H. L. McCOY.

COLANDER.

APPLICATION FILED DEC. 9, 1907.

903,104. **Patented Nov. 3, 1908.**

2 SHEETS—SHEET 1.

Fig. 2.

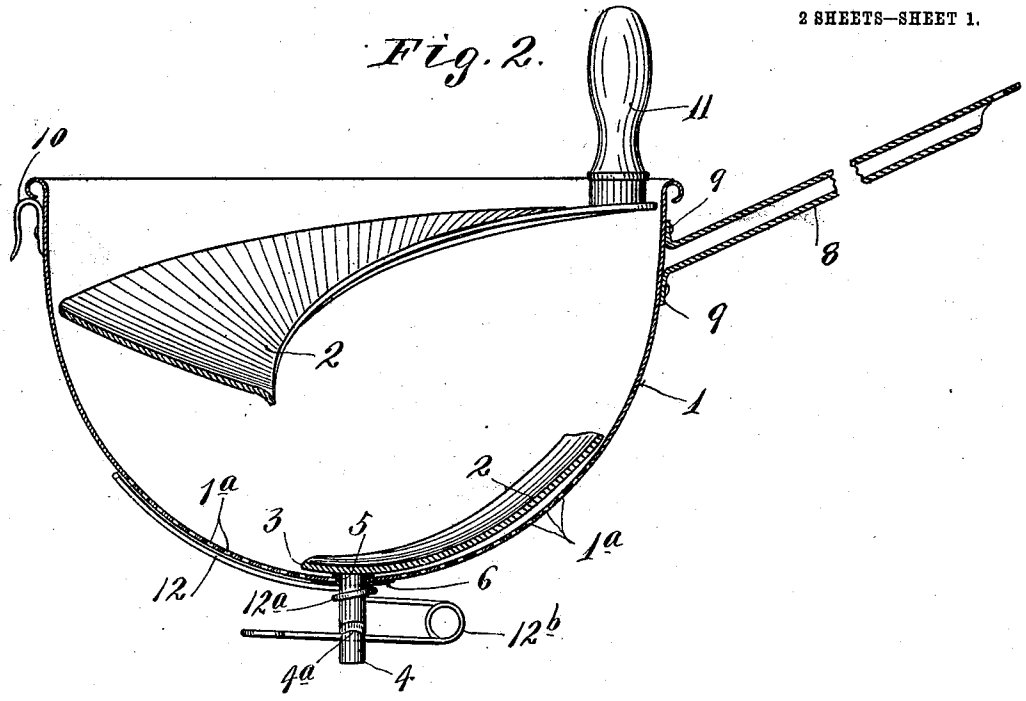
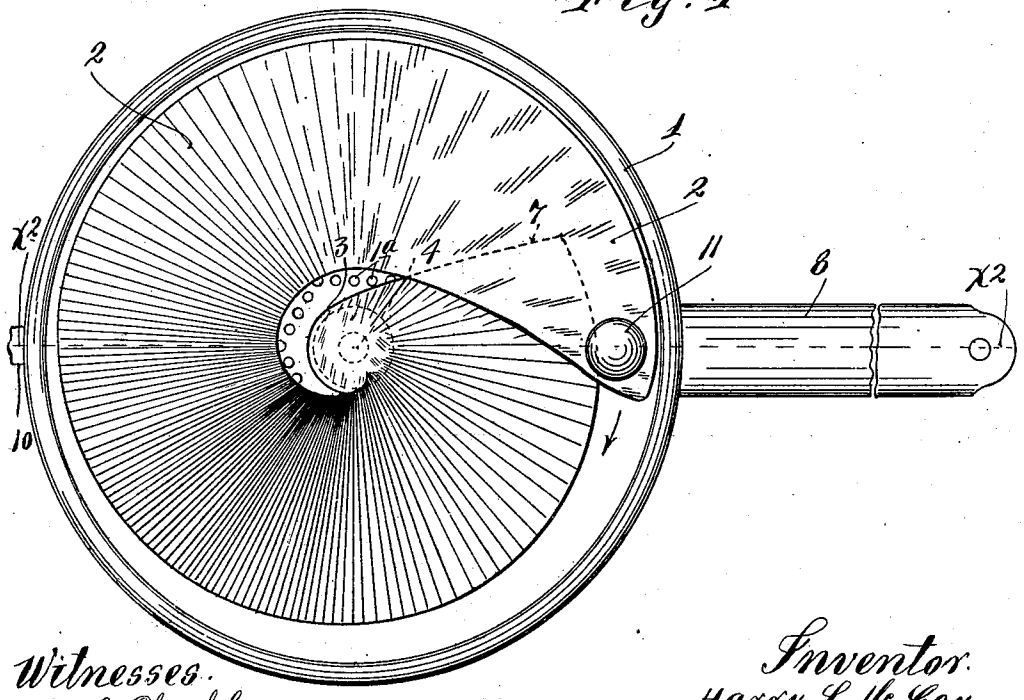


Fig. 1



Witnesses.
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Malie Hoel.

