No. 754,284. PATENTED MAR. 8, 1904.

C. H. DERHAM.

BEET BLOCKER AND CULTIVATOR.

APPLICATION FILED SEPT. 11, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

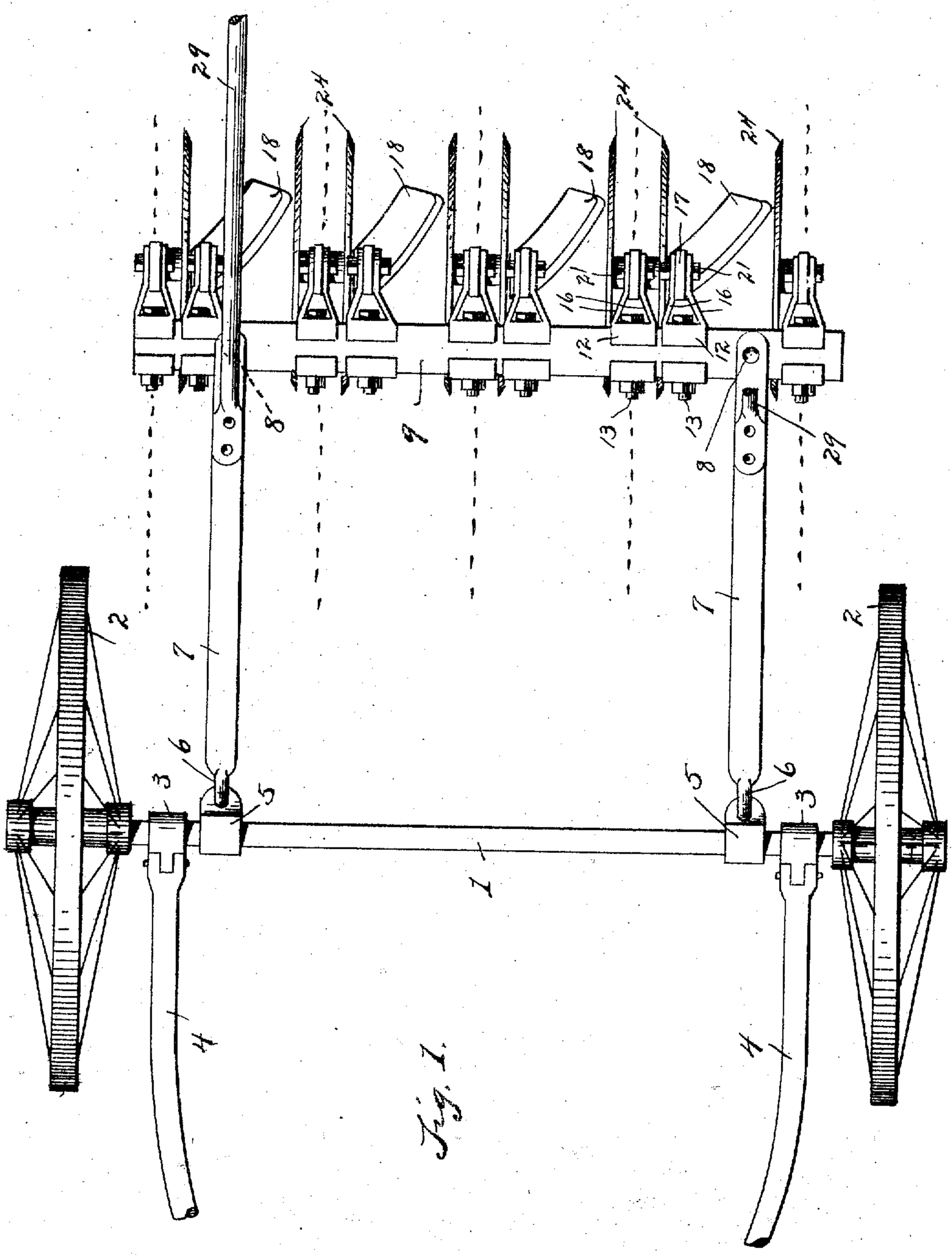

Fig. 1.

