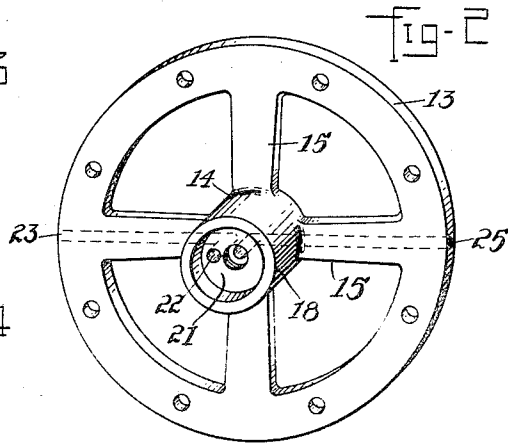
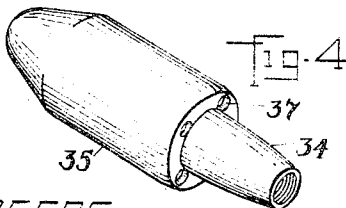
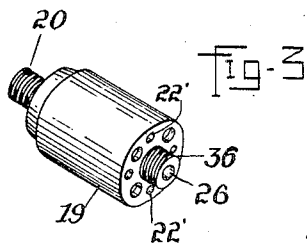
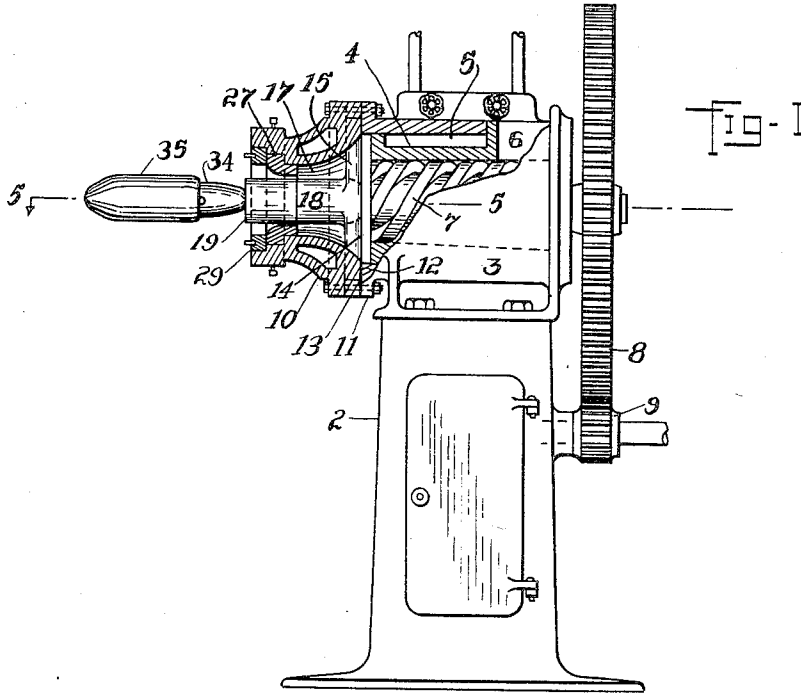


A. BLEECKER.
TUBING MACHINE.
APPLICATION FILED JAN. 19, 1914.

1,133,610.

Patented Mar. 30, 1915.

