No. 769,101. PATENTED AUG. 30, 1904.

M. MITCHELL.

ATTACHMENT FOR GRAIN DRILLS.

APPLICATION FILED DEC. 30, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

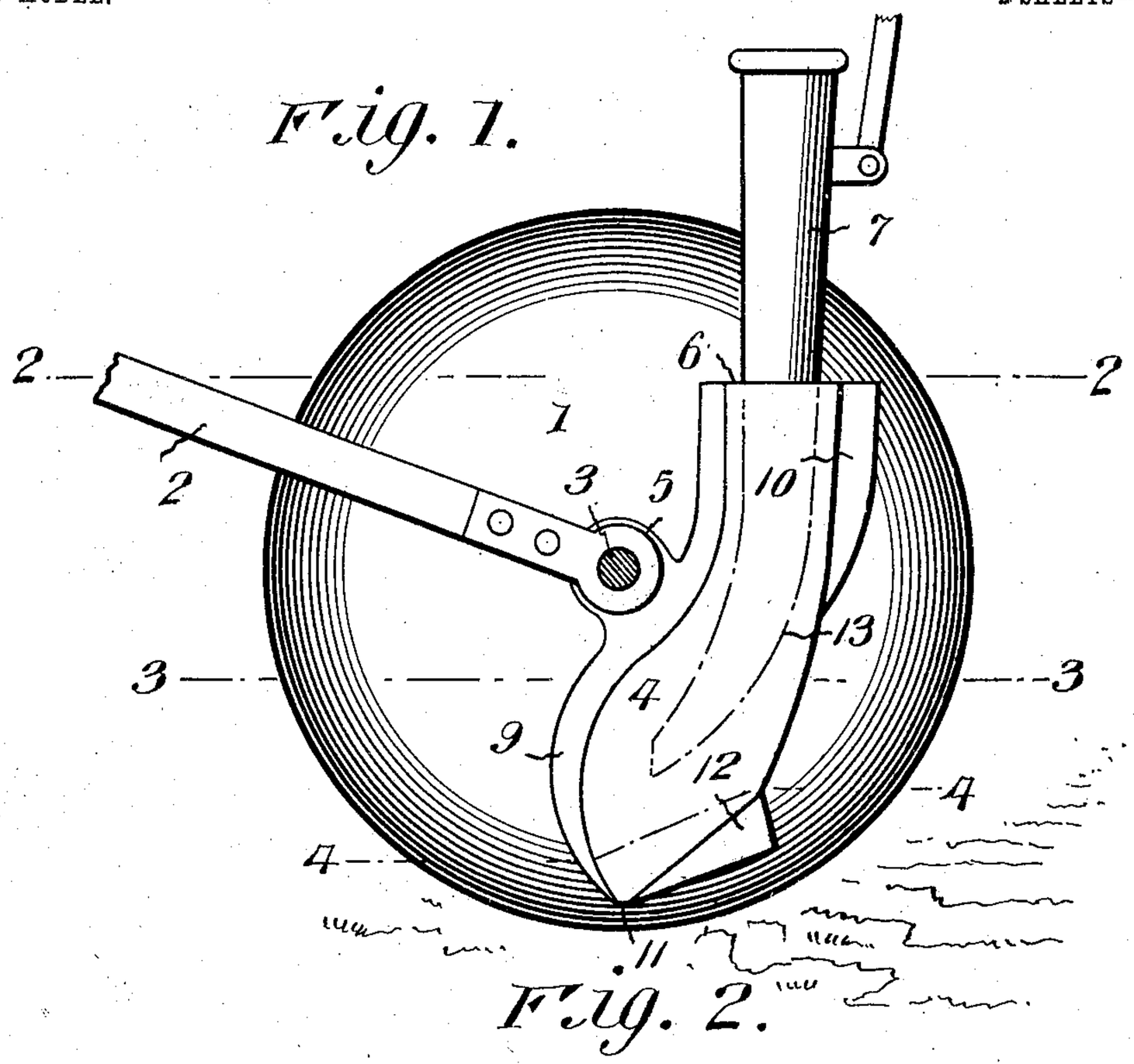


Fig. 2.

