Feb. 12, 1957 L. E. GUNNING 2,780,975

FURROW DAMMING IMPLEMENTS

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Fig. 1

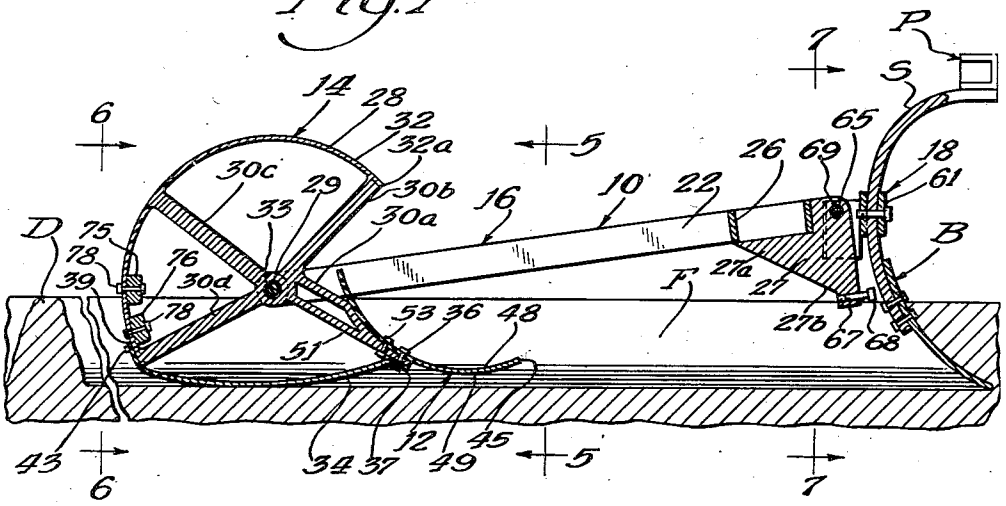


Fig. 2

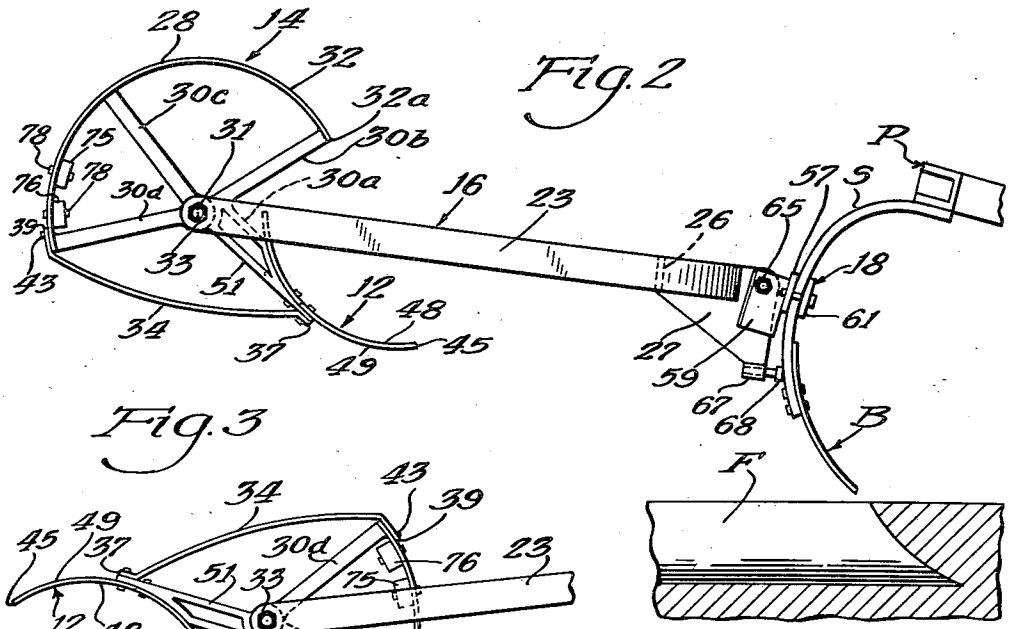
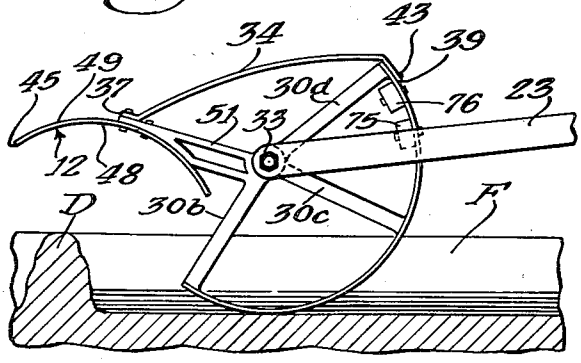


