(No Model.) 3 Sheets—Sheet 1.

H. BURFEIND.

CLOVER SEED HARVESTER.

No. 383,796. Patented May 29, 1888.

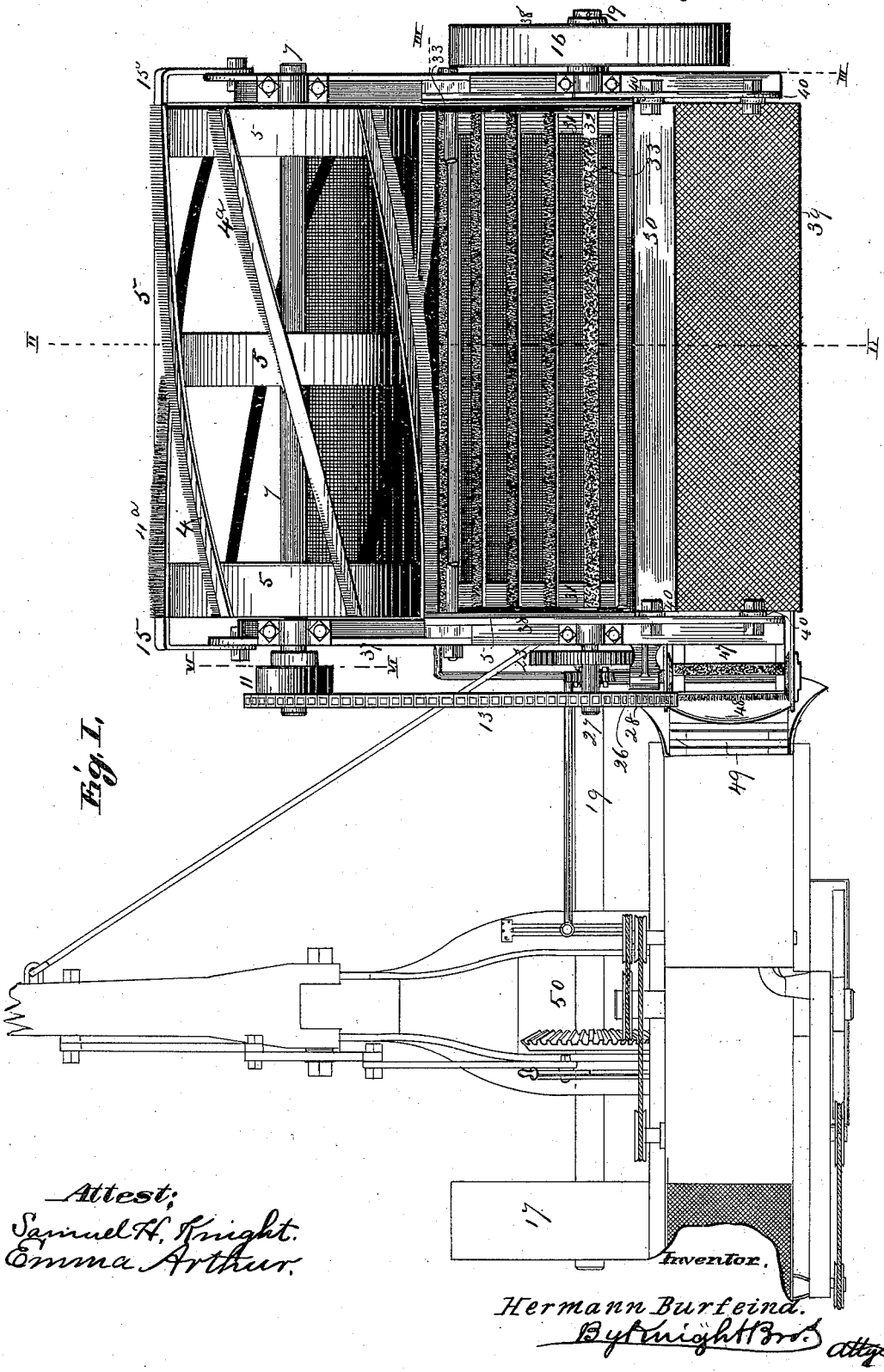


Fig. 1.

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Emma Arthur.

Inventor.
Hermann Burfeind.
By Knight Bros. Attys.

