

E. L. CHADDOCK.
IMPALING ROLL.
APPLICATION FILED FEB. 8, 1908.

975,831.

Patented Nov. 15, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

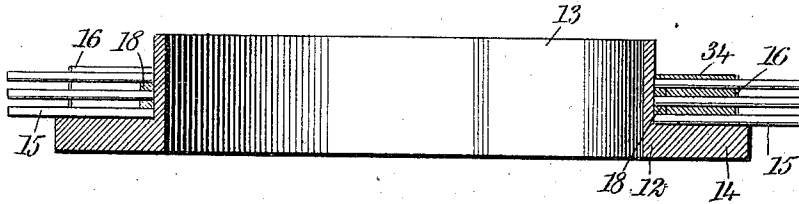


Fig. 2.

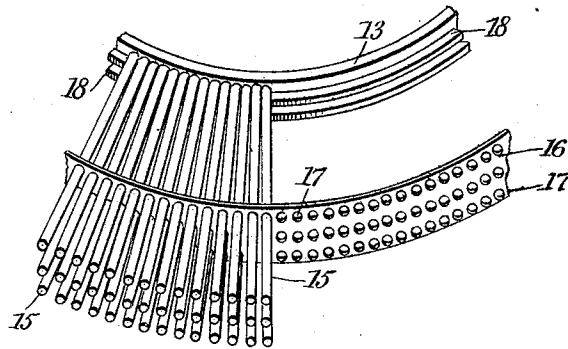
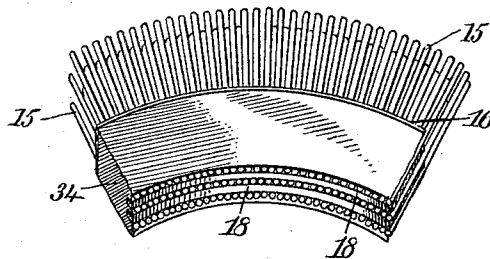


Fig. 3.



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3 SHEETS-SHEET 2.

Fig. 4.

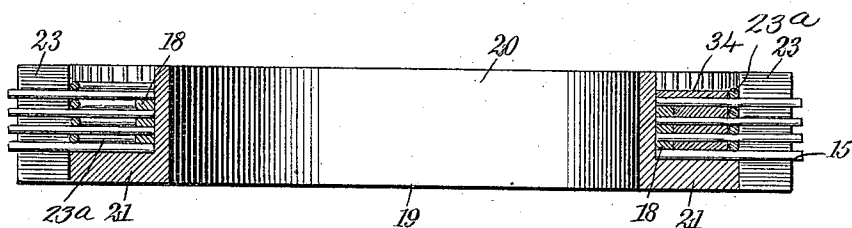


Fig. 5.

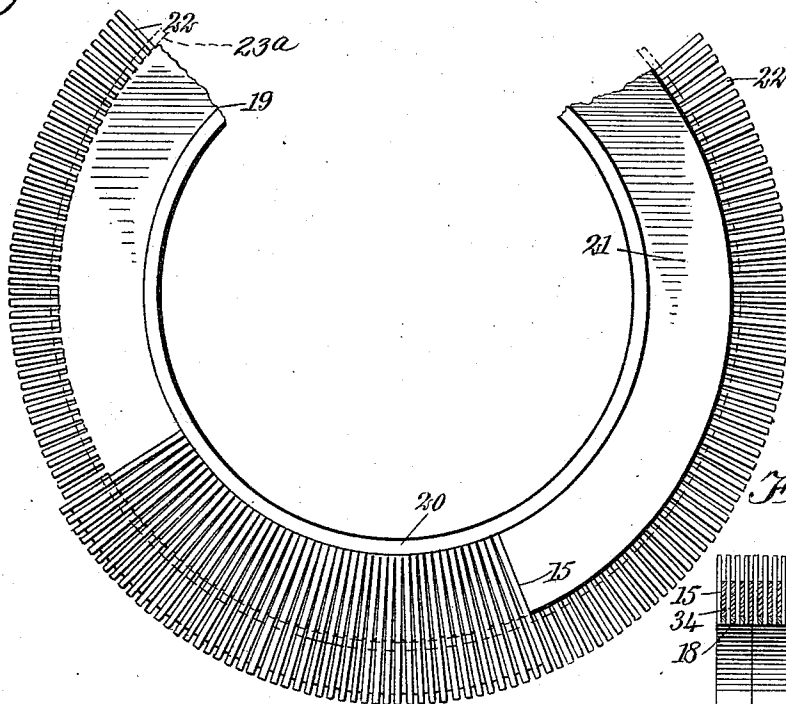


Fig. 7.

