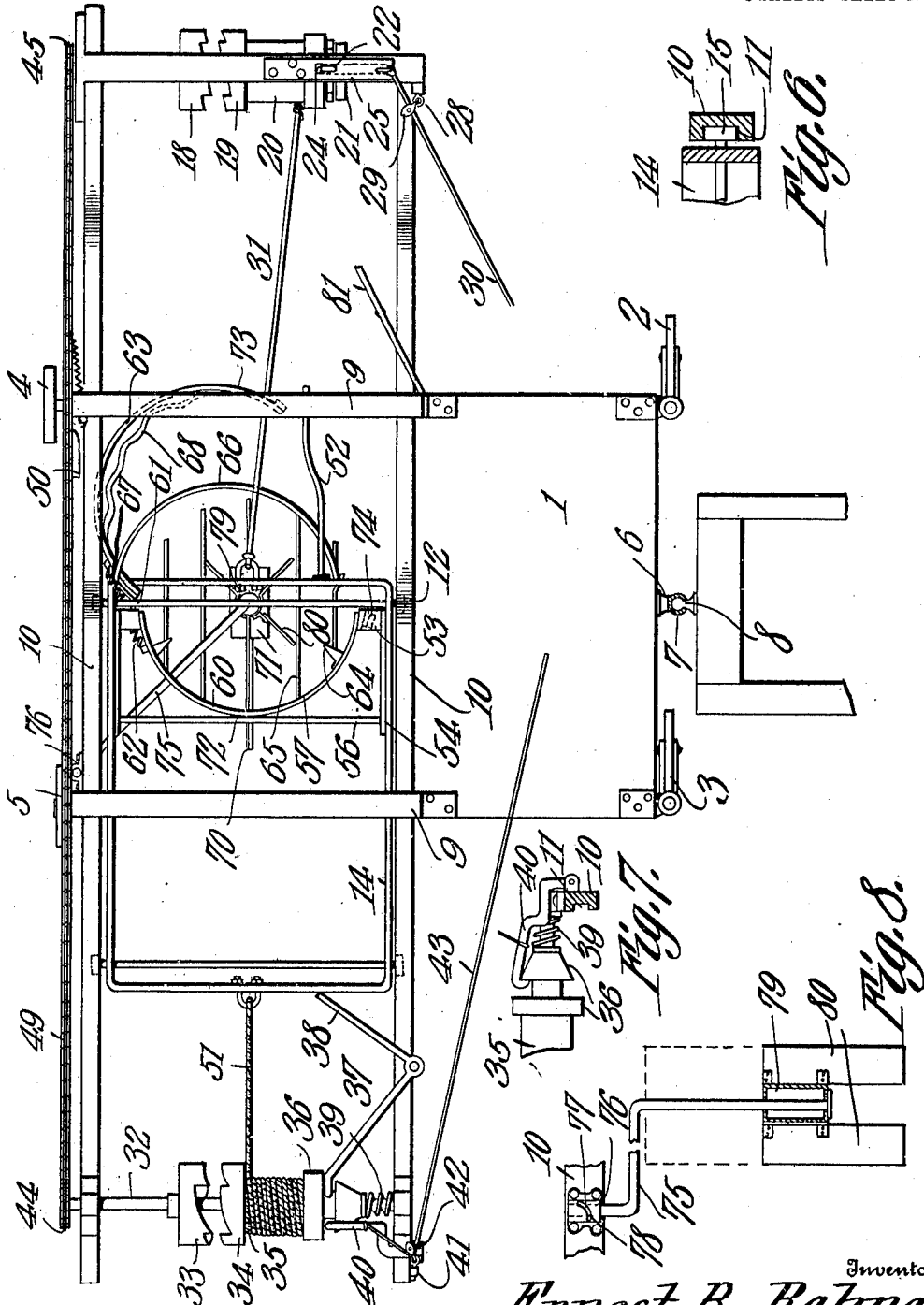


E. B. RAHNER.
GRAIN SHOCKER.
APPLICATION FILED MAY 21, 1908.

953,155.

