Sept. 26, 1939. A. W. SEAMAN 2,174,045

DAMMING DEVICE FOR LISTER FURROWS

Filed Nov. 26, 1937 2 Sheets-Sheet 1

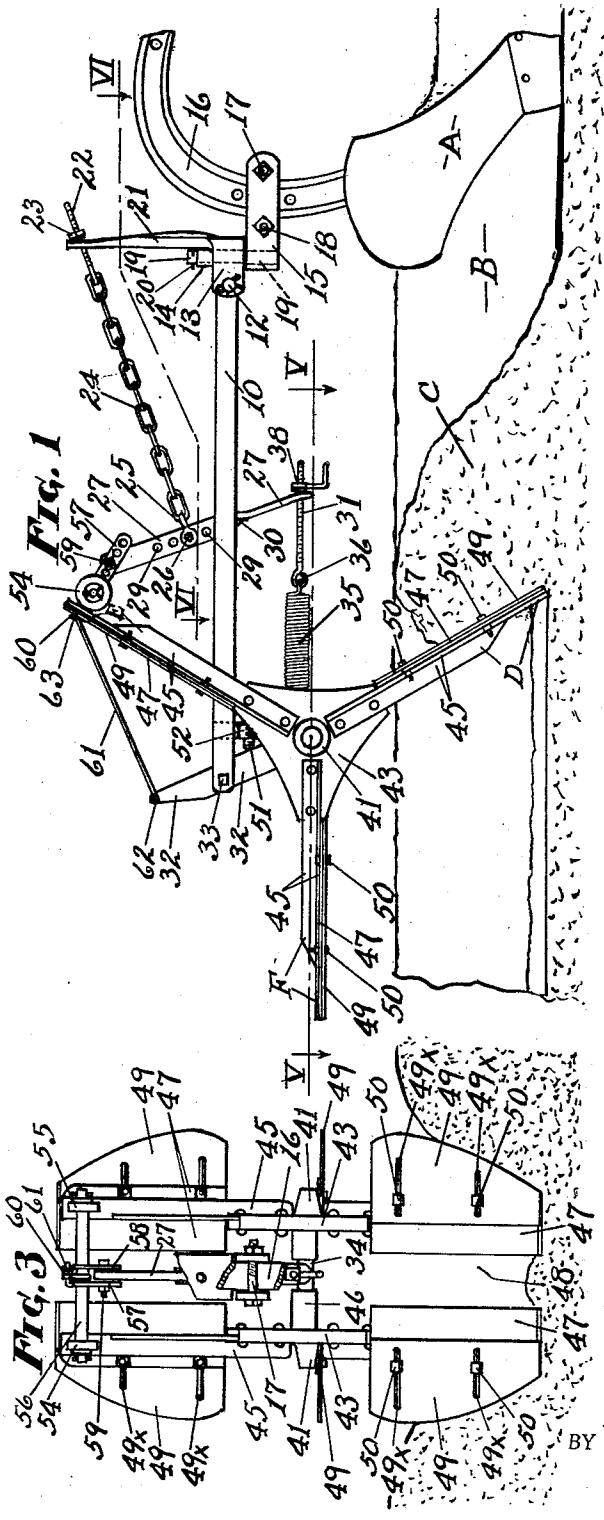


FIG. 1

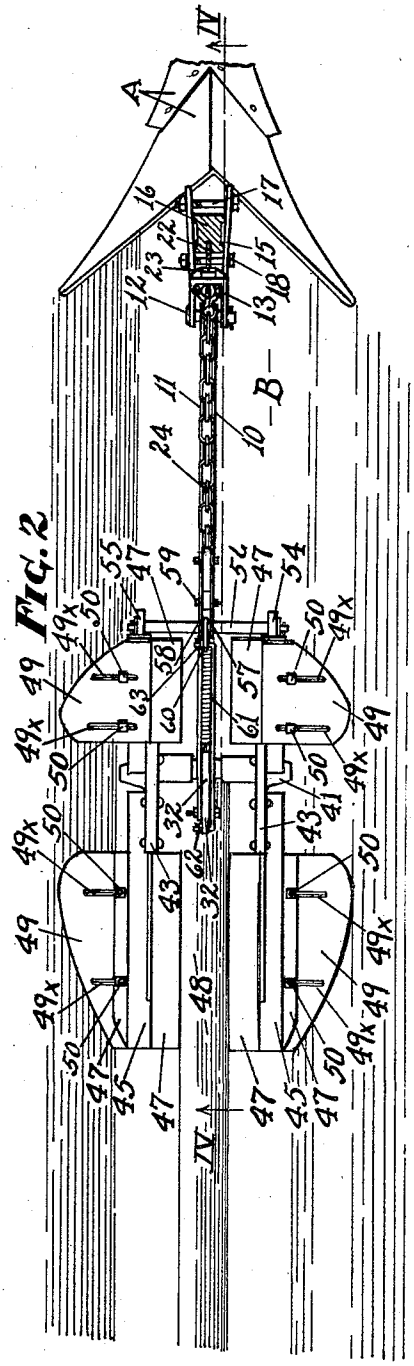


FIG. 2

FIG. 3

INVENTOR.
Albert W. Seaman
BY M. Y. Charles
ATTORNEY.

Sept. 26, 1939. A. W. SEAMAN 2,174,045

DAMMING DEVICE FOR LISTER FURROWS

Filed Nov. 26, 1937 2 Sheets-Sheet 2

FIG. 4.

