

(No Model.)

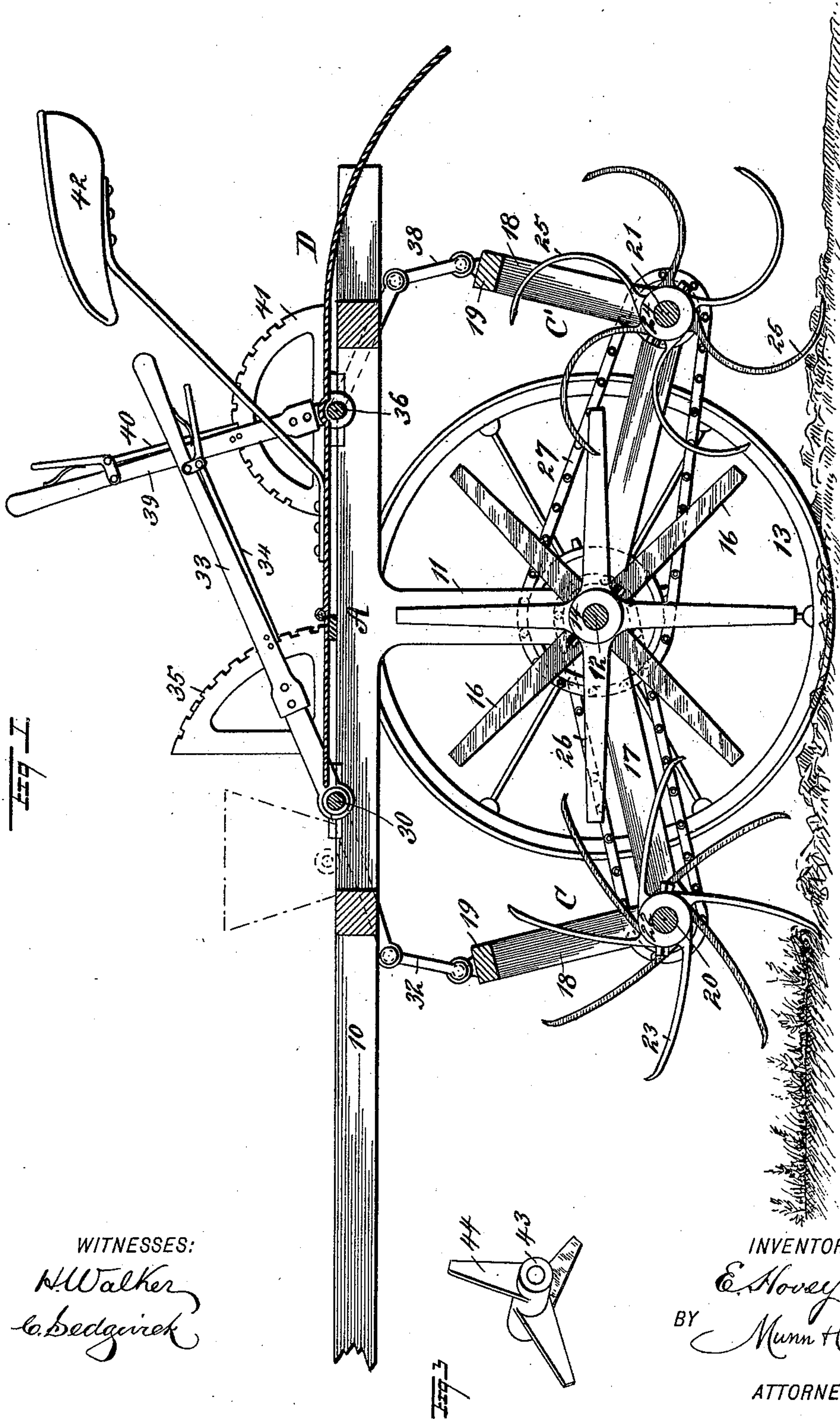
2 Sheets—Sheet 1.

E. HOVEY.

MACHINE FOR WORKING STUBBLE LAND.

No. 497,576.

Patented May 16, 1893.



