

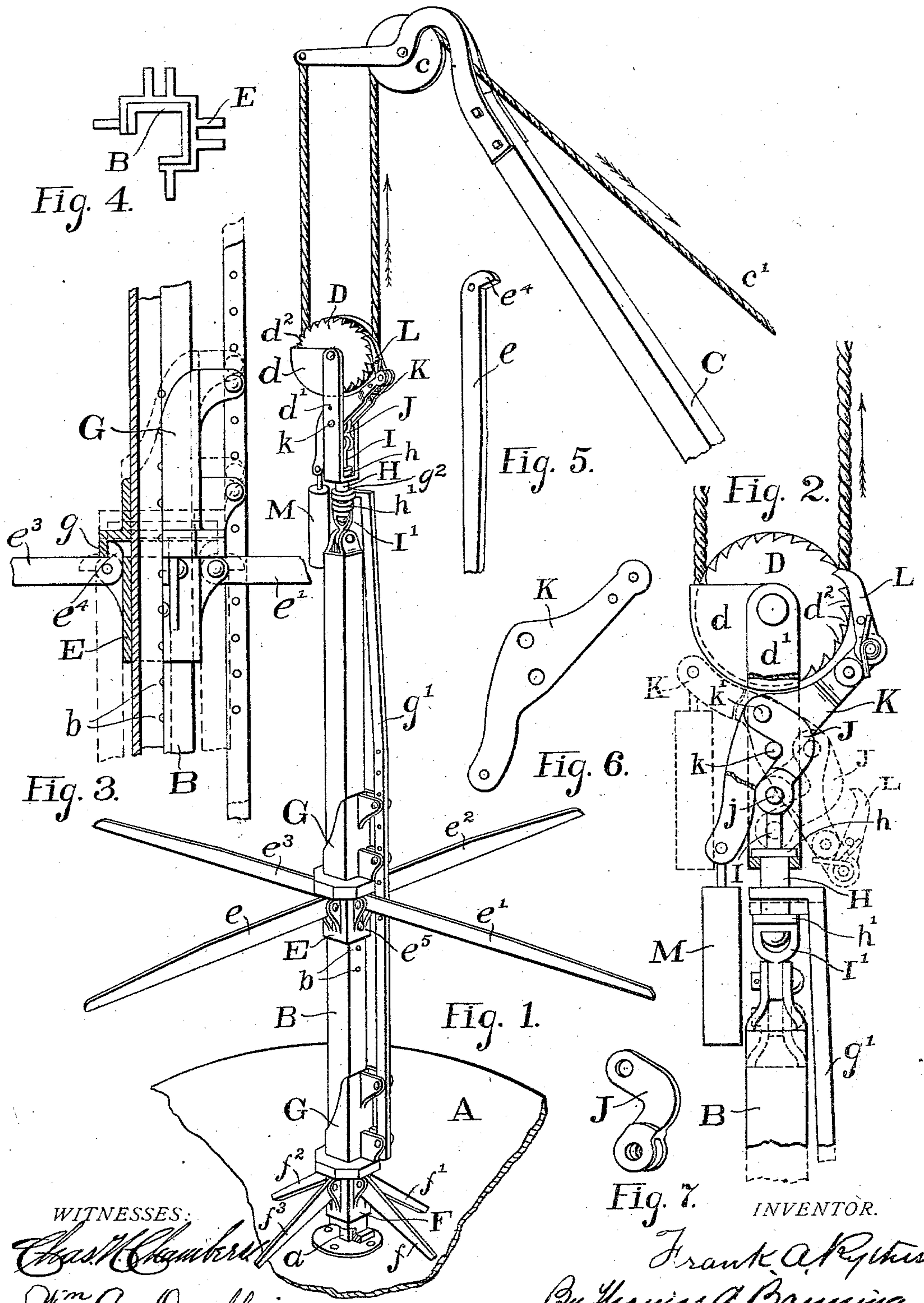
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Patented Aug. 27, 1901.

F. A. RYTHER.
CORN SHOCKER.

(Application filed Feb. 6, 1901.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

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CORN-SHOCKER.

SPECIFICATION forming part of Letters Patent No. 681,513, dated August 27, 1901.

