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EARTH CLOD FORMING DEVICES

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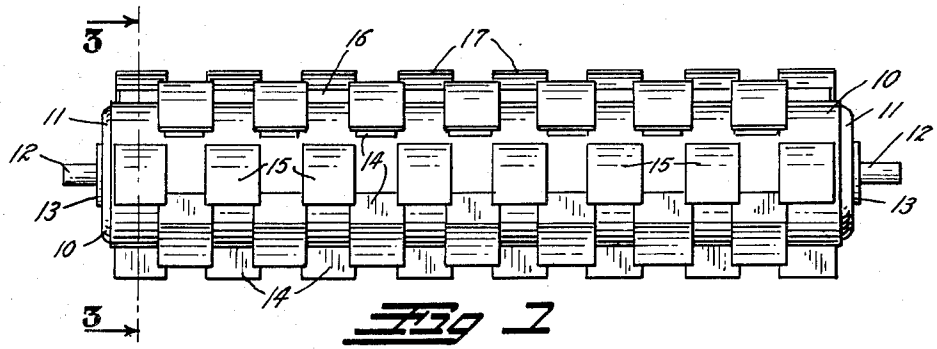



Fig 1

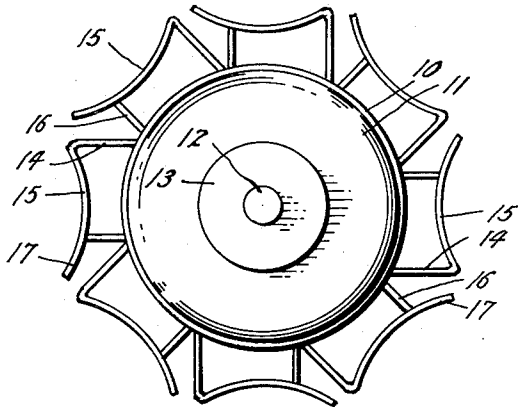



Fig 2

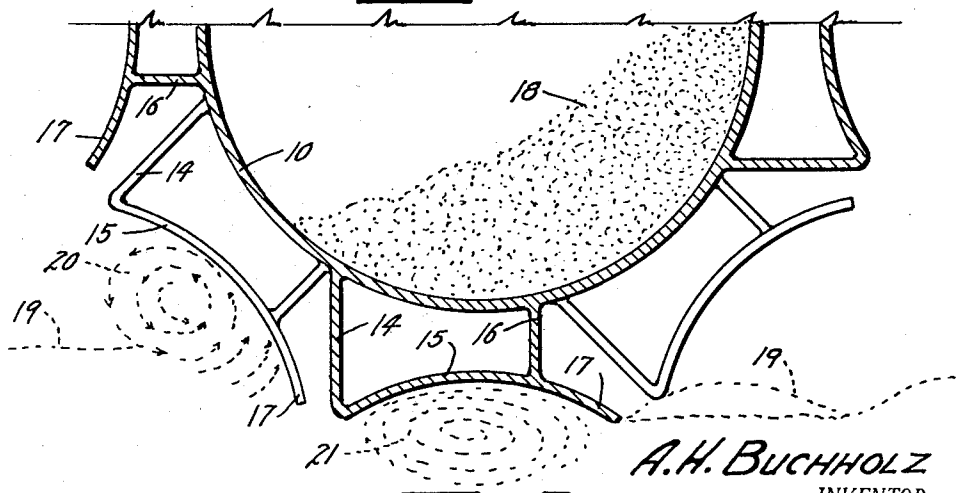



Fig 3

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# EARTH CLOD FORMING DEVICES

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2 Claims. (Cl. 55—6)

This invention relates to an earth clod-forming roller. In the arid regions of the West where the soil is subjected to wind and water erosion, the usual types of field preparation are not satisfactory, since exposure of the fine soil to the elements results in rapid wind and water erosion.

The principal object of this invention is to provide an economical and highly efficient roller which can be rolled over a cultivated field, and which will roll and pack the fine soil into tightly compacted clods which will serve to retain moisture, shade the soil, and provide ridges and pockets for retarding erosion.

Another object is to so construct the improved roller that it can be readily attached to and drawn by any suitable traction device.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become come more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a side view of the improved clod-forming roller;

Fig. 2 is an enlarged end view thereof; and

Fig. 3 is a still further enlarged cross-section through the roller of Fig. 1, taken on the lower portion of line 3—3, Fig. 1.