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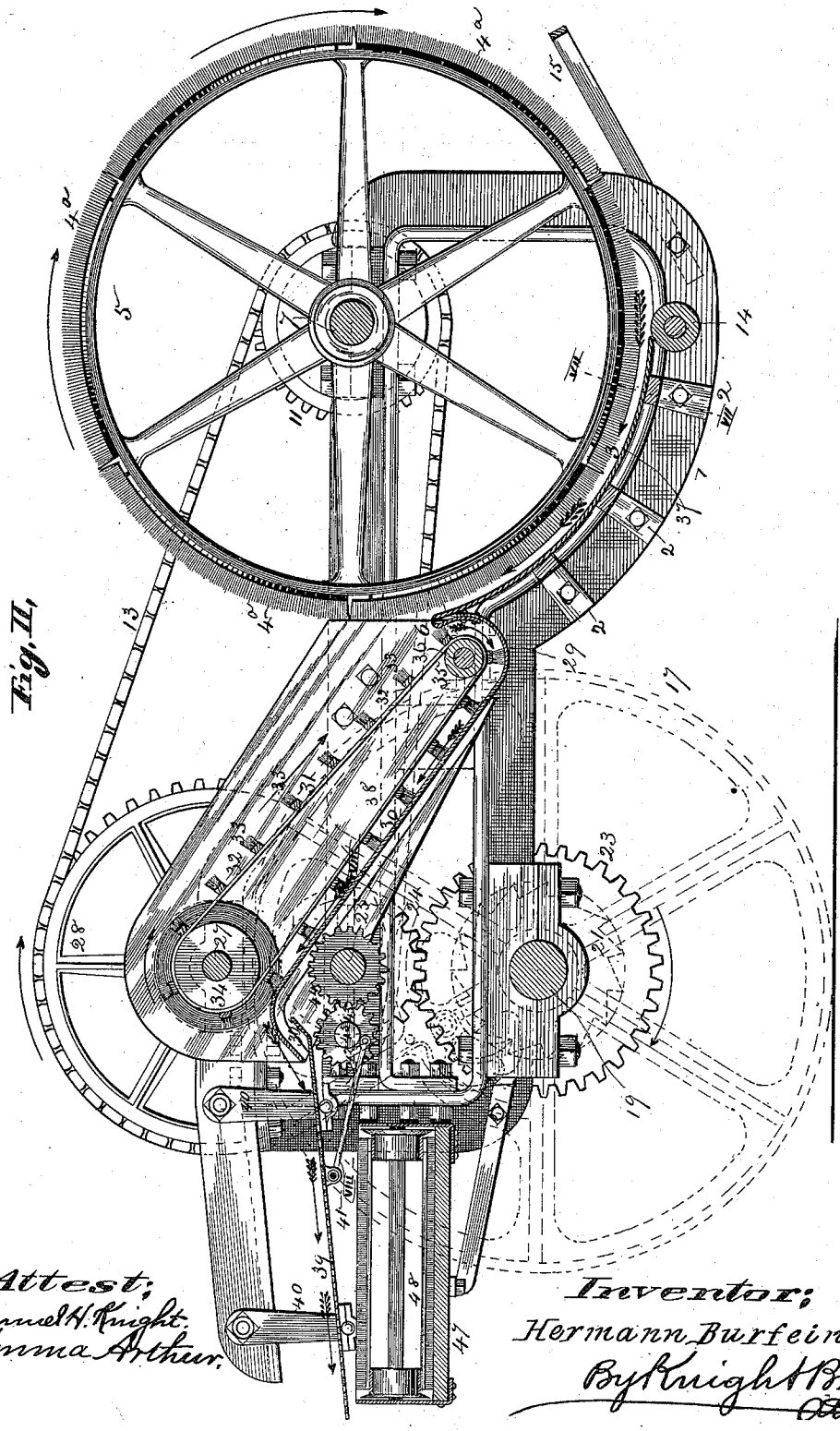


Fig. II.