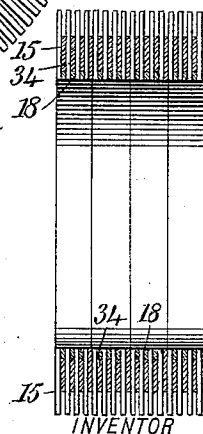
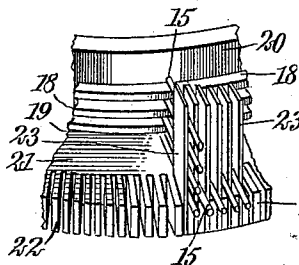


Fig. 6.



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3 SHEETS—SHEET 3.

Fig. 8.

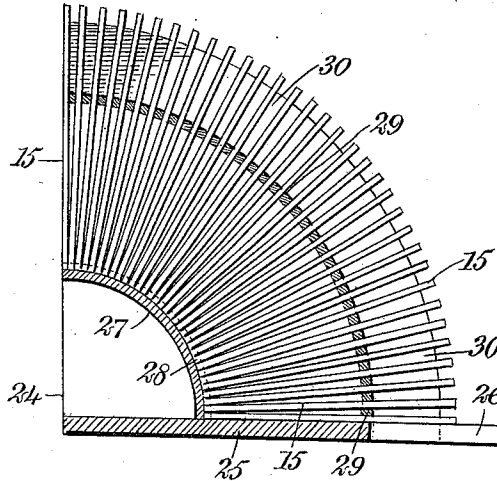


Fig. 9.

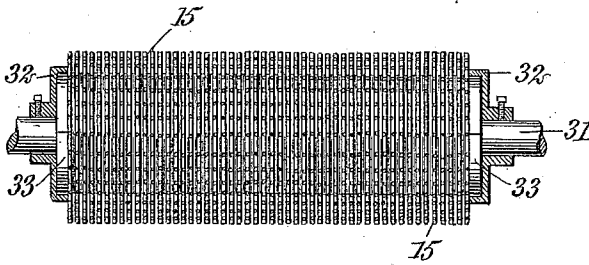


Fig. 10.

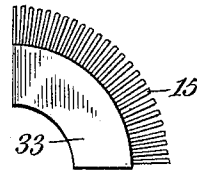
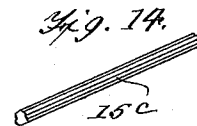
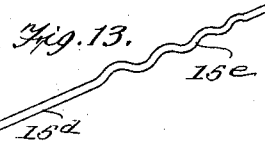
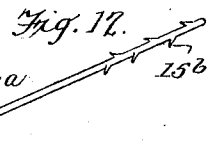
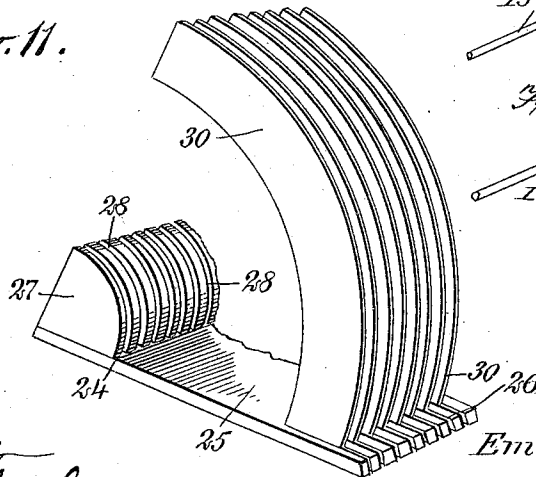


Fig. 11.



WITNESSES

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EMORY LEROY CHADDOCK, OF FRESNO, CALIFORNIA.

IMPALING-ROLL.

975,831.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed February 8, 1908. Serial No. 414,918.

To all whom it may concern:

Be it known that I, EMORY L. CHADDOCK, a citizen of the United States, and a resident of Fresno, in the county of Fresno and State of California, have invented a new and Improved Impaling-Roll, of which the following is a full, clear, and exact description.

This invention relates to impaling rolls, and more particularly to devices of this kind used in connection with seeding machines and the like.

An object of the invention is to provide a simple, strong and efficient impaling roll for use in seeding machines and the like, which is inexpensive to manufacture, which can be easily repaired, and which comprises a plurality of separable sections which can be assembled and taken apart with little trouble and loss of time.

A further object of the invention is to provide an impaling roll comprising a plurality of separable sections each having impaling members or pins partly embedded in a body of easily fusible metal or the like, and radiating from a common point or line.