The improved roller comprises an elongated, hollow cylinder or drum **10** closed with circular, dished end plates **11**. Each end plate **11** is provided with a concentric stub shaft **12** secured thereto in any desired manner. As illustrated, the stub shafts **12** are formed on flanges **13** which are welded, riveted, or bolted to the end plates **11**. The stub shafts receive any suitable frame or yoke whereby the roller may be drawn across a field by means of a tractor or other traction device.

The cylinder **10** is provided with a plurality of projecting clod-forming devices. Each clod-forming device comprises a metal plate bent to form a supporting end portion **14** which is welded or otherwise secured to the surface of the cylinder **10**, and an arcuately curved pressing portion **15** which extends from the end portion **14** at an acute angle and on an arc curving substantially opposite to the arc of the cylindrical surface of the drum **10**. A brace plate **16** is welded beneath the pressing portion **15** and is also welded to the drum **10** to prevent relative bending between the portions **14** and **15**. The brace plate **16** is set back from the free edge of the pressing portion **15** sufficiently far to provide a curved,



shovel-like extremity **17** on the forward edge of the pressing plate **15**.

The clod-forming devices as above described are secured along the drum **10** in spaced-apart relation, the spacing between the devices being less than the width of the devices, and with the alternate rows of devices arranged in staggered relation so as to provide an overlapping relation between the adjacent rows of devices, as shown in Fig. 1.

The size of the drum **10** and the size of the clod-forming devices may be varied to suit conditions in various localities. It has been found that a cylinder twenty-six inches in diameter and approximately twelve feet long, with the pressing portions **15** measuring twelve inches in a tangent direction and ten inches in a longitudinal direction, with a spacing of eight inches apart, is satisfactory for most conditions. It is preferred to have the plates **14** extend outwardly approximately six inches from the surface of the drum.

The drum **10** is partially filled with fine sand, as indicated at **18**. The sand serves a double purpose. It provides weight, and due to its internal friction, acts as a brake and tends to retard the free rolling of the cylinder **10**. This retarding action is important to the clod-forming function of the roller.

The roller is used when the soil is in a slightly moist condition. It is drawn forwardly, to the left in Figs. 2 and 3, so that the shovel extremities **17** will descend into the fine moist soil, indicated by the ground surface line **19** in Fig. 3. The retarding action of the sand **18** will cause the cylinder to slide slightly forward as it rolls. This sliding action causes the fine surface soil to be rolled upwardly and forwardly by the curved pressing portion **15**, as indicated in broken line at **20** in Fig. 3. This roll of moistened earth is then pressed downwardly below the ground surface **19** into a tightly compacted clod, as indicated in broken line at **21** in Fig. 3. These tightly compacted, rolled clods are spaced over the entire surface of the field, corresponding to the spacing of the clod-forming devices on the cylinder **10**, and act to retain the surface soil in a pocketed, clod-like formation which retards wind erosion and stores moisture during fallow periods.

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 thus described the invention, what is claimed and desired secured by Letters Patent is:

1. A clod-forming roller comprising: an elongated drum; axle means extending concentrically from each extremity of said drum; a plurality of clod-forming devices projecting radially outward from the surface of said drum at spaced-apart intervals; and bent plates, each of said plates extending first outwardly from said drum to form a supporting end portion, thence extending substantially at right angles to said end portion to form a clod-pressing portion, said pressing portion being arcuately curved oppositely to the curvature of the surface of said drum, and having a supporting member extending from said drum to said pressing portion to prevent relative bending between said pressing portion and said supporting end portion, said supporting plate being positioned inwardly from the free edge of said pressing portion so as to provide a projecting shovel-like portion on said pressing portion.

2. A clod-forming roller comprising: an elongated

drum; axle means extending concentrically from each extremity of said drum; a plurality of clod-forming devices projecting radially outward from the surface of said drum at spaced-apart intervals; and bent plates, each of said plates extending first outwardly from said drum to form a supporting end portion, thence extending substantially at right angles to said end portion to form a clod-pressing portion, said pressing portion being arcuately curved oppositely to the curvature of the surface of said drum, and having a supporting member extending from said drum to said pressing portion to prevent relative bending between said pressing portion and said supporting end portion, said supporting plate being positioned inwardly from the free edge of said pressing portion so as to provide a projecting shovel-like portion on said pressing portion, said shovel-like portions projecting in the direction of rotation of said drum when the latter is in use.



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