

V. ROYLE,
 STRAINER HEAD FOR TUBING MACHINES.
 APPLICATION FILED DEC. 26, 1919.

1,416,067.

Patented May 16, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

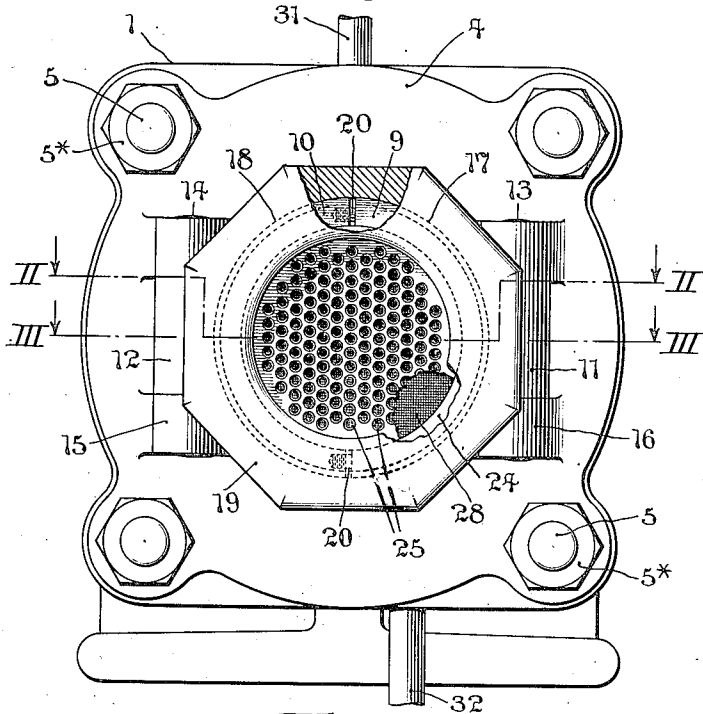
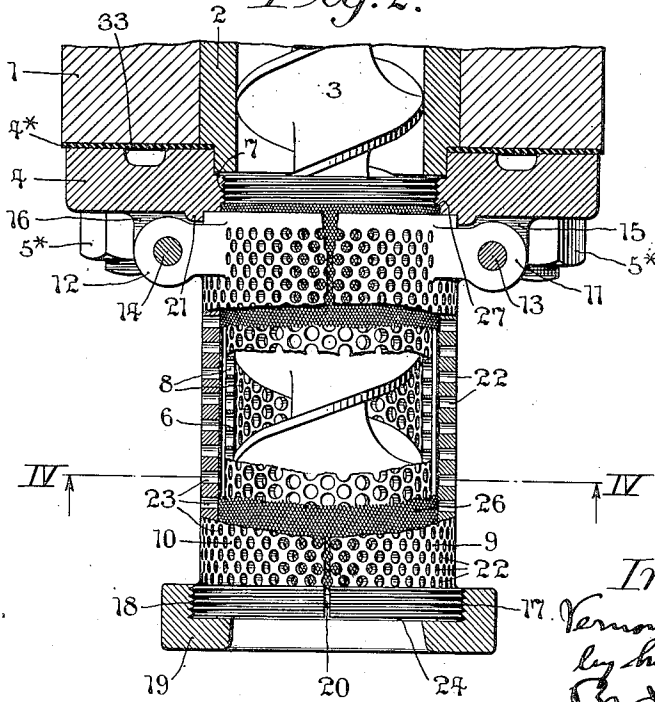


Fig. 2.