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Harry L. McCoy.
By his Attorneys.
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THE NORRIS PETERS CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 3.

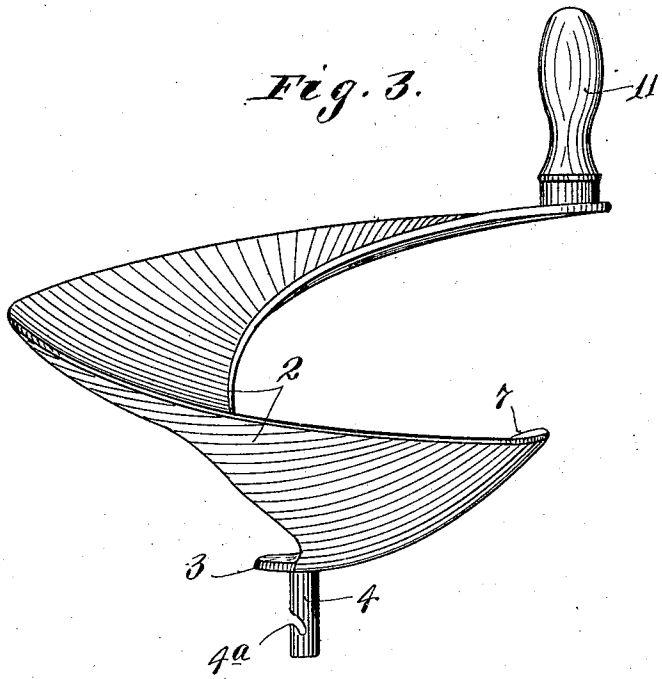
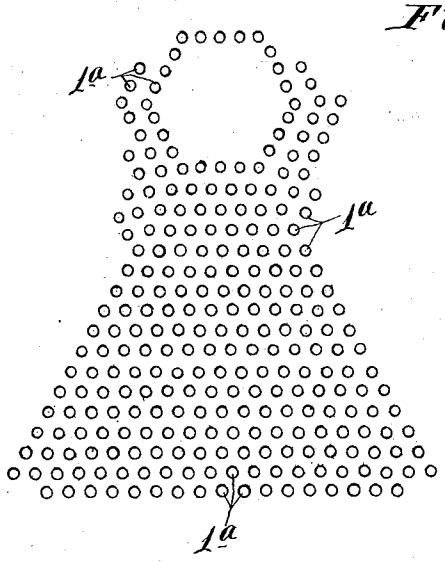


Fig. 4.



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UNITED STATES PATENT OFFICE.

HARRY LEWIS McCOY, OF MINNEAPOLIS, MINNESOTA.

COLANDER.

No. 903,104. Specification of Letters Patent. Patented Nov. 3, 1908.

Application filed December 9, 1907. Serial No. 405,778.

To all whom it may concern:

Be it known that I, HARRY LEWIS McCOY, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Colanders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to colanders and is in the nature of an improvement on the colander disclosed and broadly claimed in the pending application S. N. 362,202, filed of date March 13, 1907, as a joint invention of Elmer E. Higgins and myself, Harry L. McCoy.

The invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

My present invention improves the device of the said pending application in two very important particulars, to-wit, first in the form of the so-called spiral feed blade; and second, in the arrangement of the perforations in the bowl. The invention also involves minor features of improvement, all as will be hereinafter more fully described.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a plan view of the improved colander. Fig. 2 is a vertical section taken on the line x^2 x^2 of Fig. 1. Fig. 3 is a side elevation, showing in detail the spiral feed blade removed from the bowl; and Fig. 4 is a diagrammatic plan view, illustrating the relative arrangement of the perforations in the bowl.

The bowl 1 of the colander, in vertical cross section, is preferably semi-circular, and the bottom thereof is provided with a multiplicity of perforations, indicated at 1^a. These perforations, in accordance with one of the above noted features of my invention, are formed in the novel relative arrangement shown diagrammatically in Fig. 4. More particularly stated, the perforated surface of the bowl is divided into six imaginary sections or segments, by radially alined rows of perforations; and in the intervening spaces the rows of perforations in one direction extend parallel to the said radially extended rows; and, in a transverse direction, are alined in rows approximately at a right angle to imaginary lines drawn radially from the axis of the bowl midway between the first noted radially extended rows of perforations. Stated in another way, the perforations 1^a are so alined in rows that they form a multiplicity of approximately equilateral triangles. The importance of this arrangement will be considered later on.

