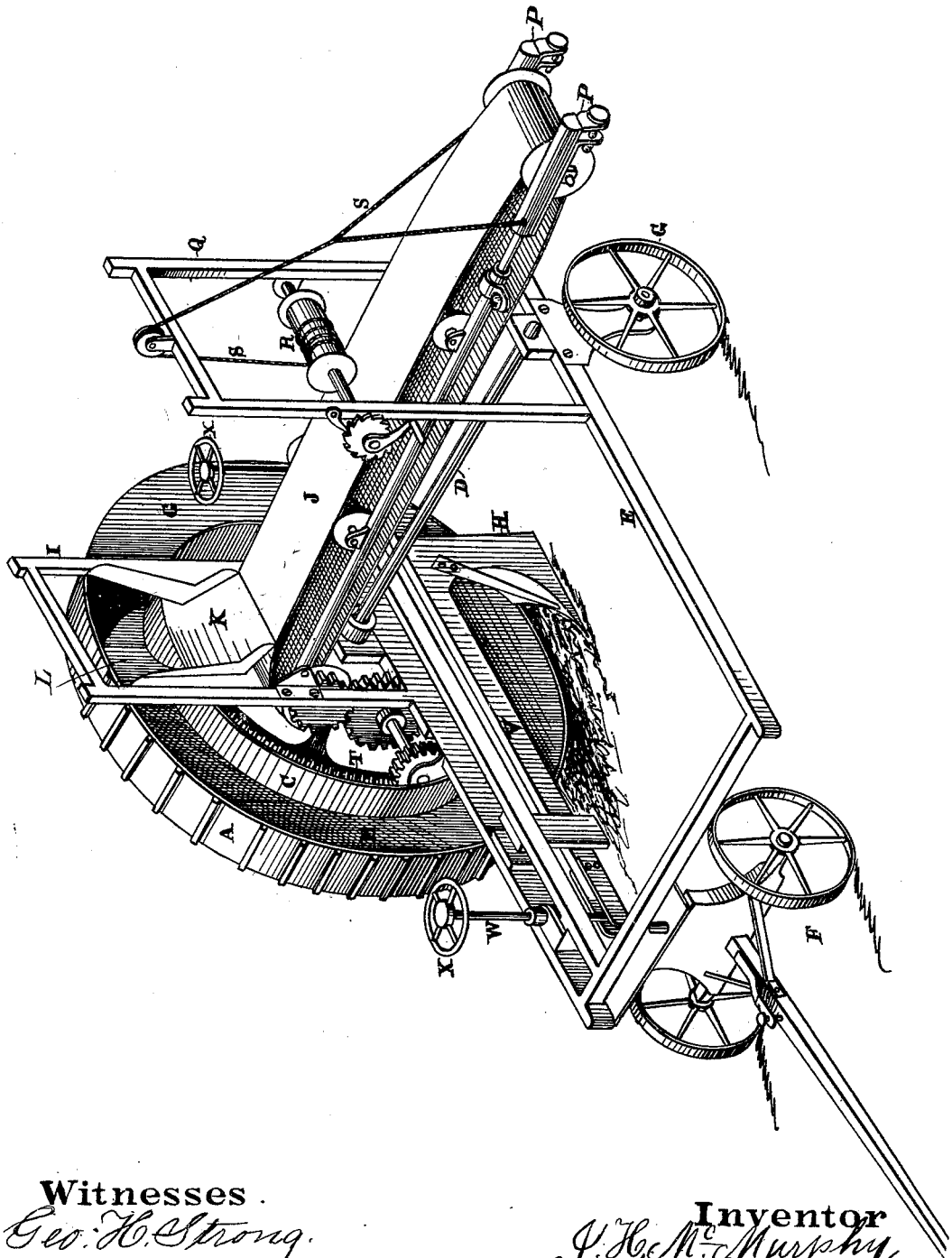
J. H. McMURPHY & E. W. CHAPMAN.
Excavating-Machines.

No. 196,589 Patented Oct. 30, 1877.



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UNITED STATES PATENT OFFICE.

JAMES H. McMURPHY, OF MERCED, AND EMORY W. CHAPMAN, OF SAN FRANCISCO, CALIFORNIA; SAID McMURPHY ASSIGNOR TO SAID CHAPMAN.

