L. T. RASMUSSEN.

PACKING AND MULCHING IMPLEMENT.

APPLICATION FILED JUNE 28, 1915.

1,196,285.

Patented Aug. 29, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

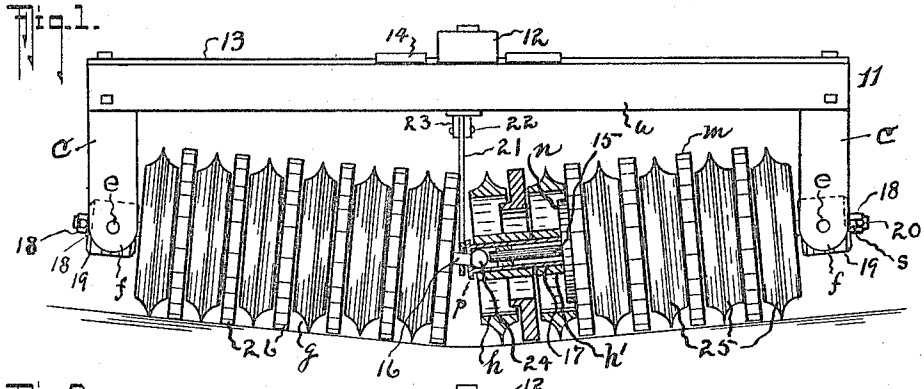


Fig. 2.

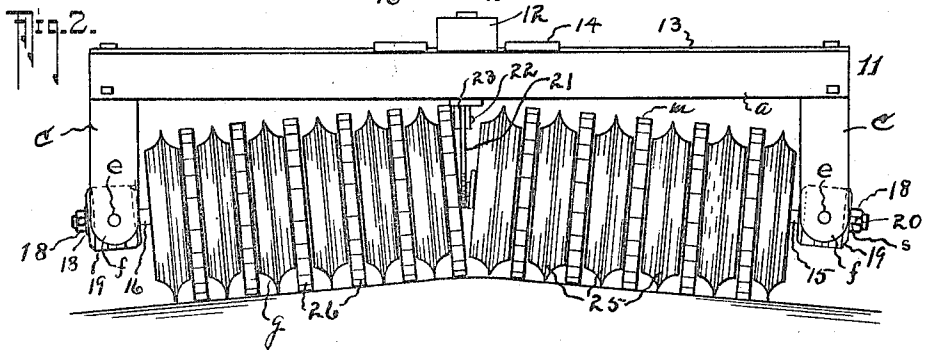


Fig. 3.

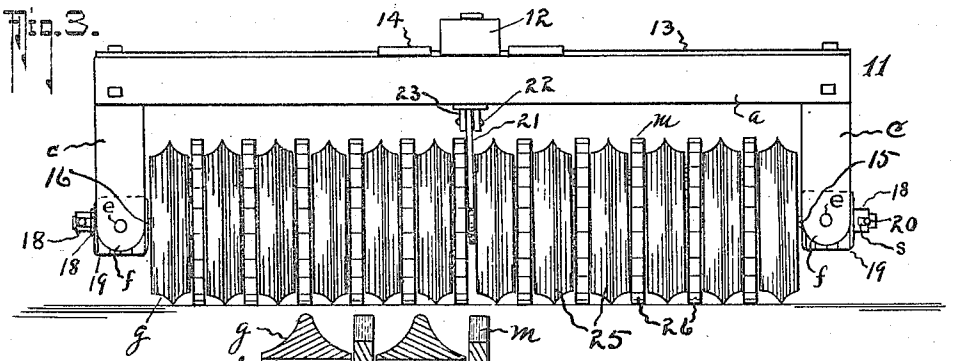
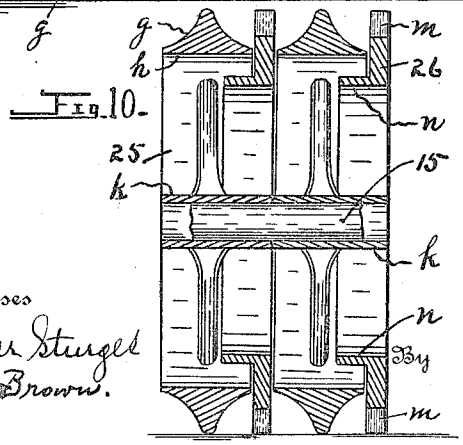


Fig. 10.