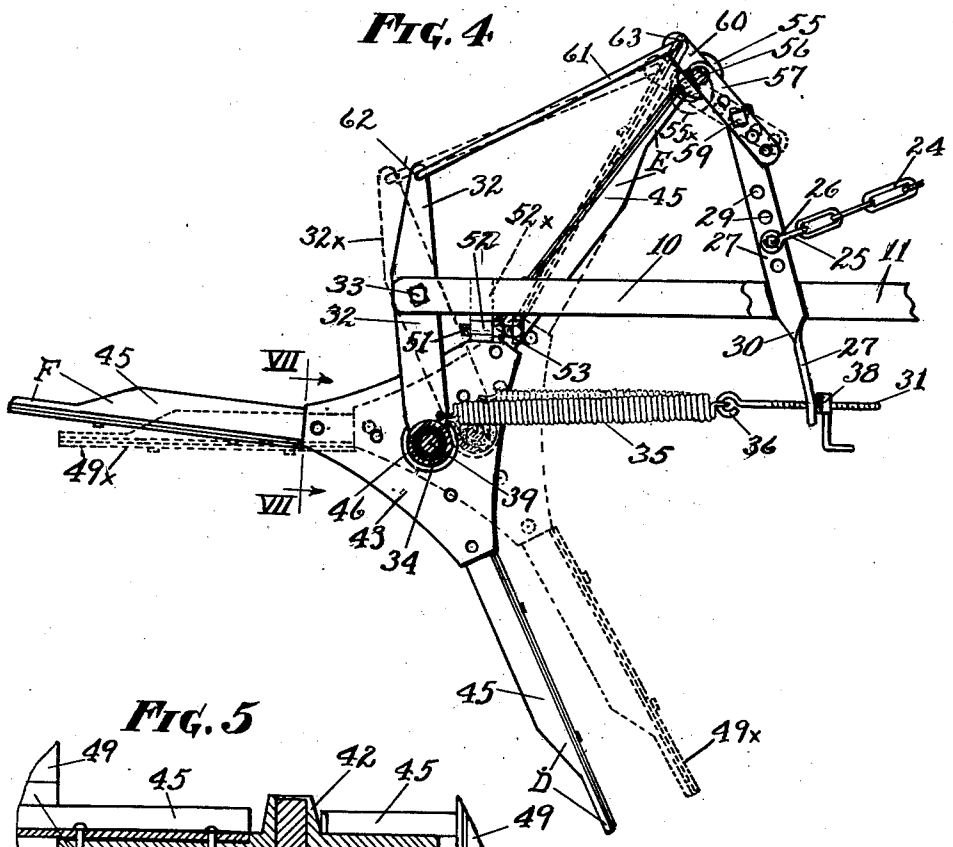


FIG. 5

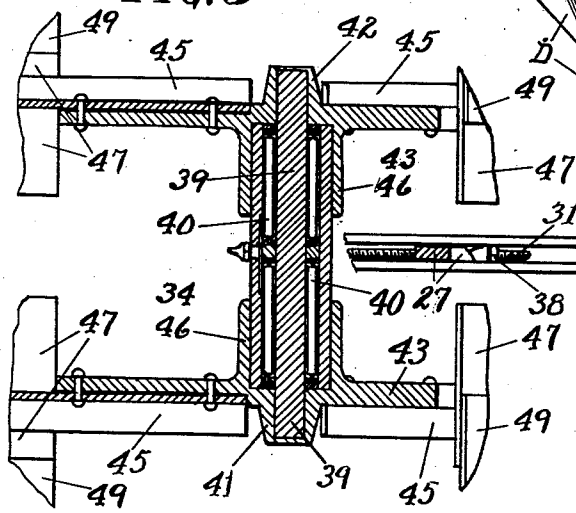


FIG. 6

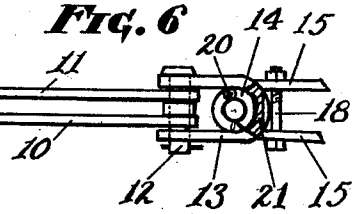
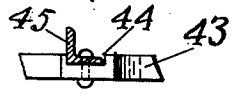


FIG. 7



INVENTOR.

Albert W. Seaman

BY

M. Y. Charles

ATTORNEY.

Patented Sept. 26, 1939

2,174,045

UNITED STATES PATENT OFFICE

2,174,045

DAMMING DEVICE FOR LISTER FURROWS

Albert W. Seaman, Huntington Park, Calif., assignor to McEller Craig, Johnson, Kans.

Application November 26, 1937, Serial No. 176,579

13 Claims. (Cl. 97—55)

My invention relates to an improvement in damming devices for lister furrows.

The object of my invention is to provide a device which may be attached to the beam of a lister and will operate to throw up and leave a dam in the furrow at spaced intervals along the length of the furrow.

A further object is to provide a damming device of the kind mentioned which is operated to leave a dam in the furrow by the resistance of the dirt against the device as it moves along the furrow.

Another object is to provide a device of the kind mentioned in which is embodied a safety feature such that if an immovable object, such as a rock or other article is encountered by the damming device, the device will roll over the obstruction and proceed with its work in an unharmed condition.

A still further object is to provide a damming device of the kind mentioned in which provision is made for adjustment that will control the spacing of the dams apart in the furrow.

Another object is to provide a damming device that is easy and cheap to manufacture, and that is durable and long lived, and one that is simple and easy to attach to a lister beam preparatory for use.

