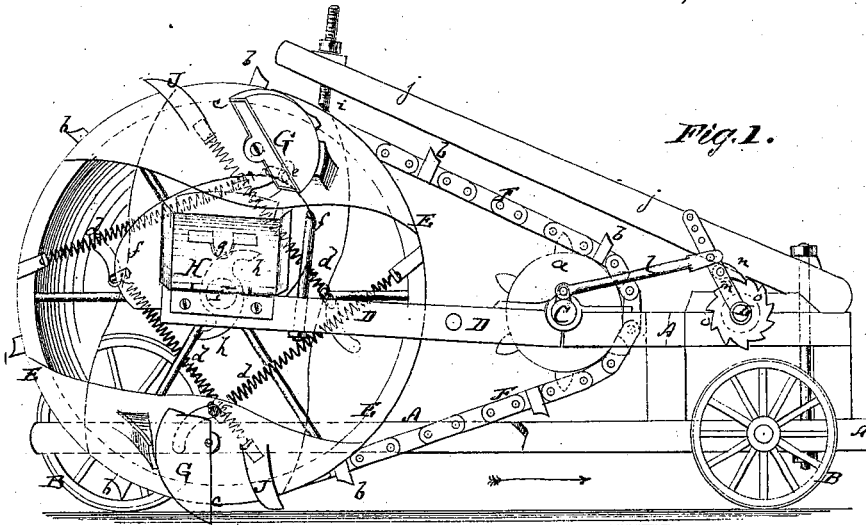


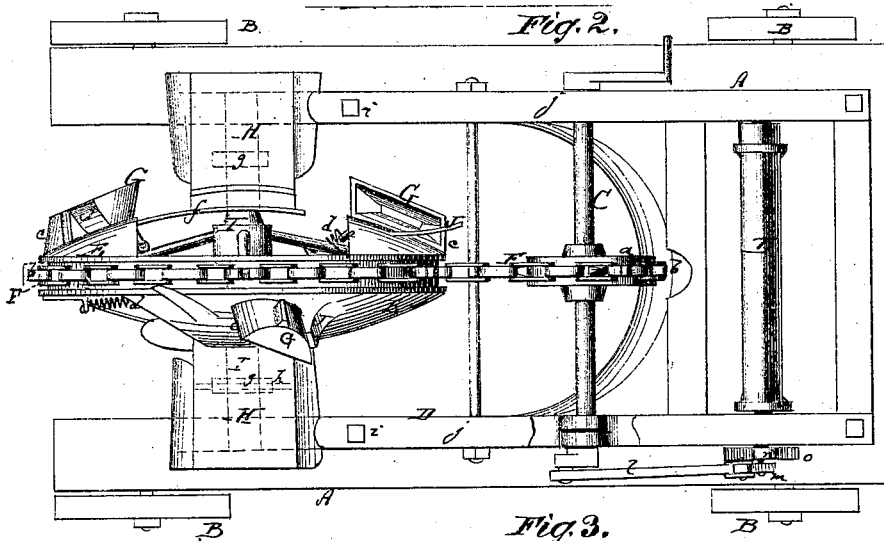
*R. R. Osgood,*  
*Excavator.*

*No. 107,529.*

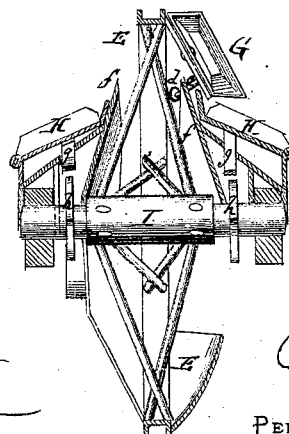
*Patented, Sept. 20, 1870.*



*Fig. 1.*



*Fig. 2.*



*Fig. 3.*

**Witnesses:**

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# United States Patent Office.

RALPH ROBERT OSGOOD, OF TROY, NEW YORK.

Letters Patent No. 107,529, dated September 20, 1870.

## IMPROVEMENT IN DITCHING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same

*To all whom it may concern :*

Be it known that I, RALPH ROBERT OSGOOD, of Troy, in the county of Rensselaer and State of New York, have invented a new and improved Ditching-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 represents a side elevation, partly in section, of my improved ditching-machine.

