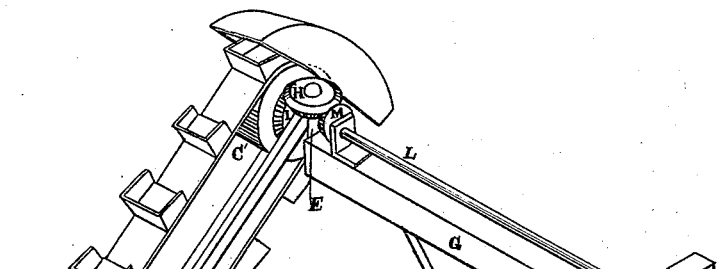
G. E. MILLIKEN.

DEVICE FOR ELEVATING EARTH.

No. 190,234. Patented May 1, 1877.

Fig. 1.



UNITED STATES PATENT OFFICE.

GEORGE E. MILLIKEN, OF LOS ANGELES, CALIFORNIA.

IMPROVEMENT IN DEVICES FOR ELEVATING EARTH.

Specification forming part of Letters Patent No. **190,234**, dated May 1, 1877; application filed March 1, 1877.

To all whom it may concern:

Be it known that I, GEORGE E. MILLIKEN, of the city and county of Los Angeles, and State of California, have invented a Device for Elevating Earth; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to certain improvements in that class of machines which are intended to elevate earth, sand, or any other material, and which consists of an endless belt or band passing over pulleys, and provided with suitable elevating-buckets.

My invention consists in a novel combination of an elevator with suitable operating gearing and shafts, and a movable or adjustable crane, whereby the elevator can be shifted so as to work at any desired point within its reach without removing or altering the stand or support.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a view of my elevator.

A is an endless belt, which I make of sheet metal, canvas, rubber, or other material, and attach it to suitable buckets B for the work, as in the manner usual to elevators. The belt passes around pulleys C, which have their axes journaled in the upper and lower ends of a frame, D. The lower end of this frame is free to be moved in any direction, and in order to effect this the upper end is supported by a universal joint, which allows motion in any direction. This joint I have formed by uniting a vertical shaft, E, to the end of the horizontal axis F of the upper pulley C. This vertical shaft is journaled at the end of the arm G of the crane, and carries the bevel-gear wheel H, which meshes with the gear-wheel I upon the shaft F, so that through its action the pulley is rotated and the belt driven, while at the same time the frame D may be placed at any angle with the arm G, and elevated or depressed to suit the height of the work, without interfering with the perfect action of the elevator. The arm G is mounted so as to swing horizontally upon an upright, J, and this upright has a suitable base, K, to support and steady the crane and elevator.

Upon the arm G, a shaft, L, is mounted, and a bevel-gear wheel, M, transmits power through the wheel H to the wheel I, the position of H upon the vertical shaft allowing any movement of the elevator without deranging the action.

A bevel-gear at the inner end of the shaft L meshes with a similar wheel upon the vertical shaft N, which is in turn driven by a bevel-gear at its intersection with the horizontal shaft O at the bottom, and as the shaft N serves as an axis about which the arm G swings, no derangement will occur from any change of position in the parts. The driving-shaft O has a pulley, P, upon it, and any suitable power may be used to drive the machine.

The operation of my device is very simple, and it is only necessary to set it so that the lower end of the elevator-belt will rest upon some part of the bank to be excavated, and set it in motion to raise the earth, which may either be deposited into carts or upon an endless carrying-belt, by which it will be removed to any distant point. The elevator-belt may be moved from time to time to new points, and by swinging the arm G of the crane around work may be done in a large circle without changing the locality of the machine.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The endless elevator-belt A, with its frame B, mounted so as to turn about the axis F, in combination with the vertical axis E, the gears H and I, and the shaft L, the whole designed to allow a universal movement of the elevator without deranging its action, substantially as herein described.

2. The elevator A, having a universal-joint motion at its upper end, in combination with the crane-arm G, horizontal and vertical driving-shafts L N O, and bevel connecting-gears, the whole constructed to operate substantially as herein described.

In witness whereof I have hereunto set my hand and seal.

GEORGE E. MILLIKEN. [L. S.]

Witnesses:

C. N. WILSON,

E. H. OWEN.