

No. 629,138.

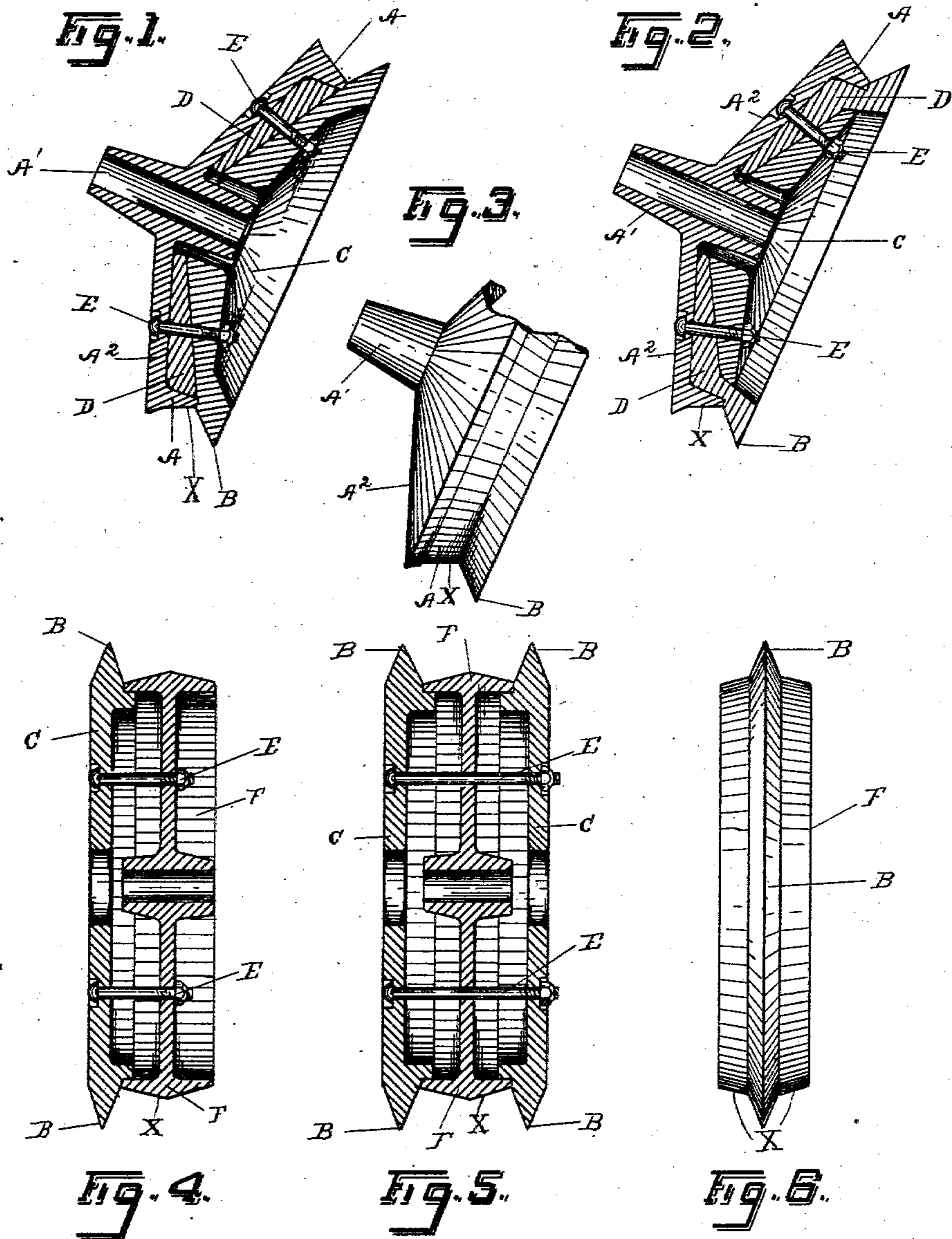
Patented July 18, 1899.

G. SPALDING & J. S. ROBBINS.

ROTARY DISK PLOW.

(Application filed Nov. 1, 1897.)

(No Model.)



Witnesses
Maynard Harmer
& M. E. Eachus

Inventors
George Spalding
and John S. Robbins
By their Attorneys
E. J. M. M. dock Co.

UNITED STATES PATENT OFFICE.

GEORGE SPALDING AND JOHN S. ROBBINS, OF SAN FRANCISCO, CALIFORNIA,
ASSIGNORS TO THE SPALDING-ROBBINS DISC PLOW COMPANY, OF SAME
PLACE.

ROTARY-DISK PLOW.

SPECIFICATION forming part of Letters Patent No. 629,138, dated July 18, 1899.

Application filed November 1, 1897. Serial No. 657,098. (No model.)

To all whom it may concern:

Be it known that we, GEORGE SPALDING and JOHN S. ROBBINS, citizens of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Rotary-Disk Plows; and we do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

This invention relates to improvements in rotary-disk plows, and more particularly to the weighted carrying-wheels therefor.

The objects which are sought to be attained by this invention are to provide extra holding attachments for overcoming the side draft of the plow and to so construct the parts that this extra increase may be attached and detached at will.

The invention consists in providing carrying-wheels with sharpened flange-like extensions, which the weight of the wheel will sink into the ground as the wheel is rotated; also in providing this edge or flange upon an attachable weight, which may be added to the wheel as desired and which will aid in sinking the cutting edge above referred to into the ground.