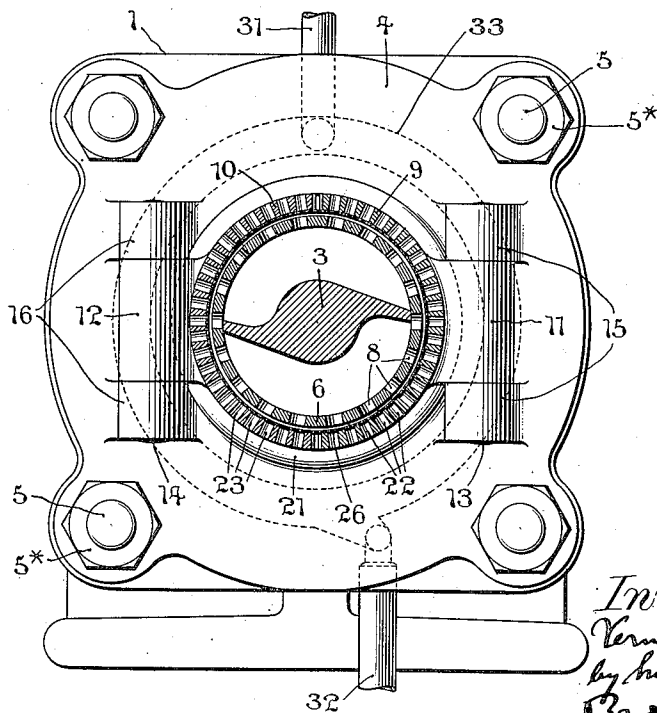
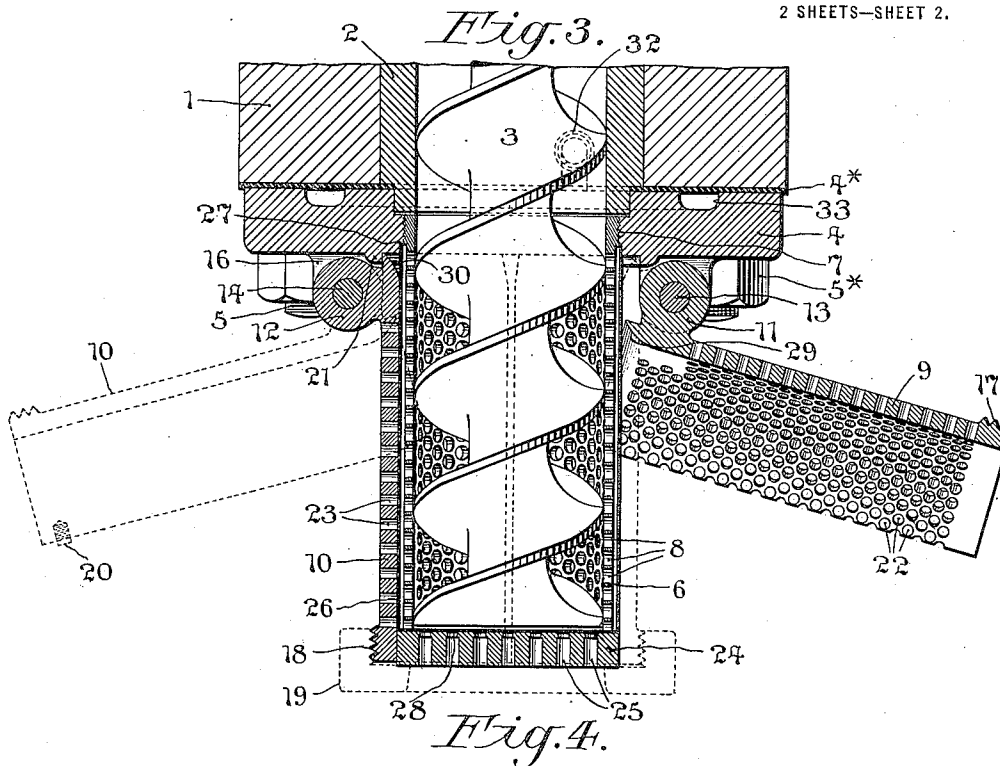
Inventor
 Vernon Royle
 by his attorneys
 Broderick

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UNITED STATES PATENT OFFICE.

VERNON ROYLE, OF PATERSON, NEW JERSEY.

STRAINER HEAD FOR TUBING MACHINES.

1,416,067.

Specification of Letters Patent. Patented May 16, 1922.

Application filed December 26, 1919. Serial No. 347,568.

To all whom it may concern:

Be it known that I, VERNON ROYLE, a citizen of the United States, and resident of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Strainer Heads for Tubing Machines, of which the following is a specification.

This invention relates to a strainer head for tubing machines with the object in view of providing a device of this character that will adapt the machine for satisfactory and expeditious operation upon materials of varying characteristics without producing an undue strain upon any of the parts or irregularity in the operation.

Another object is to provide such a device which may be applied to standard forms of tubing machines without the necessity of partial reconstruction or alteration.

Another object is to provide a device of this character which may be very quickly and simply opened for cleaning and access to the inner parts and as quickly and easily returned to operative condition.

Another object consists in providing certain improvements in the form, construction and arrangement of the several parts whereby the above named and other objects may be effectively attained.