Witnesses:
Thos. E. Kinnier.
L. G. Howlett.

Inventor
Charles H. Derham
By His Attorneys
E. G. Wheeler & Co.

No. 754,284. PATENTED MAR. 8, 1904.

C. H. DERHAM.

BEET BLOCKER AND CULTIVATOR.

APPLICATION FILED SEPT. 11, 1903.

NO MODEL. 2 SHEETS—SHEET 2.

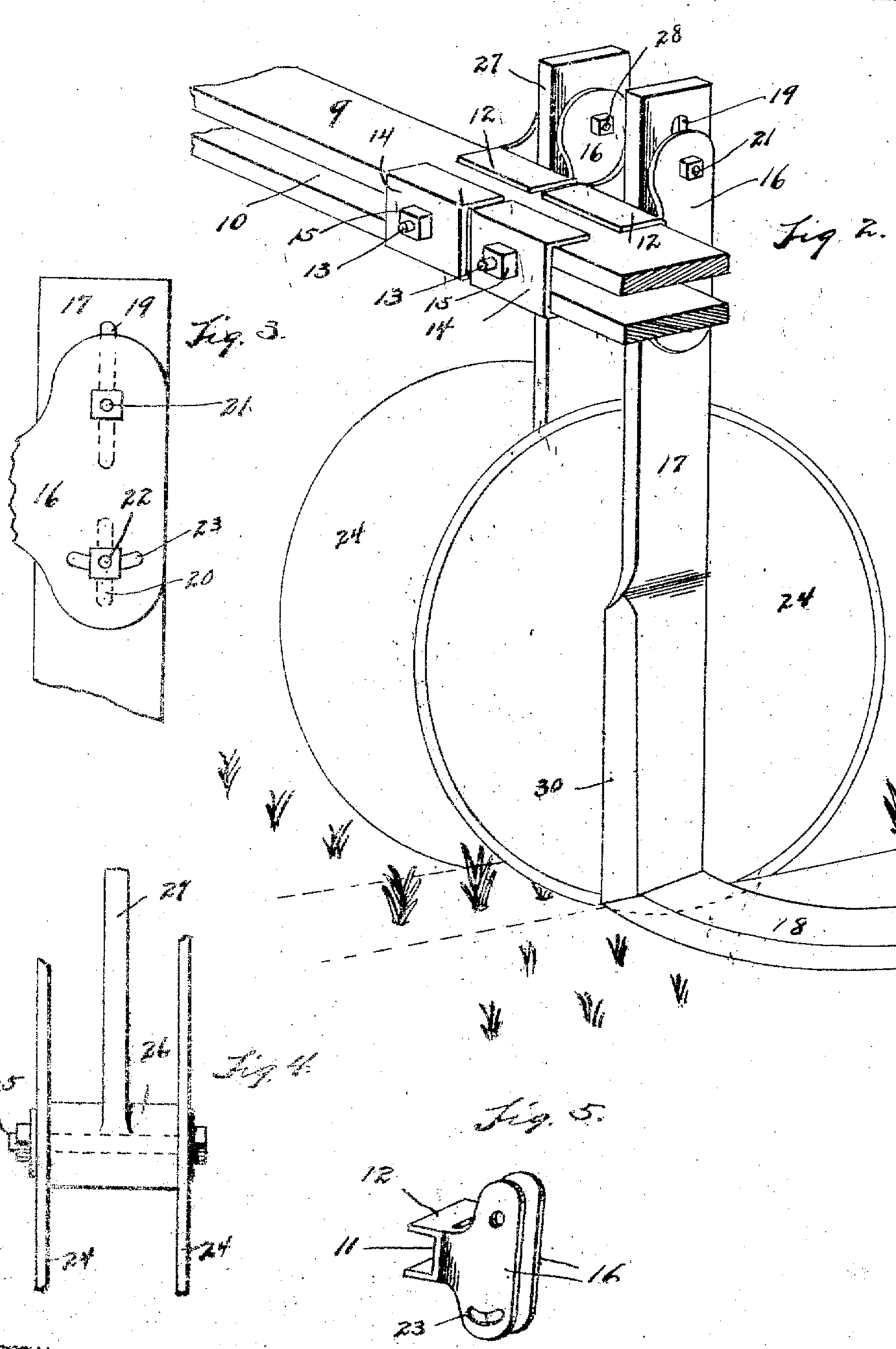

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Witnesses:
Chas. E. Kiner
L. L. Howlett.

