The present invention relates to a vertical sickle divider for grain harvesting machinery and has for its prime object to provide an improved structure which is used in place of the ordinary divider board.

It is common practice to separate the swath of grain cut by grain binders from the remaining standing grain with a divider board fitted with a system of fingers and rods. This arrangement operates efficiently when the grain stands up but when the grain is tangled and down and full of vines, the arrangement proves very inefficient. The swath of tangled grain, cut by the binder, hangs over the divider board and stays there until the operator stops his machine and clears the board. If the grain is full of vines the efficiency becomes still more impaired. By the use of my improved structure, such conditions are entirely done away with because long before the grain is cut by the binder sickle, a clean-cut positive separation is made between the binder swath and the uncut grain. By the use of the device described herein clogging of the elevators and the binding mechanism of a binder is practically eliminated there being a continuous and uniform movement of the grain as soon as cut by the binder sickle to the elevators and binding mechanism. This device causes a clean-cut, straight and vertical swath wall, regardless of the condition of the grain. Wrapping of the grain wheel is also done away with and the power needed to run the attachment is compensated for by the efficiency which is attained.

The structure of my improved device is exceedingly simple, comparatively inexpensive to manufacture, strong and durable, very reliable, not likely to easily become out of order, and otherwise well adapted to the purpose for which it is designed.

With the above object in view, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings:

Figure 1 is a top plan view of the device embodying the features of my invention showing the same associated with a grain sickle structure.

Fig. 2 is a side elevation thereof,

Fig. 3 is a detail side elevation of the device per se,

Fig. 4 is a transverse horizontal section therethrough.

Referring to the drawing in detail it will be seen that 5 denotes a frame of conventional construction which is mounted forwardly of the binder (not shown) in the usual well-known manner for supporting the sickle bar construction 6 which is disposed horizontally and is driven in the usual well-known manner. The frame 5 also supports the conveyor 7 of well-known construction.

In the present instance the sickle-bar structure 6 and the conveyor 7 are operated through the shaft 9 which in turn is operated by chains 10. The supporting wheel 11 is mounted in the usual well-known manner to one side of the frame 5. It is now the common practice to mount a divider board to one side of this frame 5. However, in my construction this divider board is done away with and there is utilized a vertical sickle bar construction denoted generally by the letter S which is disposed forwardly of the sickle bar structure 6 and to one side thereof in alignment with the space usually occupied by the divider board, that is, approximately in front of the supporting wheel 11. The numeral 12 denotes the divider sill which is attached to the frame 5 at 14 at its rear end and extends laterally and then forwardly and merges into a forward extension which is bent at a point into a forward extension of the sickle structure 6 inwardly and has a bracket 15 at its forward end to which a flattened end 16 of a tube 17 is attached as at 18. The rear end of this tube is bent and engages over one of the guard fingers 19 of the vertical sickle structure S. Manifestly the tube 17 is of rigid character, and from this it follows that the tube 17 contributes to the dividing capacity of the sill 12 without materially increasing the weight of said sill, and at the same time the tube 17 by receiving the lowermost finger 19 of the upright cutting mechanism assists in the maintenance of said upright cutting mechanism in working position. This vertical sickle structure S includes a vertical stationary bar 20 having the usual fingers 19 projecting forwardly therefrom. The bar 20 is arranged at the forward end of an
upright supplemental frame made up of an inclined bar 20° connected at one end to the sill 12 and at its upper end to the upper end of the bar 20 and appropriately braced bars 21° and 22° interposed between and connected to the sill 12 and the bar 20°. A movable cutter bar 21 is mounted in the stationary bar 20 and has knives or cutters 22 which move in the fingers 19 as is clearly illustrated in Fig. 4. A head 23 is attached to the movable bar 21 and is engaged with a pitman 24 and is also engaged with the crank of a crank shaft 25 which extends rearwardly being journaled in bearings 26 and 27 and at its rear end is operatively connected with a chain 28. The chain 28 is operatively connected with the shaft 9.

It is thought that the construction, operation, and utility of this invention will now be clearly understood without a more detailed description of the parts thereof. It will be noted that as the binder or other grain cutting mechanism moves forwardly a clean-cut vertical swath wall is formed regardless of the condition of the grain. This eliminates all the undesirable features incident to the usual divider board structure.

The present embodiment of the invention has been disclosed in detail merely by way of example since in actual practice it attains the features of advantage enumerated as desirable in the statement of the invention and the above description. It is apparent that changes in the details of construction, and in the combination and arrangement of parts may be resorted to without departing from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention what I claim as new is:

In a grain harvester and in combination, a frame, a supporting wheel at one side of the frame, a horizontal cutting mechanism in front of the frame a vertical cutting mechanism at one end of the first mentioned cutting mechanism and forwardly thereof and carried by an upright bar fixed with respect to the first named frame, means for operating the second named cutting mechanism, said second named cutting mechanism having forwardly directed fingers, a divider sill having its rear end fixed to the frame and terminating in front of and to one side of the first named cutting mechanism, a bracket fixed on the forward end of said sill and having a rearwardly directed arm spaced above the sill, a rigid tube connected at one end to said arm of said bracket and extending upwardly and rearwardly from said arm and receiving in its rear end the lowermost finger of the second named cutting mechanism, and an upright supplemental frame connected with the upright bar of the second named cutting mechanism and the frame and arranged in rear of said upright bar and having a rearwardly and downwardly inclined top bar and also having intermediate upright bars and braces for the latter.

In testimony whereof I affix my signature.

WILLIAM A. BARBER.