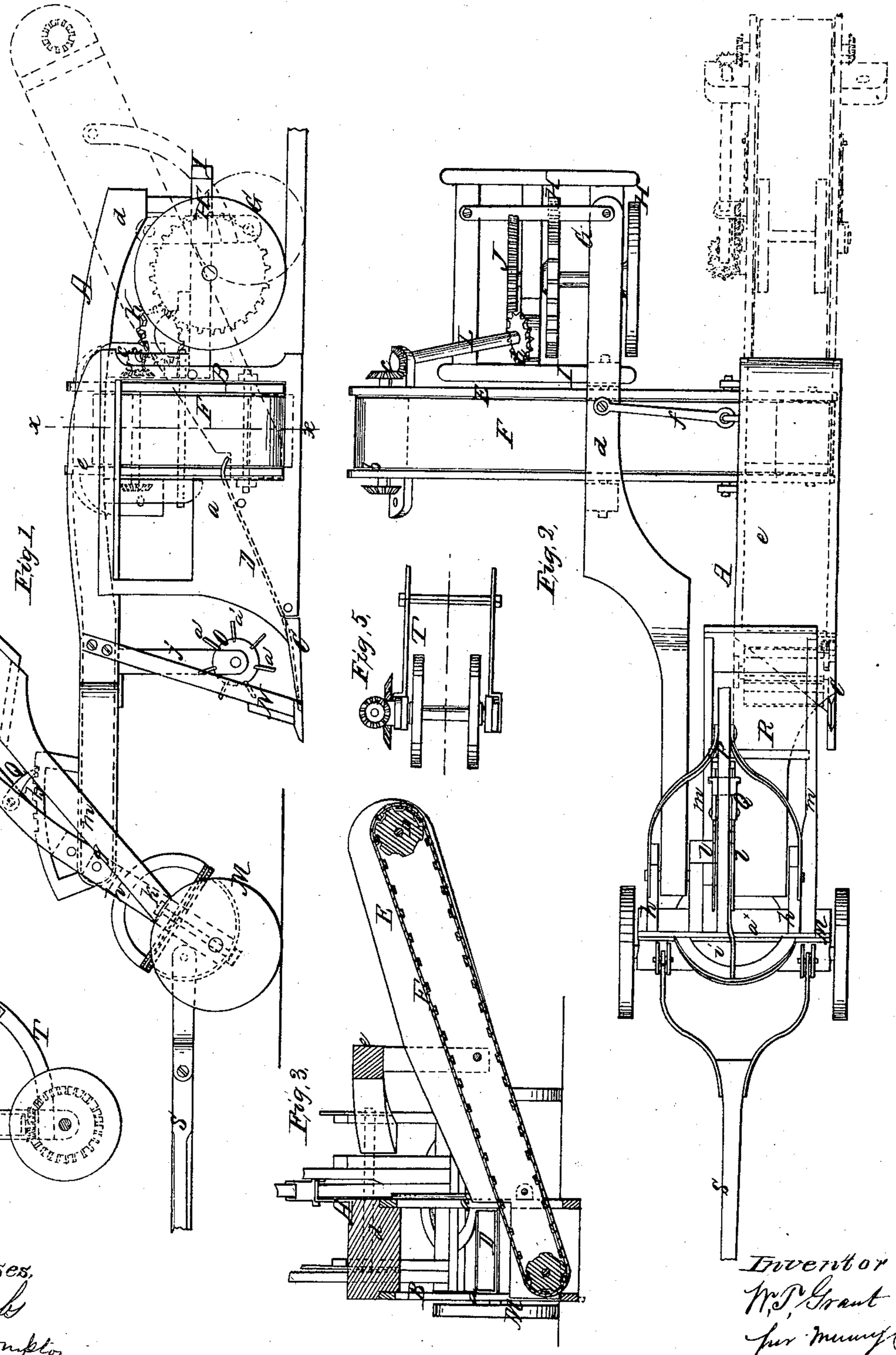
W. T. Grant.

Excavator.

No. 34,662. Patented Mar. 11, 1862.



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UNITED STATES PATENT OFFICE.

W. T. GRANT, OF JACKSONVILLE, ILLINOIS, ASSIGNOR TO HIMSELF AND JAMES S. SNYDER, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR GRADING AND EXCAVATING.

Specification forming part of Letters Patent No. **34,662**, dated March 11, 1862.