The invention consists in the construction and combination of parts to be more fully described hereinafter, and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a longitudinal section of a form and matrix used in my method of making impaling rolls; Fig. 2 is a perspective view showing a portion of the form and matrix with impaling pins in position; Fig. 3 is a perspective view showing a part of a finished roll section; Fig. 4 is a longitudinal section showing a modified type of the form and matrix used with my invention; Fig. 5 is a plan view with parts broken away, showing the modified form of making the rolls; Fig. 6 is a perspective view showing the form and spacing members used in the modified form; Fig. 7 is a longitudinal section showing assembled, a number of the completed sections of the roll made of the modified form; Fig. 8 is a transverse section showing the form and the spacing members used in making a roll of still further modified form; Fig. 9 is a plan view showing a completed and assembled roll made of the further modified form, and having parts in

section; Fig. 10 is an end view of a completed section of the further modified form; Fig. 11 is a perspective view showing the form and arrangement of the spacing members used in connection with the modified form; Fig. 12 is a perspective view of a pin of special form; Fig. 13 is a similar view of another pin; and Fig. 14 is a similar view of a pin of further modified form.

Before proceeding to a more detailed explanation of my invention, it should be understood that while it is particularly useful in connection with machines such as fruit seeders, it can also be advantageously employed with other mechanism in which use is made of rolls having studs or projections. The impaling rolls used in seeding machines are for the purpose of freeing the raisins or other fruit from the seeds or pits which they contain. This is effected by forcing the fruit against the roll and impaling it upon the projecting pins or studs of the same. As the latter are arranged so close together that the seeds cannot pass therebetween, the seeds are of course forced from the fruit and are removed in this way. The fruit, after impalement upon the roll, is removed from the latter by suitable blades or scrapers which pass between the studs and free the fruit from the rolls. The pins or studs of the rolls are naturally subject to excessive wear and are liable to be broken by coming into engagement with foreign objects such as pebbles, nails or the like. It should be noted that the breaking or removal of even a single pin will render the operation of the seeder defective, in that a considerable quantity of fruit can be impaled upon the roller, without having the pits or seeds forced therefrom. It is usually a question of considerable expense to repair or replace these rolls, and it is one of the purposes of my invention to provide means for making such rolls at comparatively little cost, and also to permit the repair of rolls in operation, with rapidity and ease. For the latter purpose, I employ a roll consisting of a plurality of separable sections, so that if one or more teeth of any particular section are destroyed or otherwise rendered ineffective, the section in question can be removed and replaced by another in a very short space of time.

My invention is particularly useful with rolls which rotate about a longitudinal axis, and the pins are arranged radiating from

the axis of rotation of the roll. I have found that by employing a plastic substance which is adapted subsequently to harden, such for example, as an easily fusible metal, it is possible to manufacture impaling rolls at comparatively low cost and with little difficulty.

My invention resides, partly, in the forms and matrices, and the arrangement thereof for making the rolls. It will be understood that it is necessary to arrange the pins or studs and to hold them in the desired position, before the molten Babbitt metal or other substance employed, can be poured around the pins. The latter are embedded in the metal and are thus firmly held in place. The pins may be of any desired form. They may, for example, be barbed, may be of sinuous form, or have heads, which tend to hold them embedded more firmly in the body. Furthermore, they may be of any preferred or common cross-section form; for example, they may be of round or angular cross-section.

Referring more particularly to the drawings, 12 represents a form fashioned from cast-iron or any other suitable material, and having a central cylindrical body 13. At one end, the body has a laterally extending flange or base 14. The body acts as a core in making the roll sections. These sections, in this form of the roll are of cylindrical or annular type and are assembled by being arranged upon a common shaft, mandrel, or other suitable member. In forming the roll sections, a layer of pins or elongated impaling members 15 is arranged upon the base flange 14. The pins of this layer radiate outwardly upon the axis of the cylindrical form and extend through openings 17 of a shell 16, formed from perforated sheet metal or other suitable material. The shell 16 is cylindrical in form and is arranged concentric with respect to the form 12, as is shown most clearly in Figs. 1, 2 and 3. The proportions of the parts are such that the ends of the pins adjacent to the body 13 are contiguous and are therefore not spaced circumferentially of the body. As they radiate outwardly, they pass through the suitable openings or perforations of the shell 16 and are spaced thereby. A spacing ring 18 is arranged upon this layer of pins adjacent to the body 13. A second layer of pins is arranged above the first one and is spaced therefrom by a ring 18 and by the spaces between the corresponding perforations of the shell 16. In this way the pins are easily and securely arranged in position for the pouring of the Babbitt metal or other plastic substance 34. This is introduced between the body 13 and the shell 16 and there hardens to form the body of the roll. The pins are of course, firmly embedded in the body of the roll. The section is slipped from the form 12 and with the other sec-

tions is mounted upon the mandrel or other assembling means. The shell preferably consists of thin sheet metal which is manufactured by stamping, and which can be obtained at a cost so low that the expense added thereby to the roll is almost negligible. The spacing rings 18 form the core portion of the roll section and remain embedded in the section.

