F. H. BANBURY.

MACHINE FOR TREATING RUBBER AND OTHER HEAVY PLASTIC MATERIAL.

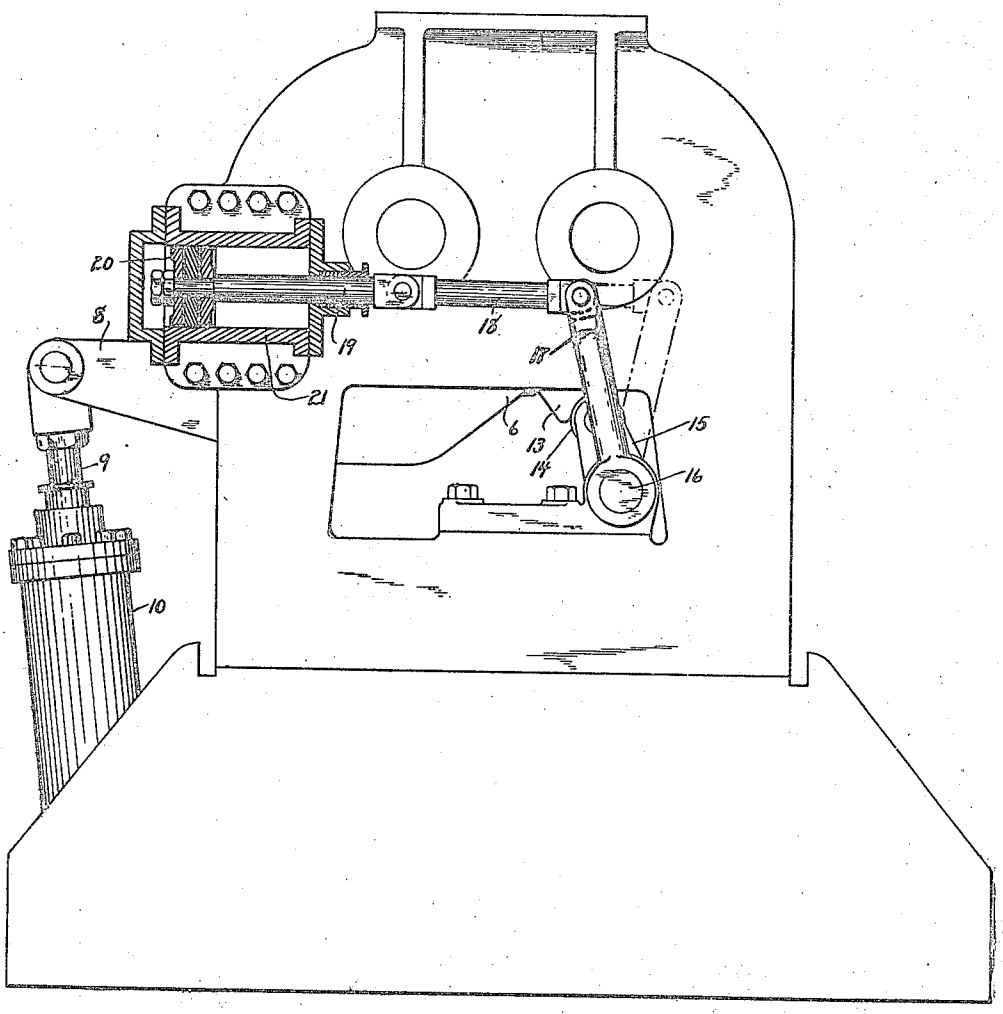
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1,234,526.