Patented Mar. 29, 1910.

3 SHEETS—SHEET 1.



Witnesses
E. B. Rahner
E. L. Daniels

Fig. 1.

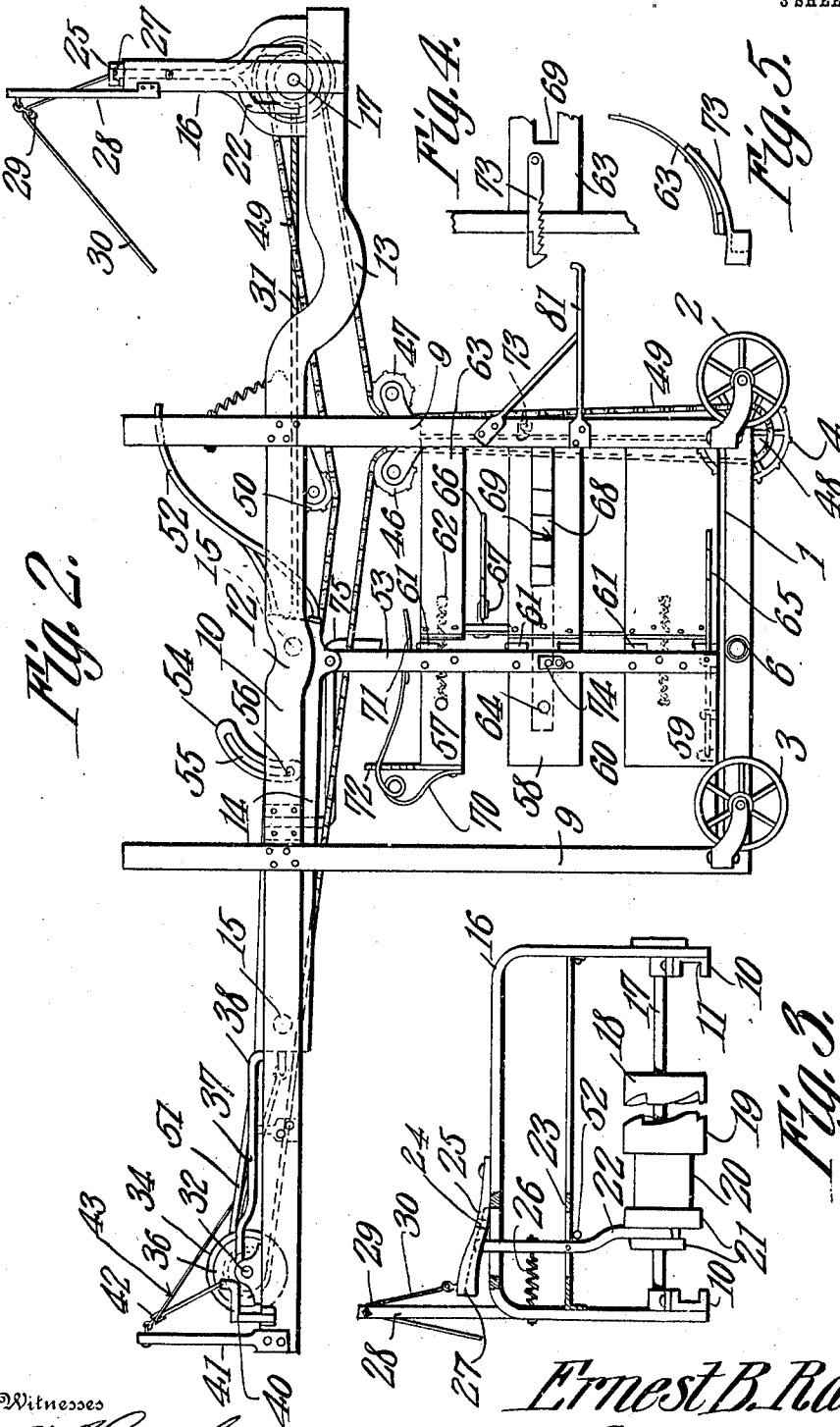
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3 SHEETS—SHEET 2.



