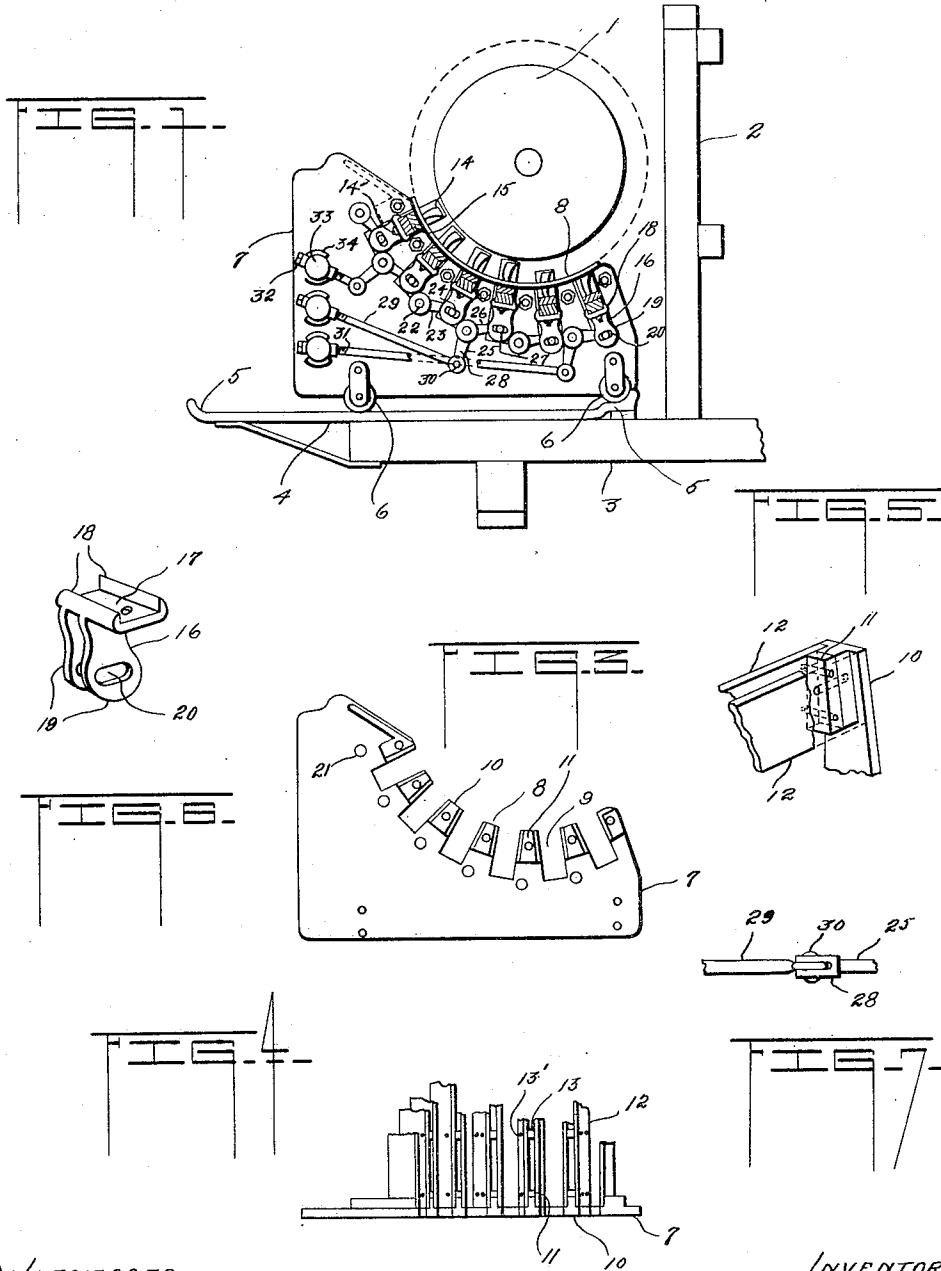


R. C. KNAAK.
THRESHING MACHINE CONCAVE.
APPLICATION FILED FEB. 27, 1913.

1,127,640.