To all whom it may concern:

Be it known that I, W. T. GRANT, of Jacksonville, in the county of Morgan and State of Illinois, have invented a new and Improved Machine for Grading, Excavating, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side view of my invention; Fig. 2, a plan or top view of the same; Fig. 3, a section of the same, taken in the line *x x* of Fig. 1; Fig. 4, a detached side sectional view of a truck occasionally employed or applied to the machine, and Fig. 5 a plan or top view of the same.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to obtain a machine of simple construction which may be used for grading, excavating, ditching, and like purposes; and it consists in the employment or use of a share, guide-box, endless conveying-apron, rotary cutter, and colter, arranged substantially as hereinafter described.

The invention also consists in a novel arrangement of the main frame of the machine, with its front truck, as hereinafter described, whereby the depth of the penetration of the plow may be regulated as required.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents what may be termed the "main frame" of the machine. This main frame may be constructed of wood, and to its back part there is secured a pendent frame B, of metal, said frame having a share C at its front part, and an inclined plane D directly behind the share, the inclined plane having a vertical plate *a* at each side at it, forming what I term a "guide-box," the use of which will be presently explained.

In the back part of the main frame A there is secured an oblong box E at right angles to the main frame. This box has an inclined position, and it projects outward from the right-hand side of the machine and has an endless apron F fitted within it. The back part of the inclined plane D projects over the lower part of the apron F.

The back part of the main frame A is supported by a truck G, which is composed of two wheels H H, fitted in a suitable frame I and having a toothed wheel J on their axle, said wheel J gearing into a pinion K on a shaft L, from the outer end of which the outer apron-roller *b* is driven by bevel-gears *c*. (See Fig. 2.)

The main frame A is formed of two longitudinal parts *d e*, and *e* is the part to which the truck G is attached. The back part of *d* is connected to *e* by a link-rod *f*, and the front end of *d*, as well as *e*, is fitted on a shaft *g*, which passes through the upper ends of uprights *h h*, attached to a bolster $a^{\times}$ on the axle *i* of the front truck M, which supports the front part of the main frame. This arrangement, it will be seen, admits of the part *d* of the main frame yielding or giving to a certain extent independently of the other part *e*, and the machine is therefore allowed to conform to the inequalities of the surface of the ground and operate with greater facility than it otherwise would.

N is a colter, which is attached to the main frame A directly in front of the share C, (see Fig. 1,) and O is a cylindrical or rotary cutter, which is formed by attaching a series of knives *a'* radially and longitudinally to a cylinder. This cutter O has its axis suspended in hangers *j* on the part *e* of the main frame, and the cutter is directly over the front part of the share C.

The axle *i* of the truck M is connected to the bolster $a^{\times}$ by a king-bolt *k*, and the uprights *h h* are attached to a lever P, which extends upward between two segment-racks *l l* on the main frame, the lever P having a pawl Q attached, which pawl engages with the racks *l l*. By adjusting this lever P farther forward or backward the depth of the penetration of the share C may be graduated as desired.

R is the driver's seat, which is secured to the upper ends of inclined bars *m*, attached to the bolster $a^{\times}$. This seat, it will be seen, is in quite close proximity to the lever P.

S is the draft-pole, attached to the axle *i*.

The operation of the machine is as follows: As the device is drawn along the share C enters the ground, and the earth passes up the inclined plane D and falls on the lower part

of the endless apron F, which discharges it at the outer end of box E. The cutter O cuts the dirt or sod, so that the same can pass freely up the inclined plane D. The colter N performs its usual function of cutting the sod, as in other plows, so that the sod can be readily lifted by the share C.

The rotary cutter is an essential feature of the invention, as it effectually prevents all choking of the earth or sod on the inclined plane D between the plates or side pieces *a a*.

The depth of the penetration of the share C, as before stated, may be readily graduated by adjusting lever P.

In certain cases—as in excavating, for instance—where the earth is to be taken away a cart or wagon may be drawn along under the outer end of the box E in order to receive the dirt, and the box E may, when most desirable or convenient, be attached in line with the inclined plane D and have its back end supported by a truck T, (see dotted lines in Figs. 1 and 2,) the truck being shown in Figs. 4 and 5.

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

1. The arrangement of the tongue S and truck M, with the driver's seat R, and the oscillating adjustable lever P, as herein shown and described.

2. The arrangement of the two parts of the main frame *d e* with each other in the manner herein shown and described, so as to be separately self-adjusting in respect to the surface of the ground, all as set forth.

W. T. GRANT.

Witnesses:

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