In the drawings, Figure 1 is a sectional view of an inclined furrow-wheel, the same being shown with two attachable weights in position with a sharpened extended flange on the outer weight. Fig. 2 is a similar view of the same wheel, showing the weights in position with the extended flange on the inner weight. Fig. 3 is a side elevation of the same wheel, partly cut away, showing the extended flange as applied to the tread of the wheel direct. Fig. 4 is a vertical section of the land-wheel employed in this form of plows, showing the added weight provided with the extended flange on one side of the wheel. Fig. 5 is a similar view of the same wheel provided with two similar weights, one upon each side. Fig. 6 is a front view of the same wheel, showing the extended flange as integral with the said wheel mounted in the center of the tread thereof.

The wheels herein shown and described are those which are termed "weighted carrying-wheels" and are shown by us in the Patent No. 587,459, which was issued on the 3d day of August, 1897. The furrow-wheels of the shape and incline shown in Figs. 1, 2, and 3 are mounted upon a beam, which is horizontally inclined to the line of draft of the team. This beam may be elongated or shortened to carry an added or diminished number of rotary-disk plows. The said plows, as shown in the patent above referred to, are inclined in the direction opposite to the said beam to which they and the said furrow-wheels are connected. The inclination of the plows produces in them a tendency to run in the direction of their peripheries or across the line of draft, which tendency unless overcome would compel the plows to drift or run across the line of draft without turning the earth to form the furrows. It is for the purpose of preventing this drifting or side draft and to compel the plows to turn the furrows that the furrow-wheels A are employed. They are mounted upon inclined axles, over which the journals A' fit. By means of the inclination which is thus imparted to the wheel the full side A², with which the wheels are provided, is presented to the side of the furrow in a perpendicular position, as shown in drawings in Figs. 1, 2, and 3. In the operation of the plow these furrow-wheels are compelled to track in the furrows which have been previously formed next to the solid land, so that the solid face A² of the wheels bear against the solid walls of the furrows. In their arrangement at either end of the beam, upon which the plows are carried, they are compelled to track in the furrow next to the solid land which was formed in a previous operation of the plow and in the last furrow which is being formed by the present operation of the plow. By this arrangement and construction the side draft above referred to on the part of the plows is transferred to the said wheels A, forcing them against the solid walls of the furrow in which they are running. While the former construction of these furrow-wheels has been sufficient for a limited number of rotary-disk plows, it has

been discovered that with added plows the force exerted is sufficient to produce an increased friction of the wheels A upon the side of the furrows to raise the said wheels 5 vertically out of the furrow until they escape from the same and allow the plow-frame to drift to the side out of line. It is to overcome this defect that we have added the extended flange B. This flange extends radi- 10 ally beyond the tread X of the wheel, and thus sinking into the bottom of the furrow adds to the resistance to the side draft. Its principal operation, however, is not merely to provide an added surface for resisting the 15 side draft, so much as to present a sharp edge upon the peripheries of the wheels, to which it is applied, to cause the wheels to track or follow any inclination in which they are set horizontally.

20 The horizontal inclination referred to is caused by mounting the axle on which the wheels are set at a slight angle horizontally to the line of draft to throw the forward edge of the wheels slightly outward to give them 25 a list or tendency to run to the side opposite to that to which the plows are tending to run. When provided with the flange B, which enters the ground, the forward part of that section which enters tracks a little to one side 30 and to the outside of the line of draft. As the flange B does not release the earth which it is thus extended into, it exerts a considerable pull or pressure outward or against the disks, thereby relieving to a great extent the 35 pressure of the sides A² of the furrow-wheels upon the solid side of the furrow.

In the most approved form the cutting edge or flange B is applied to the weights C and D as desired. It has been discovered that in 40 some qualities of ground the edge B is not needed, while in others and usually harder grounds it is needed. Therefore the edge is generally applied to the weights C and D, which are added to the wheels by means of 45 bolts E. In grounds where the extreme weight is used the edge is applied to the outer weight C, for the reason that it is not required except when this weight is required, while in grounds of lighter substance it is added to

the weight D as soon as any additional weight 50 is required to aid the wheels A. While it is preferred to apply the said flange to the furrow-wheel A, (shown in Figs. 1, 2, and 3,) it can also be applied to the land-wheel F, as shown in Figs. 4, 5, and 6, Figs. 4 and 5 show- 55 ing said flange upon weights C, attached to the wheel, and Fig. 6 showing the flange upon the wheel proper.

The land-wheel F, as will be seen by reference to patent above mentioned, is a vertical 60 wheel designed to roll on the solid ground opposite that being plowed. By providing this wheel or the weights carried on the same with the flange B and turning it slightly toward the plowed ground a further additional 65 resistance to the pressure of the disks is added by means of this wheel.

Having thus described this invention, what is claimed is—

1. In a device of the nature indicated, a car- 70 rying-wheel, a disk removably secured to said wheel and having on its periphery a sharp edge or flange extending radially beyond the tread of the wheel, and a weight removably secured to the wheel and lying inside of the 75 cutting edge of the disk, whereby said cutting edge projects radially beyond both the wheel and the weight; substantially as described.

2. In a device of the nature indicated, a car- 80 rying-wheel having a laterally-projecting flange forming a tread, a disk upon the side of the wheel having the flange and resting against said flange but out of contact with the face of the wheel, whereby a chamber is 85 formed between the disk and the wheel, a flange upon the disk projecting radially beyond the wheel-tread, a weight in the chamber between the wheel and the disk, and means for holding the parts removably con- 90 nected; substantially as described.

In testimony whereof we have hereunto set our hands this 25th day of October, 1897.

GEORGE SPALDING.

JOHN S. ROBBINS.

Witnesses:

BALDWIN VALE,
F. M. EACHUS.