Patented Feb. 9, 1915.

2 SHEETS-SHEET 1.



WITNESSES

M. L. Berg
Mildred Y. Boman

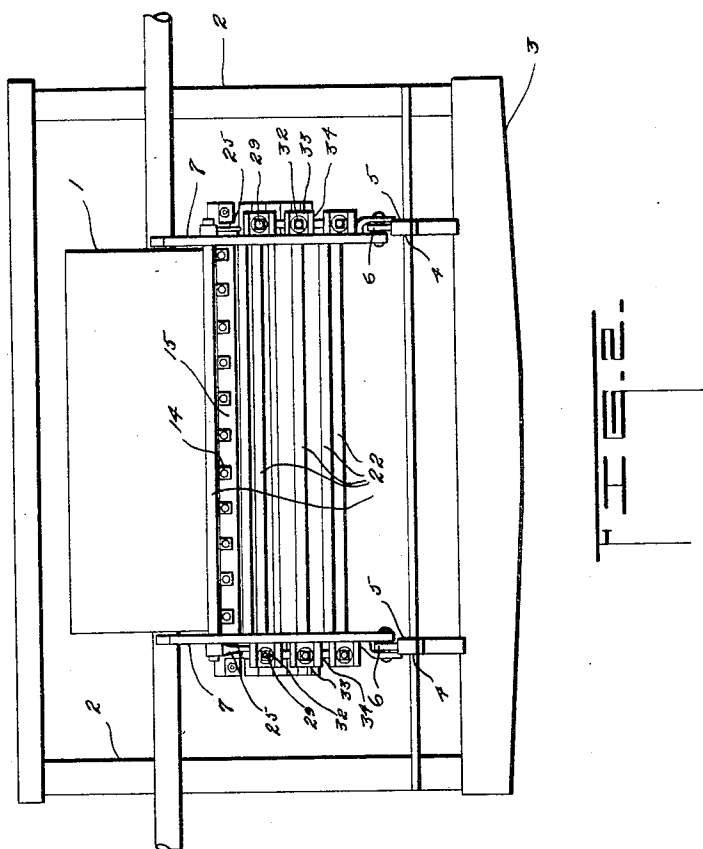
INVENTOR

Robert C. Knaak
By *La Porte & Bean.*
Att'ys.

R. C. KNAAK.
THRESHING MACHINE CONCAVE.
APPLICATION FILED FEB. 27, 1913.

1,127,640.

Patented Feb. 9, 1915.
2 SHEETS-SHEET 2.



WITNESSES

M. B. Bay-
Mildred J. Boman

INVENTOR

By Robert C. Knaak
La Porte + Bean
Att'ys.

UNITED STATES PATENT OFFICE.

ROBERT C. KNAAK, OF EMDEN, ILLINOIS.

THRESHING-MACHINE CONCAVE.

1,127,640.

Specification of Letters Patent.

Patented Feb. 9, 1915.

Application filed February 27, 1913. Serial No. 750,978.

To all whom it may concern:

Be it known that I, ROBERT C. KNAAK, a citizen of the United States, residing at Emden, in the county of Logan and State of Illinois, have invented certain new and useful Improvements in Threshing-Machine Concaves, of which the following is a specification.

My invention relates to improvements in concaves for threshing machines and is particularly designed as an improvement over my prior patent issued April 5th, 1910, and numbered 953,845.

The principal object of this invention is the provision of a concave which may be moved relative to the cylinder and which has teeth which may be adjusted as desired, the construction being simple, composed of few parts which may be readily taken apart and replaced.

A further object is the improvement of various details of construction whereby the device is operated and may be adjusted to suit various kinds of working conditions.

To the accomplishment of the foregoing and such other objects as may hereinafter appear, my invention consists in the construction, combination and arrangement of parts hereinafter described and then sought to be defined in the appended claims, reference being had to the accompanying drawings forming a part hereof and which disclose merely for the purposes of illustration one embodiment of my invention, it being understood that various changes may be made in practice within the scope of the claims without digressing from my inventive idea.