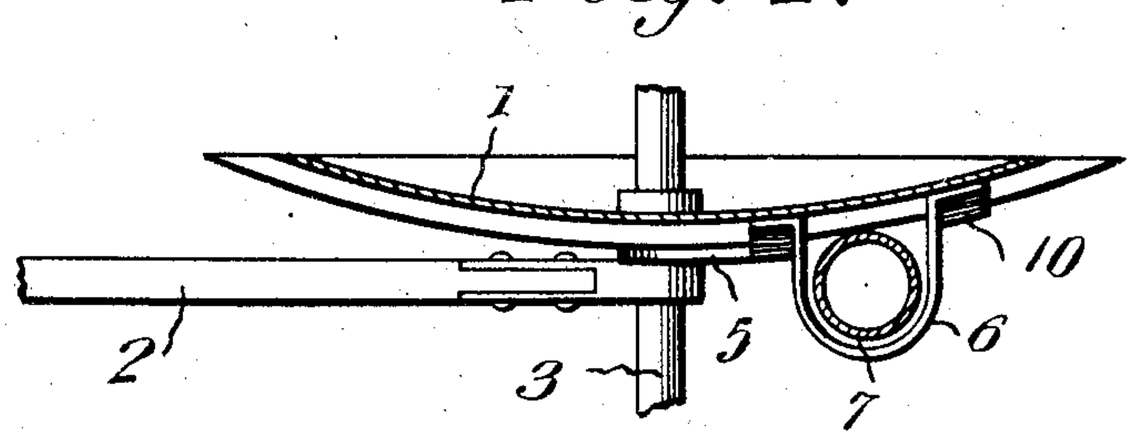
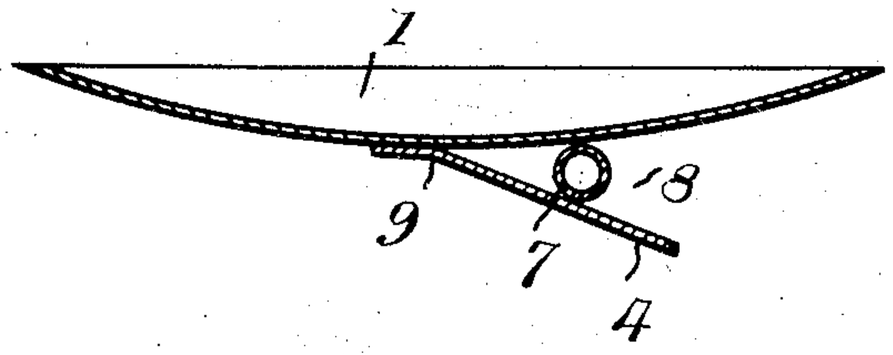


Fig. 3.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 5.