Fig. 3



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FURROW DAMMING IMPLEMENTS

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Fig. 4

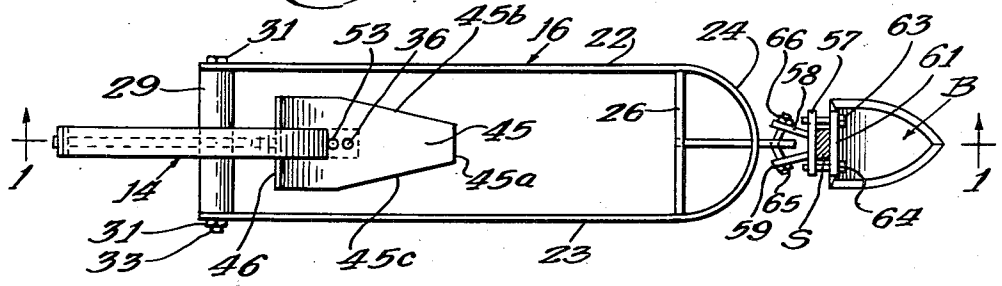


Fig. 5

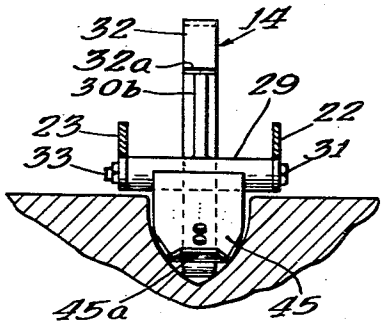


Fig. 6

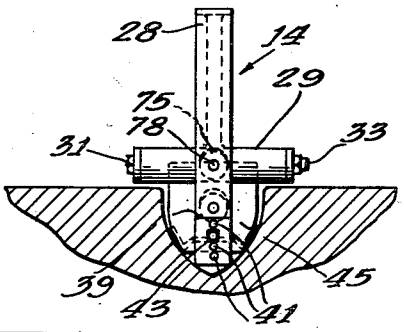
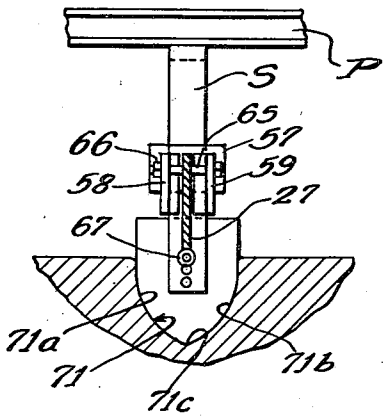


Fig. 7



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FIG. 8

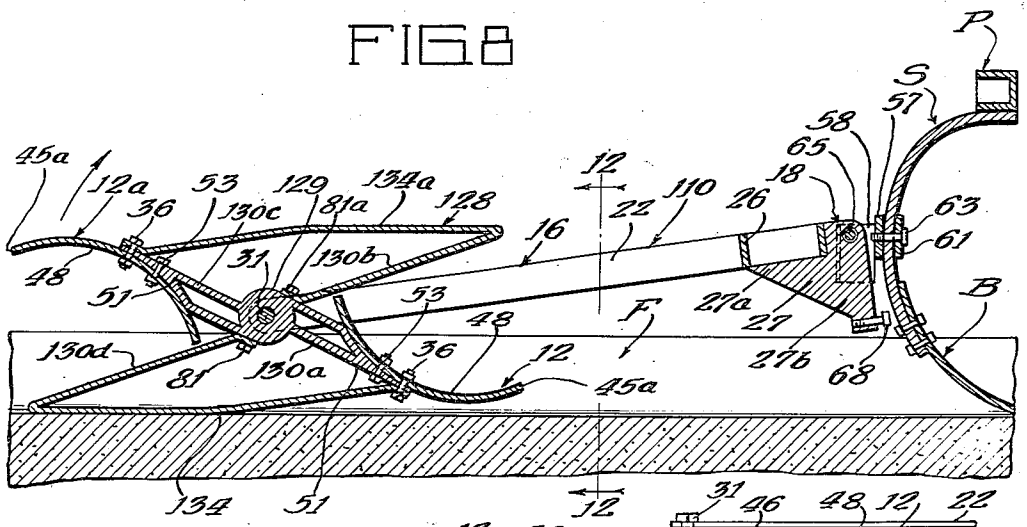


FIG. 9

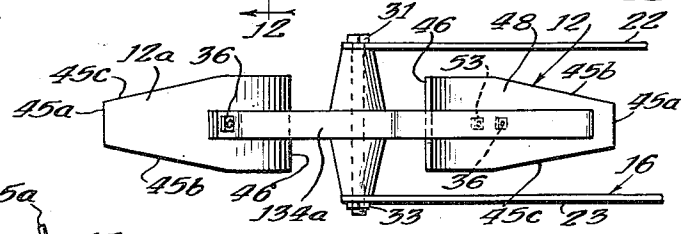


FIG. 10

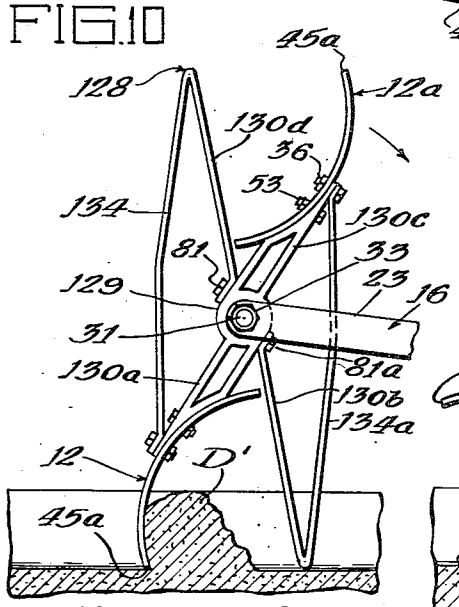


FIG. 11

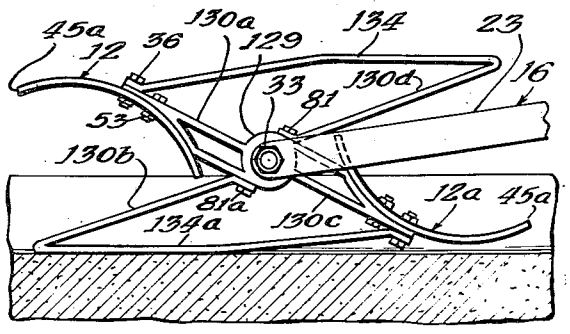
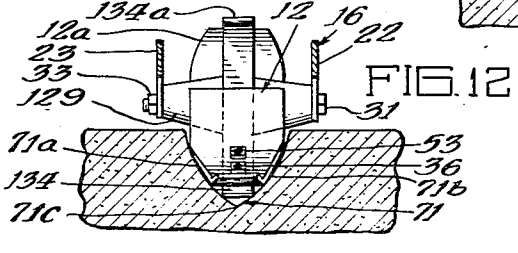


FIG. 12



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United States Patent Office

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FURROW DAMMING IMPLEMENTS

Leslie E. Gunning, Lansford, N. Dak.