Working rotatively within the bowl 1 is a spiral feed blade 2 of quite stiff metal, the small end of which terminates in a disk-like hub 3 that bears against the bottom of the bowl and is provided with a rigidly secured depending trunnion 4 that is journaled in and projects through an axial seat in the bottom of the bowl. This axial trunnion seat in the bottom of the bowl is preferably formed by a small bushing 5, the upper end of which is upset and the lower end of which is provided with a thin annular flange 6. The lower end of the trunnion 4 is provided with a hook formed by a curved notch 4^a that opens at one side of the trunnion, and the purpose of which will presently appear.

A portion of the disk-like hub 3 extends concentric to the common axis of the trunnion 4 and bowl 1, and the feed blade 2 is formed with an inner end edge surface 7 that extends approximately tangentially from the hub 3 outward in a direction nearly radial from the axis of the feed blade and bowl, to a point beyond the outermost perforations of the bowl. This edge surface 7 is curved vertically so that it closely engages, and, under rotation of the feed blade, scrapes over the perforated bottom of the bowl. This arrangement of the scraper edge 7 is highly important. By reference particularly to Fig. 1 it will be noted that the spiral feed blade 2 is formed with an axial opening through which the material to be pressed through the perforated bottom of the bowl may be fed into the bowl and under the spiral feed blade.

The bowl 1 is provided at one side with a handle 8, preferably formed from rolled steel, and having at its inner end upwardly and downwardly bent flanges 9 that are directly riveted to the side of the bowl. Secured to the opposite side of the bowl is, as shown, a U-shaped clip or hook 10 adapted to be engaged with the edge of a pan or other part, to support that side of the bowl. At its upper end the spiral feed blade 2 is provided with a suitable hand-piece 11, by means of which it may be readily rotated

within the bowl. The proper direction of rotation of the feed blade within the bowl is indicated by the arrow marked thereon in Fig. 1.

The numeral 12 indicates a piece of spring wire which is bent to form two prongs and two loops 12^a and 12^b. The loop 12^a is adapted to be inserted over the trunnion 4, and the lower prong of said spring is adapted to be engaged with the hook 4^a of said trunnion. The upper prong of said spring is curved so that it closely engages the under surface of the perforated bottom of the bowl. When the scraper blade is rotated, the spring 12 will be rotated therewith and its curved upper prong then works as a scraper against the bottom of the bowl. Furthermore, the said spring yieldingly draws the scraper blade downward in respect to the bowl and holds its scraper edge 7 in close engagement with the perforated bottom of the bowl.

In practice I have found that the scraping edge of the spiral feed blade, to do good work, or at least to do satisfactory work for action on various different kinds of vegetables and fruits and the like, should be arranged approximately as shown in the drawings and above described. When the scraping edge of the feed blade is extended spirally outward from the hub of said blade, as shown in the drawings of the prior application above identified, it will do fairly good work; for instance, in straining cranberries; but for straining various other fruits and vegetables and for doing other like work, I have found the same not to be by any means satisfactory. The scraper blade formed with a scraping edge extened approximately tangentially from a hub portion and approximately radially outward from the axis of rotation of the said blade, as above described and as illustrated in the present drawings, I have found to be efficient and completely satisfactory for all kinds of work, varying in range from the seeding and straining of grapes and tomatoes to the mashing and shredding of potatoes and other vegetables.

By the terms tangential and radial, it will be understood that the definition of the scraping and pressing edge of the blade, which forms the back part of the blade located to the rear of the hub are broadly definitive and are not intended to specifically limit the pressing edge of the blade to a mathematical tangent or a mathematical radius, for, as will be noted from the drawings, the rear edge of the substantially single helical turn of the blade is slightly curved and considerably removed from the position of true radius with respect to the central hub. Obviously the curve of the edge and the relation of the same to a radial position may be varied within reasonable limits without departing from the essential character of this feature of the invention, provided the broad blade, comprising substantially a single helical turn has its rear pressing edge, which may be either straight or somewhat curved in projection or plan, engages the surface of the bowl and extends from the hub to or beyond the outer perforations in the bottom, and it is intended that the claims shall be given a corresponding interpretation.