Inventor
Charles H. Derham
By His Attorneys
E. G. Wheeler & Co.

No. 754,284. Patented March 8, 1904.

UNITED STATES PATENT OFFICE.

CHARLES H. DERHAM, OF CORUNNA, MICHIGAN.

BEET BLOCKER AND CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 754,284, dated March 8, 1904.

Application filed September 11, 1903. Serial No. 172,715. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. DERHAM, a citizen of the United States, residing at Corunna, in the county of Shiawassee, State of Michigan, have invented certain new and useful Improvements in Beet Blockers and Cultivators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to a beet blocker and cultivator; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out particularly in the claims.

The object of the invention is to provide simple and efficient means for blocking out the beets in a manner to leave uninjured the plant it is desired to cultivate and at the same time to provide for cultivating the plant without danger of injury thereto through the tearing of a crust of earth or the falling thereon of the earth displaced by the cultivator tooth or shovel.

The above object is attained by the structure illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a machine embodying my invention, the thills and handles being partly broken away. Fig. 2 is a fragmentary view in perspective of two of the rotary cutting-disks which travel on each side of the beet-plants intermediate those that are left for cultivation. Fig. 3 is a fragmentary detail in elevation of one of the brackets to which the standards of the knives and rotary disks are adjustably secured. Fig. 4 is an elevation of two of the rotary disks, showing the manner of journaling said disks at each end of the hub of the supporting-standard. Fig. 5 is a perspective view of one of the brackets by means of which the standards carrying the cutters and knives are adjustably attached to the supporting-beam of the machine.

Referring to the characters of reference, 1 designates the axle, which is provided with the transporting-wheels 2. Attached to the axle are the clips 3, to which the thills 4 are connected, whereby provision is made for drawing the machine. Also mounted upon the axle are the clips or collars 5, provided with suitable eyes in which engage the hooks 6 on the forward ends of the draw-bars 7, the rear ends of said bars being pivoted at 8 to a cross-beam 9, which extends transversely of the machine. The beam 9 is composed of two members which are so positioned as to form a space or slot between them, as shown in Fig. 2, said slot being for the purpose of receiving the bolts which attach the brackets that hold the standards of the disks and blocking-knives, as hereinafter explained. Referring to Fig. 5, it will be seen that said brackets comprise a base-plate 11, whose flange 12 embraces the upper and lower faces of said beam. Passing through said plate is a bolt 13, which lies in the slot 10 of the beam 9 and passes through the angle-plate 14, embracing the front edge of said beam, the end of said bolt receiving the nut 15, whereby the parts may be securely locked in position. Projecting from the plate 11 are the arms 16, having vertically-extending end portions between which the standards 17 of the blocking-knives 18 are secured. Formed in the upper ends of each of said standards are the vertical slots 19 and 20, and passing through the arms 16 of said brackets and through said slots are the bolts 21 and 22. By this arrangement the blocking-knife may be raised or lowered according to the depth at which it is desired the knife shall work. To provide for adjusting said knives, so that the angle of the blade may be changed according to the conditions of the ground and the depth at which the knife is working, the arms 16 of the brackets are provided with curved slots 23, concentric with the axis formed by the bolt

21, whereby by loosening the nut upon bolt 22 the standard 17 may be swung to change the angle of the blade 18 at will.

The rotary cutting-disks 24, adapted to straddle the row of plants it is desired to leave in blocking, as shown by dotted lines in Fig. 1, are journaled in pairs upon a bolt 25, which passes through the hub 26 of a depending standard 27. This standard 27 is supported by a bracket 11, similar to that which supports the standards of the blocking-knives, said standard 27 being secured in place by the bolts 28, which pass through the sides of said brackets and through said standard.