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2 SHEETS—SHEET 2.

Fig. 4.

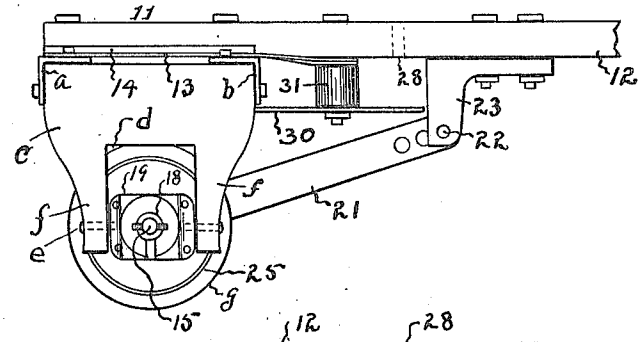


Fig. 5.

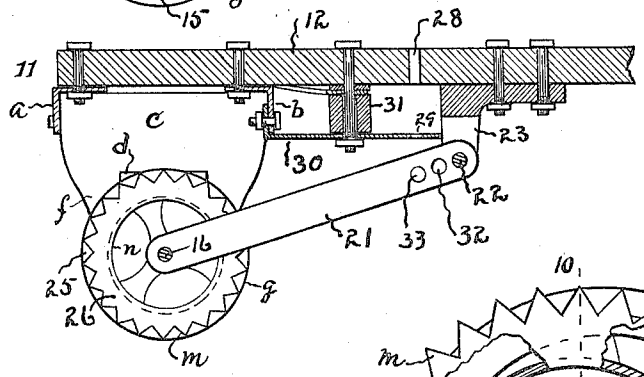


Fig. 6.

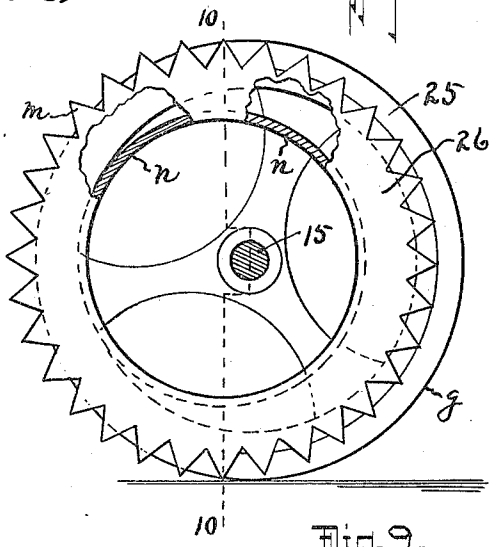


Fig. 7.

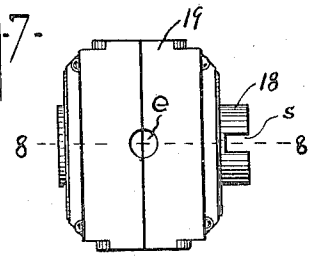


Fig. 8.

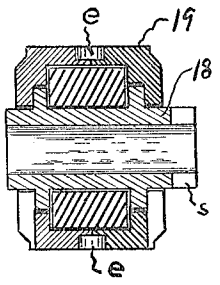
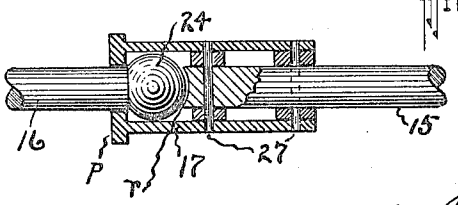


Fig. 9.



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UNITED STATES PATENT OFFICE.

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PACKING AND MULSHING IMPLEMENT.

1,196,285. Specification of Letters Patent. Patented Aug. 29, 1916.

Application filed June 28, 1915. Serial No. 36,606.

To all whom it may concern:

Be it known that I, LAURITS T. RASMUSSEN, a citizen of the United States, residing at Council Bluffs, in the county of Pottawattamie and State of Iowa, have invented certain new and useful Improvements in Packing and Mulshing Implements, of which the following is a specification.

This invention relates to an improvement in packing and mulshing implements, and has for its principal object to provide such a mounting for the mulshing disks and packing wheels that, without increasing the draft, they may be disposed at greater or lesser altitudes, while revolving, for engaging the surface conformation of the ground, so that the ridges and hollow places as well as the level parts of a field may be reached by the wheels and disks.