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Fig. III

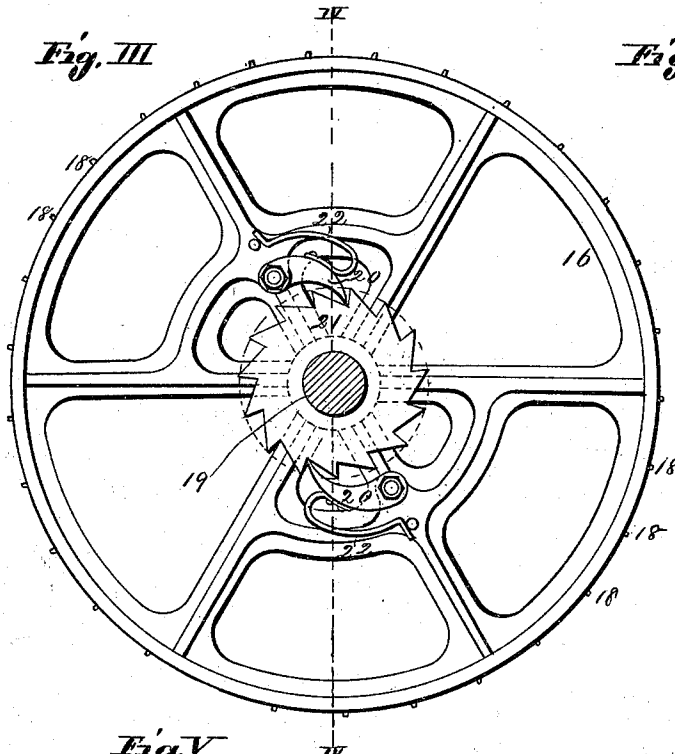


Fig. IV

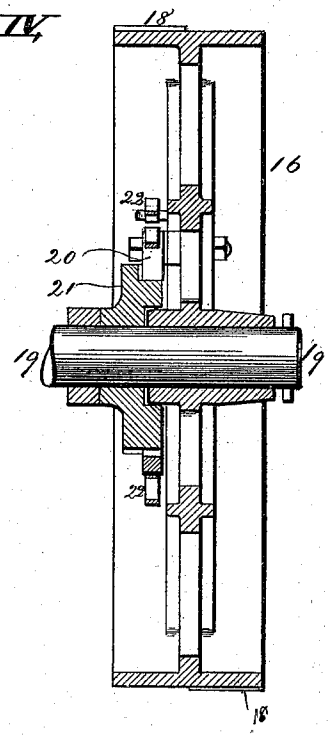


Fig. V

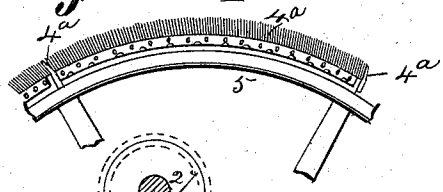


Fig. VI.

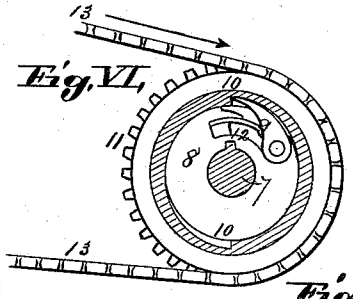


Fig. IX.

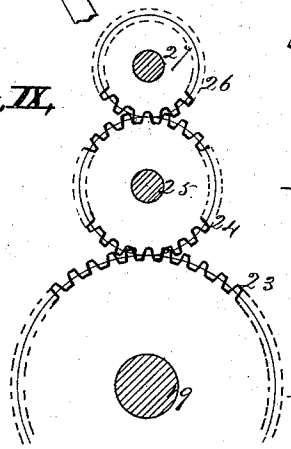


Fig VII

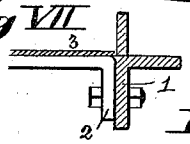


Fig. X.

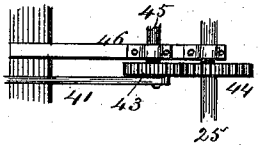
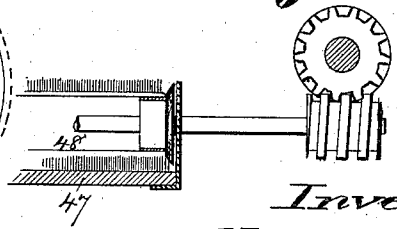


Fig. VIII.



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UNITED STATES PATENT OFFICE.

HERMANN BURFEIND, OF FROHNA, MISSOURI.

CLOVER-SEED HARVESTER.

SPECIFICATION forming part of Letters Patent No. 383,796, dated May 29, 1888.

Application filed March 26, 1887. Serial No. 232,504. (No model.)