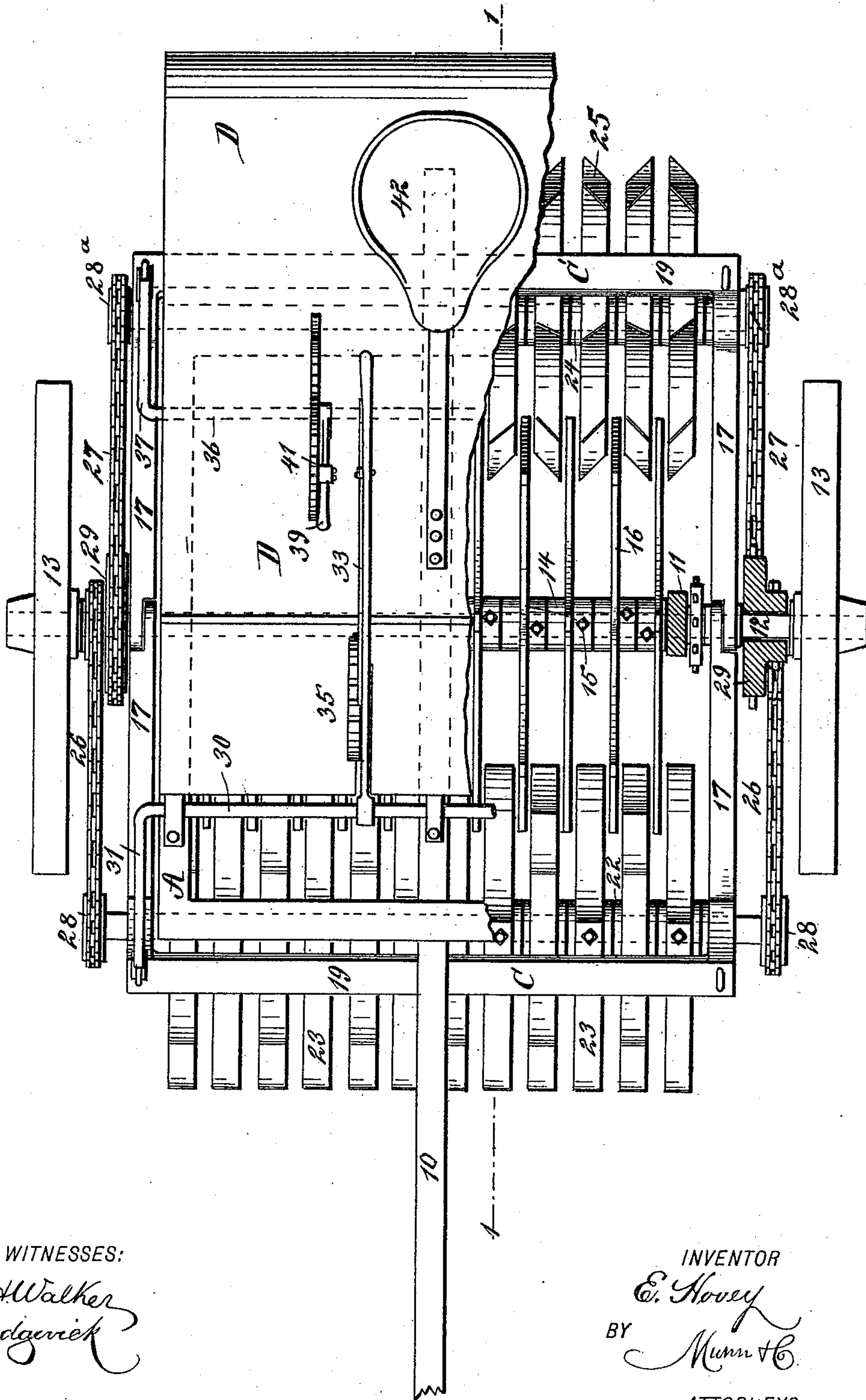
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UNITED STATES PATENT OFFICE.

EDWARD HOVEY, OF DEVIL'S LAKE, NORTH DAKOTA.

MACHINE FOR WORKING STUBBLE-LAND.

SPECIFICATION forming part of Letters Patent No. 497,576, dated May 16, 1893.

Application filed October 26, 1892. Serial No. 450,032. (No model.)

To all whom it may concern:

Be it known that I, EDWARD HOVEY, of Devil's Lake, in the county of Ramsey and State of North Dakota, have invented a new and Improved Machine for Working Stubble-Land, of which the following is a full, clear, and exact description.