Application July 9, 1953, Serial No. 366,930

13 Claims. (Cl. 97—55)

This application is a continuation-in-part of my earlier application, Serial No. 302,361, filed August 2, 1951, and now abandoned.

This invention relates to farming implements and, more particularly, to damming devices for attachment to a furrow forming implement in trailing relation thereto for periodically forming dams across the furrow formed by the furrow-forming implement.

Damming devices for forming dams across furrows and the like have heretofore been known in the art. However, damming devices of this general character which have been heretofore known have had several inherent disadvantages such as, for example, being complicated and expensive in construction; requiring mechanical locking means for holding the dammer in load-accumulating position; being peculiarly sensitive to the rate of speed at which the furrow forming-implement traveled and, therefore, being unreliable in operation; and being so constructed that parts receiving the major wear could not be readily replaced.

It is a primary object of my invention to afford a novel dammer which overcomes the aforementioned inherent difficulties of dammers heretofore known in the art.

More specifically, it is an important object of my invention to afford a dammer which does not require any mechanical locking devices for holding the dammer in load-accumulating position and which dammer is entirely automatic, collecting its load and dumping the same in an effective dam across a furrow at desirable intervals during movement of the dammer along the furrow.

A further object of my invention is to provide a novel dammer of the aforementioned type which, in operation, is affected to a minimum extent by the speed of movement of the farm implement pulling the same, and which is primarily responsive to the load of soil accumulated on the collecting member of the dammer in determining the spacing between loads dumped by the dammer.

Another object of my invention is to afford a novel dammer wherein the collecting member is supported in a novel and expeditious manner.

Yet another object of my invention is to provide a dammer of the aforementioned type wherein the collecting member is supported by a rotatable supporting member in such a manner that, when the collecting member is disposed in load-accumulating position, the leading edge of the collecting member is disposed in spaced relation to the bottom of the furrow along which it is being moved, and the accumulation of a predetermined load on the collecting member is effective to operatively engage the leading edge of the collecting member with the bottom of the furrow in such a manner as to initiate an entirely automatic load-dumping rotation of the supporting member and the collecting member carried thereby.

A further object of my invention is to enable a dammer of the aforementioned type to be constructed in such a manner that the parts thereof which receive maximum wear may be quickly and easily replaced.

Another object is to enable parts of a dammer to be adjusted in a novel and expeditious manner.

A further object of my invention is to enable a novel and efficient dammer of the aforementioned type to be constructed so as to embody a plurality of collecting members constituted and arranged in a novel and expeditious manner.

Yet another object of my invention is to afford a novel dammer of the aforementioned type which embodies a novel coupling for attaching the dammer in trailing position to a furrow-forming implement in a manner wherein the dammer may move in a novel and expeditious manner relative to the aforementioned implement.

A further object of my invention is to afford a dammer of the aforementioned type which embodies a novel coupling constituted and arranged in a novel and expeditious manner wherein when the furrow-forming implement is raised above a predetermined point such as for example, when raised to travel freely down a road or between fields, the dammer is also lifted free of the ground with the furrow-forming implement.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illustration, show a preferred embodiment of the present invention and the principles thereof and what I now consider to be the best mode in which I have contemplated applying these principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

Fig. 1 is a longitudinal sectional view of a dammer embodying the principles of my invention, looking in the direction of the arrows **1—1** in Fig. 4, and showing the dammer attached in operative trailing position behind a plow;

Fig. 2 is a side elevational view of the dammer shown in Fig. 1, but showing the plow and the dammer in a different position;

Fig. 3 is a detail side elevational view of the dammer shown in Fig. 1, with the dammer disposed in a different operative position;

Fig. 4 is a top plan view of the device shown in Fig. 1;

Fig. 5 is a detail sectional view taken substantially along the line **5—5** in Fig. 1;

Fig. 6 is an end elevational view looking in the direction of the arrows **6—6** in Fig. 1;

Fig. 7 is a detail sectional view taken substantially along the line **7—7** in Fig. 1, and

Fig. 8 is a longitudinal sectional view, similar to Fig. 1, but showing a modified form of my invention;

Fig. 9 is a top plan view of a portion of the dammer shown in Fig. 8;

Fig. 10 is a side elevational view of the dammer shown in Fig. 8, with parts thereof disposed in other positions;

Fig. 11 is a side elevational view of the dammer shown in Fig. 8, with parts thereof disposed in other positions; and

Fig. 12 is a sectional view taken substantially along the line **12—12** in Fig. 8.