Application filed February 6, 1901. Serial No. 46,177. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. RYTHUR, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Corn-Shockers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to shock forming and hoisting devices for corn-harvesters and may be considered to be an improvement on those shown and described in Patent No. 432,750, dated July 22, 1890, granted to A. N. Hadley, and those shown and described in Patent No. 444,723, dated January 13, 1891, granted to David W. Blaine.

It has for its objects to combine the features of Hadley's radial arms and shock-forming post and the folding radial arms of Blaine in a simple manner, and, further, to provide automatic means for depositing the shock upon the ground.

In the drawings, Figure 1 is a perspective view of my shock sustaining and lifting device, and Fig. 2 is a side elevation of the automatic tripping mechanism. Fig. 3 is a side elevation, partially in longitudinal section, of the post, the adjustable head, and the means for locking the arms in radial position. Fig. 4 is a plan view of the post and adjustable head shown in Fig. 3. Fig. 5 is a perspective view of a portion of one of the radial arms. Fig. 6 is a side elevation of one of the plates of the tripping-lever K shown in Figs. 1 and 2. Fig. 7 is a perspective view of the locking-link J shown in elevation in Fig. 2.

A may be considered to be the circular table of a rotary corn-shocker. Upon it the shock is formed in the usual manner either by placing the stalks on by hand or by mechanical means, as in the patents above referred to. Upon and at the center of this table is a plate having a strong stud *a*, which passes upward into the post B. This post for lightness and convenience only is made of a square tube.

C is a crane situated upon any portion of the corn-shocking machine, having the pulley *c*.

Upon the top of the post is the pulley D. When pulling the rope *c'* by windlass or otherwise, the shock and the post around which the shock is formed will be lifted and by movement of the crane in the usual manner the shock swung to one side of the machine and dropped.

Upon the post is the adjustable head E, provided with ears, between which the arms *e*, *e'*, *e''*, and *e'''* are pivoted. Each arm is provided with the short arm *e'*, which serves as a detent. The adjustable head E is secured to the post B by means of a pin *e''*, which is passed through it and through any of the holes *b* along the post. The pin and holes are provided as means for holding the radial arms any height from the table that may be required. In long corn they are placed higher than in short corn. Near the lower end of the post are the radial arms *f*, *f'*, *f''*, and *f'''*, pivoted to the head F in precisely the same manner as the longer arms are pivoted to the adjustable head E. These arms are practically counterparts of the arms shown in Fig. 5; but they are made shorter and slope downwardly until they touch the table. The purpose of these arms is to permit the trash that may have fallen from a previous shock when lifted to be moved on them by the pressure of the butts of the stalks for the new shock as they are forced toward the center of the table, and thus be taken away from the table when the post is lifted.

Upon the post are the collars G, adapted to move freely. They have a flange *g*, (shown in Fig. 3,) between which and the post the short ends of the radial arms are held. Turning now to Fig. 3, the means for locking the arms to position will be readily understood. In full lines the flange *g* is seen to engage the short arm or detent *e'*. If now the collar G is moved upward, as shown by dotted lines in Fig. 3, the arm is set free and permitted to fall to its position parallel with the post, as shown in dotted lines. What is true of one of these arms is true of all, and it is equally true of the radial arms at the lower end of the post. The two collars G are con-

connected to the bar g' by bolts or otherwise. Said collars and bar could be permanently as one piece but for the fact that it is desirable to adjust the upper collar G to correspond with the height that the adjustable head E is moved for working in short or tall corn. The collars G and the bar g' may be considered a trigger by which the arms are controlled and so far as the functions are concerned may be considered as one piece and will be so treated in describing the operation of the device. It is readily seen that if the post be lifted from the table, swung to one side, and the trigger pulled the arms will fall under the weight of the shock and the shock will drop to the ground. This trigger may be pulled by any suitable devices; but I show means for making it operate automatically, which will now be described.

