Aug. 19, 1969 H. H. TURNER 3,461,579

AUXILIARY FEEDERS FOR EXCAVATING AND LOADING MEANS

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FIG. 1

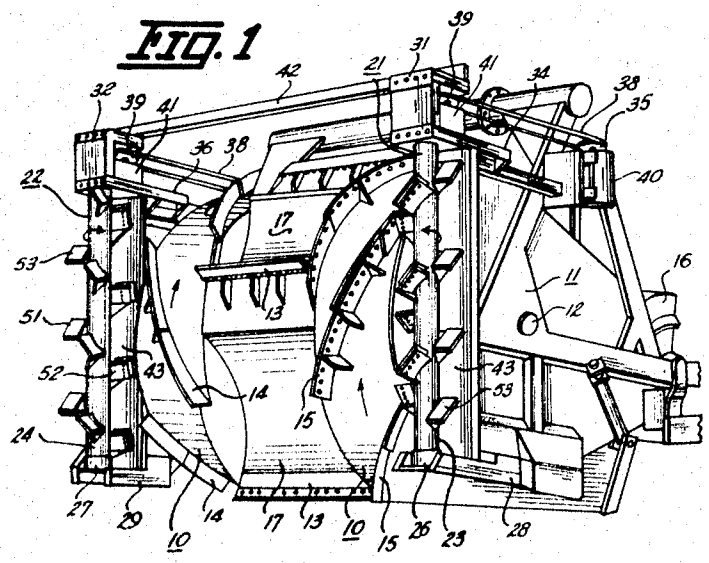


FIG. 2

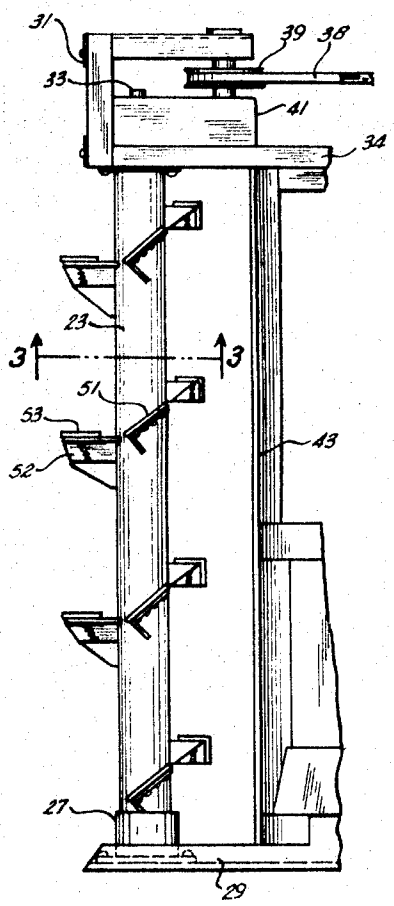
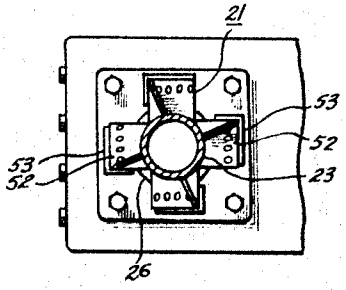


FIG. 3



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AUXILIARY FEEDERS FOR EXCAVATING AND LOADING MEANS

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ABSTRACT OF THE DISCLOSURE

Auxiliary digging and throwing members for feeding aggregate into a rotary excavating and loading machine, comprising vertical shafts on either side of the main machine, the shafts carrying a plurality of cutting and throwing blades mounted in a discontinuous helix about the vertical shafts to dig aggregate and throw it upwardly and outwardly into the main excavator.

This invention relates to excavating and loading machinery such as that shown in my Patent No. 2,748,505, and has particular relation to an auxiliary feeder and auxiliary excavating and loading apparatus for machines of this character. While of considerable capacity, it may be supplemented by auxiliary loading and excavating means on either side of the main drum which serves the purposes of increasing the capacity of the machine and also of enlarging the cut of the loader to keep the sides of the main frame and loading machine free from aggregate material, and these are among the main objects of my invention.

It is among the objects of my invention to materially increase the capacity of excavating machines by providing auxiliary excavating and loading means for feeding material into the main excavating member and to employ such auxiliary means, also to remove aggregate from the aggregate bank which would tend to clog the parts of the main machine.

Other and further features and objects of the invention will be more apparent to those skilled in the art upon a consideration of the accompanying drawings and following specifications, wherein is disclosed a single exemplary embodiment of the invention, with the understanding, however, that such changes may be made therein as fall within the scope of the appended claims, without departing from the spirit of the invention.

In said drawings:

FIGURE 1 is a view in perspective of an excavating and loading machine to which auxiliary excavating and feeding means have been applied, which latter are constructed according to an embodiment of my invention.