In the drawings:—Figure 1 represents a vertical section through the concave and cylinder; Fig. 2 is an end view of Fig. 1; Fig. 3 is an inside elevation of one of the side plates or members for the concave; Fig. 4 is a plan view showing the manner of mounting the transverse bars on said side members or plates; Fig. 5 is a detail perspective of the connection, and Figs. 6 and 7 are perspective views of details.

The cylinder, designated 1, is indicated diagrammatically only, as its construction forms no part of this invention. Part of the frame of the machine is indicated at 2, having the longitudinal members 3 on which are mounted the tracks 4 having the curved end portions 5 serving as abutments or stops.

The concave structure is adapted to be

moved on these tracks having the wheels 6 mounted on the lower portions of the side members or plates 7. These side members or plates 7, together with certain transversely extending bars or members comprise the framework structure of the concave, which is one of the features of this invention. As the side members or plates are substantially duplicates a description of one will suffice for both.

Referring particularly to Figs. 3, 4 and 5 of the drawing, it is seen that each side member or plate is of quadrilateral conformation having its upper side 8 curved to correspond to the curve of the concave. A plurality of equally spaced recesses 9 are cut into this curved edge 8 providing the lugs or extensions 10, which have provided thereon the spacing blocks or members 11 as shown in Fig. 5, extending to the outer edge and wider at the bottom than at the top, the sides thereof diverging downwardly. The spacing blocks or members 11 provide suitable stops or abutments to hold the transverse bars or members 12 spaced apart, said bars or members being positioned on opposite sides thereof in pairs, it being understood that wedges 13 are inserted between adjacent bars, the securing means 13' holding them in position against the spacing blocks or members. These wedges 13 are inserted at intervals across the structure.

The concave is also provided with a plurality of sets of teeth 14, which teeth are mounted on bars 15 positioned in the recesses or cut-out portions 9 between the transverse bars or members 12. These teeth holding bars extend beyond the side members or plates 7, the end portions thereof being secured in the bracket members 16, shown in detail in Fig. 6. Each bracket member comprises the holding or clamping portion 17 having the flanges 18 to form a seat for the teeth bar and the spaced depending arms or extensions 19 provided with the slots or extended apertures 20. These teeth bars are adapted to be reciprocated in the cut out portions or recesses 9 so as to vary the relative distance between the teeth 14 and the cylinder. The operating means will now be described.

In Fig. 3, a plurality of apertures 21 are shown adjacent the cut out portions or recesses 9. The opposite apertures 21 on spaced side members or plates 7 are in alignment to provide bearings for the transverse

shafts or rods 22. These shafts or rods 22 are connected to the teeth bars to move the same, part of the operating means being mounted on one side plate or member and part on the other. On one end of each shaft or rod 22 is mounted the link 23, the end of which is positioned between the spaced depending arms or extensions 19, with the pins or extensions 24 projecting laterally therefrom and loosely positioned in the slots or extended apertures 20 of the adjacent bracket member. On the other end of the shaft or rod is mounted the bell crank or lever 25, the end of one arm 26 of which is positioned between the spaced depending arms or extensions 19 with the laterally extending pins or extensions 27 loosely positioned in the slots or apertures 20. The other arm 28 of the bell crank lever is pivotally connected to the operating rod or link 29, as at 30, the end portion of said rod or link being threaded as at 31, and provided thereon with the square nut or member 32 adapted to receive a crank handle or other operating means. The end portion of the rod or link 29 is passed through an aperture in the stationary stop or abutment member 33, so that as the squared nut or member 32 is turned on the threaded portion 31 it will move the rod or link so as to project or retract the teeth bars. As illustrated, the operating means for alternate teeth bars are located on the one side plate or member, the other operating means being located on the opposite plate or member.