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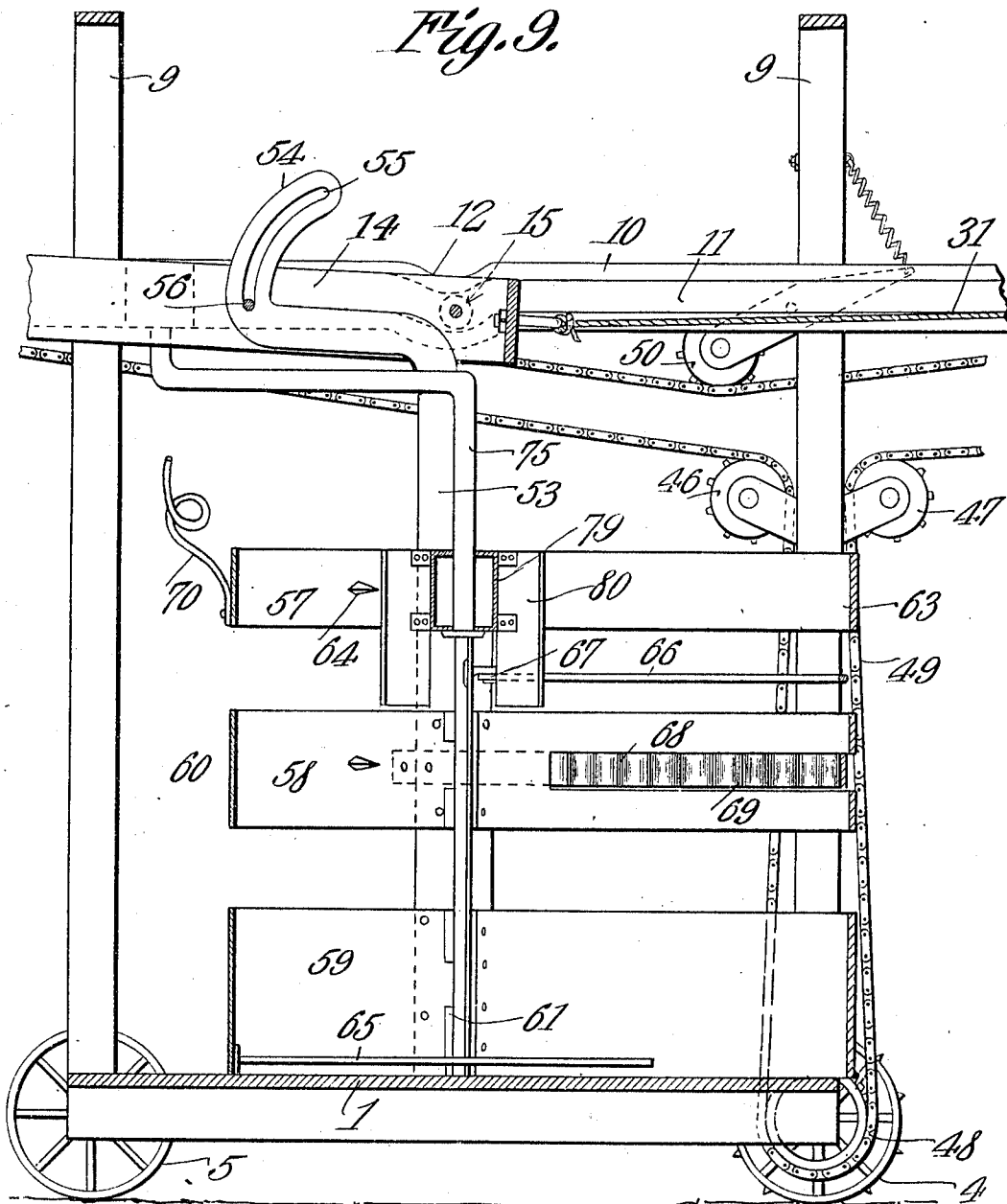
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ERNEST B. RAHNER, OF CAZENOVIA, ILLINOIS.