FIGURE 2 is a view in side elevation of one of the transverse feeding means shown in FIGURE 1, and

FIGURE 3 is a view in section taken along the line 3—3 of FIGURE 2.

Referring now to the drawings:

An excavating and loading machine constructed according to my Patent No. 2,748,505 employs a large drum **10** mounted in approximately rectangular side frames **11**, one on either side of the machine, and the drum is mounted on a heavy axle at the front of the machine as at **12**, on a horizontal axis. Means, not here shown, are provided for rotating this drum up and over the top to excavate aggregate by means of the main cutting members **13** and side feeding members **14** and **15**, and carry it up and over the drum where it is deposited into a conveyor **16** in the rear of the machine for loading it into trucks and the like. Pockets are provided at **17** to assist in carrying the excavated material up and over the drum as the drum is rotated.

The capacity of the machine may be increased by the auxiliary excavating or digging and throwing members or

assemblies **21** and **22**, preferably mounted one on either side of the machine, and rotated inwardly to throw material excavated by the cutters of the auxiliary machine into the path of the main excavating drum.

The machine shown in FIGURE 1 may be considered as having the drum at the front, viewed from the right and above, in which case the drum may be considered as revolving in a clockwise direction to throw material across the front of the machine and into the drum, while the auxiliary excavating and feeding assembly **22** at the right would be considered as rotating in a counter-clockwise direction to likewise feed material across to the drum.

The auxiliary feeding means include vertical posts **23** and **24** which are mounted for rotation in bearings **26** and **27**, which in turn are supported on heavy supporting means extending forwardly from the main body of the machine and indicated at **28** and **29**. The upper ends of the posts **23** and **24** are mounted for rotation in bearings located within the heavy frames **31** and **32**, the bearings themselves being located at **33**, referring to FIGURE 2.

The supports **31** and **32** are supported by means of forwardly extending side members or side frames **34** and **36**, and large motors **40** are mounted on each side well back from the front of the machine and provided with drive sheaves **35**, belts **38** and driven sheaves **39** for driving the gear reducer located at **41** for driving the post such as **23**. An additional supporting framework **42** is supplied, connecting the upper ends of the two auxiliary supporting frames, and plates **43** are provided behind the vertically rotating auxiliary loaders **23** and **24** to assist in deflecting material into the drum and to aid in supporting the auxiliary assembly as well as deflect aggregate and material from the sides of the main machine.

Various cutting and throwing members may be employed, but for the rotating, auxiliary members I preferably employ a plurality of blade sections **51** which are substantially rectangular in shape and which are mounted on the main posts **23** and **24** by means of arcuate flanged members **52**, which are straight on their outer edges and curved on their inner edges to engage the posts. These cutting members are preferably arranged in a discontinuous helical form with the slope of the helix sloping down and inwardly when viewed from above, so as to aid and assist not only in cutting away the aggregate from the bank in front of the machine, but also to throw the material so cut into the path of the large drum.

The cutting teeth **53** of the post **24** on the opposite side are constructed in the same manner as the cutting edges or teeth **51** and **52**, but are arranged in discontinuous helical arrangement in the opposite sense or a descending helix from that of the post **23**.

Auxiliary excavating and loading machines constructed according to my invention perform several functions, both as additional or auxiliary excavating and feeding means, and also as a means for freeing the sides of the main excavator from aggregate and increasing the capacity of the machine as a whole. One or more of the feeding means may be employed.

Although I have described a specific embodiment of my invention, it is apparent that modifications thereof may be made by those skilled in the art. Such modifications may be made without departing from the spirit and scope of my invention as set forth in the appended claims.

I claim as my invention:

1. In an excavator having a main cutting drum mounted for rotation about a horizontal axis transverse to the movement of said excavator as it advances into an aggregate being excavated, said cutting drum serving to cut and to carry said aggregate away from the excavation, the improvement comprising: auxiliary digging and throwing members for cutting additional material from the edge of the excavation and feeding said additional material into

the path of said cutting drum, said auxiliary members including at least one vertical rotatable shaft carried by said excavator and located to one side of the path of and ahead of said cutting drum; a plurality of cutting and throwing blades mounted in a discontinuous helix about said vertical shaft, each blade being flat and substantially rectangular in shape and forming a cutting edge, and supporting means for each blade for engaging said vertical shaft and mounting each blade in sloping relation to said vertical shaft with the upper surface of the blades sloping upwardly and rearwardly in relation to the rotation of said vertical shaft; and means for rotating said vertical shaft in a direction to carry material out from the edge of the excavation toward and into the path of said cutting drum.

2. The excavator of claim **1**, wherein said auxiliary members include two vertical rotatable shafts, said vertical shafts being located one on each side of the path of and ahead of said drum and each carrying a plurality of similar cutting and throwing blades and being rotated to carry material cut from the edge of the excavation toward and into the path of said cutting drum.

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299—87