To illustrate the principles of my invention, a dammer **10**, comprising a preferred embodiment of my invention, is shown in Figs. 1 to 7, inclusive, of the drawings attached to the shank S of a plow P. The dammer **10** comprises, in general, a collecting member **12** mounted on a wheel segment **14** which is rotatably mounted in a frame **16**, a coupling member **18** being attached to the forward end portion of the frame **16** for connecting the dammer

10 to a suitable furrow forming implement such as, for example, to the shank S of the plow P.

In general, the operation of my novel dammer 10 is that it is pulled behind the plow P in trailing relation thereto in the furrow F formed by the plow blade B on the shank S, the collecting member 12 moving along the furrow F in load-accumulating position such as shown in Fig. 1 until a predetermined load is accumulated thereon, and the collecting member 12 and the wheel segment 14 then being automatically caused to rotate from load-accumulating position, through the position shown in Fig. 3 and back to the position shown in Fig. 1, to thereby dump a dam such as the dam D in furrow F, Fig. 1, the collecting member 12 and the wheel segment 14 then stopping in load-accumulating position such as shown in Fig. 1 to begin the accumulation of another load and a new cycle of operation. As the plow P moves forwardly and, therefore, the dammer 10 moves forwardly along the furrow F, the load-accumulating-load-dumping cycle of operation of the dammer 10 is repeatedly performed to thereby form a series of the dams D along the furrow F.

While in the drawings a plow P, having only one furrow-forming blade is shown, it will be appreciated that this is only by way of illustration and not by way of limitation and that a plow having a plurality of furrow-forming blades, and with a dammer mounted in trailing position behind each or several of the blades, may be used without departing from the purview of my invention.

The frame 16 of the dammer 10, Figs. 1 and 3, is substantially U-shaped, being open at the rear and having two side members 22 and 23 and a closed end 24. A brace bar 26 is mounted on and extends between the forward end portions of the side members 22 and 23 adjacent to the forward or closed end 24 of the frame 16. A substantially triangular-shaped plate member or tongue 27, having a rearwardly projecting leg 27*a* and a downwardly projecting leg 27*b*, is mounted on the forward end portion of the frame 16 for releasable connection to the coupling member 18 as will be discussed in greater detail presently.

The frame 16 may be formed as a single unit of any suitable material such as, for example, cast steel, or may be made of separate pieces of suitable material such as, for example, steel plate, welded or otherwise suitably connected together.

The wheel segment 14 comprises a spider 28 having a central hub 29 and four radially projecting arms 30*a*, 30*b*, 30*c* and 30*d*. An arcuate-shaped rim 32 extends between the outer end portions of the arms 30*b* and 30*d* and across the outer end portion of the arm 30*c* disposed therebetween, the longitudinal extremities of the rim 32 terminating at the arms 30*b* and 30*d*, respectively, Fig. 1.

The wheel segment 14 is rotatably mounted on a bolt or shaft 31 for rotation between the side members 22 and 23 of the frame 16, the shaft 31 being mounted in, and extending between, the rear end portions of the side members 22 and 23 and being held thereon by a nut 33, Figs. 1 and 4, and the hub 29 being journaled on the shaft 31 between the side members 22 and 23.

The wheel segment 14 also includes a substantially arcuate-shaped shoe 34 which is removably mounted on the arm 30*a* and the rim 32 in spanning relation between the outer end portions of the arm 30*a* and arm 30*d*. The shoe 34 is attached to the arm 30*a* by means of a bolt 36 which extends through an outwardly projecting flange 37 on the forward end portion of the shoe 34 and through the outer end portion of arm 30*a*. An inwardly projecting flange 39 is formed on the rear end portion of the shoe 34, Fig. 1, and has a plurality of mounting holes 41, Fig. 6, formed therein. The shoe 34 is adjustably mounted on the spider 28 adjacent to the arm 30*d* by means of a bolt 43 which extends through the spider 28 and the selected one of the holes 41.

I prefer to form the spider 28 as a steel casting and to make the shoe 34 from plate steel. However, it will be appreciated by those skilled in the art that these parts may be constructed of other suitable materials and by other means without departing from the purview of my invention.

As is best seen in Figs. 1, 4 and 5, the collecting member 12, is in the general form of a substantially arcuate, shovel-shaped plate embodying a semi-pointed front end portion 45 and a substantially straight rear edge or trailing edge 46. The front end portion 45, Fig. 4 has a substantially flat front edge or leading edge 45*a* and two side edges 45*b* and 45*c* extending rearwardly therefrom in diverging relation to each other.

The collecting member 12, which has a concave upper face 48 and a convex lower face 49, and is preferably open at the sides thereof throughout its length, may be made of any suitable material such as steel plate.

The forward upper end portion 51 of the arm 30*a* of the spider 28 is concave downwardly, Fig. 1, being substantially complementary in shape to the bottom face 49 of the collecting member 12, and the collecting member 12 is mounted thereon in such position that the front end portion 45 thereof projects forwardly from the arm 30*a*. The collecting member 12 is attached to the arm 30*a* by the bolt 36 which extends therethrough, and by another bolt 53 which extends through the arm 30*a* and the collecting member 12 inwardly or rearwardly of the bolt 36, Figs. 1 and 3.

The coupling member 18, Figs. 1, 2, 4 and 7, embodies a substantially flat supporting member 57 from one face to which two substantially flat plate members or wings 58 and 59 project rearwardly in diverging spaced relation to each other, Fig. 4. The supporting member 57 and the two wings 58 and 59 may be made as individual pieces from suitable material such as steel plate, and suitably connected together such as by welding, but I prefer to form the same as a cast steel unitary body member.