2 SHEETS-SHEET 1.



Witnesses
Harold Read
J. O. Harwood

Inventor
Albert Blecker
by
John H. Moser

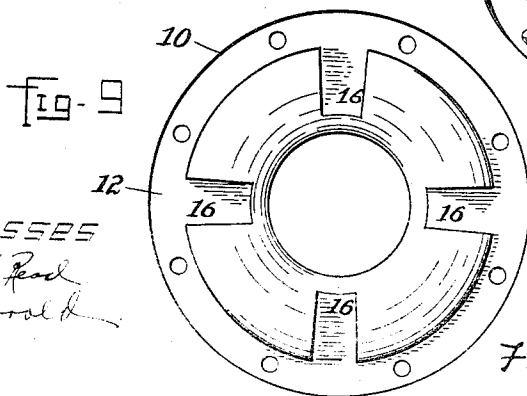
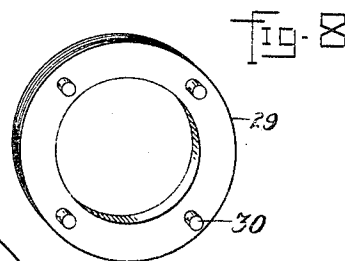
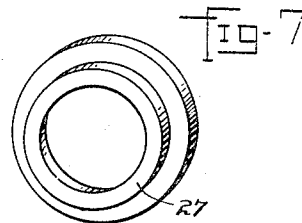
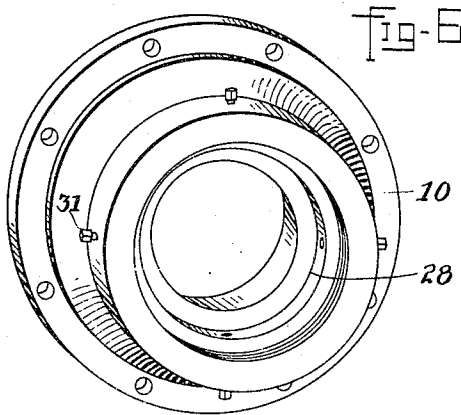
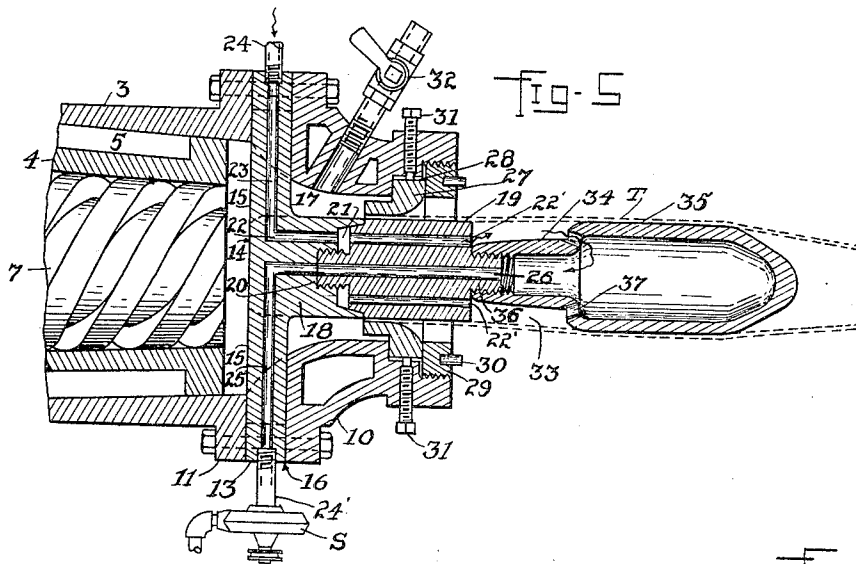
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2 SHEETS-SHEET 2.



WITNESSES
Harold Reed
J. C. Harold

INVENTOR
Albert Blecker
by
Fisher & Moore

Att'y

UNITED STATES PATENT OFFICE.

ALBERT BLEECKER, OF BARBERTON, OHIO, ASSIGNOR TO THE PORTAGE RUBBER COMPANY, OF BARBERTON, OHIO, A CORPORATION.

TUBING-MACHINE.

1,133,610.

Specification of Letters Patent.

Patented Mar. 30, 1915.

Application filed January 19, 1914. Serial No. 812,903.

To all whom it may concern:

Be it known that I, ALBERT BLEECKER, citizen of the United States, residing at Barberton, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Tubing-Machines, of which the following is a specification.

