The present invention relates to a device which is installed upon reapers, binders and similar implements, and its primary object is to overcome the following difficulty sometimes encountered in harvesting grains. Under some conditions the heads of the grains become tangled. This may be brought about by other vegetation growing with the grain, or it may be occasioned by the physical structure of the grain itself. Regardless of how this entanglement is brought about, it is difficult to cut such grain. As the grain is being cut or reaped, portions of the tangled grain are cut by the sickle of the reaper and portions are left standing to one side of the swath being cut. The standing grain pulls the cut grain from the grain table of the reaper. This will tend to overload the grain table in some instances, and underload it in other instances, will cause the grain to lie irregularly upon the table making it difficult to bind, will result in a double or irregular cutting of the grain stalks, and so forth. The present invention is designed, where tangled grain is encountered and part is cut and part is left standing, to cut the entangled portions so that the cut grain will remain upon the grain table of the reaper while the uncort portions of such tangled grain is left standing.

The accompanying drawings illustrate a preferred form of my invention which can be readily mounted upon the conventional types of reaping and harvesting implements.

In the drawings, Figure 1 is a fragmentary side elevation of a grain binder, and illustrates in side elevation my invention mounted thereon. Figure 2 is the sectional view indicated by section line 2—2 in Figure 1. Figure 3 is the fragmentary plan view with portions in section, and is taken from line 3—3 in Figure 2. Figure 4 is a fragmentary front elevation of one end of a binder. This view shows my invention mounted thereupon. Figure 5 is a perspective view of the support member employed for supporting the tangle cutter. Figure 6 is a fragmentary view of the divider board of a reaper, and shows a portion of the tangle cutter as being closely associated therewith.

In the drawings, similar characters refer to similar parts throughout the several views.

Referring now to the drawings, the numeral 1 indicates one end of a conventional reaper or binder, specifically the grain table thereof and the divider board; 2, the sickle; 3, the sickle guard; 4, a z-bar extending along the front of the grain table and supporting the guard and sickle; 5, an angle member extending rearwardly and forming a portion of the body frame associated with the ground wheel 7; 6 is the divider board dividing the swath cut from the uncut or standing grain during the operation of the reaper; and 8 is the endless apron carrying cut grain to the binding apparatus, not shown.

The numeral 9 indicates a support member consisting of a rear wall 9a, an end wall 9b with an offset 9c therein, an arm 9d projecting from the end wall parallelly with and in front of the rear wall, and a boss projecting rearwardly from the arm, indicated by numeral 9e, and having a bearing 9f. A boss 9g, projecting forwardly from rear wall 9a, is provided with a bearing 9h in line with and complementing bearing 9f. Two spaced bosses, 9i and 9j, project rearwardly from the rear wall 9a. And lastly projecting from rear wall 9a and offset 9c of end wall 9b is a seat or base 9k for mounting the support upon a harvesting implement. All these specific details of construction have a particular use which will become apparent as this description progresses.

The support member 9 is mounted to and upon Z-bar 4 as shown in Figures 3 and 4, with the seat 9k resting upon and securing it to such bar. To the boss 9i is secured the forward end of the frame angle 5, and to the boss 9j is secured the forward end of the brace bar 10. Both angle 5 and bar 10 enter into the construction of reaper 1, and other than that have no connection with the present invention. Mounted upright in the offset 9c is a sickle guard bar and support 11 provided with guards 12, together forming a slide or guideway for the sickle 13. Sickle bar 14 of sickle 13 slidably engages the inner face of the end 9b and is slidable within the projection of support 11. In order that grain passing rearwardly along the upper edge of divider board 6 will not become wedged between it and one of the guards 12, the upper edge of the board is recessed or cut out at 16 to permit positioning of one of the guards as shown. Mounted upon the pin 17 seated in the bearings 9f and 9h is a bell crank 18. A link 19 has its lower end pivotally secured to one arm of crank 18 and the other end secured to sickle bar 14. To the other arm of crank 18 is pivotally secured one end of the link 20 while the other end of such link is secured to sickle 2. From this it will be seen that as the sickle is reciprocated in a manner and for a purpose well known in the art, sickle 13 will be likewise reciprocated.

Conforming to modern practice the divider board 6 is made to fold rearwardly. Though some of the details of this construction are 

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omitted as relating particularly to the binder itself, and hence is known to the art, the forward bracing elements for the divider board 6 are herein shown in their relationship to member to provide for rearward folding of the board. These consist of a brace rod 21 having its ends pivotally connected respectively to the point 22 of the board and the end wall 90 of member 9; and a second brace rod 23 likewise pivotally connected between arm 92 and the opposite side of nose 22.

In operation, the sickle 13 is operated as herebefore related. When tangled grain is engaged by the reaper and portions are cut as it passes to one side of the divider board and portions are left standing as it passes to the other side of the board, the heads of the grain will move rearwardly along the upper edge of the board where it engages the sickle 13 in a manner that the standing grain is separated from the grain cut by sickle 2, the uncut grain remaining standing and the cut grain falling upon the apron 8.

The term grain and grains is to be understood, in so far as this description is concerned, as referring to various crops harvested by reapers, mowers and the like.

It is also to be understood that the construction set forth is susceptible of various modifications to enable it to be incorporated in various types of harvesting implements.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having described my invention, I claim—

1. A tangle cutter for agricultural implements employed for cutting crops and provided with a reciprocating sickle for that purpose, comprising a support member mounted to the implement beneath the divider board thereof, braces pivotally connected between the forward end of the divider board and the member for folding such board, a sickle support mounted vertically upon such support and extending adjacent the outer side of the divider board and projecting thereabove, a sickle reciprocatably mounted within the sickle support, a bell crank journalned in the support member, a link connected between the sickle of the implement and one arm of the bell crank, and a link connected between the other arm of the bell crank and the second end of the bell crank and the second end of the implement.

2. A tangle cutter for agricultural implements employed for cutting crops and provided with a reciprocating sickle for that purpose, a body provided with a rear wall, an end wall with an offset therein, and an arm projecting from the end wall parallelly with the rear wall; a boss projecting from the arm rearwardly toward the rear wall, a boss projecting forwardly from the rear wall toward the arm, a bearing in each boss in line with the other, a shaft in the bearings, a bell crank mounted upon the shaft, a seat projecting from rear and end wall securing the body to the implement adjacent one end of the implement, a sickle, a support mounted vertically in the offset of the end, a sickle reciprocatably mounted in the sickle support, a link connecting one arm of the bell crank to the second sickle, and a link connecting the other arm of the bell crank to the implement sickle.

3. A support member for vertical sickles employed in conjunction with sickles of agricultural implements, comprising a member having a base for mounting at the outer end of the sickle guard bar of the implement, a seat in said member in which to mount a sickle guard bar vertically, a guard bar mounted vertically therein, means for mounting a bell crank on the support member, a bell crank mounted thereon, a link connecting between the implement sickle and one arm of the bell crank and a second link having one end connected to the other arm of the bell crank and its other end adapted for connecting with a sickle bar in the vertical sickle guard bar.

4. A support member for vertical sickles employed in conjunction with sickles of agricultural implements, comprising a member having a base for mounting at the outer end of the sickle guard bar of the implement, said member having an offset portion forming a seat for a vertical sickle guard bar, a sickle guard bar mounted vertically in said seat, a pair of oppositely positioned spaced bosses, a bell crank journalned in said bosses, a link connected between the implement sickle and one arm of the bell crank, and a second link having one end connected to the other arm of the bell crank and its other end adapted for connecting with a sickle bar in the vertical sickle guard bar.

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