These and other objects will be more fully explained as this description progresses.

Now referring to the accompanying drawings, Fig. 1 is a side view of the device showing it attached to a lister beam. Fig. 2 is a plan view of the device. Fig. 3 is an end view of the device as seen from the right side of Fig. 1, the lister beam being broken away for convenience of illustration. Fig. 4 is an enlarged detail sectional view, the view being taken along the line IV—IV in Fig. 2. Fig. 5 is an enlarged, detail, sectional view, taken along the line V—V in Fig. 1. Fig. 6 is an enlarged detail sectional view, taken along the line VI—VI in Fig. 1. Fig. 7 is a detail sectional view taken along the line VII—VII in Fig. 4.

Similar numerals of reference designate the same part throughout the several figures of the drawings.

In the drawings is shown the damming device, which has a pair of parallel frame support members 10 and 11 that are pivotally mounted on a pin 12, that passes through one end of the members 10 and 11 and also through the ends of a U-shaped element 13.

In the curve of the U-shaped element 13 is positioned a sleeve element 14, which is welded to and made rigid with the U-shaped element 13. At 15 is a U-shaped clamp element which is adapted to straddle the lister beam 16 and be rigidly clamped thereto by means of bolts 17 and 18 passing through the ends of the U-shaped element 15 so that the ends of the U-shaped element 15 may be pulled together for binding purposes on the lister beam as will readily be understood.

