No. 751,108. PATENTED FEB. 2, 1904.

V. ROYLE.

TUBE MAKING MACHINERY.

APPLICATION FILED MAR. 4, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 3.

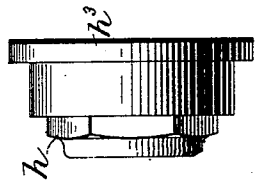


Fig. 4.

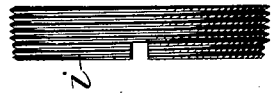


Fig. 2.

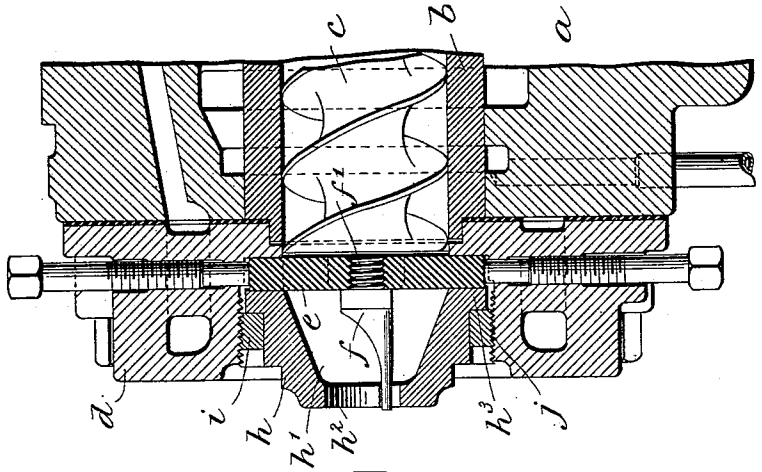
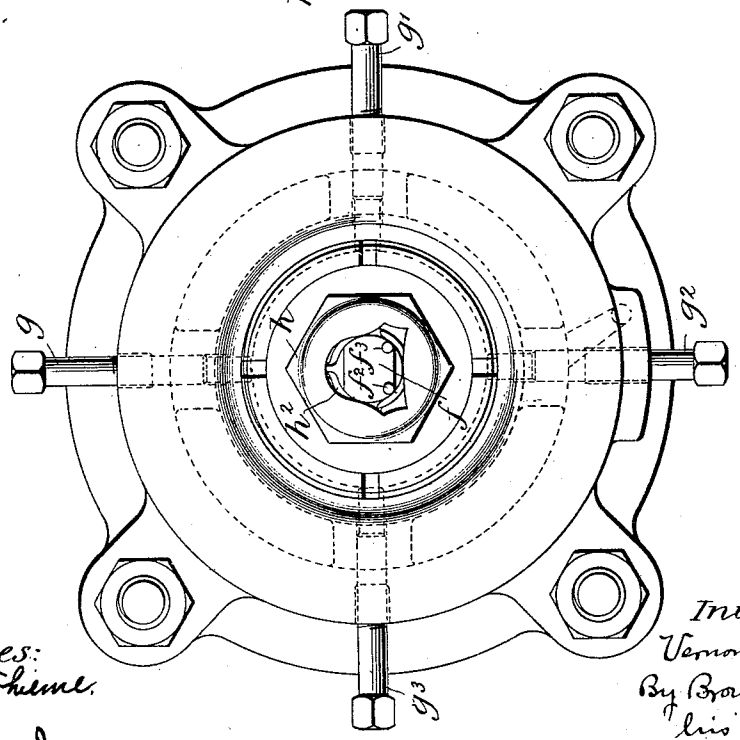


Fig. 1.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 751,108. PATENTED FEB. 2, 1904.

V. ROYLE.

TUBE MAKING MACHINERY.

APPLICATION FILED MAR. 4, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 7.

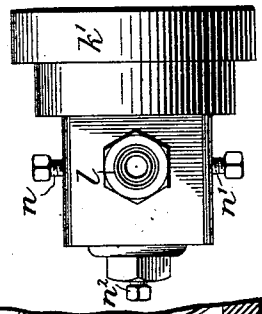


Fig. 6.