GRAIN-SHOCKER.

953,155.

Specification of Letters Patent.

Patented Mar. 29, 1910.

Application filed May 21, 1908. Serial No. 434,203.

To all whom it may concern:

Be it known that I, ERNEST B. RAHNER, a citizen of the United States, residing at Cazenovia, in the county of Woodford and State of Illinois, have invented a new and useful Grain-Shocker, of which the following is a specification.

This invention has relation to grain shockers, and it consists in the novel construction and arrangement of its parts, as hereinafter shown and described.

The object of the invention is to provide a shocker in the form of an attachment which may be applied to the frame of a binder or similar implement.

The device consists, primarily, of a wheel mounted platform provided with means for attachment to the binder frame. Inverted U-shaped uprights are mounted upon the platform, and a track is supported at the upper portion of said uprights. A carriage is mounted for movement along the said track, and means is provided at the ends of the track for drawing the carriage along the same. A shock-holder is carried by the carriage, and, at times, is adapted to rest upon the platform, and, when in the act of dumping or depositing the shock, it moves along the track over the edge of the platform, where the shock is deposited upon the ground. The shock-holder is of peculiar arrangement, and will be explained in detail hereinafter. Means is provided for transmitting movement from one of the ground wheels of the attachment to the means located at the ends of the track for actuating the carriage. The shocker is also provided with a shock-forming device which is adapted to cooperate with the shock-holder during the process of assembling the sheaves within the same. The said former is pivotally mounted upon one of the tracks above mentioned, and, when not in use, may be swung to one side, out of the way.

In the accompanying drawings:—Figure 1 is a top plan view of the shocker. Fig. 2 is an elevation of the same. Fig. 3 is an end elevation of a portion of the shocker. Figs. 4 and 5 are detailed views of a latch used upon the shocker. Fig. 6 is a sectional view of a side rail used upon the shocker. Fig. 7 is a side elevation of a portion of one of the drums used upon the shocker. Fig. 8 is a side elevation, partly in section, of a former used upon the shocker. Fig. 9 is a vertical

sectional view of an intermediate portion of the shocker.

The shocker consists of a platform 1, which is mounted at one side upon freely casters wheels 2 and 3. Relatively fixed supporting wheels 4 and 5 are located at the opposite sides of the platform 1. A socket 6 is mounted upon one of the side edges of the platform 1, and is adapted to receive a ball end 7 of a pin 8, which is adapted to be secured to the frame of a binder. Thus means is provided for connecting the shocker in a flexible manner with the frame of a binder. Inverted U-shaped uprights 9 are mounted upon the platform 1. Side rails 10 are supported at the upper portions of the uprights 9 and are provided with tracks or guide-ways 11. The side rails 10 are provided with depressions 12 and 13. The said depressions are for the purpose of providing tortuous places in the track 11, the object of which will be hereinafter explained. A carriage 14 is provided at its sides with wheels 15, which operate in the tracks or guide-ways 11. A frame 16 is mounted at one end of the side rails 10, and a shaft 17 is journaled for rotation in the frame 16. A clutch member 18 is fixed upon the shaft 17, and a clutch 19 is slidably mounted upon the said shaft. A drum 20 forms a part of the clutch member 19. The drum 20 is provided at one end with spaced flanges 21. A lever 22 is fulcrumed to a cross-piece 23 of the frame 16, and is provided with a lower forked end, which operates in the space between the flanges 21. The upper end of said lever 23 passes through the upper portion of the frame 16 and normally lies in the perforation 24, provided in the flat spring 25 attached to the upper portion of the said frame 16. A spring 26 is attached at one end to the upper portion of the lever 22, and at its opposite end to one of the sides of the frame 16. The said spring 26 is under tension with a tendency to draw the upper free end of the lever 22 toward that side of the frame 16 with which the said spring is connected. The spring 25 is provided at its under side with a groove 27, which at times is entered by the upper end of the lever 22.