In Fig. 4 of the drawings is shown a form 19 similar to the form 12 and like the latter, having a cylindrical body 20 and a flange or base 21. The flange or base, has radial extensions or teeth 22 between which are inserted separating plates 23 which space the pins 15 circumferentially. The plates 23, which may consist of any suitable material, such as sheet metal, card-board, wood or the like, are arranged so close together by the spacing of the teeth 22 that the pins 15 can be normally held in position by the members themselves, without the interposition of other spacing means. The layers of pins are spaced adjacent to the body 20 by spacing rings 18 as in the first method. When the pins are all in position, the plastic material is introduced around the body 20 of the form and allowed to harden. The plates 23 are then removed and the section slipped from the form 19 to be assembled with the other sections as before. In the methods of making the impaling rolls described above, the resulting roll sections are cylindrical or annular in form and are assembled by being mounted upon a mandrel, shaft or other suitable member.

I prefer to employ spacing rings 23^a arranged between the layers of pins and adjacent to the inner edges of the members 23. These additional rings space the pins vertically and prevent the plastic material from escaping between the members 23 when it is introduced.

I can also form segmental roll sections which are assembled by being fitted together and secured in position, as is shown most clearly in Fig. 9. The segmental form of roll section is shown in Figs. 8, 9, 10 and 11. The form 24 used for making the sections of this kind, has a base 25 which at one edge has teeth 26. The base has a core 27 near the edge remote from the teeth 26 and curved in the arc of a circle. The core has grooves 28 which receive the ends of the wires or impaling pins 15. The parts are so proportioned that the ends of the wires in the grooves 28 lie closely adjacent and therefore require no spacing members. The wires near the teeth 26 are spaced by elongated rods or spacing bars 29 which extend longitudinally of the sections. Spacing plates 30, curved in the arc of a circle are held in position by the teeth 26 and space the pins longitudinally of the roll sections. Thus the pins are held in position by the

grooved core 27, by the bars or spacing rods 29, and the spacing plates 30. The Babbitt metal or other substance used for the purpose is introduced between the core and the spacing rods 29, and there hardens to form the body of the roll section. The roll sections are fitted together upon a shaft or spindle 31 and are held in position by caps 32 which engage extensions 33 of the end sections. While I have shown these segmental sections so proportioned that four of them constitute a roll, needless to say, they can be constructed so that any other number when fitted together, makes a roll.

In Figs. 12, 13 and 14, I have shown modified forms of the impaling pins or members 15. In Fig. 12 the pin 15^a has a plurality of spurs or projections 15^b at one end, which assist in securely embedding the pin in the body of the roll. In Fig. 14 the pin 15^c is of angular cross section, so that it tends to remain securely in place, and cannot easily be rotated to loosen it. In Fig. 13 the pin 15^d has a part 15^e of wave or curved form, which also serves to hold the pin securely in place when it is embedded in the body.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent:—

1. An impaling cylinder, comprising a plurality of separable sections, each consisting of a core portion, a member separated therefrom and comprising a perforated sheet, pins held at said core portion and extending through the perforations of said sheet, said core portion constituting a means for spacing said pins, said pins radiating from said core portion and being contiguous at their inner ends, a filling between said member and said core portion and consisting of an easily fusible substance, and means for assembling said sections.

2. A device of the class described, comprising a plurality of separable sections, a spindle for assembling said sections, each of said sections including pins radiating from

the axis of said spindle, separate means engaging each of said pins at separated points to space said pins one from the other, and a body formed from an easily fusible substance, each of said pins being embedded in said body between said spindle and the outer one of said pin engaging means.

3. A device of the class described, comprising a core portion, pins arranged radially about said core portion, said pins at their inner ends each being contiguous with adjacent pins, means for holding said pins spaced at points remote from the inner ends, and a filling embedding said pins between their inner ends and said means.

4. A device of the class described, comprising a plurality of separable sections, and means for assembling said sections, each of said sections consisting of layers of radiating pins, annular spacing members between said layers at the inner ends of said pins, a cylindrical shell around said annular members and spaced therefrom, said shell consisting of a perforated sheet, said pins extending through said sheet and beyond the same and being spaced thereby, and a body between said annular members, and said shell and serving to embed said pins, said body consisting of an easily fusible substance.

5. A device of the class described, comprising a substantially cylindrical body encompassed by a perforated shell, the perforations of said shell being spaced, said body being composed of a fusible metal, and a plurality of pins embedded in said body and extending radially through the perforations of said shell, said pins being contiguous at the end remote from said shell.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EMORY LEROY CHADDOCK.

Witnesses:

EFFIE J. ALSIP,
BERTA WOOLFOLK.