Patented July 24, 1917.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

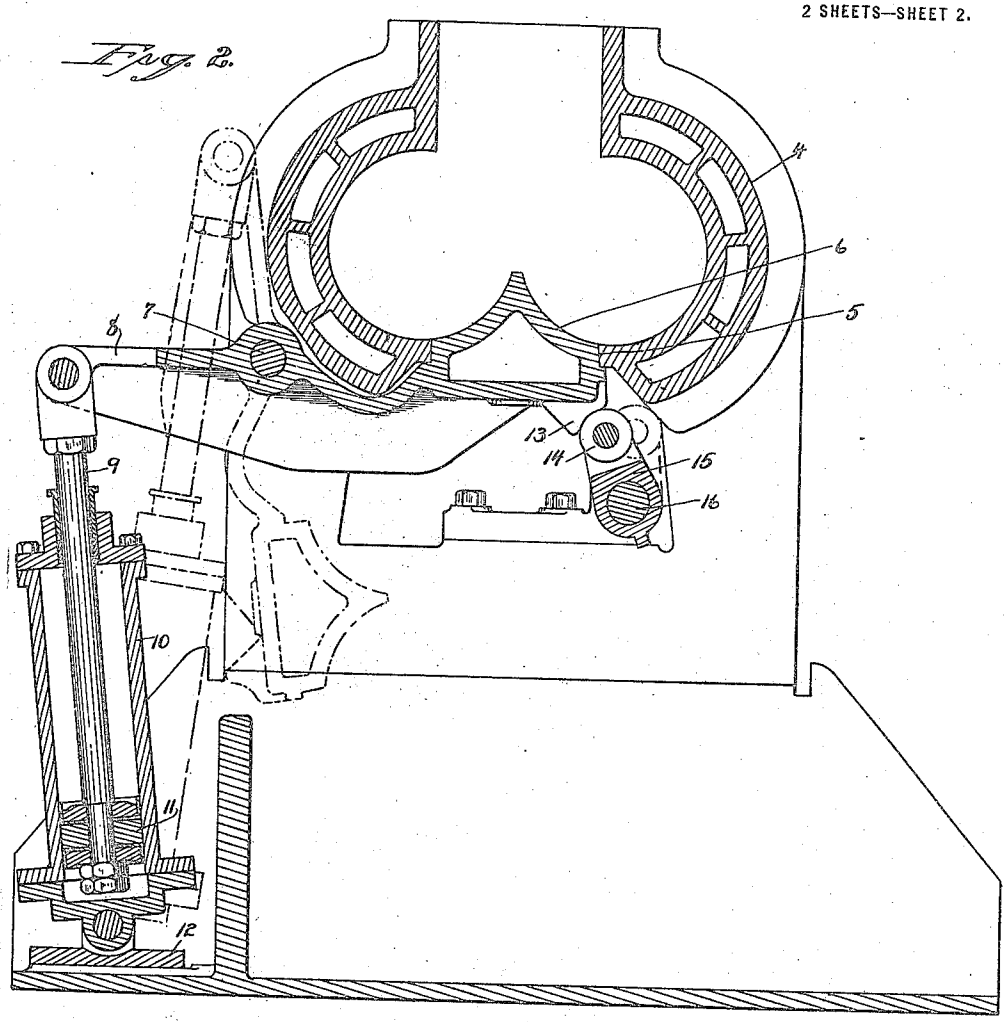
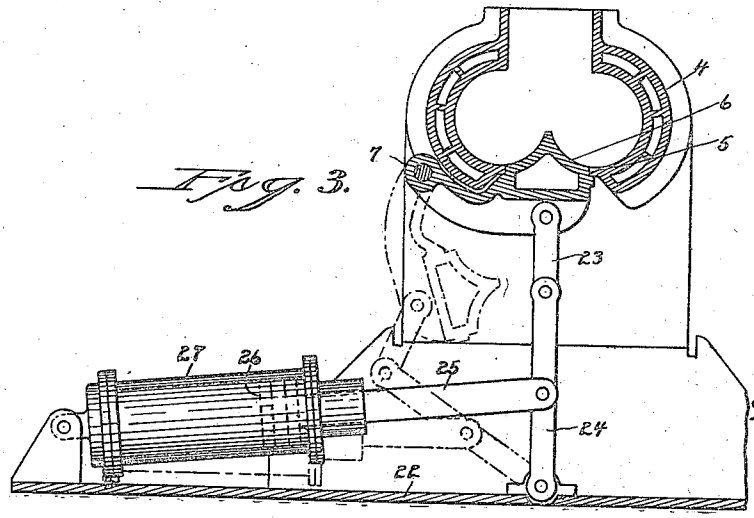


Fig. 3.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR TREATING RUBBER AND OTHER HEAVY PLASTIC MATERIAL.

1,234,526. Specification of Letters Patent. Patented July 24, 1917.

Application filed March 24, 1917. Serial No. 157,143.

To all whom it may concern:

Be it known that I, FERNLEY H. BANBURY, a subject of the King of Great Britain, residing at Ansonia, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Machines for Treating Rubber and other Heavy Plastic Material; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Figure 1 a side view, partly in section, of portions of a machine for treating rubber and other plastic material illustrating my invention.

Fig. 2 a vertical sectional view of the same showing the door of the casing closed in full lines, and in the open position in broken lines.

Fig. 3 a broken sectional view illustrating a modified form of my invention.

This invention relates to an improvement in machines for treating rubber and other heavy plastic material, and is an improvement on the machine shown and described in application filed by me November 18, 1916, Serial No. 132,011. The machine shown and described in the said application comprises a casing provided with an opening in the bottom with a door to close the opening, with means for holding the door in the closed position.

The object of this invention is to provide mechanical means for closing and opening the door, and also mechanical means for operating the locking mechanism; and the invention consists in the construction hereinafter described and particularly recited in the claims.

In illustrating my invention, I have shown it applied to a machine like that shown and described in the application above referred to, but it will be obvious that my invention may be applied to various forms of machines for this purpose.