Machines of this character are designed to operate upon rubber compounds, including various substances, during the process of reclaiming the rubber and these materials vary greatly in consistency. Consequently, it has been found that strainer heads heretofore in use have not been fully adequate to handling these different materials with satisfactory results in all respects.

My invention is designed to overcome this disadvantage.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Fig. 1 represents a face view of the device partly broken away.

Fig. 2 represents a section taken in the plane of the line II—II of Fig. 1, looking in the direction of the arrows.

Fig. 3 represents a section taken in the plane of the line III—III of Fig. 1, looking in the direction of the arrows, parts being shown in different positions in full and dotted lines.

Fig. 4 represents a section taken in the

plane of the line IV—IV of Fig. 2, looking in the direction of the arrows.

The strainer head is adapted for use in connection with a tubing machine of standard or appropriate form and is, as will be understood by operatives in this industry, intended to be secured to the cylinder of the tubing machine in which the screw or plodder operates.

In the present instance, the cylinder is denoted by 1 and the liner for its bore by 2. The screw or plodder which operates in the said bore in the usual manner is indicated by 3.

The strainer head includes a face plate 4 which constitutes a supporting member and is of such size as to conform substantially to the end of the cylinder 1. The said plate has four holes fitted to receive stud bolts 5 that project from the cylinder and carry nuts 5* for firmly securing the plate to the cylinder. The plate 4 is of open construction and its inner diameter is somewhat less than the outer diameter of the bore liner 2, which latter is, therefore, reduced at its forward end in order to receive the plate 4 with a sliding fit. A suitable washer 4* may be interposed between the plate 4 and the cylinder 1.

The strainer head also includes a tubular element that has an inner member 6, which is threaded into the center of the plate 4, as clearly shown at 7. The inside of the member 6 is directly in line with and of the same diameter as the interior of the liner 2 so that the said member, in effect, constitutes a prolongation of the bore of the cylinder in which the screw 3 can operate. The forward end of the member 6 is open and its side walls are pierced by a multiplicity of circular holes 8.

The said tubular element also comprises an outer member or jacket which is composed of two semi-circular halves 9, 10, which are substantially identical. These halves of the outer member are provided with hinge knuckles 11, 12, that are fitted to receive pintles 13, 14, which are journaled in lugs 15, 16, that project from the front of the plate 4. This arrangement enables the halves 9, 10, to swing toward and away from each other and hence toward and away from the inner member 6. When the said halves are swung toward each other to the limit of their movement, they together constitute a

member of cylindrical form, which is concentric with and surrounds the inner member 6, leaving a space between said two members.

5 The forward ends of the halves 9, 10, are provided with thread flanges 17, 18 which, when united, are designed to receive a nut 19, which locks them together. Suitable spacing plugs 20 are carried by the half 10 in position to be engaged by the edge of the half 9, in order to insure perfect alinement of the two halves and matching of the threads 17, 18, so that the nut 19 will accurately fit. The plugs 20 may be threaded into the half 10, for the purpose of adjustment, or they may be plain and adjustment effected by filing. The plate 4 has a circular rib 21 formed thereon surrounding the inner member 6, which rib constitutes a shoulder against which the inner ends of the halves 9, 10, rest when closed together, thereby insuring rigidity and also assisting in perfect alinement of the parts. The halves 9, 10, are also provided with a multiplicity of circular holes 22, 23, and it will be noted that the diameter of these holes is considerably less than the diameter of the holes 8 in the inner member 6, and that the holes 22 and 8 are not coincident, that is, are not in line.

30 An end member 24 is fitted to seat within the front portion of the outer member composed of halves 9, 10, and to be secured therein by the nut 19, which clamps the end member 24 between itself and the inner member 6. This end member also has a multiplicity of circular holes 25 passing therethrough, which holes are greater in cross section at their outer part than at their inner part. It will be observed from the foregoing description that the holes in the inner and outer tubular members lie at right angles to the axis of the screw 3, while the holes in the end member are parallel to the said axis.

45 A screen 26 surrounds the inner member 6 and is seated in a circular recess 27 formed in the plate 4, as clearly shown in Fig. 3. The location of this screen is such that it will intervene between the inner member 6 and the outer member constituted by the halves 9, 10, and lie adjacent the interior of the latter when they are in closed position. A flat screen 28 is placed between the end member 25 and the inner member 6 and clamped in position through the action of the nut 19. The rear ends of the halves 9, 10, are bevelled off as shown at 29, 30, so as to clear the screen 26 when the halves 9, 10, are swung inwardly and outwardly.