The invention has reference to an implement provided with a flexible shaft on which the packing wheels and disks are supported closely side by side, said shaft being so mounted and supported that its parts may swing freely and automatically to be disposed upwardly-divergent from the middle of the vehicle while moving in the valleys, channels or grooves, and may swing readily and automatically to be disposed downwardly-divergent from the middle of the vehicle while moving upon and longitudinally of the ridges.

The invention also includes means for permitting a limited longitudinal movement of the flexible shaft, and means for a control for limiting such movement, and broadly consists of the novel construction, combination and arrangement of parts as described herein and claimed, and as illustrated in the drawing, wherein,—

Figures 1, 2 and 3 are rear views of the implement to illustrate the relative position of parts when moving in valleys as shown in Fig. 1, or upon ridges as shown in Fig. 2, or on level ground as shown in Fig. 3. Fig. 4 is a view of the implement in side elevation, the tongue being broken away. Fig. 5 is a view in longitudinal section through the tongue and frame. Fig. 6 is a partly broken end view showing normal positions, when in use, of the packing wheels and mulshing disks. Fig. 7 is a view, in side elevation, of one of the bearing-blocks for the flexible shaft. Fig. 8 is a sectional view on line 8 8 of Fig. 7. Fig. 9 is a view in longitudinal section of a combined cylindrical bearing and ball mounting for connecting the inner ends of the flexible shaft. Fig. 10 is a section on line 10 10 of Fig. 6.

Referring to the drawing, numeral 11 indicates an elongated frame consisting of the parallel strips *a* and *b*, preferably constructed of angle iron, a pair of yokes or brackets *c* being provided and mounted upon the ends of said strips to project downwardly therefrom, each yoke or bracket being provided with a recess *d* opening on its lower end.

Numeral 12 indicates a tongue which is mounted upon the strips *a* and *b*, midway between the ends of the frame, and suitable inclined braces 13 and cross pieces 14 are provided to sustain the stresses directed to the frame and tongue, incident to the use of the implement, these being disposed and suitably secured upon the angle irons *a* and *b*.

Numerals 15 and 16 respectively indicate a pair of shafts having their inner ends flexibly connected by means of a cylindrical boxing 17, best shown in Fig. 9, each of their outer ends being mounted in a sleeve 18 of a bearing-block 19 disposed in a recess *d* and pivoted loosely at *e* to the arms *f* which project downwardly from the brackets *c* of the frame, whereby, the shafts may have free, lateral or vertical and rotatable movements with respect to each other while their inner ends are connected, and may have limited movements longitudinally in their bearings in the sleeves of blocks 19, subject to the king pins 20 which traverse the shafts at their ends while disposed in slots *s* of said sleeves.

At 21 is indicated a link disposed below the tongue, its front end being pivotally mounted at 22 in the bracket 23 which projects below and is supported by the tongue, its rear end providing a pivotal mounting or bearing for the inner end of shaft 16 adjacent to the ball 24 of said shaft, this bearing being substantially at equal distances from the ends of the frame.

The operation of the link is such that the shafts, at their inner ends, may have swinging movements in a limited arc, the center of which is the pivot 22. Since this pivot is disposed forwardly of and at a considerable distance, comparatively, from the

shafts, said shafts will be maintained substantially at right angles to the line of draft, but the operation of the link is such that, in conjunction with the pivotal mounting of the bearing-blocks 19, the shafts may have free swinging movements of their inner ends either upwardly or downwardly through a considerable arc.

Numerals 25 and 26 respectively indicate packing wheels and mulshing disks, each of the packing wheels preferably having a tapered periphery *g* as shown in the drawing, a circular bearing-surface *h* on the inner side of its tire and a hub *k* extending at one of its ends outwardly of the plane of its tire. Each mulshing disk is preferably provided with peripheral teeth as indicated at *m*, and with a transverse rim or flange *n* of lesser diameter than the circular bearing surface *h* of a packing wheel. The wheels and disks thus described are disposed in alternation to circumscribe the shafts, the packing wheels having bearings thereon with the ends of their hubs abutting upon each other. The mulshing disks are disposed with their transversely projecting rims or collars *n* disposed in the vertical plane and in engagement with a part of the circular bearing-surfaces *h* of the packing wheels. On account of the lesser diameters of the rims *n* of the mulshing disks as compared with the diameters of the bearing-surfaces *h* of the packing wheels, their longitudinal axes will not at all times be coincident with the axes of the packing wheels, and when the implement is moving forwardly they will be disposed somewhat rearwardly of the packing wheels, with the result that their teeth will simply perforate the ridges formed by the packing wheels which sustain the weight of the frame. It will be appreciated that where the wheels and disks are mounted on a single shaft having a considerable length, the depressed areas of ground may not be reached by said wheels and disks, and the ridges will be unduly compressed, but by use of the construction as described, these objectionable results may be avoided.