The teeth bars 15, as shown in Fig. 1, are composed of two members, the shanks of the teeth passing therethrough with the nuts 14' forming the securing means.

It is obvious therefore that I have provided a simple and efficient structure including means whereby the teeth bars may be adjusted to position the teeth at various positions relative to the cylinder, and which adjustment may be readily and accurately made to suit the various operating conditions.

What I claim is:—

1. In a threshing machine, a concave construction, including side members, spaced bars or members extending transversely therebetween to provide extended slots, teeth bars mounted to reciprocate in said extended slots, bracket members secured to and supporting said teeth bars, said bracket members having depending flanges, bell crank levers connected to said depending flanges and pivotally mounted on said side members, and means for rocking said bell crank levers.

2. In a threshing machine, a concave construction, having extended slots, teeth bars mounted to reciprocate in said extended slots, bell crank levers connected to said teeth bars and pivotally mounted on said

side members, and means for rocking said bell crank levers, said means including an operating rod or bar connected at one end to said bell crank lever, a squared member or nut threaded on the other end thereof, a stop or abutment through which said operating rod or bar passes, said squared nut or member adapted to be rotated and to bear against said stop or abutment.

3. In a threshing machine, a concave construction, including side members, spaced bars or members extending transversely therebetween to provide extended slots, teeth bars mounted to reciprocate in said extended slots, bracket members secured to and supporting said teeth bars, said bracket members having spaced depending flanges provided with slots therein, bell crank levers having one arm positioned between said spaced flanges with laterally projecting pins or extensions fitting in said slots, said bell crank levers being pivotally mounted on said side members, and means for rocking said bell crank levers.

4. In a threshing machine, a concave construction, including side members, spaced bars or members extending transversely therebetween to provide extended slots, teeth bars mounted to reciprocate in said extended slots, bracket members secured to the ends of said teeth bars, each bracket member having a channel portion to form a seat to receive one of said teeth bars and also having spaced depending arms or extensions which are provided with slots, bell crank levers pivotally mounted on said side members having one arm positioned between said spaced arms or extensions with means fitting therethrough and through said slots, and means for rocking said bell crank lever.

5. A device of the character described, including in combination, spaced side plates or members having a concave upper edge provided with a plurality of cut out portions forming lugs or extensions, spaced parallel bars secured in pairs to said lugs or extensions and extending transversely between said side members to provide extended slots or recesses, teeth bars movably mounted in said slots or recesses and means for adjusting said teeth bars.

6. A device of the character described, including in combination, spaced side plates or members having a concave upper edge provided with a plurality of cut out portions forming lugs or extensions, spacing members or blocks provided on said lugs or extensions, spaced parallel bars secured on opposite sides of said spacing blocks or members and extending transversely between said side members to provide extended slots or recesses, teeth bars movably mounted in said slots or recesses and means for adjusting said teeth bars.

7. A device of the character described, including in combination, spaced side plates or members having a concave upper edge provided with a plurality of cut out portions forming lugs or extensions, spacing members or blocks provided on said lugs or extensions, spaced parallel bars secured on opposite sides of said spacing blocks or members and extending transversely between said side members to provide extended slots or recesses, wedging members or blocks secured between said pairs of spaced bars to hold them in position, teeth bars movably mounted in said slots or recesses and means for adjusting said teeth bars.

8. A device of the character described, including in combination, spaced side plates or members, each being of general quadrilateral conformation and having a concave upper edge provided with a plurality of cut out portions forming lugs or extensions,

said lugs or extensions being wider at the bottom than at the top, spacing members or blocks provided on said lugs or extensions, said spacing members or blocks being of less width than said lugs or extensions and being wider at the bottom than at the top, spaced parallel bars secured on opposite sides of said spaced members or blocks and extending transversely between said side members to provide extended slots or recesses, means for holding said spaced bars in position, teeth bars mounted to reciprocate in said slots or recesses and means for moving said teeth bars.

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

ROBERT C. KNAAK.

Witnesses:

GEORGE T. BEAN,
MILDRED F. BOMAN.

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