My invention relates to an improvement in machines for working stubble land, and has for its object to provide a machine, strong, simple and comprising but few parts, through the medium of which stubble land may be worked without plowing or harrowing the same; and the invention consists in the novel construction and combination of the several parts as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a central longitudinal section taken practically on the line 1—1 of Fig. 2. Fig. 2 is a plan view of the machine, a portion of the upper cover or framework being broken away; and Fig. 3 is a detail perspective view of a sod cutter adapted for use in connection with the machine.

The frame of the machine may be said to consist of a skeleton structure A, comprising front and rear and side beams, and to this structure at the central portion thereof the pole 10 is secured. Preferably the pole is carried rearward beyond the rear end of the structure. This structure from the central portion of its sides, and also preferably from the pole, is provided with downwardly-extending pedestals 11, and in these pedestals the axle 12, is journaled. The axle is longer than the width of the body frame, and upon the extremities of the axle supporting wheels 13, are secured, whereby the axle revolves with the wheels. Upon the axle a series of sleeves 14, is secured through the medium of set screws 15, or their equivalents, and these sleeves have radiating therefrom a series of teeth 16, the outer extremities of which teeth are pointed. The edges of the teeth 16, as the sleeves turn, are presented in direction of the front and rear of the machine. The sleeves are located close together, and when

the axle is revolved the sleeves and the teeth carried thereby necessarily turn with the axle; the entire set of sleeves and teeth may be said to comprise a toothed cylinder. The teeth 16 of the sleeves are of such length that when the axle is revolved the teeth will not touch the ground over which the machine is being carried.

Two frames, a front one C and a rear one C', are pivoted upon the axle 12 at their inner ends, as shown in Fig. 2, these frames being pivotally connected with the axle outside of the outer pedestal 11. Each of these frames comprises angular or L-shaped side bars 17, the horizontal members of these frame bars being pivotally connected with the axle, and the other member 18 of each of the bars, which is vertical, extends upward at a right angle to the member 17; the angular frames are completed by the addition of a cross bar 19, and these cross bars connect the upper ends of the vertical members 18 of the angular arms or bars. At the junction of the arms of both the forward and the rear angular frames a shaft is journaled, and these shafts are designated the forward one as 20 and the rear one as 21. The forward shaft has secured upon it in any approved manner a series of sleeves 22, and these sleeves are closely grouped; in fact, they are brought in engagement preferably one with the other. Each sleeve is provided with a series of teeth 23 which radiate therefrom, and the teeth are arranged to stand tangentially to the sleeves, being given a slight curve, the curve of all of the teeth being in the same direction. The sleeves are so secured upon the shaft that the teeth upon one sleeve will be located opposite the space between the teeth on the next sleeve, and the sleeves 22 and the teeth 23 constitute virtually a forward toothed cylinder; this forward toothed cylinder is adapted not only to cut into the ground, but is also adapted to drive a rear toothed cylinder to be hereinafter described.

The rear toothed cylinder, which is adapted to do the major portion of the work of digging, consists of a series of sleeves 24, which are fast upon the rear shaft 21; and from the sleeves 24 teeth 25, are made to radiate. The teeth are of spring metal and are decidedly curved, as shown best in Fig. 1.

The teeth-carrying sleeves upon both the rear and the forward shafts are removable, and the rear shaft 21, is driven from the forward shaft 20 by means of sprocket chains 26 and 27 and sprocket wheels 28, 28^a and 29. The sprocket wheels 28, are secured upon the extremities of the forward axle 20, and the sprocket wheels 28^a, which are smaller than the sprocket wheels 28, are secured upon the extremities of the rear shaft 21. The sprocket wheel 29, is loosely mounted upon the axle 12 between the supporting wheels and the pivoted frames C, C', as shown best in Fig. 2. The sprocket wheels 29, are double, they being of two diameters; and the chains 26, leading from the forward sprocket wheels 28, are passed over the smaller circumference of the sprocket wheels 29, while the rear chains 27, are passed over the larger circumference of the said sprocket wheels 29, and then over the rear sprocket wheels 28^a.