The coupling member 18 also embodies a plate member 61 which is disposed forwardly of the supporting member 57 and is secured thereon in adjustable relation thereto by suitable means such as two bolts 63 and 64, Fig. 4. The supporting member 57 and the plate member 61 afford clamping jaws between which a suitable portion of the plow P, such as, for example, the shank S thereof, may be clampingly engaged to thereby firmly mount the coupling member 18 in rearwardly projecting position on the plow P, the bolts 63 and 64 being effective to force the plates 57 and 61 into firm clamping engagement with the shank S.

The coupling member 18 also embodies a substantially arcuate-shaped shaft or bolt 65, Figs. 1, 4 and 7, which is bowed rearwardly and extends substantially perpendicularly through the wings 58 and 59. The bolt 65 is releasably held in operative positions in the wings 58 and 59 by a nut 66.

In operation, when the frame 16 is operatively connected in trailing relation to the plow P by the coupling member 18, the bolt 65 extends through a hole 69 in the tongue 27. The bolt 65 is disposed in the hole 69 with a relatively loose sliding fit, such as, for example, a one-half inch bolt extending through a hole having a diameter of five-eights of an inch. Thus, it will be seen that the connection between the coupling member 18 and the tongue 27 will permit the frame 16 to pivot freely in a overtical plane on the bolt 65 and to slide freely in a horizontal direction on the bolt 65 between the wings 58 and 59. Also, it will be seen that, with this connection between the coupling member 18 and the tongue 27, the frame 16 may swing laterally to a limited extent on the bolt 65 from a position wherein the tongue 27 is disposed in substantially parallel relation to the wing 58 to a position wherein the tongue 27 is disposed in substantially parallel relation to the wing 59.

A boss 67, Fig. 1, is formed on the lower end portions of the downwardly projecting leg 27*b* of the tongue 27 and a forwardly projecting adjustable stop member such

as a bolt 68 is threadedly mounted therein. The stop member 68 is disposed in the boss 67 at a position wherein the dammer 10 is free to swing vertically up and down on the bolt 65 sufficiently to adjust its position relative to the plow P so that, as the plow P and dammer 10 move over normal irregularities in the ground, the dammer 10 remains in proper trailing relation to the plow P. However, the stop member 68 is disposed in such position in the boss 67 that if the plow P is raised an abnormal amount relative to the dammer 10, such as, for example, when the plow P is raised above the ground to permit it to travel down a road or between fields, the stop member 68 engages a suitable portion of the plow P such as, for example, the shank S to limit the downward swinging movement of the dammer 10 relative to the plow P and cause the dammer 10 to be raised clear of the ground with the plow P as shown in Fig. 2.

In the operation of my novel dammer, the dammer 10 is mounted in trailing position behind a furrow-forming implement, such as, for example, the plow P, in a position to ride in the furrow F formed by a furrow forming tool such as the blade B. During the initial movement of the dammer 10 along the furrow F the collecting member 12 is disposed in load-accumulating position, such as shown in Fig. 1, wherein the shoe 34 and the portion of the bottom face 49 of the collecting member 12 adjacent to the latter extremity of the forward end portion 45 of the collecting member 12 are disposed in supporting engagement with the bottom of the furrow F and the leading edge 45*a* of the collecting member 12 is disposed in upwardly spaced relation to the bottom of the furrow F.

On most furrow-forming implements with which my novel dammer 10 is normally used, the furrow-forming tool is of such shape that the bottom 71 of the furrow is rounded, or of substantially V-shape, Fig. 7, having two relatively high shoulders or sides 71*a* and 71*b* and a lower central portion 71*c*. With the furrow F formed in this manner, the collecting member 12, when disposed in load-accumulating position, rides on the shoulders 71*a* and 71*b* in spanning relation thereto, and with the leading edge 45*a* disposed thereabove.

In furrows formed by tools or implements wherein the bottom of the furrow is substantially flat, the collecting member 12, when in load-accumulating position rides on the flat bottom of the furrow with the leading edge 45*a* disposed thereabove.

Thus it will be seen that when my novel dammer is used in any type of furrow, when the collecting member 12 is disposed in load-accumulating position, the leading edge 45*a* is disposed above the bottom of the furrow in spaced relation thereto.

As the dammer 10 is pulled along the furrow behind the plow P, in load-accumulating position, dirt or soil from the sides of the furrow fall inwardly on to the upper face 48 of the collecting member 12. When a sufficient load of soil has accumulated on the collecting member 12, to overbalance the rearwardly extending weight of the wheel segment 14, the lead edge 45*a* of the collecting member 12 is forced downwardly thereby into position wherein it operatively engages the bottom 71 of the furrow F and catches thereon to thereby cause the wheel segment 14 and, therefore, the collecting member 12 to rotate on the shaft 31 in a clockwise direction as viewed in Fig. 1. This rotation of the wheel segment 14 and the collecting member 12 causes the collecting member 12 to move rearwardly and turn upside down to thereby dump the accumulated soil in the form of a pile or a dam D across the furrow F.

The leading edge 32*a* of the rim 32, which terminates at its forward end at the arm 30*b* of the spider 28, is so disposed relative to the collecting member 12 that during the rotation of the wheel segment 14 and the collecting member 12, as the collecting member 12 leaves contact with the bottom 71 of the furrow, the leading edge portion 32*a* of the rim 32 engages the ground and, therefore, continues the rotation of the wheel segment and the collecting member 12 to return these rotating parts to the position shown in Fig. 1. The shoe 34 and the collecting member 12 are so constituted and arranged that upon return of the wheel segment 14 and the collecting member 12 into the load collecting position shown in Fig. 1, the engagement of the shoe 34 and the bottom face 49 of the collecting member 12 with the bottom 71 of the furrow F is effective to check this rotation and to again retain the collecting member 12 in load-collecting position until a load has again collected on the collecting member 12 at which time another load dumping cycle of operation is initiated.