To all whom it may concern:

Be it known that I, HERMANN BURFEIND, of Frohna, in the county of Perry and State of Missouri, have invented a certain new and useful Improvement in Clover-Seed and other Grain Harvesters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure I is a top plan view of the machine with parts (claimed in another application, Serial No. 232,505, for patent) shown in outline, in order to show the relative position of the parts. Fig. II is an enlarged central longitudinal section of the machine at II II, Fig. I. Fig. III shows an inside view of a ground-wheel, the figure being an enlarged section at III III, Fig. I. Fig. IV is a section of this ground-wheel at IV IV, Fig. III. Fig. V is a detail view showing a modification in construction of the combs by which the clover-heads are stripped from the stalks. Fig. VI is an enlarged section at VI VI, Fig. I. Fig. VII is a section through the frame at VII VII, Fig. II. Fig. VIII is an enlarged vertical longitudinal section at VIII VIII, Fig. I. Fig. IX is a diagram showing part of the train of gearing between the axle-shaft and the upper cross-shaft of the machine. Fig. X is a detail plan showing part of the gearing by which the shaking-riddle is actuated.

The frame of the machine I purpose to make of angle-iron, as being at once strong and light and giving ready means for the attachment of boxes and other parts. It may have any form and construction suitable for the purpose.

1 1 are curved parts of the side pieces of the frame, connected by cross-bars whose ends are shown at 2, and by a curved floor, 3, up which the clover-heads are carried by the stripping-combs 4.

The combs shown in Figs. I and II consist of a strip of angle-iron having teeth cut in one of the flanges. In Fig. V, I show the teeth cut in a separate strip of metal, which is riveted to the angle-iron rib. These combs are arranged spirally upon the comb cylinder 5, with their teeth 4^a inclining somewhat backward, as shown in Fig. V, from a direction radial to the cylinder, so that the heads of clover will drop from the combs with readiness as soon as they pass the upper edge, 6, of the floor 3. The main part of the floor 3 is concentric with the cylinder. The comb-cylinder is supported on a shaft, 7, on which it turns freely, except when locked by a ratchet-clutching device composed of a collar, 8, fast on the shaft, carrying a pawl, 9, which engages in recesses 10 of the hub of the chain gear-wheel 11. The pawl is pressed outward by a spring, 12, so as to engage in the recesses when the wheel 11 is turned in the direction indicated by the arrow in Figs. II and VI, the wheel at this time carrying the cylinder with it. The shaft 7 turns in boxes upon the side frames. The gear-wheel 11 is turned by a gear-chain, 13. The gaps between the comb-teeth would be such as to allow the clover-stalks to easily pass between them, but to prevent the passage of the clover-heads, and consequently the heads would be pulled from the stalks.

The comb-teeth 4^a in Fig. II are shown formed in the outwardly-projecting flanges of angle-bars whose other flanges are riveted to the wheels forming the body of the cylinder 5. In the modification shown in Fig. V the comb is made in a separate piece from the bar and riveted thereto. At the lower (and forward) end of the curved floor 3 is a transverse roller, 14, against which the clover-stalks are pressed by the combs 4. The roller prevents all friction of the stalks against the lower end of the floor. The roller is turned by the pressure of the stalks against it.

15 is an adjustable fender, which extends across the machine above the level of the roller 14 and in advance of the roller. The office of the fender is to bend down any tall stalks of grain or weeds and prevent their contact with the combs.

The machine is supported on two ground-wheels, 16 and 17, which are alike in structure, except that the latter one, 17, should have a broader rim, as more weight would be sustained by it than by the wheel 16. A description of the wheel 16 will apply equally to the wheel 17. The rim of the wheel has cross-ribs 18, which insure its rotation when the machine is pulled forward. These wheels are constructed to turn freely upon the axle 19, except when clutched thereto by the ratchet-clutch composed of pawls 20 upon the wheel,

which engage a ratchet-wheel, 21, upon the axle 19. The pawls are thrown into engagement with the ratchet-wheel by springs 22.

It will be understood that when the machine is moving forward the axle is caused to turn with the wheels; but when either or both of the wheels are turning backward their motion is not given to the axle, as they turn freely thereon, (in such case.)