This invention relates to improvements in tubing machines, and the improvement resides more particularly in a head section and certain associated parts for such machines, all substantially as herein shown and described and more particularly pointed out in the claims.

The primary object of the invention is to provide means for making a seamless rubber tube in a continuous manner and of unlimited length, and a further object is embodied in the novel arrangement of parts whereby soap-stone (talc powder) is carried into the interior of the tube and thence out again under close confinement.

Another object is to provide an interchangeable head section and fixture for tubing machines now in use.

In the accompanying drawings, Figure 1 is a side elevation and sectional view on a reduced scale of a tubing machine embodying my invention. Fig. 2 is a perspective view of the core-supporting spider, and Figs. 3 and 4 are similar views of the core and its removable extension. Fig. 5 is a sectional view of the machine on line 5-5, Fig. 1, and enlarged as compared therewith. Figs. 6, 7 and 8 are perspective views of the head section, die, and die-locking ring, respectively. Fig. 8 is a plain elevation of the inner face of the head section.

The machine comprises a pedestal 2 carrying a cylinder 3 having an inner bushing 4 which is separated from the walls of said cylinder to provide a chamber 5 for the circulation of steam or water whereby the rubber or other compound may be maintained at a proper workable temperature in its course through the machine. This compound is fed into the hopper 6 at the throat end of the machine and is forced forward by a stock worm 7 rotatably confined within the bushing, and a gear 8 and pinion 9 or other suitable means is used to rotate the stock worm to produce a powerful compression on the material at the point of delivery

through the detachable head section 10. In some types of head sections in use provision is made for a compartment or chambers and the admission of steam or water thereinto to maintain the compound at a suitable working temperature and I may practice this common mode of heating the compound at the delivery end of the machine or use an electrical heating appliance for the same purpose comprising a heating coil inclosed within or surrounding the head section. The control of the electric heating current and uniform heating at any desired degree of temperature is readily obtained by suitable switch and rheostat or resistance devices.

The forward or delivery end of the cylinder has an annular flange 11 and the head section 10 has an inner cross-slotted face 12 bolted upon said flange and clamping the rim 13 of a core-holding member 14 between it and the flange. The radiating spokes 15 of said holder 14 occupy the cross slots or recesses 16 in the face of the head section 10 and lock said holder against rotation, and the compound is forced by the stock-worm through the spaces between the spokes and forward into the gradually-contracted annular passage 17 surrounding the forwardly-extending round cylindrical hub 18 of the holder 14. The outer end of said hub is provided with a differential bore, and a round cylindrical core 19 is detachably secured to said hub by a screw-threaded stem 20 projected within said bore. However, an annular space 21 is left open between the hub and the core and a longitudinal opening 22 extends through the hub 18 from this space to a transverse opening 23 in one of the arms or spokes 15 of the holder 14 and the outer or inlet end of opening 23 is connected to a pipe 24 leading to a supply of soapstone in powder form. A discharge pipe 24 for the powder is connected to a suction or air pump —S—, see Fig. 5, and this pipe is attached to the holder 14 at the outer end of a second transverse passage 25 in one of the other arms or spokes of the holder and which passage is extended axially through the hub 18 and communicates with an axial through opening 26 in the core. The outer diameter of this core determines the inner diameter of the tube to be formed, and the outer diameter and thick-

ness of the tube is determined and formed by a die 27 of ring-shape which is clamped in an annular recess or seat 28 in the forward end of head section 10 by a locking screw-ring 29 having a series of pins 30 on its front face adapted to be engaged by a suitable wrench. The die 27 may be accurately centered relatively to the core by the aid of a series or radial set screws 31 in the outer flanged end of the head 10.