The rear end portion of the wheel segment 14 is suitably loaded to properly balance the weight of the collecting member 12, and for this purpose removable counterweights such as the counterweights 75 and 76, Fig. 1, may be secured thereto by suitable means such as bolts 78 extending through the rim 32. By increasing or decreasing the weight of the counterbalancing load carried at the rear of the wheel segment 14, the intervals at which the dammer 10 will dump a dam D across the furrow F may be correspondingly increased or decreased.

In Figs. 8 to 12, a modified form of my invention is shown, and like reference numerals have been used on like parts and the same reference numerals with the prefix "1" have been used on parts which are similar but which have been substituted for parts of the preferred form of my invention.

In the modified form of my invention, a spider 128 having a central hub 129 and four radially projecting arms 130*a*, 130*b*, 130*c*, and 130*d* is rotatably mounted on the bolt 31 mounted in the frame 16.

The dammer 110 embodies two collecting members 12 and 12*a*, Figs 8 and 9, the collecting member 12 being mounted on the outer end portion 51 of the arm 130*a*, and the collecting member 12*a* being mounted on the outer end 51 of the arm 130*c*, in a manner similar to the manner in which the collecting member 12 is mounted on the arm 30*a* in the form of my invention shown in Fig. 1.

A substantially arcuate-shaped shoe 134, Fig. 8, is mounted at one end on the outer end portion of the arm 130*d*, and at the other end is secured to the outer end portion of the arm 130*a* on the bottom of the collecting member 12. The shoe 134 may be made of any suitable material such as steel and preferably comprises an integral extension of the arm 130*d*, which is secured at its inner end portion to the hub 129 by suitable fastening means such as a bolt 81. The end of the shoe 134 which is mounted on the arm 130*d* and the collecting member 12 is secured thereto by the bolt 36 which extends therethrough.

Like the shoe 34, the shoe 134 is so positioned relative to the collecting member 12 that, when the collecting member 12 is disposed in load-accumulating position, the shoe 134 is disposed in engagement with the bottom 71 of the furrow F.

A second arcuate-shaped shoe 134*a* is mounted on, and extends between, the arm 130*b* and the outer end 51 of the arm 130*c* which is mounted on the bottom of the collecting member 12*a*. The shoe 134*a* forms an integral extension of the arm 130*b* and is secured to the arm 130*b* and the collecting member 12*a* by a bolt 36, Fig. 8. The arm 130*b* is connected to the hub 129 by suitable means such as a bolt 81*a*, and it will be noted that I prefer to make the two units, embodying the arm 130*d* and the shoe 134, and the arm 130*b* and the shoe 134*a*, respectively, interchangeable.

In the dammer 110, the collecting members 12 and 12*a* are the shoes 134 and 134*a*, and these units are so disposed on the hub 129 that when either the collecting member 12 or 12*a* is disposed in normal load-accumulating position, the other collecting member 12*a* or 12, respectively, is disposed in upwardly and rearwardly projecting relation thereto.

The construction of the spider **128** and the disposition of the collecting members **12** and **12***a* thereon is such as to insure proper balance of the collecting members **12** and **12***a* during the operation of my novel dammer **110**.

In the operation of the modified form of my invention shown in Figs. 8 to 12, inclusive, the dammer **110** is mounted in trailing position behind a furrow-forming implement, such as, for example, the plow P, in a position to ride in the furrow F formed by the furrow-forming tool B, as in the dammer **10** in the operation of the preferred form of my invention shown in Figs. 1 to 7, inclusive.

During the initial movement of the dammer **110** along the furrow F the collecting member **12** is disposed in the aforementioned load-accumulating position, with the shoe **134** and the bottom face of the collecting member **12** disposed in supporting engagement with the bottom **71** of the furrow F, and with the leading edge **45** of the collecting member **12** disposed in upwardly spaced relation to the bottom of the furrow F, Figs. 8 and 12.

As the dammer **110** is pulled along the furrow behind the plow P in load-accumulating position, Fig. 8, dirt or soil from the sides of the furrow fall inwardly on the upper face **48** of the collecting member **12**. When a sufficient load has been accumulated on the collecting member **12**, the leading edge **45***a* thereof is forced downwardly into operative engagement with the bottom **71** of the furrow F to thereby cause the spider **128** and the collecting members **12** and **12***a* to rotate as a unit on the shaft **31** in a clockwise direction. This rotation of the spider **128** and the collecting members **12** and **12***a* causes the collecting member **12** to move rearwardly, as best shown in Fig. 10, and turn into inverted position to thereby dump the accumulated soil in the form of a pile or dam D across the furrow F.

The dumping position of the dammer **110** is substantially that shown in Fig. 10, wherein the leading edge **45***a* of the blade **12**, and the junction of the arm **130***b* and the shoe **134***a*, are both disposed in engagement with the bottom **71** of the furrow F.

From this dumping position, the spider **128** and the collecting members **12** and **12***a* continue to rotate in a clockwise direction as viewed in Fig. 10 until they are disposed in the position shown in Fig. 11. This latter position is a load-accumulating position for the collecting member **12***a*, wherein the positions of the collecting members **12** and **12***a* and the shoes **134** and **134***a* relative to the furrow F are reversed from the positions in which they are disposed when the collecting member **12** is disposed in load-accumulating positions as shown in Fig. 8 and as previously discussed.

