

UNITED STATES PATENT OFFICE.

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GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 777,123, dated December 13, 1904.

Application filed September 23, 1904. Serial No. 225,580. (No model.)

To all whom it may concern:

Be it known that I, DE WITT A. MOON, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Grain-Drills, of which the following is a specification.

My invention relates to improvements in grain-drills, and it particularly relates to improved means for driving the distributors in grain-drills of that type known as "low-down" or "press-wheel" drills, which employ press-wheels arranged in two or more gangs, each gang usually having three or more wheels mounted on a single shaft or axle. In drills of this character the feed-shaft for the distributors is driven from the shaft carrying the press-wheels, the means employed usually consisting of an ordinary pawl-and-ratchet device arranged, respectively, on the hubs of the press-wheels and the shaft carrying the same. This form of driving connection has been found objectionable for various reasons, some of which are that the parts are exposed to falling dirt and soon become worn and also that the considerable spring-pressure required to hold the pawls in engagement causes a considerable amount of friction when the machine is being turned. In this construction also the press-wheels are required to be made right and left and also requires that some of the wheels be made idlers to accommodate the limited space.

The object of my invention is to overcome these and other objections and to simplify and cheapen the construction of devices of this character.

My invention consists in the constructions and combinations of parts hereinafter described, and set forth in the claims.

In the accompanying drawings, Figure 1 is an end view of a gang of press-wheels mounted upon their supporting axle or shaft with my improvement embodied therein. Fig. 2 is a vertical sectional view taken through the hub of one of the press-wheels, the section being taken on the line *x x* of Fig. 3. Fig. 3 is a

side view of the device, shown partly in section, the section being on the line *y y* of Fig. 2. Fig. 4 is an end and side view, respectively, of axle or shaft for the press-wheels with the pawl-carrying ring shown thereon. Fig. 5 is a detail view of the pawl.

Like parts are represented by similar characters of reference in the several views.

In the said drawings, 1 represents the axle or shaft for the press-wheels, upon which are loosely mounted the hubs *a'* of the press-wheels *a*. The hub of each press-wheel is provided at one end with an enlarged chamber *a²*, having on its inner periphery ratchet-teeth *a³*, whose edges radiate toward the center, the spaces *a⁴* between said teeth being of the same width as said teeth. Mounted upon the shaft within said chamber is a pawl-carrying ring *b*, having at its outer end a collar *b'*, said ring being connected to said shaft so as to revolve therewith by means of a pin *b³*, driven through a bore in the shaft with the protruding ends thereof engaging in recesses *b⁴*, formed in the end of said ring.

The pawl-carrying ring *b* is provided with a series of pawl-receiving chambers *b⁵*, preferably three in number, arranged equidistant about the same. The respective sides of each chamber are formed alike on a curve converging toward the outer periphery of the ring, so as to form somewhat-contracted openings, the bottom of the chamber being formed open to permit the insertion of the pawl *c*. Around the inner periphery or bore of the ring *b* is placed a band *d*, preferably of spring-steel, to form a bottom for the respective pawl-chambers *b⁵*, curved on the arc of a circle struck from the axial center of said ring, said band being inserted in a recess formed for that purpose in the said ring after the pawls have been placed in position in the respective chamber. The pawl *c* is so shaped that when in inoperative position it will lie wholly within said chamber, the bottom *c'* of the pawl conforming to the shape of the bottom of the chamber. The rear side of the pawl is formed on a curve to conform to the shape of the sides

of the chamber. By this construction when the pawl is in clutch with the teeth on the hub of the press-wheel it will back up against the side of the chamber with its tail or pivoted end bearing on the band or bottom of the chamber and when in inoperative position it will drop loosely down and find a seat on the bottom of the chamber, the construction also permitting the pawls to be reversed to be used either on a right or left hand wheel, if desired.