A lifting shaft 30, is journaled upon the body frame A, near the front thereof, and this lifting shaft is provided with a crank arm 31 at each of its ends, the said crank arms being connected by links 32, with the upper extremities of the pivoted angular frame C. The lifting shaft 30, is manipulated through the medium of a lever 33, which is connected with the shaft, and is provided with the usual thumb latch 34, which engages with a rack 35, mounted upon the upper portion of the body frame. Thus by manipulating the lever 33, the forward set of teeth 23 may be raised from out of the ground or lowered to engage with it. A second lifting shaft 36, is mounted upon the body frame near the rear, and this lifting shaft is likewise provided with crank arms 37 at its ends; these crank arms are connected with links 38 to the upper extremities of the rear pivoted frame C'. The rear lifting shaft is controlled through the medium of a lever 39 attached to it, and this lever is provided with a thumb latch 40, engaging with a rack 41, located upon the top of the body frame. Thus the rear set of teeth may be raised and lowered by the manipulation of the lever 39 independently of the front set of teeth, and vice versa.

Preferably at the top of the machine a cover D, is located, which is made in two sections, one section being secured to the forward portion of the body frame A, covering the same, and the rear section, which is the larger of the two, is hinged to the stationary section, and extends over and beyond the rear end of the machine. The cover, when used, is provided with suitable openings through which the racks 35 and 41 extend; and the driver's seat 42, is preferably attached to the said cover, as shown in both Figs. 1 and 2.

The teeth 16 upon the axle 12, are so located that they revolve between the teeth at the front and rear of the machine, and the center set of teeth is adapted simply to keep the

front and rear sets of cutting teeth clear from weeds, clods, &c.

In the operation of the machine the forward frame C, is lowered until the teeth 23 carried by that frame engage with the ground, as shown in Fig. 1; and as the machine is drawn forward these teeth dig into the ground, loosen the soil and at the same time revolve the forward shaft to which they are attached, and that shaft, by means of the chains 26 and 27, communicates motion to the rear shaft, and consequently revolves that shaft and causes the teeth carried thereby, when in engagement with the ground, to thoroughly dig up and loosen the surface. When the machine is to be driven to or from the field to be operated upon, both the forward and rear cutters are raised.

In Fig. 3 I have illustrated a sleeve 43, provided with a series of triangularly shaped teeth 44 radiating therefrom, about three in number, the teeth being arranged upon the sleeve in somewhat stellated form, yet laterally, one in advance of the other; and when sod is to be cut, sleeves carrying the style of teeth shown in Fig. 3, are placed upon the rear shaft 21 instead of the spring teeth shown upon said shaft in the drawings. As the machine is drawn forward the gearing between the front and rear cutters or teeth is such that the shaft upon which the rear teeth are mounted will make about three-and-a-half revolutions to one revolution of the forward shaft 20. Both the forward and the rear set of teeth have their flat surfaces facing upward and downward, and their points are made sharp so that they enter the ground with a hoe-like action and turn the soil upward, and serve not only to loosen but also to pulverize the ground.

Any form of seeding attachment may be used in connection with the machine, and the preferred location of the seed box is shown in dotted lines, Fig. 1.

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

1. The combination with the wheeled frame and a double sprocket wheel loose on the axle thereof, and disconnected from said wheels of two vertically swinging frames pivoted at their adjacent ends on the said axle, shafts journaled in the opposite outer ends of said swinging frames and each provided with a sprocket wheel connected by a chain with said double sprocket, teeth carried by said two shafts, the forward series of teeth, causing the rotation of their shaft and the rotation of said double sprocket therefrom and adjusting devices connected with the outer ends of said swinging frames, substantially as set forth.

2. In a machine for the working of ground, the combination, with a forward set of rigid teeth slightly curved, a rear set of spring teeth,

and a driving connection between the forward and rear teeth, of a series of intermediate teeth revolving between the front and rear teeth and serving to clean the same, substantially as shown and described.

3. In a machine for tilling the ground, the combination, with a frame, an axle journaled in the frame, supporting wheels carried by the axle, and a series of teeth secured to the axle and radiating therefrom, of forward and rear frames pivoted upon the axle at their inner ends, shafts journaled in the pivoted

frames, the forward shaft being provided with a series of rigid teeth slightly curved, and the rear shaft being provided with a series of spring teeth decidedly curved, a driving mechanism between the forward and the rear shaft, and lifting mechanism connected with the pivoted frames, substantially as shown and described.

EDWARD HOVEY.

Witnesses:

HENRY HALE,
D. G. DUELL.