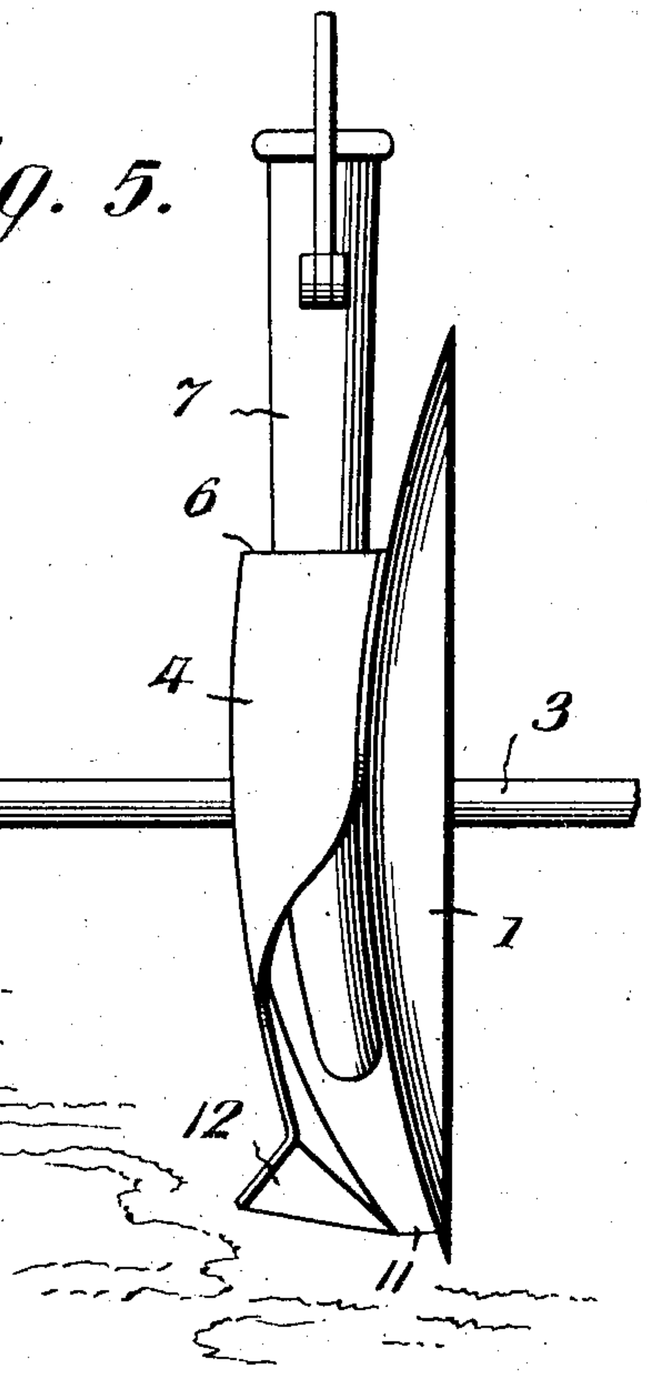


Fig. 6.

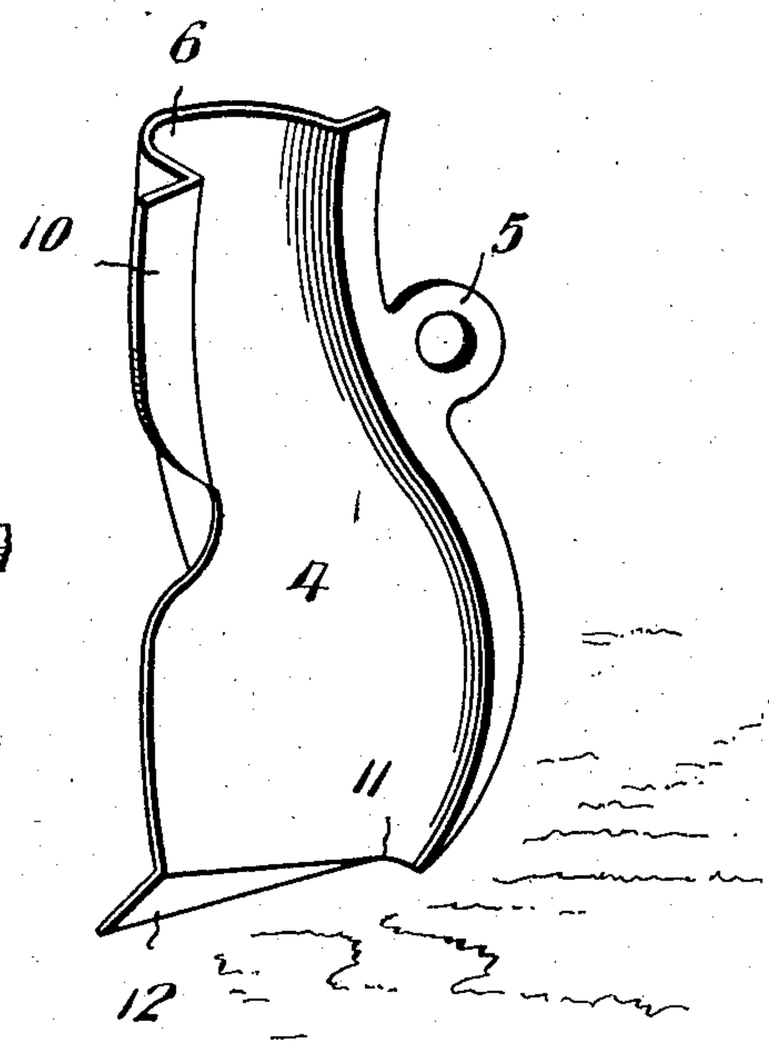
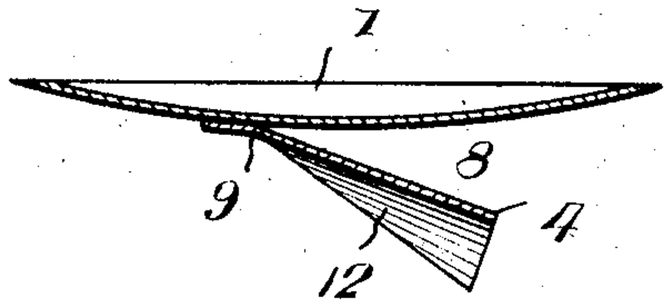