In practice I have also found that the best results cannot be obtained with a bowl having its perforations arranged in circumferentially spaced rows and with intervening imperforate spaces extended concentric to the axis of the feed blade, as with such construction part of the material will be carried by the feed blade around and around therewith without being brought across any perforation. With the novel arrangement of perforations above described and illustrated diagrammatically in Fig. 4, any particular point on the scraping edge of the feed blade and, hence, all particles pressed against the bowl by the said scraping blade will, under the circular motion given thereto, be caused to repeatedly cross the tangential rows of perforations and, hence, will be repeatedly carried over different perforations of the bowl, thus insuring rapid and complete straining of material being acted upon. I have obtained the best results by using perforations gage No. 44 or 45. Perforations of this size in the novel arrangement above described adapt the colander for use in straining all kinds of fruits, vegetables and the like, and for mashing and shredding potatoes, turnips and like vegetables. In fact, a bowl with perforations of the size and arrangement described makes possible a range of work in a single bowl which could only be done otherwise with several bowls having perforations of different sizes.

In practice I provide an additional spring which is like the spring 12^a—12^b except that the curved upper arm thereof is cut off so that there will be no scraping action; and this spring is applied when the colander is used for the shredding of potatoes or other vegetables, or for doing like work where a scraping action is not desired.

By further reference to Fig. 4 it will be noted that the perforations are arranged in a multiplicity of parallel rows that are in polygonal arrangement, and that the several rows of perforations are tangential to concentric imaginary circles struck from the axis of the bowl. This is simply another way of describing the arrangement of said perforations.

The improved colander or strainer above described is capable of a very large range of use. Not only is it especially adapted for the particular uses above noted, but it is an extremely efficient device for use in making

purée soups from beans, peas and other vegetables. In making apple marmalade, the uncored and unpared apples may be put into the colander and the peelings, cores and seeds will be removed, leaving all of the nourishing portions of the apple in the pulp forced through the colander.

What I claim is:

1. In a colander, the combination with a bowl having a perforated bottom and with the perforations thereof in triangular groups the rows of perforations forming said groups being tangential to imaginary circles struck from the axis of said bowl, of a scraper blade rotatively mounted in said bowl said blade having an axial opening through which the material may be fed into the bowl, substantially as described.

2. In a colander, the combination with a bowl having a perforated bottom, of a spiral scraper blade rotatively mounted in said bowl, said blade having a disk-like hub portion and a scraping edge extending approximately tangentially from said hub portion in a direction nearly radially outward from the common axis of said bowl and feed blade said blade having an axial opening through which material may be fed into the bowl, substantially as described.

3. The combination with a bowl having perforations arranged in rows that are tangential to concentric circles struck from the axis of said bowl, of a feed blade rotatively mounted in said bowl and having a scraping edge arranged to work over the perforated bottom thereof said blade having an axial opening through which material may be fed into the bowl, substantially as described.

4. In a colander, the combination with a bowl having a perforated bottom and with the perforations thereof in triangular groups, certain of the rows thereof extending radially from the axis of the bowl and certain other rows thereof being tangential to imaginary circles struck from the axis of the bowl, of a scraper blade rotatively mounted in said bowl, said blade having a disk-like hub portion and a scraping edge extending approximately tangentially from said hub portion in a general direction nearly radially outward from the common axis of said bowl and feed blade said blade having an axial opening through which material may be fed into the bowl, substantially as described.

5. The combination with a bowl having a perforated bottom, of a spiral scraper blade rotatively mounted in said bowl and having a depending trunnion with a hooked lower end, and a spring formed from a piece of spring wire, said spring having two loops, one of which is adapted to be passed over said trunnion and the other of which gives resilience to said spring, the lower arm of said spring being detachably engageable with the hooked or notched end of said trunnion, substantially as described.

6. In a colander, the combination with a bowl having a perforated bottom, of a scraper rotatively mounted in said bowl, said scraper comprising a disk-like hub portion and a broad blade formed of substantially a single helical turn having a rear pressing portion the rear edge of which engages the surface of the bowl and extends from the hub to or beyond the outer perforations in said bowl bottom.

7. In a colander, the combination with a bowl having a perforated bottom, of a scraper rotatively mounted in said bowl, said scraper comprising a disk-like hub portion and a broad blade formed of substantially a single helical turn terminating in a pressing edge located rearwardly of the hub, extending from the outer helical edge of the blade to the hub and engaging the bottom of the bowl from the hub to or beyond the outer perforations in the bottom of the bowl.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY LEWIS McCOY.

Witnesses:
H. D. Kilgore,
M. E. Roney.