The axle-shaft 19 carries a spur-wheel, 23, which engages with a spur-wheel, 24, upon a shaft, 25, and the spur-wheel 24 engages with a spur-wheel, 26, upon a shaft, 27. Upon the shaft 27 is a chain gear-wheel, 28, on which is the gear-chain 13, so that the comb cylinder is driven by the ground-wheel and axle-shaft through the described mechanism. As the clover-heads reach the upper edge, 6, of the floor 3, they drop into the trough 29 at the lower end of an inclined floor, 30, up which they are carried by the endless brush, and from whose upper edge they drop on the riddle. The endless brush has side belts, 31, connected by cross slats 32, armed with bristles or fine-wire brushes 33. The belts are carried at the upper bend upon the drive-pulleys 34 on the shaft 27, (see Fig. II,) and are carried at the lower bend by pulleys 35 upon a shaft, 36, with which the trough 29 is concentric.

The floors 3 and 30 have side walls, 37 38, to prevent the escape of the clover-heads at the sides. The riddle 39, upon which the clover-heads drop at the upper edge of the floor 30, is sufficiently inclined to cause the material upon it to travel backward as the riddle is vibrated in a longitudinal direction. To allow this movement of the riddle, it is suspended on hanger links 40, hinged to the fixed frame at their upper ends and hinged at the lower ends to the frame of the riddle, as seen in Fig. II.

41 is a connecting-rod hinged to the riddle and extending to a wrist-pin, 42, on the spur-wheel 43. The spur-wheel 43 engages with a spur-wheel, 44, on the shaft 25. It will be seen that the connecting-rod 41 would preclude the shaft 45 of the spur-wheel 43 from extending beyond the spur-wheel 43. This shaft 45 has journal-bearing near the spur-wheel 43 upon a bar, 46, the rear end of which is attached to the frame of the machine, and the front end of which is strapped to the shaft 25. The meshes of the riddle 39 are of such size as to allow clover-heads to pass through, but to prevent the passage of straws, stems, &c., which are discharged as tailings in the rear of the machine. The heads fall into a chute, 47, beneath the riddle, along which they are carried by an endless brush, 48, and deposited at the lower end of an elevator, 49, by which they are carried up and fed to a thrasher and cleaner, 50, of any suitable construction, which will not be described here, as it forms the subject-matter of another application of even date herewith.

The operation of the machine may be briefly described as follows: As it is drawn forward, the tall stalks of grain or weeds (if such exist) come in contact with the fender 15, and are bent forward so that they do not come in contact with the combs 4, and the roller 14 passes over them. The clover-heads are carried by the combs over the roller 14 and stripped from the stalks and carried by the combs up the inclined floor, and carried by the brushes 33 up the floor 30 and dropped upon the upper end of the riddle 39, through which the heads drop, and are carried by the brushes 48 along the chute 47 to the elevator, by which they are fed to a thrasher and cleaner, forming part of the same machine, as aforesaid. Any accumulation of heads at the top of the floor 3 is prevented by the brushes 33, which first carry the heads down into the trough 19 and then up the floor 30, as aforesaid. In the passage of the clover-heads up the floor 30 the brushes 33 disintegrate them more or less, so as to assist their passage through the riddle 39. The brushes 48 also act in the same manner on the heads carried along chute 47.

I claim as my invention—

1. The combination of the frame formed with side pieces, having curved parts 1 1, curved floor 3, secured thereto, the cylinder 5, having combs 4, formed with stripping-teeth 4^a, the roller 14 in advance of the floor, and the upwardly and forwardly extending fender 15, substantially as described.

2. The combination of the frame formed with side pieces, having curved parts 1 1, curved floor 3, secured thereto, the cylinder 5, having combs 4, formed with stripping-teeth 4^a, the upwardly and rearwardly inclined floor 30, formed with a trough, 29, beneath the upper edge, 6, of the main floor, and the endless conveyer 32, having brushes 33, working through the trough, substantially as described.

3. The combination of the frame having curved floor 3, secured thereto, the cylinder 5, having combs 4, formed with stripping-teeth 4^a, the upwardly and rearwardly inclined floor 30, formed with a trough, 29, beneath the upper edge, 6, of the main floor, the endless conveyer 32, having brushes 33, and the riddle 39 at the end of the conveyer-floor, substantially as described.

4. The combination of the frame having curved floor 3, secured thereto, the cylinder 5, having combs 4, formed with stripping-teeth 4^a, the upwardly and rearwardly inclined floor 30, formed with a trough, 29, beneath the upper edge of the main floor, the endless conveyer 32, having brushes 33, the riddle 39, into which the conveyer discharges, and the chute 47 beneath the riddle, having brushes 48, substantially as described.

HERMANN BURFEIND.

In presence of—
MATHILDE BURFEIND,
FERDINAND BURFEIND.