To all whom it may concern:

Be it known that I, AUGUST ANDERSON, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Concaves for Thrashing Machines; 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.

This invention relates to a thrashing machine and particularly to the mounting of the teeth in the cylinder concave usually employed in such machines. It is desirable to have the concave and the teeth thereof in different positions for operating on various kinds of grain. It also happens that the concave sometimes becomes clogged with grain or some foreign substance and it is desirable to have the teeth thereof yieldingly mounted so that the clogging can be relieved or the teeth moved to prevent breakage by some hard substance such as a stone.

It is an object of this invention therefore to provide a concave having the teeth so mounted therein that the same can be readily adjusted and held in the desired position and also be yieldingly mounted.

It is a further object of the invention to arrange the teeth for such adjustable and yielding movements in groups.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings, in which like reference characters refer to the same parts throughout the different views, and in which,

Fig. 1 is a view in side elevation of the front portion of a thrashing machine, in which the concave is mounted;

Fig. 2 is a vertical section through the concave taken in a plane normal to the axis of the cylinder;

Fig. 3 is a view in front elevation of the portion of the machine shown in Fig. 1 some of the parts being shown in section;

Fig. 4 is a detailed vertical section of some of the parts; and

Fig. 5 is a partial plan view showing part of the concave.

Referring to the drawings:

The walls of the front portion of a thrashing machine are indicated as 1 to which are bolted the reversely formed plates 2, which plates are arcuate in shape and provided with an arcuate groove or slot 2°, which slot faces inwardly. The plates 2 are intended to swing about their connecting bolt or pivot, passing through the apertures 2° therein and are provided with a projecting portion 2° forming a cam surface with which contacts a crank rod 3, the offset ends of which are journaled in the side members 1. One of these ends is provided with a ratchet lever 4 having notches therein co-operating with pawl 5 pivoted to the member 1. It will thus be seen that by swinging the lever 4, the plates 2 will be swung about their pivots at 2° and moved to or from the cylinder b shown in dotted lines in Fig. 2 and the plates can be held in their adjusted position by the pawl 5.

Mounted in the slots 2° and extending between the plates 2 are a plurality of frames 6, 7 and 8. The plate 8 is of the usual construction in such cylinder concaves having a plurality of parallel transverse slots therein and one or more rows of fixed teeth 8°. The frames 6 and 7 are of open rectangular outline and have journaled therein slats or bars 9 having projecting pintsles which are journaled in the ends of the frames 6 and 7. These pintsles, it will be noted in Figs. 2 and 4 are disposed adjacent one side of the slats and near the inner edge thereof. Each of the bars 9 has bolted thereto a row of teeth 10 of the usual shape and kind used in thrashing machine concaves. The said bars in the frame 7 are also provided at spaced points with outwardly projecting arms 9°, the two bars in one of the frames having the outer end of these arms connected by links 11. The outer end of each link has a projection thereon to which is pivoted a rod or link 12. These rods 12 extend forwardly and have forked ends which are in turn pivotally connected to arms 13, which are secured to and project from a shaft 14 journaled in a bearing 15, which is bolted to a cross member 16 extending between the frame members 1 at the front thereof. The bars 9 pivoted in the frame 6 are likewise provided with the projections 9° connected by links 11 and links 17 are connected to the latter links 11 and have their forked ends pivotally connected to arms 18 secured to and projecting from a shaft 19 journaled in spaced bearings 20 bolted to the member 16. The shafts 14 and 19 are also journaled in a double bear-
1. A concave for thrashing machines, comprising a plurality of oscillatory toothed bars connected and arranged to move in planes substantially at right angles to the axis of rotation of the thrashing cylinder, and independently adjustable spring tension devices for yieldingly holding said toothed bars in operative positions.

2. A concave for thrashing machines, comprising a plurality of removably mounted oscillatory toothed bars constructed and arranged to move in planes substantially at right angles to the axis of rotation of the thrashing cylinder and independently adjustable spring tension devices for yieldingly holding the toothed bars in operative positions.

3. A concave for thrashing machines, comprising a plurality of oscillatory toothed bars connected in groups and for each group...
an independent spring device yieldingly holding the same with their teeth in operative position.

4. A concave for thrashing machines comprising a plurality of oscillatory toothed bars connected in groups and for each group an adjustable spring tension device operative to set different bars with their teeth in different operative positions.

5. A concave for thrashing machines comprising a plurality of oscillatory toothed bars, means for oscillating the bars, and resilient means for holding the bars in operative positions, said resilient means being unaffected by the movement imparted to the bars by the said oscillating means.

6. A concave for thrashing machines having in combination, a frame, a plurality of oscillatory toothed bars in said frame, a shaft carried on said frame parallel to said bars and connected thereto to swing the same transversely, an arm secured to said shaft, a lever having an arm in alinement with said arm, resilient means disposed between said arms, and means for holding said lever in various positions of adjustment whereby the bars can be adjusted through said resilient means and yieldingly held in adjusted positions.

7. A concave for thrashing machines having in combination, a plurality of oscillatory toothed bars adapted to swing in transverse planes at right angles to the axis of rotation of a thrashing cylinder, independently adjustable spring tension devices for groups of said bars and means for oscillating said bars and spring tension devices to different positions and for holding the same in said position.

8. A thrashing machine concave having in combination a plurality of oscillatory toothed bars constructed and arranged to move in planes substantially at right angles to the axis of rotation of the thrashing cylinder, lever means for moving certain of said bars to different positions and holding the same in said position, and yielding adjustable tension devices between said bars and levers.

9. A concave for thrashing machines comprising, a plurality of oscillatory toothed bars, means for oscillating the bars, resilient means for holding the bars in operative positions, and yielding adjustable tension devices between said bars and levers.

In testimony whereof I affix my signature.

AUGUST ANDERSON.