At the top of the post B, Fig. 2, is a stop-sleeve H, having the collars h and h' on either end. The trigger, part of which is the bar g' , passes upward alongside the post B and is so turned that an eye g^2 , formed in it, loosely surrounds the stop-sleeve H. The pulley D is provided with a case d , and through it passes a pin which forms the axis of rotation of the pulley. This case d has arms or straps d' extending downwardly, one on each side of the pulley, and united by a cross-bar at their lower ends. In a hole in this cross-bar the stop-sleeve H is sustained, the collar h holding it in position. Through a hole in the stop-sleeve H the pin I passes upward and has formed in it an eye, which in its normal position is some little distance above the collar of the stop-sleeve H. This pin I is connected to the post B by means of the swivel I', thus providing means for allowing the post to revolve without turning the pulley D and twisting the rope. Pivoted to the upper end of said pin I between the arms or straps d' is the locking-link J, which in its normal position is in the position shown in Fig. 2. It will be readily seen that when in its normal position the weight of the post B, with all its parts and the shock formed thereon, is sustained by the locking-link J through the intermediacy of the pin I and the swivel I'.

My automatic means for tripping the trigger, referred to above, consists in mechanism for moving the parts of the tripping device, consisting of the lever K and the locking-link J, out of their normal and locked position, and thus allowing the post and the shock formed upon it to drop a short distance. The mechanism for permitting it to drop a short distance and the distance it drops is shown in Fig. 2. I accomplish this by releasing the locking-link J from its normal position, (shown in Fig. 2 in full lines,) thereby allowing the pin I and the post B, with its trigger and the shock formed thereon, to drop such distance as provided by suitable proportioning of the parts of the tripping device above referred to. Before the post B and the shock formed thereon has reached the limit of its downward

movement the eye g^2 of the bar g' of the trigger engages the collar h' of the stop-sleeve H, and thus arrests the downward movement of the trigger. The distance that the post B moves after the trigger has been stopped is sufficient to raise the flange g above the short arms or detents e^4 . This disengagement of the flange g with the short arms or detents e^4 allows the arms e , e' , e^2 , and e^3 , and in a like manner the arms f , f' , f^2 , and f^3 , to fold down and release the shock and deposit it upon the ground.

The means I have provided for normally connecting the locking-link J with the straps d' of the pulley D is substantially as follows: Pivoted upon the pin k , that extends through the arms or straps d' , is the lever K. I have here shown the lever K composed of two plates secured together, the locking-link J being received between them, forming the tripping device. This, however, is a mere matter of convenience. The said lever is provided with a hole to receive the pin k' and the locking-link J with a hole to receive the pin j . By means of the pin j the locking-link J is pivoted to the pin I and by the pin k' to the lever K. It will also be observed that the three pins j , k , and k' are not in line and that the pin k' in the movement of the parts passes beyond a line drawn through the centers of the other two—that is, passes the dead-center so far that the locking-link J strikes upon the pin k , which serves as a stop. Upon the upper end of the arm K is pivoted a spring-actuated pawl L, and upon one of the flanges of the pulley D are formed ratchet-teeth d^2 .

With the parts in the position shown in Figs. 1 and 2 it may be assumed that the shock has been formed and is ready to be lifted from the table. To accomplish this, the rope c' is drawn in the direction indicated by the arrows by windlass or otherwise. As it moves the pulley D rotates and the pawl L harmlessly clicks in the ratchets. When the shock is fully raised and swung from the table and the rope permitted to move in the direction opposite that indicated by the arrow, the pawl engages the ratchets and, moving the arm K on its axis k , swings the upper end of the locking-link J to a position to the right of a line drawn through the pins j and k , as shown in Fig. 2, when the post and shock are permitted to fall the little distance provided. When this takes place, the locking-link J drops downward until it strikes the flange h of the stop-sleeve H, which arrests the descent of the post B, the descent of the "trigger," as I have seen fit to call it, having been previously arrested by the eye g^2 of the bar g' coming in contact with the collar h' , as above described. The shock having thus been deposited upon the ground, the shock-forming device is placed again upon the revolving table A, the strong stud a passing into the post B. Until the weight of the post B is taken off of the pin I after tripping the shock, the lever K remains in its

downward position, as shown in dotted lines in Fig. 2. When now the post B is replaced on the table and its weight removed from the pin I, the weight M, attached to the lever K on the opposite side of the pivot *k* from the pawl L, moves the lever K upon its pivot *k* and brings the pawl L again into action with the ratchet-teeth *d*². It is evident, however, that a spring may be supplied in lieu of the weight M.