A post 28 is mounted upon the upper portion of the frame 16, and a pulley 29 is attached to the upper end of the said post. A cable 30 passes over the pulley 29, and is

attached at one end to the outer or free end of the flat spring 25. The opposite end of the said cable 30 is within convenient reach of one standing upon the platform 1. One
 5 end of the cable 31 is attached to the end of the carriage, and the other end of the said cable 31 is adapted to wind upon the drum 20.

A shaft 32 is journaled for rotation at the
 10 opposite ends of the rails 10, and a clutch member 33 is fixed to the shaft 32. A clutch 34 is slidably mounted upon the shaft 32, and is provided with a drum 35. The drum 35 is provided at its end with spaced flanges
 15 36, which operate the forked end of a lever 37, which in turn is fulcrumed upon one of the side rails 10, and has a free end 38 lying in the path of movement of the carriage 14. A coil spring 39 surrounds the shaft 32 and
 20 bears at one end against a fixed point, and at its opposite end against one of the flanges 36 of the drum 35. Said spring is under tension with a tendency to normally move the drum 35 and its clutch member 34 to-
 25 ward the clutch member 33. A catch 40 is pivotally mounted upon one of the side rails 10, and is adapted to engage the periphery of the outer flange 36 of the drum 35, and
 30 hold the clutch member 34 out of engagement with the clutch member 33 and against the tension of the coil spring 39.

A post 41 is erected upon one of the side rails 10, and is provided with a pulley 42. A cable 43 passes over the pulley 42 and is
 35 attached at one end to the catch 40, and the opposite end of the said cable 43 is located within convenient reach of one standing upon the platform 1.

A sprocket wheel 44 is mounted upon the
 40 shaft 32, and a sprocket wheel 45 is mounted upon the shaft 17. Sprocket wheels 46 and 47 are mounted upon one of the uprights 9, and a sprocket wheel 48 is mounted concentrically with relation to the sup-
 45 porting wheel 4. A sprocket chain 49 passes around the wheels 48, 45 and 44, and over the sprocket wheels 46 and 47. A spring-actuated sprocket wheel 50 is pivotally mounted upon one of the uprights 9, and
 50 bears against the sprocket chain 49 for the purpose of taking slack out of the same. Thus it will be seen that means is provided for transmitting movement from the ground
 55 wheels 4 to the shafts 17 and 32. One end of a cable 51 is attached to the carriage 14, and the other end of the said cable 51 is adapted to wind upon the drum 35. An
 60 arm 52 is mounted upon the end of the carriage 14, and as the carriage moves toward the shaft 17, the said arm 52 is adapted to engage the side of the lever 22 and swing the same upon its pivot, so that the said lever will disengage the clutch member 19 from the clutch member 18.

