

Aug. 19, 1941.

W. V. CORNETT

2,253,265

SLOPER

Filed Aug. 30, 1937

Fig. 2.

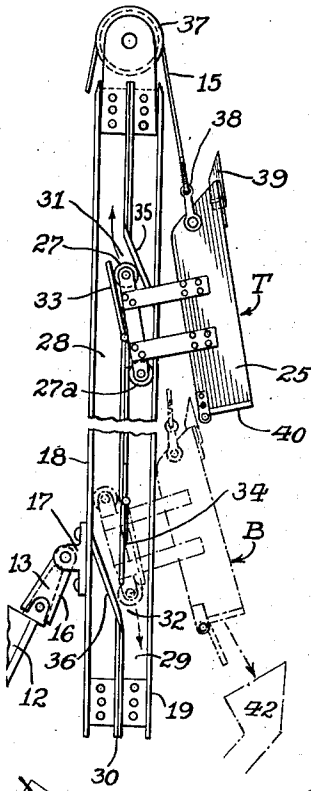


Fig. 1.

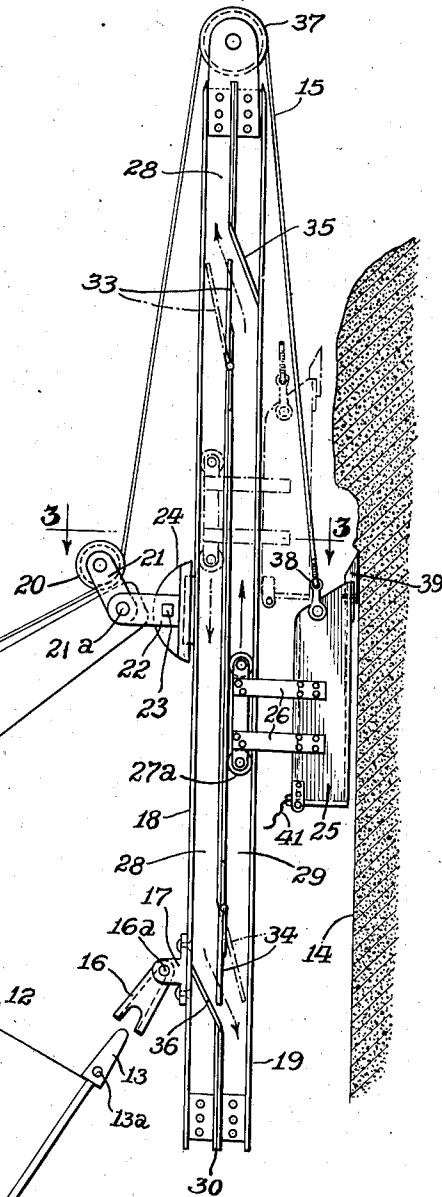
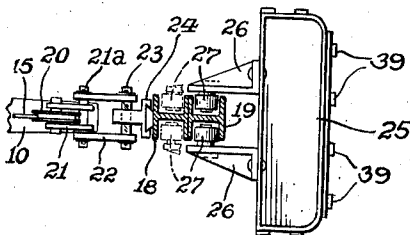


Fig. 3.



INVENTOR.
WALTER V. CORNETT
BY
Van Doren & Lister
ATTORNEYS

UNITED STATES PATENT OFFICE

2,253,265

SLOPER

Walter V. Cornett, Brooklyn, N. Y.

Application August 30, 1939, Serial No. 292,579

8 Claims. (Cl. 214—102)

This invention relates to machines commonly called slopers and has for its object the production of a simple and efficient sloper readily adjustable to various types of work and easily manipulated to rapidly perform the same.

Another object is to produce such a machine by providing relatively inexpensive attachments that may be readily fitted to the usual excavating shovel.

A further object is to provide a machine of the class described particularly suited to remove earth from vertical banks such as are often encountered in road building and the like.

Other objects and advantages will more fully hereinafter appear.

The following specification and drawing disclose a preferred embodiment of the invention by way of illustration and

Figure 1 is a side elevation of a sloper embodying the invention;

Figure 2 is a side elevation similar to Figure 1 but with the bucket shown in a position midway between the inner and outer rails;

Figure 3 is a sectional view on the line 3, 3 of Figure 1.

The numeral 10 denotes a supporting boom such as the usual boom of an ordinary shovel rig, which boom supports the usual shovel stick or sticks 11 carrying the usual shovel or scoop 12 having a plurality of teeth 13 each held by pin 13a to the bucket along its nose. Means (not shown) is provided whereby the operator may move the shovel stick 11 and shovel 12 relative to the boom 10; and elevate, depress and swing the latter. As such means and the manner of operating such shovels are well known they will not be here described in detail as all these parts may be of any known type and construction provided that they may be operated to position and operate the special parts to be presently described.

Obviously an ordinary shovel such as just described must operate in an arc about the point where the stick 11 is attached to the boom. While it is possible by skillful operation to cause such a shovel to travel along a vertical path, such for example as the outer face 14 of a dirt cut, such an operation is difficult to perform requiring as it does the simultaneous operation of both the hoist line 15 of the shovel as well as the manipulation of stick 11. Furthermore the path of vertical travel of the bucket is very limited. The result is that such shovels are seldom used to cut a smooth vertical face on a cut, their use being confined to the rough ex-

cavating, the final finishing and shaping being accomplished by other means.

The present invention enables such a shovel to be easily converted into a machine that will successfully handle such work as just described. But while the invention is here described as forming such an attachment it will be understood that it can be carried out as a complete machine per se.