As was true with respect to the loading of the collecting member **12**, when the collecting member **12***a* accumulates a sufficient load, the leading edge **45***a* thereof operatively engages the bottom **71** of the furrow F, and the spider **128** and the collecting members **12** and **12***a* rotate in a clockwise direction as viewed in Fig. 11 from the position shown in Fig. 11 to the position shown in Fig. 8, to thereby dump the load accumulated on the collecting member **12***a* and return the spider **128** and the collecting members **12** and **12***a* into load-accumulating position for the collecting member **12**, as shown in Fig. 8, to thereby initiate a new cycle of operation.

The collecting members **12** and **12***a*, and the shoes **134** and **134***a*, are so disposed relative to each other and the spider **128**, that when a collecting member **12** or **12***a* arrives in load-accumulating position it is retained in such position until such time as a load has been collected on the collecting member disposed in that position, and, at that time, another load-dumping cycle of operation is initiated.

From the foregoing it will be seen that I have afforded a novel damming device which is entirely automatic in operation and which does not require the actuation of mechanical locking means of any sort whatsoever for the proper functioning thereof.

Also, it will be seen that I have afforded a novel highly effective and efficient damming device which may be readily and economically constructed commercially.

In addition, it will be seen that I have afforded a novel damming device which accomplishes its intended objects and purposes in a novel and expeditious manner.

Thus, while I have illustrated and described the preferred embodiments of my invention, it is to be understood that these are capable of variation and modification, and I therefore do not wish to be limited to the precise details set forth, but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. A damming device for attachment to a furrow-forming implement in trailing relation thereto in a furrow formed by said implement and comprising draft means, supporting means freely rotatably mounted on said draft means and including a plurality of means projecting outwardly from the center of rotation, collecting means mounted on and carried by one of said projecting means for rotation therewith between a soil-accumulating position in engagement with the bottom of such a furrow and a soil-dumping position out of engagement with the bottom of said furrow, said collecting means being mounted on said one projecting means in position to project forwardly therefrom when in said soil-accumulating position, and elongated slide means mounted on and extending between said one projecting means and another of said outwardly projecting means in position to project rearwardly from said one means and said collecting means in longitudinally extending engagement with said bottom of said furrow when said collecting means is disposed in said soil-accumulating position.

2. A damming device as defined in claim 1 and in which said collecting means comprises a collecting member having a leading edge portion, and in which said collecting member is mounted in position on said supporting means wherein said leading edge is disposed out of ground engaging position when said collecting means is disposed in said soil-accumulating position and wherein said collecting member is responsive to predetermined downward pressure thereon to move said leading edge into operative engagement with the ground to thereby initiate a rotation of said collecting means and said supporting means into said soil-dumping position.

3. A damming device as defined in claim 1 and in which said supporting means includes a wheel segment disposed above said slide means and collecting means when said collecting means is disposed in said soil-accumulating position.

4. A damming device as defined in claim 1 and in which said supporting means includes a wheel segment for rolling contact with the ground during a rotation of said collecting means, said wheel segment being mounted on the outer end portion of said other outwardly projecting means and extending upwardly and forwardly therefrom when said collecting means is disposed in said soil-accumulating position.

5. A damming device for attachment to a furrow-forming implement in trailing relation thereto in a furrow formed by said implement and comprising collecting means for accumulating soil thereon and dumping the same in the form of a dam across said furrow, said collecting means having a leading edge, said collecting means having a soil-accumulating position wherein said leading edge is disposed in spaced relation to the bottom of said furrow and a soil-dumping position wherein said leading edge is disposed in engagement with the bottom of said furrow, draft means for pulling said collecting means along said furrow behind said implement, and supporting means rotatably connecting said collecting means to said draft means for rotation from said soil-accumulating posi-

tion through said soil-dumping position and back to said soil-accumulating position, said supporting means having a normally forwardly disposed portion, a normally rearwardly disposed portion, and a normally downwardly disposed intermediate portion interconnecting said first two portions, said collecting means being so disposed on said forwardly disposed portion that, when said supporting means is disposed in said furrow in operative trailing position to such an implement and no soil is accumulated on said collecting member, said intermediate portion rests on the bottom of said furrow and said collecting means is disposed in said soil-accumulating position and, when a predetermined weight of soil is accumulated on said collecting means said supporting means is rocked thereby into position wherein said leading edge operatively engages said ground to initiate said rotation of said collecting means through said soil-dumping position.

6. A damming device for attachment to a furrow-forming implement in trailing relation thereto in a furrow formed by said implement and comprising a frame, means mounted on said frame for operatively connecting said frame to such an implement in said trailing relation, a supporting member comprising at least a segmental annular member, and a shoe mounted on said segmental annular member, said supporting member being rotatably mounted on said frame in position to be pulled thereby in said trailing relation to such an implement, said supporting member having one operative position wherein the rear end of said supporting member is disposed substantially below the center of rotation thereof and said shoe projects forwardly from said rear end below said center of rotation and in engagement with the bottom of said furrow, and another operative position wherein said shoe is disposed out of engagement with said bottom of said furrow, said supporting member being rotatable on said frame from said one position through said other position and back to said one position while being pulled by said frame in said trailing relation, and a collecting member for accumulating soil thereon and dumping the same in a dam across said furrow, said collecting member having a leading edge and being mounted on said supporting member and rotatable therewith, said collecting member being mounted on said supporting member in such position that when the latter is disposed in said one operative position, with no soil accumulated on said collecting member, said collecting member projects forwardly of said shoe in position to accumulate soil from said furrow on said collecting member with said leading edge disposed in spaced relation to said bottom of said furrow and, when a predetermined weight of soil accumulates on said collecting member, said supporting member and said collecting member are rocked thereby into position wherein said leading edge operatively engages said bottom of said furrow to thereby initiate said rotation of said supporting member whereby said collecting member is rotated therewith to dump said accumulated soil in a dam across said furrow.