Fig. 4.



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No. 769,101. Patented August 30, 1904.

UNITED STATES PATENT OFFICE.

MELVIN MITCHELL, OF MADISON, WISCONSIN.

ATTACHMENT FOR GRAIN-DRILLS.

SPECIFICATION forming part of Letters Patent No. 769,101, dated August 30, 1904.

Application filed December 30, 1903. Serial No. 187,164. (No model.)

To all whom it may concern:

Be it known that I, MELVIN MITCHELL, a citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented new and useful Improvements in Attachments for Grain-Drills, of which the following is a specification.

This invention relates to seeding-machines or grain-drills, and more particularly to that class of such devices embodying rotating disks which in the operation of the machine cut or open furrows wherein the grain or seed is deposited.

The primary object of the invention is to provide a receiving and delivering attachment for application to the disk embodying such structural features that it will be effective in permitting the seed to pass therefrom at a point centrally of the disk and also assist in opening the furrow, said attachment being formed of such material that it will resist breakage and materially increase its wearing qualities.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter set forth.

In the drawings, Figure 1 is a side elevation of a disk and a portion of a draw-bar attached thereto forming part of the complement of a disk drill and having the improved grain receiving and delivering attachment applied thereto. Fig. 2 is a horizontal section on the line 2 2, Fig. 1. Fig. 3 is a horizontal section on the line 3 3, Fig. 1. Fig. 4 is a horizontal section on the line 4 4, Fig. 1. Fig. 5 is a rear end elevation of the disk and the attachment, together with the boot, as shown by Fig. 1. Fig. 6 is a detail perspective view of the attachment.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a disk for opening a furrow, a number of said disks being used in connection with the drill or seeder and having a draw-bar 2 attached to the axle or shaft 3, on which the disk is rotatably mounted. Secured to the axle and mainly depending over the part of the disk below the said axle is a combined furrow-opener and seed receiving and distributing attachment 4, preferably constructed of sheet metal to resist breakage due to shock or jar and to render the attachment more strong and durable. Furthermore, by forming the attachment of sheet metal it may be more conveniently and economically manufactured. The front edge of the attachment, at a point near the upper end thereof, is formed with an attaching ear or extension 5, the upper extremity of the attachment projecting high enough above the ear or extension to form a reduced inlet 6 to receive a boot 7, and into the upper end of the latter, as will be understood, projects a grain-tube from the drill, said tube not being shown.

The attachment is formed with a chamber 8 by bending or striking the metal outwardly at an intermediate point, the front edge of the attachment being bent inwardly, as at 9, to closely engage the disk 1, and at the upper end said attachment also has a rear inwardly-bent flange 10, which is also adapted to closely bear against the disk. The lower part of the chamber curves forwardly and downwardly to a lower outlet-opening 11, and directly in rear of the said opening is an outwardly-extending or flared furrow-opening extension 12, which increases in width toward its rear terminal and acts similarly to the moldboard of an ordinary plow in throwing the soil outwardly. The lower outlet-opening 11 is always maintained in vertical alinement with the axle or shaft 3 or in line with the vertical diameter of the disk 1, and said opening is formed in the part of the attachment which has the lowermost extent. The chamber 8 gradually converges toward the opening, so as to render the feed of the seed or grain to said opening effective, and the lower extremity of the boot 7 is curved forwardly, as at 13, so that its open end will be located above and directly over the said opening, so that as the seed or grain is delivered from the lower outlet end of the boot it has a vertical fall toward the said outlet-opening. The lower end of the attachment is located at a comparatively short distance above the adjacent edge or perimeter of the disk, so that when the disk opens the furrow the outlet-opening 11 will be in the most advantageous position in relation to the