65 Hangers 53 are pivotally attached to the

carriage 14 and are provided with upper extremities 54 having curved slots 55 which receive the cross rod 56, which in turn is attached at its ends to the sides of the frame 14. The lower ends of the hangers 53 sup-
 70 port a shock-holder. Said shock-holder consists of two sections 60 and 63, which are made up of metallic side strips 57, 58 and 59. The section 60 is fixed to the lower end portions of the hangers 53, and the
 75 other section 63 of the shock-holder is hinged to the section 60 as at 61, and is adapted to swing laterally with relation to the same. Springs 62 are attached to the
 80 outer sides of the sections 60 and 63, and are under tension with a tendency to hold the section 63 open with relation to the section 60. Strips 57 and 58 of the section 60
 85 are provided upon their inner sides with grain-impaling tines 64, and the said section 60 is provided at its lower end with parallel horizontal shock supports 65. A
 90 spring 66 is attached to the section 63, and is provided with a volute portion 67. Said spring 66 is under tension with a tendency to hold its free end toward the section 60. A flat spring 68 is attached at its end to the
 95 section 60 of the shock-holder, and at its opposite end passes through a slot 69, provided in the intermediate strip of the hinged
 100 section 63. The said spring 68 is adapted to engage the bundles of grain when they are placed in position in the said shock-holder, and has contact with the bundles
 105 substantially at the line where they are bound by the twine. A spring arm 70 is mounted upon the section 60, and is provided at its upper free end with a plate 71,
 110 which is adapted to bear down upon the uppermost sheave of the shock and hold the same in position while the shock is being placed upon the ground. A rack 72 is
 115 mounted upon the section 60, and is adapted to be engaged by the arm 70 when the same is swung down for the purpose of holding
 120 the plate 71 down in close contact with the uppermost sheave of the shock. A latch 73 is pivotally mounted upon the hinged section 63 of the shock-holder, and a keeper
 125 74 is attached to the edge of the section 60 of the shock-holder. A shock-former is provided which coöperates with the said shock-holder. Said shock-former consists
 130 of a crank-shaft 75, which is journaled at its upper end in a bearing 76 provided upon one of the side rails 10. Said bearing is provided with a spirally disposed slot 77,
 135 and a pin 78 is mounted upon the shaft 75 and operates in the said slot 77. The lower portion of the shaft 75 is vertically disposed, and a sleeve 79 is slidably mounted thereon. Said sleeve is provided with blades
 140 80. Said blades serve as bundle supports during the process of forming the shock.

From the above description it is obvious 130

that when a shock is formed in the shock-holder, the sleeve 79 and its attachments may be moved vertically along the lower portion of the shaft 75, and, when the lower edges of the said blades arrive at a point above the upper edges of the shock-holder, the said shaft 75 may be swung laterally in the bearing 76, and, by reason of the slot and pin connection between the shaft and the bearing, the said shaft will be slightly elevated as it is swung to one side. Consequently, when it is released it will have a tendency to swing over the shock-holder by gravity when another shock is to be formed.

The operation of the device is as follows:—As the shocker proceeds over the surface of the ground an operator standing upon the platform 1 takes the bundles of grain as they are delivered from the binder, and places them in the shock-holder. Previous to this, however, the shaft 75 has been swung, so that the shock-former carried by the shaft is rotated within the shock-holder, as above described, and the blades carried by the said shock-former serve the purpose of holding the bundles and preventing them from falling sidewise as they are stood upon end in the said shock-holder. At the same time, the spring 66 bears laterally against the bundles as they are placed in the shock-holder. When the shock has been formed the operator draws upon the cable 30, which lifts the free end of the flat spring 25, and the lever 22 swings in response to the tension of the spring 26, so that the clutch member 19 is thrown into engagement with the clutch member 18. Thus the drum 20 starts to rotate, and the cable 31 is wound thereon. This draws the carriage 14 toward the shaft 17. When the wheels 15 of the carriage 14 enter the depressions 13 in the side rails 10, the said carriage will descend, and the latch 73 is brought in contact with an arm 81, which is attached to one of the uprights 9, and thus the said latch 73 is swung up out of engagement with the keeper 74. This liberates one edge of the section 63, and it is then free to swing upon its hinges 61, which it does in response to the tension of the springs 62. Thus, the support is removed from one side of the shock, which has been moved over the edge of the platform 1, and as the device moves along the surface of the ground the said shock is left standing in upright position upon the same. In the meantime, the arm 52 has engaged the lever 22 and swung the same, so that the clutch member 19 is moved out of engagement with the clutch member 18, and, consequently, the drum 20 ceases to rotate. When the lever 22 has been swung as above indicated, and its upper end comes under the opening 24 in the spring 25, the said spring 25 descends by its own resiliency and forms a means for positively