60 Suitable pipes 31, 32, may be arranged and connected with a channel 33 in the face plate 4 for supplying a cooling or heating medium to the head. By arranging the channel 33 in the face plate, I am able to heat the material immediately prior to its

ejection from the cylinder into the strainer head, and thus cause it to be more readily worked in and through the strainer head.

The apparatus may be operated in the usual way, with the halves 9, 10, of the outer tubular member held in closed position as shown in Fig. 2. As already described, there is a space between the inner tubular member 6 and the outer member composed of the halves 9, 10, while the screen 26 is spaced from the inner member 6 and in contact with the said outer member. As a result of this construction, the material being operated upon is broken up by the holes 8 in the inner member and permitted to surge or eddy around a little between the inner and outer members before passing through the screen 26. This protects the screen and renders it more durable and effective, as well as avoiding the clogging thereof for a longer period of time. The operation is also facilitated by making the holes 8 in the inner member greater in cross section than the holes 22 in the outer member, since this enables the material which has not yet been strained, to pass more freely through the inner member, while the passage of the material through the screen 26 is slightly retarded by the smaller holes 22, thereby protecting the screen from violent action. The fact that the holes 8 and 22 are not in line, requires the material to follow an indirect course, which increases the effectiveness of the apparatus under certain circumstances. By increasing the cross sectional size of the outer part of the holes 25 in the end member 24, the material is allowed to expand as it passes therethrough, thus decreasing the resistance and hence increasing the output of the machine. By perforating the entire walls of the inner and outer members 6, 9, 10, the outlet for material is greatly increased, thus increasing the capacity of the machine.

Should the strainer head become clogged, as frequently happens, or any part thereof be injured, it is a very simple matter to remove the nut 19 and swing the halves 9, 10, apart, as indicated in full and dotted lines, Fig. 3, thus exposing the interior of the said halves and the exterior of the screen 26 for cleaning. With the nut 19 removed, the end member 24 may also be readily taken out and the screens 26 and 28 detached for cleansing or repair. The parts may be replaced and returned to operative position in a manner obvious from the foregoing description.

It will be understood that various changes may be resorted to in the form, construction and arrangement of the several parts without departing from the spirit and scope of my invention and hence I do not intend to be limited to the details herein shown and described, except as they may be included in the claims.

What I claim is:

1. A device of the character described comprising, a tubular element including a member divided to form two parts, said parts being fitted to be moved into and out of operative position, and a cap for locking the parts in operative position. 70
2. A device of the character described comprising, a tubular element including a member divided to form two parts, said parts being hinged to be swung into and out of operative position, and a cap for locking the parts in operative position. 75
3. A device of the character described comprising, a tubular element including a member divided to form two parts, said parts being fitted to be moved into and out of operative position, and means engaging the inner and outer ends of the parts for holding them in operative position. 80
4. A device of the character described comprising, a tubular element including a member divided to form two parts, said parts being hinged to be swung into and out of operative position, and means engaging the inner and outer ends of the parts for holding them in operative position. 85
5. A device of the character described comprising, a tubular element including a member divided to form two parts, said parts being fitted to be moved into and out of operative position, means for locking the parts in operative position, and means contacting with the adjacent edges of the parts for maintaining them in parallelism. 90
6. A device of the character described comprising, a tubular element including a member divided to form two parts, said parts being fitted to be moved into and out of operative position, means for locking the parts in operative position, and means intermediate thereof and coacting with the adjacent edges of said parts for maintaining them in parallelism. 95
7. A device of the character described comprising, a tubular element including a member divided to form two parts, said parts being fitted to be moved into and out of operative position, means for locking the parts in operative position, and plugs intermediate said parts for maintaining them in parallelism. 100
8. A device of the character described comprising, a tubular element including a member divided to form two parts, said parts being fitted to be moved into and out of operative position, means for locking the parts in operative position, and adjustable plugs intermediate said parts for maintaining them in parallelism. 105
9. A device of the character described comprising, a supporting member, and a tubular member carried thereby, said tubular member being composed of a plurality of parts hinged to the supporting member for movement into and out of operative position, and means on the supporting member fitted to engage the adjacent inner ends of the said parts when in operative position. 110
10. A device of the character described comprising, a supporting member, and a tubular member carried thereby, said tubular member being composed of a plurality of parts hinged to the supporting member for movement into and out of operative position, means for locking said parts in operative position, and means on the supporting member fitted to engage the adjacent inner ends of the said parts when in operative position. 115
11. A device of the character described comprising, a supporting member, and a tubular member carried thereby, said tubular member being composed of a plurality of parts hinged to the supporting member for movement into and out of operative position, and an annular rib on the supporting member fitted to engage the adjacent ends of the said parts when in operative position. 120
12. A device of the character described comprising, a supporting member, and a tubular member carried thereby, said tubular member being composed of a plurality of parts hinged to the supporting member for movement into and out of operative position, means for locking said parts in operative position, and an annular rib on the supporting member fitted to engage the adjacent ends of the said parts when in operative position. 125
13. A device of the character described comprising, a supporting member, a tubular member carried thereby, said tubular member being composed of a plurality of parts hinged to the supporting member for movement into and out of operative position, an annular rib on the supporting member fitted to engage the adjacent ends of the said parts when in operative position, and a cap for locking the said parts in operative position. 130
14. A device of the character described comprising, a supporting member, and a tubular element carried thereby, said element including an inner member and an outer member, the outer member being movably mounted with respect to the inner member to be brought into and out of operative position.
15. A device of the character described comprising, a supporting member, and a tubular element carried thereby, said element including an inner member and an outer member, the outer member being hinged to be swung into and out of operative position with respect to the inner member.
16. A device of the character described comprising, a supporting member, a tubular element carried thereby, said element including an inner member and an outer member, the outer member being movably mounted