bottom of the furrow for depositing the seed or grain in the latter. When the disk enters the furrow, the lower portion of the attachment also depends into the furrow and the furrow-opening extension 12 is brought into operation to more fully open the furrow. A material advantage results in the disposition of the lower end of the boot over the outlet-opening to deliver the seed directly to the opening instead of permitting such seed to gravitate or slide down over a portion of the wall of the chamber or the side of the disk, in view of the fact that the seed is prevented from sticking to the disk or attachment, particularly if these parts become damp or wet when seeding in wet ground. This arrangement of seed delivery from the boot also avoids any tendency to bunch the grain or seed, which so often happens when the latter is allowed to gravitate over damp walls or surfaces. By having the attachment closely embrace the boot, as stated, the said boot assists in holding the attachment down in place or so that the outlet-opening 11 will always be held under the axle or shaft, as heretofore set forth.

The attachment is caused to closely fit against the convex side of the disk and is mainly disposed in rear of the shaft or axle, the advantage in this arrangement being that the boot does not take up the space in the center of the disk, but leaves the latter clear and free to relieve itself of trash or substances that might otherwise cling thereto. This advantage, in addition to the more essential benefits derived from arranging the outlet-opening in line with the center of the disk and by employing a boot having a lower curved extremity depositing the grain directly in the furrow opened, makes the improvement a valuable addition to the art to which it pertains.

It will be understood that changes in the proportions, dimensions, and minor details may be resorted to without departing from the spirit of the invention.

Having thus fully described the invention, what is claimed as new is—

1. The combination with a drill-disk of a seed-delivering attachment suspended from the axle of said disk and having an outlet-opening at the bottom thereof in line with the vertical center of the disk, and a boot loosely extending downwardly into the attachment and having its outlet end disposed over the said outlet-opening.

2. The combination with a drill-disk, of a seed-delivery attachment suspended from the axle thereof, and having an outlet-opening at the bottom and in line with the vertical center of the disk, and a boot extending downwardly into the attachment and forwardly curved at its lower extremity above the outlet-opening.

3. The combination with a drill-disk, of a seed receiving and delivering attachment suspended from the axle of the disk and having an outlet-opening at the bottom, and a boot extending downwardly into the attachment and provided with a forwardly-curved end to deposit the grain directly into the outlet-opening and prevent such grain from gravitating down the sides of the disk or wall of the attachment.

4. The combination with a drill-disk, of a seed receiving and delivering attachment having a chamber therein, and an outlet-opening at the bottom of the chamber, the said attachment being suspended from the axle with the front edge and lower extremity thereof closely applied to the side of the disk, the outlet-opening being in line with the vertical center of the disk, the greater part of the attachment being disposed in rear of the said center of the disk, and a boot extending downwardly into the attachment and having a lower forwardly-curved end disposed in vertical alinement over the outlet-opening.

5. The combination with a drill-disk, having an axle, of a seed-delivery attachment suspended from said axle and having a lower outlet-opening in line with the vertical diameter of the disk, the attachment being projected in rear of the axle and extended above the latter and provided with a contracted inlet, and a boot projecting downwardly into the upper inlet end of the attachment in rear of the axle and having its lower end arranged over the outlet-opening.

6. The combination with a drill-disk, having an axle, of a seed-delivery attachment suspended from said axle and having an outlet-opening in the bottom thereof, and an outwardly-projecting furrow-opening extension in rear of said outlet-opening, and a boot extending downwardly into the attachment and having a forwardly-projected end in vertical alinement with the said outlet-opening.

In testimony whereof I affix my signature in presence of two witnesses.

MELVIN MITCHELL.

Witnesses:

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NATHAN J. NELSON.