holding the said lever 22 against the tension of the spring 26. After the shock has been deposited upon the ground, as above described, the operator draws upon the cable 43. This lifts the catch 40 and the coil spring 39 forces the drum 35 and its clutch member 34 into engagement with the clutch member 33 upon the shaft 32. Thus the drum 35 is set in rotation, and as the cable 51 winds thereon the carriage 14 is drawn toward the shaft 32 and continues in this movement until the wheels 15 enter the depressions 12 in the side rails 10. At the same time that this happens the end of the carriage 14 comes in contact with the free end 38 of the lever 37 and the said lever is swung upon its fulcrum, so that the drum 35, and its clutch member 34 is moved away from the clutch member 33 and against the tension of the spring 39 and under the catch 40, which, by gravity, engages one of the flanges 36 and holds the parts in the last said position. By reason of the fact that the upper portions of the hangers 53 are pivotally connected with the carriage 14, the said hangers may have a limited swing, which will facilitate the depositing of the shock on the surface of the ground. Also, when the carriage 14 is moved toward the shaft 32 the said wheels 15 thereof pass into the track depressions 12, and the lower end of the shock-holder will rest flat upon the platform 1. In its initial movement toward the shaft 17 the shock-holder is first lifted, and then the shock is moved over the edge of the platform and deposited upon the ground as above described. The spring 66 brushes against the side of the shock, and when the shock is in position upon the ground it is moved away from the same by the onward movement of the shocker.

Having described my invention, what I claim as new, and desire to secure, by Letters Patent, is:—

1. A device as described comprising a wheel mounted platform, a track located over the platform, a carriage mounted for movement along the track, hangers pivotally connected with the carriage, and a shock-holder attached to the hangers.

2. A device as described comprising a wheel mounted platform, a track located over the platform, a carriage mounted for movement along the track, hangers pivotally connected with the carriage and confined to move parallel with the track, and a shock-holder attached to the hangers.

3. A device as described comprising a wheel mounted platform, inverted U-shaped uprights mounted thereon, a track supported upon said uprights, a carriage mounted for movement along the track, and a shock-holder carried by the carriage.

4. In a device as described an elevated track, a carriage mounted for movement

thereon, hangers depending from said carriage, a shock-holder having a section fixed to the hangers and a section hinged to the first said section.

5 5. In a device as described an elevated track, a carriage mounted for movement thereon, hangers depending from said carriage, a shock-holder having a section fixed to the hangers, and being provided with grain-impaling members, and a section 10 hinged to the first said section.

6. In a device as described an elevated track, a carriage mounted for movement thereon, hangers depending from the carriage, a shock-holder consisting of a section 15 fixed to the hangers, horizontal supports attached to said section, and a section hinged to the first said section.

7. In a device as described an elevated 20 track, a carriage mounted for movement thereon, hangers depending from the carriage, a shock-holder consisting of a section fixed to the hangers, a section hinged to the first said section, and a spring mounted 25 upon the hinged section and being under tension with a tendency to dispose its free end toward the fixed section.

8. In a device as described an elevated track, a carriage mounted for movement 30 thereon, hangers depending from the carriage, a shock-holder consisting of a section fixed to the hangers, a section hinged to the first said section, a latch mounted upon the hinged section, and a keeper mounted upon 35 the fixed section.

9. In a device as described an elevated

track, a carriage mounted for movement thereon, hangers depending from the carriage, a shock-holder consisting of a section fixed to the hangers, a section hinged to said fixed section, and a spring-mounted sheaf-retainer located upon the fixed section. 40

10. In a device as described an elevated track having a depression, a carriage 45 mounted for movement thereon, hangers depending from the carriage, a shock-holder consisting of a section fixed to the hangers, a section hinged to said fixed section, a keeper mounted upon the fixed section, a 50 latch mounted upon the hinged section, and a member projecting into the path of movement of the latch.

11. In a device as described an elevated track, a carriage mounted for movement 55 thereon, a shock-holder carried by the carriage, and a shock-former mounted for swinging movement over the shock-holder.

12. In a device as described an elevated track, a carriage mounted for movement 60 thereon, a shock-holder carried by the carriage, an arm pivoted to swing over the shock-holder, and bundle-supporting blades slidably mounted upon the arm.

In testimony that I claim the foregoing 65 as my own, I have hereto affixed my signature in the presence of two witnesses.

ERNEST B. RAHNER.

Witnesses:

VICTOR E. SCHMUCK,
MICHAEL DANNER.