At 19 is a shaft, one end of which is fitted within the curve of U-shaped element 15 and welded to the U-shaped element 15 so as to make it rigid therewith and stand in a vertical position with the upper end of the shaft 19 being revolvably mounted in the sleeve element 14. At 20 is a cotter pin passing through the upper end of the shaft 19 so as to prevent the sleeve 14 from slipping upwardly and off the shaft 19.

At 21 is a standard that occupies substantially a vertical position and the lower end of which is welded to and made rigid with the sleeve element 14 and the U-shaped element 13. The upper end of the standard 21 is provided with a hole through which passes a threaded rod 22, on which is threaded a nut 23 that will bear against the upper end of the standard 21. At 24 is shown a chain element, one end of which is connected to the inner end of the rod 22, the other end of which is held in a clevice 25 which is pivotally mounted at 26 to a support arm 27 that passes between the frame members 10 and 11 and is rigidly welded thereto, so that the frame members 10 and 11 are supported in a substantially horizontal position which may be adjusted up or down by the screwing of the nut 23 forward or backward on the rod 22 as will readily be understood.

The member 27 is provided with a series of holes 29 in which the pivot pin 26 may be placed to hold the clevice 25 for adjustment purposes.

The lower end of the member 27 projects below the frame members 10 and 11 and is twisted at the point 30 so as to provide the width of the member 27, being so positioned that rod 31 may be passed through a hole in the lower end of the member 27 as shown in Figs. 1, 4 and 6, the object of which will be later explained.

At 32 is a rocker arm which is pivotally mounted at 33, between the ends of the frame elements 10 and 11.

The lower end of the rocker arm 32 is integrally connected to a tubular element 34 that is positioned in parallelism with the bolt 33 that forms the pivotal mounting for the rocker arm 32. At 35 is shown a helical spring, one end of which is connected into an eye 36 that is formed on the inner end of the rod 31 and the other end of the spring 35 is connected to the lower end of the rocker arm 32 so as to be tensioned between the rocker arm 32 and the element 27, the rod 31 being threaded to receive a nut 38 that is threaded thereon and rests against the element 27 so that by screwing the nut 38 forward or backward on the rod 31, the tension of the spring 35 may be increased or decreased as desired.

At 39 is an axle shaft revolvably carried in the tubular element 34 on rollers 40. The ends of the axle shaft 39 project from each end of the tubular element 34 and on each end of the axle shaft 39 is a hub element 41 and 42 on each of which is integrally formed a three point spider element 43. Each leg of the spider element is provided with a groove 44 in which is seated an L-iron 45 that projects outwardly and radially from the center of the hub. The L-irons are made rigid with their respective spider leg elements by being riveted or welded thereto. Integrally formed on the back side of each of the spider elements 43 is a sleeve element 46 which house the outer ends of the tubular element 34 and function to prevent the entrance of dust or dirt into the tubular element 34. The hubs 41 and 42 are rigidly attached to the ends of the axle shaft 39 by any of the common methods such as being keyed thereto, but the preferable method of attachment is to weld the hub to the shaft.

Each of the L-irons is provided with an iron plate 47 that are rigidly attached, either by riveting or welding, to the L-irons in such a manner that there is a space 48 left between the edges of the opposing plates, the object of this space will later be made obvious.

Each of the plates 47 is provided with a superimposed plate 49. Each of the plates 49 is provided with a pair of transverse slots 49x. At 50 is shown bolts that pass through the plates 47 and the slots 49x in the plates 49 and serve to bind the two plates 47 and 49 together. The object of the slots 49x will later be explained.

At 51 is an adjusting screw that is threaded through a stop element 52 that is provided with a tongue portion that is positioned between the frame elements 10 and 11 and which is welded thereto to rigidly hold the stop element 52 in the position shown in Figures 1 and 4. At 53 is a lock nut threaded on the bolt 51 and is adapted to be screwed on the bolt 51 to engage the stop element 52 and function as a means of locking the bolt 51 in its adjusted position. The object of the stop element 52 and adjustment bolt 51 is to provide a stop for the rocker arm 32 when the spring 35 pulls the lower end of the rocker arm 32 forwardly to engage the end of the bolt 51.