with respect to the inner member to be brought into and out of operative position, and a screen carried by said supporting member intermediate said inner and outer members.

17. A device of the character described comprising, a supporting member, a tubular element carried thereby, said element including an inner member and an outer member, the outer member being hinged to be swung into and out of operative position, and a screen carried by said supporting member intermediate said inner and outer members.

18. A device of the character described comprising, a tubular element including inner and outer perforated members, the perforations in said inner member being non-coincident with the perforations in said outer member.

19. A device of the character described comprising, a tubular element including inner and outer perforated members, the perforations in said inner member being of different size from the perforations in said outer member.

20. A device of the character described comprising, a tubular element including inner and outer perforated members, the perforations in said inner member being non-coincident with and of different size from the perforations in said outer member.

21. A device of the character described comprising, a tubular element including inner and outer perforated members, the perforations in said inner member being larger than the perforations in said outer member.

22. A device of the character described comprising, a tubular element including inner and outer perforated members, the perforations in said inner member being non-coincident with and larger than the perforations in said outer member.

23. In combination with a tubing machine having a screw, a tubular element including inner and outer perforated members, the inner member encasing the screw, and the outer member encasing the inner member with a space between the said members.

24. In combination with a tubing machine having a screw, a tubular element including inner and outer perforated members, the inner member encasing the screw, and the

outer member encasing the inner member with a uniform space between the said members.

25. In combination with a tubing machine having a screw, a tubular element including inner and outer perforated members, the inner member encasing the screw, the outer member encasing the inner member with a space between the said members, and a screen in said space.

26. In combination with a tubing machine having a screw, a tubular element including inner and outer perforated members, the inner member encasing the screw, the outer member encasing the inner member with a uniform space between the said members, and a screen in said space.

27. A device of the character described comprising, a supporting member having a central orifice provided with different diameters for fitting the said member to the machine and for carrying other parts of the device.

28. A device of the character described comprising, a supporting member, a tubular element carried thereby, said element including inner and outer members and a screen therebetween, said supporting member having an annular orifice for receiving the inner member and annular recesses for receiving the screen and outer member.

29. A device of the character described comprising, a supporting member, a tubular element carried thereby, said element including inner and outer perforated members, and means for supplying a temperature regulating medium to the supporting member.

30. A device of the character described comprising, a supporting member, a tubular element carried thereby, said element including inner and outer perforated members, a channel in the supporting member, and means for supplying a temperature regulating medium to said channel.

In testimony, that I claim the foregoing as my invention, I have signed my name this seventeenth day of December, 1919.

VERNON ROYLE.

Witnesses:

HEBER ROYLE,
F. J. BRADLEY.