Figure 2 is a plan or top view of the same.

Figure 3 is a vertical transverse section of the ditching-wheel.

Similar letters of reference indicate corresponding parts.

This invention relates to a new ditching-machine, which is provided with a rotary wheel that carries buckets at both sides, by means of which the digging is done. The buckets are hung to the sides of the wheel in such manner that their outer working ends will be in line with the edge of the wheel, so that they obtain the full power of the wheel.

Heretofore, ditching-machines were mostly constructed of endless belts with buckets set to their faces. It is evident that thereby the leverage obtained was only that of the lower pulleys, while with my invention that of the entire driving-gear is utilized.

My invention consists chiefly in the application to a ditching-machine of a wheel carrying the pivoted buckets.

The invention consists, also, in the combination of colters with the pivoted buckets; also, in the combination of springs and cams for operating the buckets; in the use of hinged oscillating spouts, for the lateral discharge of the sand and clay; and, finally, in the application of a chain for moving the said wheel, the chain being provided with projecting teeth, for digging between the buckets.

A in the drawing represents the main supporting-frame of my improved ditching-machine. This frame is made of wood or other material, of rectangular or other suitable form. It rests on wheels B B, on which it may readily be moved over the ground.

In the frame A is hung a transverse shaft, C, which carries a pulley, *a*, for operating the driving-chain.

The shaft C serves also as a pivot for the frame D, in the free end of which the large digging-wheel E is hung.

The edge of the wheel E is grooved to receive a chain, F, which transmits motion from the shaft C.

The chain F is provided with projecting teeth or pins, *b b*, which reach into the ground and dig in the

same, so as not to leave a projecting ridge under the edge of the wheel.

To the conical faces of the wheels are pivoted buckets G G, which, with their scraping edges *c*, are in line with the periphery of the wheel.

Each bucket is, by a spring, *d*, held with its open end radial to the center of the wheel.

The spring *d* is secured to a pin, *e*, that projects from the inner face of the bucket, through a curved slot in the face of the wheel.

When this pin *e* strikes a fixed cam, *f*, that projects from the frame D, the bucket will be swung to discharge its contents into a spout, H.

There are two spouts secured to the frame D, one on each side of the wheel, to take the earth from the buckets on both sides and discharge it to the ground on the sides of the ditch.

The spout H is hinged at its lower end to the frame D, and has a downward-projecting ear, *g*, which rests on a cam, *h*, that is mounted on the shaft I of the wheel E.

Whenever the spout has received the contents of a bucket, it is by the cam swung up to discharge its load, and falls then back, to be ready for the load of another bucket.

Each bucket is, after it has discharged its load into the spout, drawn into digging position again by its spring *d*.

In front of each bucket is or may be secured a colter, J, which will cut the grass or ground, to reduce the strain on the bucket.

The frame D can be swung up or down to produce a ditch of suitable depth.

Its position is regulated by means of screw-bolts *i* and nuts, that lock it to braces *j*, projecting from the frame A.

The shaft C may receive rotary motion from suitable muscular or other power.

The whole vehicle may, by a long rope or chain, be anchored to the ground, the said rope or chain being secured to a transverse shaft, L, which is hung in the frame A.

The shaft L receives intermittent rotary motion by means of rods *l m*, pawl *n*, and ratchet-wheel *o*, from the shaft C, and will, therefore, serve to gradually wind up the rope or chain, and to move the vehicle slowly in the direction of the arrow shown in fig. 1. The apparatus is thus moved ahead slow enough to enable the buckets to make the required ditch.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The digging-wheel E, provided with buckets,

which have their working edges in line with the edge of the wheel, as set forth.

2. The pivoted buckets G G, provided with pins *e*, and combined with the springs *d* and cams *f*, to operate substantially as herein shown and described.

3. The colters J, arranged on the ditching-wheel E, as shown and described.

4. The spouts H, hinged to the frame D, and oscillated by means of revolving cams *h*, as set forth.

5. The chain F, arranged around the ditching-wheel E, and provided with projecting teeth *b*, substantially as and for the purposes herein shown and described.

RALPH ROBERT OSGOOD.

Witnesses.

GEO. W. MABEE,  
ALEX. F. ROBERTS.