As best shown in Fig. 9, the cylindrical box or sleeve 17 is provided at one of its terminals with a plate *p* which circumscribes the shaft 16 to prevent a movement in one direction of the ball 24, a movement of the ball in an opposite direction being prevented by the concaved terminal *r* of shaft 15, the last named shaft being secured to the sleeve by pins 27. It is understood that the ends of these shafts will project somewhat farther outwardly of the vehicle frame when disposed in alinement than when disposed either upwardly-divergent or downwardly-divergent from the ball mounting of their inner ends, and during these limited longitudinal movements of the shafts the pins 20 will slide in the slots *s*, as mentioned. As shown in Fig. 1, the packing wheels which are mounted on the cylindrical box or sleeve 17 (said packing wheels being generally one or two in number) are provided with hubs *h'* of such diameter that they will have a bearing upon said box.

Numeral 28 (Figs. 4 and 5.) indicates an aperture for receiving a bolt which may traverse the aperture 29 of strip 30, for mounting a doubletree (not shown), this being comparatively near to the vehicle frame, said strip 30 being below the tongue and sustained by the spacing-block 31.

Numerals 32 and 33 indicate apertures formed at longitudinal intervals in link 21 for the purpose of causing the inner ends of shafts 15 and 16 to be disposed nearer to the tongue than as above mentioned, when pivotally connected with bracket 23, so that each of the shafts may have an outward and rearward inclination from their inner ends, the loose pivotal mounting *e* permitting this inclination, the result in operation being that the shafts, not being disposed at right angles to the line of draft or travel, the wheels 25 and 26 will engage deeper in the ground than when mounted as first mentioned, said result being desirable in some instances.

While I have explained details of construction, it will be understood that changes may be made of the same, as well as changes in proportion, and that limitation is not to be imposed in this respect since the scope of the invention is determined by the appended claims.

I claim:

1. An implement for the purpose described, comprising, in combination with a vehicle frame provided at each of its ends with a bracket, a pair of shafts flexibly connected at their inner ends, their outer ends being flexibly mounted in said brackets, a plurality of crushing elements on each shaft, a pivotally mounted link supported by the frame and flexibly connected with said shafts to permit them to move longitudinally in said brackets and to permit them to swing in a limited arc, and means to limit the longitudinal movements of the shafts in said brackets.

2. In an implement for the purpose described, a vehicle frame provided with brackets at its ends, a pair of bearing-heads each being mounted pivotally in a bracket to permit swinging movements substantially at right angles to the line of draft, sleeves provided with slots and mounted in the bearing-heads, a pair of shafts flexibly connected at their inner ends, each of their outer ends being disposed in a sleeve, a plurality of crushing elements circumscribing each shaft, a member engaging one of said shafts and connected with the vehicle frame for per-

mitting coincident longitudinal and swinging movements of the shafts and for maintaining the shafts during their movements substantially at right angles to the line of draft, and means disposed in the slots of the sleeves in engagement with the shafts for limiting the longitudinal movements of said shafts in one direction.

3. An implement for the purpose described, comprising, in combination with a vehicle frame provided at each of its ends with a bracket, a shaft provided at one of its ends with a ball, a second shaft provided at one of its ends with a cylindrical housing, said shafts being disposed end to end with their outer ends flexibly mounted in said brackets, the ball at the end of the first named shaft being disposed in the cylindrical housing of the second shaft, a wheel journaled on said cylindrical housing, wheels journaled on each shaft, a link pivotally supported by the frame and flexibly connected with one of said shafts for permitting the shafts to move longitudinally while swinging in a limited arc, and means on the shafts for limiting their longitudinal movements.

In testimony whereof, I have affixed my signature in presence of two witnesses.

LAURITS T. RASMUSSEN.

Witnesses:
HIRAM A. STURGES,
ARTHUR H. STURGES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."