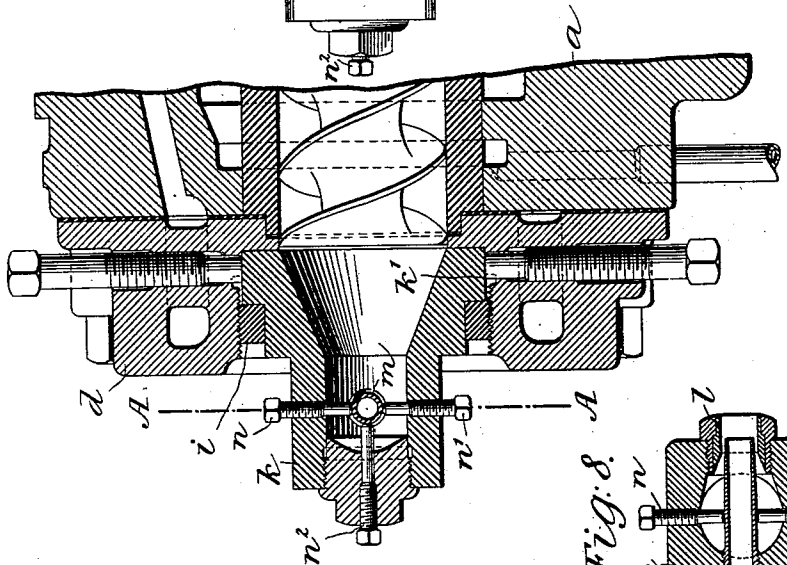


Fig. 8.

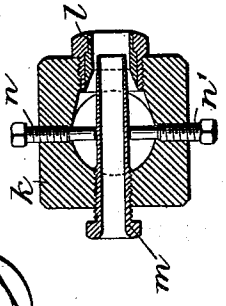
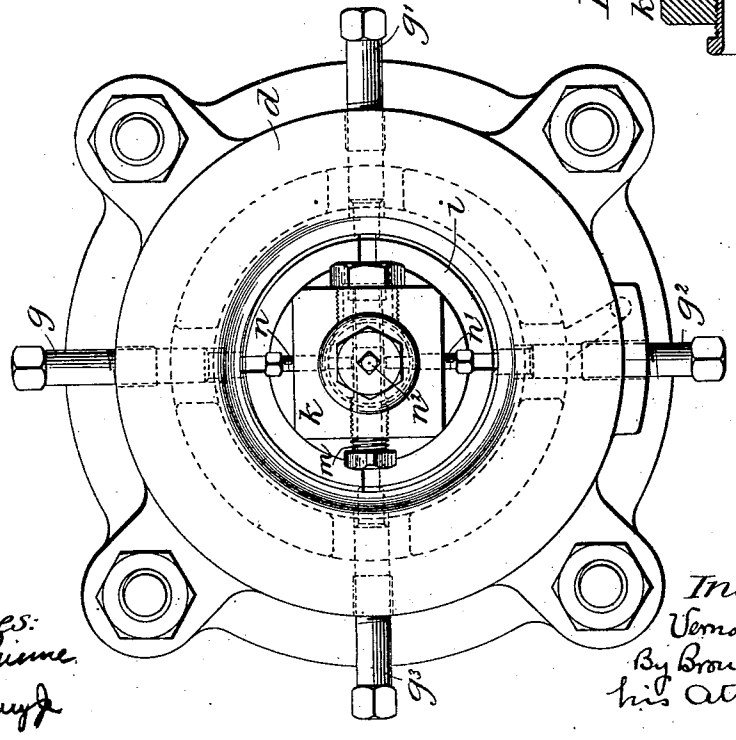


Fig. 5.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 751,108. Patented February 2, 1904.

UNITED STATES PATENT OFFICE.

VERNON ROYLE, OF PATERSON, NEW JERSEY.

TUBE-MAKING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 751,108, dated February 2, 1904.

Application filed March 4, 1902. Serial No. 96,669. (No model.)

To all whom it may concern:

Be it known that I, VERNON ROYLE, a citizen of the United States, and a resident of Paterson, in the county of Passaic and State of New Jersey, have invented new and useful Tube-Making Machinery, of which the following is a specification.

My invention relates to tube-making machinery, with the object in view of providing simple and effective means for holding and adjusting the core-bridge and die-block.

The accompanying drawings show so much of the tube-making machine as will serve to illustrate the arrangement and operation of the core-bridge and die-block in connection with the parts in proximity thereto.

Figure 1 is an end view. Fig. 2 is a vertical central section longitudinally of the machine. Fig. 3 is a view of the die-block in detail in side elevation. Fig. 4 is a view in detail in side elevation of the die-block supporting and clamping ring. Fig. 5 is an end view of a modified form. Fig. 6 is a vertical central longitudinal section of the same. Fig. 7 is a view of the combined die-block and core-bridge in side elevation, and Fig. 8 is a transverse section in the plane of the line A A of Fig. 6.

Referring to Figs. 1 to 4, inclusive, the casing of the machine is denoted by a, the cylinder within which the plodder works is denoted by b, the plodder is denoted by c, and the head of the casing for containing the core-bridge, die-block, and their adjusting devices is denoted by d.

The core-bridge is denoted by e, and consists of a cylindrical disk of skeleton formation for the purpose of permitting the material forced along within the cylinder b by the plodder c to pass through into the chamber surrounding the core.