At 54 and 55 is a pair of rollers that are revolvably mounted on the outer ends of a cross arm 56 that is supported on a pair of outwardly extending lever elements 57 and 58 that are spaced apart and rigidly mounted on the shaft 56 at the central portion thereof. The arms 57 and 58 are positioned on either side of the support element 27 and are pivotally mounted thereon at the point 59. At 60 is an outwardly extending element that is integral with the cross arm 56, and at 61 is a link rod, one end of which is pivotally connected to the upper end of the rocker arm 32 at the point 62, and the other end of the link 61 is pivotally connected to the element 60 at the point 63.

It will be understood that the cross arm 56 supports the rollers 54 and 55 in such a position that they will engage the outer ends of the L-irons 45 to prevent the rotation of the combination blades 47—49 and the spiders 43.

The operation of the device is as follows: The lister plow A will make the furrow B in which the damming device follows. The nut 23 may be screwed forward or rearward on the rod 22 to rock the frame members 10 and 11, up or down, to adjust the depth at which the device is to work.

Now as the device is pulled along behind the lister plow, the plates 47—49 will scrape the sides of the lister ridges and the bottom of the furrow so as to push a pile of dirt C ahead of the plates 47—49 and as the pile of dirt increases in size, it will offer increasing resistance until it will push hard enough on the plates 47—49 to over power the tension of the spring 35, whereupon the rocker arm 32 will be rocked from the normal dotted position 32x, (see Fig. 4) to the position shown in full lines (shown in Fig. 4) whereupon the link 61 will push on the element 60 and thereby move the rollers 54 and 55 from in front of the angle irons 45, resting thereagainst, whereupon the spiders 43 are left free to turn, thereby allowing the angle iron D and the plates carried thereon to move from behind the pile of dirt C and the angle iron E and the plates carried thereon will roll to a position in front of the pile of dirt C to leave the pile of dirt C as a dam in the lister furrow B.

At this point the spring 35 will return the rocker arm 32 and the rollers 54 and 55 to their original position, whereupon the angle iron F will have been revolved to engage the rollers 54 and 55, whereupon the operation just described is ready to be repeated.

The distance between the dams C may be governed by increasing or decreasing the tension of the spring 35, by screwing the nut 38 forward or backward on the rod 31 as will readily be understood.

It is also obvious that should the plates 47—49 encounter some object such as a rock or the like, that they could not move, the result would be that the rocker arm 32 would be rocked to release the plates 47—49, whereupon they would revolve as previously described and step over the immovable object.

The width of the scraper blades formed by the plates 47—49 may be increased or decreased to fit the width of any furrow or to increase or decrease the amount of dirt scraped from the sides of the lister ridges by loosening the bolts 50 and sliding the plates 49 inwardly or outwardly for the desired adjustment.

Attention is called to the curved shape of the outer edges of the plates 49, which, as the device moves along the furrow will leave a perfect and gracefully formed side on the lister ridge.

It will be understood that the curves on the plates 49 may be as shown in Fig. 3 or they may be any other desired shape to suit the fancy of the manufacturer or person using the device.

It is also obvious that if the lister row be made curved instead of straight, or at the end of the field in turning the lister around, a sharp turn is made, the damming device will pivot on the shaft 19 to follow the furrow and absorb any irregularities in movement between the lister beam and the furrow therebehind.

It is also obvious that if the lister plow be lifted from the ground for any reason, the damming device will be carried therewith and also lifted from the ground.

Such modifications may be employed as lie within the scope of the appended claims without departing from the spirit and intention of the invention. Now having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a damming device; said device having a frame, and means on said frame for attachment to a supporting element, a rocker arm pivotally mounted on one end of said frame, the

lower end of said rocker arm being spring tensioned in a forward direction, rotatable elements carried by the lower end of said rocker arm, and paddle like elements carried on support elements on said rotatable elements, said support elements and paddle like elements extending radially from said rotatable elements, a stop element, said stop element being pivotally carried on a support element carried on said frame, said stop element being so positioned as to engage said support elements on said rotatable elements to prevent the turning of said rotatable elements, and means connecting between the upper end of said rocker arm and said stop element so that upon the rocking movement of said rocker arm the stop element will move to release the rotatable elements for rotation.