IMPROVEMENT IN EXCAVATING-MACHINES.

Specification forming part of Letters Patent No. **196,589**, dated October 30, 1877; application filed August 4, 1877.

To all whom it may concern:

Be it known that we, JAMES H. McMURPHY, of Merced, county of Merced, State of California, and EMORY W. CHAPMAN, of the city and county of San Francisco, and State of California, have invented an Improved Excavating-Machine; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

Our invention relates to that class of ditching and excavating machines in which a plow is arranged to turn the earth into an elevator which is formed on the periphery of a large wheel, so that the rotation of the wheel will lift the earth and deposit it either in a box or upon an endless belt or draper.

Our invention consists in the general construction and arrangement of parts, as will be hereinafter fully described.

Referring to the accompanying drawings, Figure 1 is a side view of our improved machine.

Let A represent the elevator-wheel, and B the groove around its periphery, into which the earth is turned by the plow, and which serves to contain and lift the earth as the wheel rotates.

In this class of earth-elevators partitions have heretofore been employed for dividing the space or groove into compartments, in which the earth is received and carried by the rotation of the wheel; but we have discovered that these partitions are unnecessary, and that a plain groove not only carries the earth readily to the upper part of the wheel, but also presents other advantages hereinafter mentioned.

In constructing this wheel we make an inside rim, C, on the inside face of the wheel, thus providing a plain circular groove between the tire or rim of the wheel and the rim C. The axle D, upon one end of which this wheel is mounted, extends across and is supported in boxes upon a frame, E, so that the wheel A forms one of the bearing-wheels of the frame, while a small wheel, G, supports the opposite side. A single or double wheel, F, supports the front end of the machine.

The wheel A rotates close up against the outside timber of the frame, and a plow, H, is suspended below the beam, so as to turn the earth into the groove. A shield, G, is secured to the frame opposite that portion of the elevating-groove which extends from the rear of the mold-board of the plow H to the top of the wheel, so that it will close that portion of the groove while the wheel rotates freely outside of it.

I I is an upright frame, which is constructed upon the outside timber of the frame E, so that it extends upward close to the inside face of the wheel, and this frame supports one end of an endless belt or dirt-carrier, J, as hereinafter described.

A chute, K, is constructed between the uprights I I of this frame, directly opposite the bottom of the groove, and a curved scraper, L, is attached permanently to the upright I, opposite the end of the shield G, so as to extend across the groove, and direct the earth which is raised by the groove out through the chute, so that it will be caught upon the belt or carrier J.

One of the chief advantages which we obtain by using a plain groove to raise the earth is that we can employ this scraper. It extends into the groove and scrapes the material out, so that none of it is carried past the chute, as is the case where partitions or compartments are used.

The endless belt or carrier J passes around an extensible frame, P, which extends across the frame E, and to a distance beyond it on the side opposite the wheel, and is supported by a windlass, R, and cord S from the frame Q, which is constructed on the opposite side timber of the main frame, so that its outer end can be raised or lowered at pleasure. This belt is driven by gearing connected with an annular gear-wheel, T, which is formed on the wheel A, inside of the rim C. This gearing may be protected from the dirt which may happen to drop from the elevating-groove, chute, or endless carrier, by a shield or cover.

The plow H is attached to a horizontal beam, V, and a screw-rod, W, which is operated by a hand-wheel, X, passes through the side timber of the frame E, close to the elevator-wheel, one at each end of the beam, so that by turn-

ing the screws the plow can be raised or lowered, or adjusted as desired.

With this machine we can raise earth and convey it to a distance with great facility, and it will be especially useful for making ditches and canals where the earth excavated is to be used for forming an embankment.

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

The wheel A, provided with a plain groove, B, and mounted beside a traveling frame, E, to which a shield, G, is attached, in combination with the scraper L, chute K, endless draper or carrier J, and extensible frame P, supported by the windlass R, ropes S, and frame Q, the several parts constructed and relatively arranged to operate in the manner herein shown and described.

In witness whereof we have hereunto set our hands and seals.

J. H. McMURPHY. [L. S.]
E. W. CHAPMAN. [L. S.]

Witnesses:

FRANK A. BROOKS,
JNO. L. BOONE.