7. A damming device comprising a collecting member having a leading edge, means for drawing said collecting member along a furrow to accumulate a load thereon, and supporting means rotatably connecting said collecting member to said first mentioned means so that said collecting member may rotate relative to said first mentioned means to dump an accumulated load in said furrow during movement of said collecting member therealong, said supporting means comprising a spider rotatably mounted on said first mentioned means, a substantially arcuate-shaped rim mounted on said spider, a shoe removably mounted on said spider, and means for adjusting the position of said shoe relative to said spider, said collecting member being so disposed on said supporting means that when said collecting member is disposed in operative position in said furrow to accumulate a load thereon said shoe is disposed in supporting engagement with the bottom of said furrow and said leading edge projects forwardly of said shoe in spaced relation to the bottom of said furrow.

8. A damming device comprising a collecting member having a convex lower face and a leading edge, means comprising a substantially U-shaped frame and a coupling member connected to the closed end thereof for drawing said collecting member along a furrow to accumulate a load of soil thereon, and supporting means rotatably connecting said collecting member to said first mentioned means so that said collecting member may rotate relative to said first mentioned means to dump an accumulated load of soil in said furrow during movement of said collecting member therealong, said supporting means comprising a spider journaled in the open end portion of said frame and having a plurality of outwardly projecting arms, and a substantially arcuate-shaped shoe mounted on said spider and extending between the free end portions of two of said arms, said collecting member being mounted on one of said two arms in position wherein, when said collecting member is disposed in operative position in said furrow to accumulate a load of soil thereon, said shoe and said lower face are disposed in supporting engagement with the bottom of said furrow and said leading edge projects forwardly of said shoe in spaced relation to the bottom of said furrow.

9. A damming device for attachment to the shank of a furrow-forming tool in trailing position thereto and comprising rotatable soil collecting means, a draft member connected to said means and having a coupling plate projecting fowardly therefrom, an adjustable stop member mounted on said plate and projecting forwardly therefrom, and means for pivotally conecting said draft member to said shank for vertical swinging movement and lateral sliding movement relative thereto, said last named means comprising a body member, clamping means on said body member for operatively connecting the latter to said shank, two wings projecting rearwardly from said body member in diverging spaced relation to each other, and a shaft mounted in said wings and extending horizontally through said plate, said plate being laterally slidable on said shaft between said wings, said wings being disposed in position to retain said plate in lateral position effective to retain said adjustable stop in position to engage said shank upon movement of said shank upwardly more than a predetermined amount relative to said collecting means.

10. A damming device comprising draft means, supporting means rotatably mounted on said draft means for rolling and sliding contact with the ground and including a plurality of outwardly projecting arms, and a collecting member mounted on one of said arms and having a substantially arcuate convex bottom surface, said collecting member having a soil-accumulating position wherein said convex bottom surface is disposed in tangential engagement with the ground and a soil-dumping position wherein said convex bottom surface is disposed out of engagement with the ground, said supporting means including an elongated shoe mounted on and extending between said one arm and another of said arms, said shoe projecting rearwardly of said collecting member in ground-engaging position when said collecting member is disposed in said soil-accumulating position, said collecting member being mounted on said one arm in position wherein said collecting member is normally disposed in said soil-accumulating position and is responsive to predetermined downward pressure thereon to initiate movement of said collecting member into said soil-dumping position to thereby initiate rotation of said supporting means and said collecting member.

11. A damming device as defined in claim 1 and which includes other collecting and elongated slide means mounted substantially diametrically opposite the first named collecting and elongated slide means, respectively.

12. A damming device as defined in claim 1 and which includes other collecting and elongated slide means

mounted substantially diametrically opposite the first named collecting and elongated slide means, respectively, and in which said first mentioned and other collecting means each includes a collecting member having a top face, a convex bottom face, and a leading edge, and in which each of said collecting members is so arranged on said supporting means that said bottom face is disposed in engagement with the bottom of said furrow and said leading edge is disposed thereabove when said collecting means of which said collecting member is a part is disposed in said soil-accumulating position.

13. A damming device for attachment to a furrow-forming implement in trailing relation thereto in a furrow formed by said implement and comprising supporting means, said supporting means comprising a hub, a plurality of arms projecting outwardly from said hub, and two elongated shoes disposed on substantially diametrically opposite sides of said hub, each of said shoes extending between and being carried by the outer end portions of a respective pair of said arms, two collecting members, each of said collecting members having a bottom surface and being mounted on the outer end portion of one arm in a respective one of said pairs, each of said collecting members having a forwardly projecting soil-accumulating position on the respective one of said arms wherein said bottom surface thereof is disposed in downwardly facing sliding engagement with the wall surface of said furrow, each of said collecting members having another position, said collecting members being so disposed on said supporting means that when either of said collecting members is disposed in said soil-accumulating position the other of said collecting members is disposed in said other position and one of said shoes is disposed in rearwardly extending supporting engagement with said wall surface of said furrow, and draft means connected to said hub for pulling said collecting members along said furrow behind such an implement, said hub, said supporting means, and said collecting members, being freely rotatably mounted as a unit on said draft means.

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