2. In a damming device as in claim 1, said rocking movement of said rocker arm being caused from pressure in a rearwardly direction against the down turned paddles on said rotatable elements.

3. In a damming device as in claim 1, said rocking movement of said rocker arm being caused from pressure in a rearwardly direction against the down turned paddles on said rotatable elements, said spring functioning to return said rocker arm to its original position after said rocking motion has taken place, and means for adjusting the tension of said spring.

4. In a damming device, as in claim 1, and means for adjustably increasing and decreasing the width of said paddle like elements.

5. In a damming device, as in claim 1 and said attachment means, being pivotally connected to said frame.

6. In a damming device, as in claim 1, and means for rocking said frame up or down for the purpose described.

7. An agricultural implement comprising, in combination, a draft element, a rotatable dam-forming device movably connected to said draft element, stop means positioned between the draft element and the dam-forming device, and a second means positioned between the draft element and the dam-forming device and cooperating with the stop means for preventing rotation of the dam-forming device, said second means being responsive to a predetermined torque applied by resistance encountered by the dam-forming device to permit rotation thereof past said resistance.

8. An agricultural implement comprising, in combination, a draft element, a rotatable dam-forming device movably carried thereby, stop means positioned between and for engagement with said draft element and said dam-forming device, a releasing means positioned between the draft element and the dam-forming device and cooperating with the stop means for normally preventing rotation of the dam-forming device, said releasing means being responsive to a predetermined torque applied by the mass accumulated by the dam-forming device for permitting rotation thereof past said mass.

9. A damming device including a draft element, a rotatable dam forming element at the rearward end of said draft element, said dam forming element having a plurality of paddle-like members to be successively moved into operative position, spring means normally holding said dam forming element in operative position, stop means cooperating with said spring means, and means whereby relative movement between said dam forming element and said stop means, against the tension of said spring means, permits said dam forming element to rotate to move another paddle-like member into operative position.

10. A damming device including in combination a draft element, a rotatable dam forming element at the rearward end of said draft element to be moved therewith, said dam forming element having a plurality of radially positioned paddle-like members to be successively rotated into operative position, stop means against which said dam forming element is normally held, spring means operating to yieldingly hold said dam forming element against said stop means, stop means operatively engaging the outer part of one of said paddle-like members to hold said dam forming element against premature rotation, and means whereby relative movement between said dam forming element and said latter stop means, against the tension of said spring means, permits said dam forming element to rotate to move another paddle-like member into operative position.

11. In a damming device of the character referred to, a draft structure, a revoluble dam forming structure connected at the rearward end of said draft structure to be pulled thereby, said dam forming structure having a plurality of radially disposed, adjustably connected paddle-like members thereon to be successively rotated into operative position, stop means normally holding said dam forming structure against rotation, spring means yieldingly holding said dam forming structure in operative position with a part in engagement with said stop means, and means whereby strain under load causes a relative movement between said dam forming structure and said stop means, whereby to release said dam forming structure to make a partial rotation to position another paddle-like member in operating position.

12. In a damming device, a draft structure, a dam forming structure rotatably connected with the rearward end of said draft structure, said dam forming structure having at its outer portions, radially positioned, paddle-like members to engage with the earth, each of said paddle-like members having spaced portions to straddle said draft structure as said dam forming structure rotates, spring means yieldingly holding said dam forming structure in operative position, stop means cooperating with said spring means and positioned to engage with the outer portions of said dam forming structure to hold said structure against rotation, means whereby relative movement between said dam forming structure and said stop means against the tension of said spring means, permits said dam forming structure to rotate to position another paddle-like member in operative position.

13. In a damming device, a draft structure, a dam forming structure rotatably connected with the rearward end of said draft structure, said dam forming structure having radially disposed paddle-like members to successively engage with the earth in operative position, each of said paddle-like members being open intermediate its sides to straddle said draft structure as said dam forming structure revolves, means normally holding said dam forming structure in operative position with one of its paddle-like members in the earth, said means being releasable under strain, and a spring holding said means yieldingly in operative position until a predetermined load is accumulated.

ALBERT W. SEAMAN.