The core is denoted by f. It is provided with a screw-threaded stem f', by means of which it is screwed into the center or hub portion of the core-bridge e.

The core f is here shown as provided with two prongs f^2 f^3 (see Fig. 1) for the purpose of forming two holes continuously along the inner portion of a rubber tire for receiving the wires which are commonly employed to hold the tire in position.

The core-bridge e, together with the core f, is centered and held in rotary adjustment by means of set-screws, in the present instance four, (denoted, respectively, by g g' g^2 g^3,) located at a quadrant's distance apart and having a screw-threaded engagement in the head d, with their inner ends bearing against the periphery of the core-bridge e.

The die-block is denoted by h. It is formed with an interior chamber h', gradually diminishing in size from the core-bridge, against which the inner end of the block rests, to the opening h^2, which surrounds the prongs f^2 f^3 of the core and serves to determine the size and shape in cross-section of the tire.

The inner end of the die-block h is provided with an annular flange h^3, the inner face of which has a closed fit against the rim of the core-bridge e, while the opposite face of the flange is engaged by a combined die supporting and clamping ring i.

The die supporting and clamping ring i has a screw-threaded engagement with the interior of the casing, as at j, while the inner face of the ring i is intended to fit the exterior of the die-block h in proximity to the flange h^3 on the inner end of the die-block.

In assembling the parts the core f is screwed snugly into its position in the core-bridge, and the core-bridge e is then rotated until the prongs f^2 f^3 lie in a horizontal plane, in which position it may be held by the set-screws g g', &c. The die-block h is then placed in position and the ring i screwed into the head d around the die-block h, the ring i thus forming a support for and centering the die-block within the head d. The die-block h may be turned until it is in the proper relation to the core f, and in this adjusted position it will be tightly clamped by turning on the clamping-ring i, which performs the double function of supporting or centering the die-block h within the head d and at the same time clamping the die-block firmly in position against the rim of the core-bridge. This ring i has the

further function of holding the core-bridge firmly in position against displacement longitudinally of the machine.

The centering of the core f with respect to the opening h in the die-block may be effected, as well as its rotary adjustment with relation thereto, by manipulating the set-screws g g' g^2, &c.

In the form represented in Figs. 5 to 8, inclusive, the die-block carries the core, as well as the die, and may be substituted at pleasure for the die-block and core-bridge h and e, hereinabove described, without in any manner changing the other parts of the machine.

The die-block (see Figs. 5 to 8) intended for the purpose of interchanging with the die-block h as occasion may require is denoted by k and has the annular flange k' on its inner end, preferably made about equal to the thickness of the core-bridge e plus the width of the annular flange h^3 on the die-block h, so that the combined supporting and clamping ring i may occupy substantially the same position in the head d when the die-block k is in use as it would occupy when the separate die-block and core-bridge h and e are in use. In this form of die-block the die l is fixed in an opening in the side of the die-block, and the core m (in this instance a hollow core) is also screwed into the side of the die-block and extends across its interior, terminating within the die l and held against springing out of position by means of set-screws n n' n^2. This form of die-block provides for running a wire through the core m and covering it with a coating of gutta-percha or other suitable jacket, passing out around it through the die l.

In both of the forms hereinabove described the die-block is held and clamped by a ring which at the same time serves to hold both core and die firmly to the head of the machine.

The arrangement is a very simple one. It admits of all of the adjustments necessary for centering the core with respect to the die-block and for adjusting it in its proper relation to the die-block and admits of removing and adjusting the parts with great facility.

What I claim is—

1. The combination with a main support and a die-block, of a ring arranged to clamp the die-block to the main support, the said die-block being seated within and supported by the said ring independently of the clamping action of the ring.

2. The combination with a main support, a die-block and a core, of a ring arranged to clamp the die-block and core to the main support, the said die-block being seated within and supported by the said ring independently of the clamping action of the ring.

3. The combination with a main support, a die-block, a core and a core-bridge, of a ring arranged to clamp the die-block core and core-bridge to the main support, the said die-block being seated within and supported by the said ring independently of the clamping action of the ring.

4. The combination with the head of a tube-making machine, of a core-bridge and core carried by the bridge, means for holding the core-bridge and hence the core in different rotary adjustments and in different bodily adjustments with respect to the axis of the head, a die-block bearing against the core-bridge and a ring engaged with the head and serving to hold the die-block and core-bridge against longitudinal displacement.

5. The combination with the head of a tube-making machine, a core and core-bridge seated therein, of a die-block free to move toward and away from the core-bridge without engaging the head and a clamping-ring having a screw-threaded engagement with the head and forming a support for the die-block independently of its clamping action.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 13th day of February, 1902.

VERNON ROYLE.

Witnesses:
FREDK. HAYNES,
C. S. SUNDGREN.