In carrying out my invention, I employ a casing 4 provided in the bottom with an opening 5 which is closed by a door 6. This door is provided with a shaft 7 the ends of which are mounted in the frame so that the door 6 will swing into the opening 5. To operate this door I form it with a projecting arm 8 which is connected to the upper end of a piston-rod 9 which enters a cylinder 10 and carries a piston-head 11. The cylinder 10 is pivotally mounted on a bearing 12 so as to be permitted to rock. If water, steam or air be admitted into the cylinder above the piston, it will force the piston downward, moving the arm 8 and swinging the door 6 into the opening 5, as indicated in full lines in Fig. 2. If water, steam or air be admitted to the opposite end of the cylinder, the piston will be moved to turn the door into the open position as shown in broken lines in Fig. 2. The admission or escape of water, steam or air to the cylinder may be controlled in the usual way unnecessary here to illustrate. In my previous application, the door was held in the closed position by providing it with lugs 13, which when the door is in the closed position, are engaged by rollers 14 mounted in the upper ends of yokes 15 which are fixed to a shaft 16 suitably journaled in the frame. The shaft 16 is provided with an operating handle 17, and in order to move this handle to release the door, I connect a pitman 18 with the outer end of the handle 17 and connect the piston end of the pitman to a piston rod 19 provided with a piston head 20 in a cylinder 21 to which water, steam or air may be admitted to move the piston head back and forth in the cylinder. When it is desired to unlock the door, pressure will be applied to the proper side of the piston head to move the piston so as to throw the handle to the unlocked position as shown in broken lines in Fig. 1 of the drawings, which turns the shaft 16 and moves the rollers 14 out of engagement with the lugs 13 on the door so as to permit the door to be opened. When the door is in the closed position the piston head is moved in its cylinder to again turn the shaft 16, and throw the rollers 14 into engagement with the lugs 13.

Instead of employing separate cylinders for moving the door and locking it in the closed position, I may connect the door with the base 22 of the frame, or with the support directly beneath the bottom of the door, with two toggles 23 and 24, and connect one of these toggles with a piston-rod 25 hav-

ing a piston-head 26 in a suitable cylinder 27 which is mounted so as to have the necessary rocking movement. When the door is in the closed position, the toggle links 23 and 24 will be brought into a straight line so as to firmly hold the door in the closed position, and the links will be forced into this position by the movement of the piston-head in the cylinder, this piston-head being moved in the proper direction by the admission of water, steam or air. When the piston is moved in the opposite direction, it will break down the toggle links 23 and 24 and swing the door into the open position, as shown by broken lines in Fig. 3 of the drawings. I thus provide mechanical means for closing and opening the door of a machine for treating rubber and other heavy plastic materials, and also provide mechanically operated means for locking the door in the closed position.

I claim:—

1. In a machine of the class described, the combination with a casing provided with an opening, of a door adapted to close said opening, and mechanically operated means including a piston and a cylinder for closing the said door.

2. In a machine of the class described, the combination with a casing provided with an opening, of a door adapted to close said opening, and mechanically operated means including a piston and a cylinder for closing and opening the said door.

3. In a machine for treating rubber and other heavy plastic material, the combination with a double cylindrical chamber each side of which is adapted to contain a rotary blade, said chamber provided with an opening, of a door adapted to close said opening, and mechanically operated means for locking the door in the closed position.

4. In a machine for treating rubber and other heavy plastic material, the combination with a double cylindrical chamber each side of which is adapted to contain a rotary blade, said chamber provided with an opening, of a door adapted to close said opening, and mechanically operated means for locking and unlocking the door.

5. In a machine for treating rubber and other heavy plastic material, the combination with a double cylindrical chamber each side of which is adapted to contain a rotary blade, said chamber provided with an opening, of a door adapted to close said opening, and means including a piston and cylinder for locking the door in the closed position.

6. In a machine for treating rubber and other heavy plastic material, the combination with a double cylindrical chamber each side of which is adapted to contain a rotary blade, said chamber provided with an opening, of a door adapted to close said opening, means including a piston and cylinder for locking and unlocking the door.

7. In a machine for treating rubber and other heavy plastic material, the combination with a double cylindrical chamber each side of which is adapted to contain a rotary blade, said chamber provided with an opening, of a door adapted to close said opening, and mechanically operated means for closing and locking the said door in the closed position.

8. In a machine of the class described, the combination with a casing provided with an opening, of a door adapted to close said opening, mechanically operated means including a piston and a cylinder for closing and locking the said door in the closed position.

9. In a machine of the class described, the combination with a casing provided with an opening, of a door adapted to close said opening, means including toggle links and a piston for moving said links, whereby said door is both closed and locked.

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

F. H. BANBURY.

Witnesses:
FREDERIC C. EARLE,
MALCOLM P. NICHOLS.