In assembling the press-wheels and their pawl-carrying ring on the axle or shaft the same are spaced apart by boxing *e* on the shaft, and a driving-sprocket *e'* is secured to the shaft between the hub of one of said wheels and the next succeeding pawl-ring. The pawls fit loosely into the chambers and drop by gravity into engagement with the inner teeth of the wheel-hub, the enlarged chamber of the hub, together with the collar on the pawl-ring, forming a protecting-casing for the pawls to prevent the entrance of dirt or other foreign substances.

Having thus described my invention, I claim—

1. In a grain-drill, a press-wheel shaft, a press-wheel mounted loosely on said shaft having an enlarged chamber extending about the shaft, teeth on the inner periphery of said chamber, a ring secured to said shaft in said chamber, and pawls supported by said ring adapted to engage with the teeth of said chamber in one direction of rotation of said wheel, substantially as specified.

2. In a grain-drill, a press-wheel shaft, a press-wheel mounted loosely on said shaft having an enlarged chamber on the hub thereof extending about said shaft, teeth on the inner periphery of said chamber, a ring secured to said shaft in said chamber, pawl-supporting chambers in said ring, and pawls in said chambers adapted to engage with the teeth of said hub-chamber in one direction of rotation of said wheel, substantially as specified.

3. In a grain-drill, a shaft, a press-wheel mounted loosely upon said shaft, a chamber formed on said wheel extending laterally therefrom about said shaft, teeth on the inner periphery of said chamber, a ring mounted loosely on said shaft in said chamber carrying pawls to engage with said teeth, recesses in the end of said ring, and a pin extending through said shaft to engage with said recesses to form a driving connection between said ring and shaft, substantially as specified.

4. In a grain-drill, a shaft, a press-wheel mounted on said shaft, a chamber on said wheel extending laterally therefrom about said shaft, teeth on the inner periphery of said chamber, a ring secured to said shaft in said chamber, open chambers formed in said ring, pawls in said chambers to engage with said teeth in one direction of rotation of said wheel, and a removable band in the inner bore of said ring

to form supports for said pawls, substantially as specified.

5. In a grain-drill, a press-wheel shaft, a press-wheel mounted loosely thereon, a chamber formed on said wheel extending laterally therefrom about said shaft, teeth in said chamber, a ring secured to said shaft in said chamber, a series of slots extending through said ring from the inner to the outer periphery, said slots converging toward the outer periphery of the ring, pawls in said slots the outer parts of which are adapted to project beyond the outer periphery of said ring to engage with the teeth in said hub-chamber in one direction of rotation of said wheel, and a removable band extending about the inner periphery of said slotted ring to form pawl-supporting bottoms for said slots, substantially as specified.

6. A press-wheel mounted loosely upon a shaft and having a hub with internal teeth, a ring secured to said shaft provided with a series of radially-extending slots, the sides of each slot being formed on curves which converge toward the outer periphery of the ring, a band extending around the inner periphery of said ring to form an inwardly-curved bottom for each slot, and a pawl in each slot the bottom of which is curved to conform to the bottom of the slot and the sides of which are curved to conform to the sides of the slot in the different positions of operation of said pawl, substantially as and for the purpose specified.

7. In a grain-drill, a shaft, press-wheels mounted loosely on said shaft, the hubs of said press-wheel each having an enlarged chamber encircling the shaft, a ring secured to said shaft located in each chamber, a collar on each ring extending to the inner periphery of the chamber to close the same, pawls carried by each of said rings and teeth in said chambers adapted to be engaged by said pawls, spacing-boxes on said shaft between the hub of each wheel and the pawl-carrying ring of the adjacent wheel, and a driving-sprocket secured to said shaft, substantially as specified.

8. In a grain-drill, a shaft, a press-wheel mounted on said shaft to revolve loosely thereon, a laterally-extending chamber on said press-wheel surrounding said shaft, a ring secured to said shaft in said chamber having a collar at its outer end to close the end of said chamber, teeth in said chamber, and means carried by said ring to engage the said teeth in one direction of revolution of said wheel, substantially as specified.

In testimony whereof I have hereunto set my hand this 17th day of September, A. D. 1904.

DE WITT A. MOON.

Witnesses:

C. H. ZINKEL,
R. L. HURST.