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

1. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, one or more series of arms pivoted to said post and a longitudinally-movable trigger adapted to engage said arms, thus locking them in radial positions relative to said post, and by longitudinal movement relative thereto to disengage them and permit them to fold beside said post, substantially as described.

2. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, one or more series of arms pivoted to said post, said arms provided with detents and a longitudinally-movable trigger adapted to engage said detents, whereby said arms are locked in radial positions relative to said post, and by longitudinal movement relative thereto to disengage said detents and permit said arms to fold beside said post, substantially as described.

3. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, one or more series of arms pivoted to said post, said arms provided with detents, and a longitudinally-movable trigger provided with one or more collars surrounding said post, each of which is adapted to engage the detents of one of said series of arms, whereby the arms are locked in radial positions relative to said post and by longitudinal movement of said trigger relative thereto to disengage the collars from said detents and permit said arms to fold beside said post, substantially as described.

4. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, a head secured to said post and adapted to be adjusted vertically, arms pivoted to said head, and a longitudinally-movable trigger adapted to engage said arms, thus locking them in radial positions relative to said post, and by longitudinal movement relative thereto to disengage them and permit them to fold beside said post, substantially as described.

5. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, a head secured to said post

and adapted to be adjusted vertically, arms pivoted to said head, and a longitudinally-movable trigger adapted to be adjusted to correspond with the adjustment of said head, said trigger adapted to engage said arms, thus locking them in radial positions relative to said post, and by longitudinal movement relative thereto to disengage them and permit them to fold beside said post, substantially as described.

6. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, thus locking them in radial positions relative to said post, and by longitudinal movement relative thereto to disengage them and permit them to fold beside said post, and automatic means for producing said longitudinal movement, substantially as described.

7. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, thus locking them in radial positions relative to said post, and by longitudinal movement relative thereto to disengage them and permit them to fold beside said post, and automatic means whereby the retrograde movement of the hoisting mechanism is instrumental in producing said longitudinal movement, substantially as described.

8. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, thus locking them in radial positions relative to said post, and by longitudinal movement relative thereto to disengage them and permit them to fold beside said post, and mechanism connecting said hoisting device and post whereby the retrograde movement of the hoisting mechanism is instrumental in producing said longitudinal movement, substantially as described.

9. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, a sliding connection between said hoisting device and post, automatic means for operating said sliding connection whereby the post and the shock formed thereon are permitted to fall a short distance, and means for engaging said trigger, whereby the momentum of the falling shock and post is instrumental in disengaging said trigger from said arms, substantially as described.

10. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-

forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, a sliding connection between said hoisting device and post, automatic means for operating said sliding connection whereby the post and the shock formed thereon are permitted to fall a short distance, and a stop adapted to engage said trigger whereby the momentum of the falling shock and post is instrumental in disengaging said trigger from said arms, substantially as described.

11. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, a sliding connection between said hoisting device and post, a tripping device adapted to actuate said sliding connection, a stop-sleeve adapted to produce relative longitudinal movement between said post and trigger whereby said trigger is disengaged from said arms.

12. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, a tripping device adapted to be actuated by the retrograde movement of the hoisting mechanism, a sliding bolt connecting said tripping device and post, and a stop-

sleeve adapted to produce relative longitudinal movement between said post and trigger whereby said trigger is disengaged from said arms, substantially as described. 35

13. In a corn-shocker, in combination with a rotary table, and a hoisting device, a shock-forming post, means for rotating said post with said table, arms pivoted to said post, a longitudinally-movable trigger adapted to engage said arms, a tripping device consisting of the lever K and the locking-link J, a sliding bolt I, and a swivel I', a stop-sleeve H, said longitudinally-movable trigger having the bar g' , with the eye g^2 , adapted to revolve freely on the stop-sleeve H and to be engaged by the stop h' , whereby said trigger may be moved longitudinally relative to said post and thus disengage said arms, substantially as described. 40 45 50

14. In a corn-shocker, in combination with a hoisting device, a pulley provided with ratchet-teeth, a tripping-lever actuated by a spring-actuated pawl engaging said ratchet-teeth, a locking-link pivoted to said tripping-lever, a sliding bolt and means for resetting said tripping-lever, all combined, substantially as described. 55 60

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

FRANK A. RYTHIER.

Witnesses:

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WM. A. DREFFEIN.