge of the reinforcing member 9 upon opposite sides and adjacent the bottom is provided with spaced apertured lugs 11, integral therewith and serving as connecting means for the clevis of draft chains 12, the clevis being held in interlocking position by pins or bolts 13. Reinforcing side members 14, preferably integral with the arch member 9, extend rearwardly along the side walls of the bucket to a point adjacent the rear of the bucket, where they are pro-

2

vided with swivel sockets 15, serving as a swivel connecting means for lifting chains 16 carried by a cross bar 17. The bar 17 is controlled by suitable and well known lifting means embodying a pulley 18 supported from and controlled by the well known dragline mechanism. Centrally disposed upon the top of the arch 9 is a pair of spaced integral lugs 19, serving as a pivotal connection with a cable 20. The cable 20 passes about the pulley 18 and is controlled in the usual manner for operation of the bucket. The structure so far described covers a well known dragline bucket adapted to operate in the conventional manner.

The invention comprises a pair of flat rigid cutting blades 21, inclined outwardly and rearwardly with respect to the bucket upon opposite sides and has its forward edges preferably sharpened at 22. The lower ends 23 of the blades are bent inwardly, as shown in Figure 1, are apertured for the reception of the bolts 13 and when attached, as shown, the bolts rigidly maintain the lower ends of the blades fixed with respect to the bucket. The predetermined outward inclination of the blades has been determined according to the bevel desired upon the walls of the ditch. The blades are rigidly maintained in their outward inclination by divergent braces 24, having their inner ends bent downwardly at 25 and apertured for the reception of the pivotal means of the lugs 19, where such ends 25 are rigidly held against movement. The outer ends of the braces are welded or otherwise rigidly connected with the blades, as clearly illustrated on Figures 1 and 2. Rearwardly convergent braces 26 may be welded to the blades adjacent the connection of the braces 24, or they may be formed integral therewith. The braces 26 extend rearwardly and are provided with apertures adjacent their ends for the reception of the swivel means carried by the sockets 15. Thus, it will be seen that the blades are maintained rigid against bending or shifting by the braces 24 and 26. The rearward inclination of the blades 21 provide a slicing action during the forward motion of the bucket and results in a simultaneous bevelling of the walls of the ditch as the bucket continues its excavation. The rearward inclination of the blades further permits an unobstructed dumping of the bucket, as illustrated in Figure 3. While the blades 21 have been shown as having their forward edges sharpened, it may be found desirable under certain condition to provide these blades with detachable blade sections to permit removal for sharpening or replacement.

3

In use, the device is attached to the dragline bucket simply by removing the retaining nuts on the bolts 13, the retaining nuts on the pivotal means of the lugs 19 and the retaining nuts on the swivel means of the sockets 15. The blades and braces are then positioned with their ends engaging the several bolts, pivotal means and swivel means and the nuts engaged, securely fastening the structure in operative position. Operation of the bucket along the line determined gradually forms the ditch and as the ditch becomes increasingly deeper, the blades engage and start their bevel cut. Thus, it will be seen that the single operation of excavating the ditch has provided the bevel side walls, heretofore requiring the operator to go back to produce the bevel as a separate and expensive operation.

It will therefore be seen that a very efficient device has been provided, requiring a minimum of time for attachment, results in a great saving in time and labor, has no parts to become disarranged and requires no maintenance other than an occasional sharpening of the cutting edges of the blades.

It is to be understood that the invention is not limited to the precise arrangement shown, but that it includes within its purview, whatever changes fairly come within either the terms or the spirit of the appended claims.

Having described my invention, what I claim is:

1. In combination, a dragline bucket having a forward open end reinforced by an arched member, lugs formed on the arched member, draft means connected to the lugs, cable connecting lugs formed on the top of the arched member, swivel means carried by the bucket upon opposite sides, cutting blades detachably connected upon opposite sides of the bucket, said blades inclined outwardly and rearwardly from their point of attachment, divergent braces carried by the blades and detachably connected to the cable connecting lugs and rearwardly converging braces carried by the blades and detachably connected with the swivel means.

2. In combination, a dragline bucket having draft means and raising and dumping means, cutting blades detachably and rigidly supported upon opposite sides of the bucket, the blades being inclined outwardly and rearwardly from their points of attachment, a pair of divergent braces carried by the blades and being rigidly and detachably connected to the bucket for maintaining

4

the blades in their outer angle of inclination, a pair of rearwardly extending converging braces carried by the blades and being rigidly and detachably connected to the bucket for maintaining the rearward angle of inclination of the blades.

3. A bevelling attachment for dragline buckets comprising a pair of earth cutting blades arranged upon opposite sides of the bucket for bevelling the walls of ditches formed by the bucket, said blades having sharpened forward cutting edges, said blades rigidly attached to the bucket adjacent its forward lower corners and inclined outwardly and rearwardly from their point of attachment, divergent braces carried by the blades and detachably and rigidly connected to the bucket, and rearwardly converging braces carried by the bucket and rigidly and detachably connected to the bucket, said braces serving to maintain the blades in their angular cutting position throughout the operation of the bucket.

4. A ditch wall bevelling attachment for dragline excavators employing a dragline bucket, comprising a pair of identical but oppositely inclined blades having forward cutting edges, said blades having end portions provided with apertures for attachment to the dragline bucket upon opposite sides, said blades adapted to be inclined outwardly and rearwardly from their apertured ends; and lateral and longitudinal braces carried by the blades for detachable connection to the bucket, said braces having their ends provided with apertures for engagement over fastening means carried by the bucket, said braces maintaining the blades in a rigid angle outwardly from the opposite sides of the bucket for simultaneously bevelling the side walls of a ditch so formed by the bucket.

RALPH W. JENNE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
Re. 11,516	Davy	Dec. 3, 1895
1,986,853	Rauch	Jan. 8, 1935
2,353,685	Askue	July 18, 1944

FOREIGN PATENTS

Number	Country	Date
589,506	Germany	Dec. 14, 1932