A hollow casting 16 forming a socket member is provided to fit over one or more of the teeth 13, and may be attached to the tooth in any suitable manner such as by welding. As every shovel is equipped with spare teeth, the usual practice is to weld a tooth 13 and casting 16 together and then secure them via pin 13a to the bucket. The casting 16 is mounted to turn on the pin 16a held in the bracket 17 secured to the rear rail 18 in any suitable manner. This rear rail 18 is an ordinary I beam and is secured to a front rail 19 by welding or the like to form a double track run-way to be presently described.

20 is a pulley suitably mounted in bracket 21 on the outer end of the boom 10. Bracket 21 is secured to bracket 22 by a pin 21a. A bar pin 23 rigidly secures the bracket 22 to an adjustable member 24 which may be attached in any suitable manner at any point along the outer surface of rail 18.

A bucket 25 has side frames 26 carrying rollers 27 adapted to roll in the tracks 28, 29 formed by the flanges of the beams 18, 19. The center flanges 30 are cut away as shown at 31, 32, and these openings are provided with spring-pressed or gravity operated flaps or doors 33, 34 which permit the passage of the bucket assembly 26, 27 therethrough as presently described.

These doors 33, 34 are so shaped and positioned that when closed, they form with the flanges of 18, 19, a smooth uninterrupted surface for the rollers 27, 27a of the bucket to run against in the up and down travel of the bucket 25.

The outer track 29 has a guide member 35 at the top as shown to guide the bucket rollers 27 into the rear track 28, and the rear track has a guide member 36 at the bottom to guide the bucket rollers into the front track 29.

The hoist line 15 is carried over a pulley 37, at the top of the track member or guide comprised of the beams 18, 19 and the outer end of the line is connected as shown at 38 to the bucket 25 which may have the usual teeth 39 and a dumping door 40.

In operation, it will now be seen that by properly manipulating the controls for the boom

10 and shovel 12, the track members 18, 19 may be positioned at any angle relative to the face 14 of the work.

Assuming that 14 is to be a smooth vertical cut, the track members are positioned as shown in Figure 1.

The bucket 25 starts at the bottom and as it is pulled upwardly by hoist line 15 (which may be wound up by the shovel drum) the teeth 39 of the bucket 25 will smoothly cut the face of 14.

When bucket 25 reaches the upper end of the track, the rollers 27 of same encounter the member 35 and pushing open the door 33, the rollers 27 pass through the opening 31. At this point bucket 25 has its teeth 39 withdrawn from the work 14 and is in the position shown at T, Figure 2.

As soon as the bottom rollers 27a have passed through opening 37 the door 33 closes and now, as the hoist line 15 slackens the bucket 25 drops down track 28 as shown in dotted lines Figure 1. If necessary the track member is backed off the work 14 sufficiently to permit the bucket to fall.

Upon reaching the bottom of this track, the rollers 27a encounter the member 36 and are steered through opening 32 (pushing open door 34). At this point the bucket is in the position shown at B, Figure 2.

As soon as the rollers 27 have passed through the door 34 it closes and now, as the hoist line 15 is tightened (and if necessary the track member is advanced to the work 14) the operation just described is repeated.

The door 40 of the bucket may be opened by a pull-cord 41 and the dirt allowed to fall on the ground from which it can be removed in any manner; or the bucket can be discharged at any desired point in its travel into a suitable conduit 42 whereby the dirt is conveyed directly into a truck to be hauled away.

Obviously, the rear track 28 and the doors 33, 34 can be omitted, and the bucket 25 given a simple up-and-down motion in the single track 29; this and other changes can be made without however departing from the spirit of the invention as herein described.

What is claimed is:

1. In a machine of the class described, a pair of vertically disposed track members, means for moving said members including a boom, means including a shovel stick for holding said track in working position, a bucket, means for guiding said bucket to travel upwardly in one of said track members, means for diverting said bucket to the second of said track members and wherein said bucket may travel downwardly, means for

returning said bucket from said last track to said first track and means for moving said bucket in both tracks.

2. In a machine of the class described, a pair of guide rails forming tracks and having center flanges cut away to form openings, doors for said openings, a bucket, means for moving said bucket through said openings and closing said doors thereafter whereby said bucket may pass cyclically over said tracks, means for moving said guide rails including a boom adapted to support the same, and means carried by said boom including a shovel stick for holding said guide rails in working position.

3. In a machine of the class described, a track member, means for positioning said track member in working position including a boom, means including a shovel stick for holding said member in working position, a bucket adapted to reciprocate along said track member in two separate paths connected only at their extremities and means for moving said bucket.

4. In combination with an excavating shovel having a boom and a shovel scoop carried thereby, a track connected to said boom and scoop and adapted to be positioned by the movement of both said members, a bucket adapted to be moved along said track, and means for moving said bucket.

5. In combination with an excavating shovel having a boom and a shovel scoop carried thereby, a tooth on said scoop, a member adapted to engage said tooth and be secured thereto, a track secured to said boom and said member, a bucket supported on said track, and means for moving said bucket.

6. In combination with an excavating shovel having a boom and a shovel scoop carried thereby, a track member pivotally attached to said boom and scoop whereby said track may be held in rigid operating position at various angles relative to said boom, a bucket mounted on said track, and means for moving said bucket therealong.

7. Attachments for excavating machines comprising a track member, means for pivotally attaching said member to a boom and to a shovel stick carried by said boom, and a bucket adapted to be moved along said member and wholly supported thereby.

8. The combination as claimed in claim 7 wherein the means for pivotally attaching the track member includes a socket member adapted to fit over the tooth of an excavating shovel.

WALTER V. CORNETT.