By loosening the bolts 13, which secure the brackets carrying the standards of the blocking-knives and rotary disks, said brackets may be adjusted longitudinally of the beam 9 to regulate the space between each pair or set of the rotary disks and to enable the blocking-knives to be adjusted laterally with respect to the position of said disks, so that the sharpened forward edge 30 of said standard may stand contiguous to the face of the disk, and thereby prevent the wedging of any substance between said disk and standard.

It will be observed that the rotary disks or cutters 24 are arranged in pairs and the disks of each pair spaced by the interposed hub 26 from two to three inches apart, as desired. It will also be observed that the blocking-knives 18 are so positioned as to occupy the space between the outer faces of the opposed disks of each pair. By this arrangement as the machine is drawn across the field the surface of the earth is cut through on each side of the beet-plants it is desired to cultivate, and the knives 18 block out the remaining plants between said pairs of disks, thereby leaving of the row only those plants which remain undisturbed between each pair of the rotary disks as the machine is drawn along.

The rotary disks cutting into the earth as they do on each side of the plants sever all earth crusts and clods, so that the blocking-knives in their passage through the ground cannot tear the earth and injure the plant that is left between said disks, while said disks serve as a guard to prevent clods from shoving against the plants and the earth which is thrown up by the blocking-knives or cultivators from falling thereon, enabling a large area of beets to be blocked in a perfect manner within a comparatively short time, thereby effecting a great saving of labor.

The handles 29, which are shown as partly broken away, are attached to the draft-bars 7 and enable the operator to control the machine. By means of the engaging hooks 6 at the forward end of said draft-bars and the pivotal connection 8 between the rear ends of said bars and the beam 9 said beam and the cutters carried thereby may be swung laterally of the machine, so as to maintain the circular cutters at all times straight with the row that is being blocked out should the horse deflect from the line of said row. It will also be evident that the operator by means of the handles may force the cutting-disks into the ground where the ground is hard and when encountering soft ground may raise the cutters, so as to prevent them from cutting too deep.

When used as a cultivator, the blocking-knives may be changed for a shovel or tooth of any suitable form, as will be understood.

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

1. In a machine for the purpose set forth, the combination with the transportable frame, of the rotary cutters adapted to cut through the surface of the ground on each side of the plant, said rotary cutters being positioned in the rear of the transportable frame, a flexible connection between said cutters and frame and the blocking-knives interposed between said rotary cutters to sever the plants between them.

2. In a machine for the purpose set forth, the combination of the rotary cutters arranged in pairs to straddle the plant to be left for cultivation, and the lateral blocking-knives interposed between the pairs of rotary cutters, said knives being positioned to work between said cutters in transverse alinement with the points at which said cutters enter the ground, a standard for each knife lying contiguous to the face of one of each pair of cutters.

3. In a beet-blocking machine, the combination with a portable frame, of the pairs of rotary cutting-disks mounted on said frame and adapted to cut adjacent to and parallel with the row of plants, said disks being laterally adjustable in pairs and the interposed blocking-knife extending between the faces of said disks, each knife being independently movable in the arc of a circle and independently adjustable vertically.

4. In a beet-blocking machine, the combination of the portable frame, the rotary cutting-disks arranged in pairs, and mounted upon said frame, the blocking-knives interposed between the outer faces of the disks of each pair, said knives being adjustable independently of said disks, a transportable frame, and a flexible connection between said frames.

5. In a beet-blocking machine, the combination with the axle and transporting-wheels, of the transverse beam loosely connected to said axle in the rear thereof, rotary cutting-

disks laterally adjustable on the beam and arranged in pairs to straddle the beet-plants, and the adjustable blocking-knives interposed and extending between each pair of disks substantially as set forth.

6. In a beet-blocking machine, the combination with the transporting-wheels and the beam connected therewith, of the opposed cutting-disks secured in pairs to said beam, a blocking-knife interposed between each pair of said disks, each knife being adjustable vertically and having independent movement in the arc of a circle to change the angle of the blade.

In testimony whereof I sign this specification in the presence of two witnesses.

CHARLES H. DERHAM.

Witnesses:
E. S. WHEELER,
I. G. HOWLETT.