One or more valved connections 32 may be provided for head 10 to permit an outflow of the compound when starting the machine. When the compound is of the right consistency for proper working, this valved connection is closed and the compound is forced through the die opening under the powerful compression of the stock worm. A continuous application of soapstone is then essential to produce a perfect tube in a continuous manner and the soapstone necessary for this purpose is supplied to the interior of the tube T at the outlet end of the longitudinal openings 22' and where an annular chamber 33 is formed within the tube by the reduced neck 34 of the hollow core extension 35 which is detachably screwed upon the front stem 36 of the core 19. Extension 35 is relatively long and of slightly larger diameter than the core 19 and its forward end is rounded or tapered while its rear shouldered portion has a series of holes 37 opening into its hollow interior through which the talc powder is free to pass back through the hollow neck 34 and out of the communicating outlet passage 26 in the center of the core 19. A continuous supply of talc powder is thus provided while a tube of any desired length is being made without such powder escaping and wasting and endangering the health of the occupants of the room. Talc powder is used as it possesses lubricating properties and has other qualities of value whereby a smooth and finished rubber tube or tire may be produced, but I may use other materials possessing lubricating properties or other qualities of value in producing a tube of rubber or other plastic compound.

The suction pump S provides a continuous feed of the talc powder into the annular space 33 between the core 19 and the enlarged portion of its extension 35, and the powder moves forwardly with the formed tube under the suction created by the pump. The effect of this suction in a forward direction is also of advantage in feeding the formed tube forwardly, and the openings 37 in the extension are located more particularly at the front end of the annular space 33 to produce the desired results to the best advantage.

What I claim is:

1. In a tubing machine, a head section having a die and a core to make a tube, and

means to circulate talc-powder through the interior of the tube and back through the core.

2. In a tubing machine, a head section and means to produce a tube, said means being provided with inlet and outlet passages to circulate talc powder continuously through the interior of the tube while it is being produced, and separate inlet and outlet connections for said passages.

3. In a tubing machine, a head section having tube-forming members mounted thereon, an extension for one of said members to close the interior of the finished tube in advance of said members, means to deliver a lubricating material into the interior of the formed tube rearwardly of said extension, and means to discharge the surplus lubricating material from the interior of the formed tube rearwardly through one of said members.

4. In a tubing machine, a head section having a tube-forming member removably mounted thereon, a removable extension for said member having a tube-closing portion, and separate inlet and outlet passages extending through said member for the continuous circulation of a material possessing lubricating properties through the interior of the formed tube rearwardly of the tube-closing portion of said extension.

5. In a tubing machine, a head section having a tube-forming core, and an extension therefor adapted to engage with the inner walls of the formed tube in advance of said core, and said parts having inlet and outlet passages for a circulating medium in open communication with the interior of the tube between said core and its extension.

6. In a tubing machine, a head section, a core-supporting member and a die ring detachably affixed within said section, a core having an elongated extension detachably secured to said member centrally within said die ring, means to introduce a powder through the core into the tube, and means to withdraw the powder from the tube back through the core.

7. In a tubing machine, a cylinder having a removable head section, a core-supporting member clamped between said cylinder and head section, a die ring fixed within said head section, a core secured at the front of said member centrally within said die ring, an extension for said core, said member and core and its extension having circulating passages to introduce a powder into the tube during formation thereof and provided with outlet passages for conveying the powder from the interior of the tube back through the core, and discharge means for the powder connected with said outlet passages.

8. In a tubing machine, a head section having a set of tube-forming members pro-

vided with circulating passages open to the exterior at separated points longitudinally thereof, in combination with a pump and pipe connections to feed a lubricating material through said passages and longitudinally through the interior of the tube in the direction of its travel and thence rearwardly through said core.

9. In a tubing machine, a head section, a member having spokes and a central hub and provided with passages extending through said spokes and hub, a core secured to the front end of said hub having openings extending therethrough and communicating with said passages, and an extension secured

to said core having intake openings exteriorly and a return passage internally in open communication with said core openings.

10. In a tubing machine, a head section having a clamping face provided with radial slots, a core, and a supporting member for said core having radial arms seated within the said slots.

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

ALBERT BLEECKER.

Witnesses:

ETHEL ENGLISH,
G. H. DOOLITTLE.