

No. 896,224.

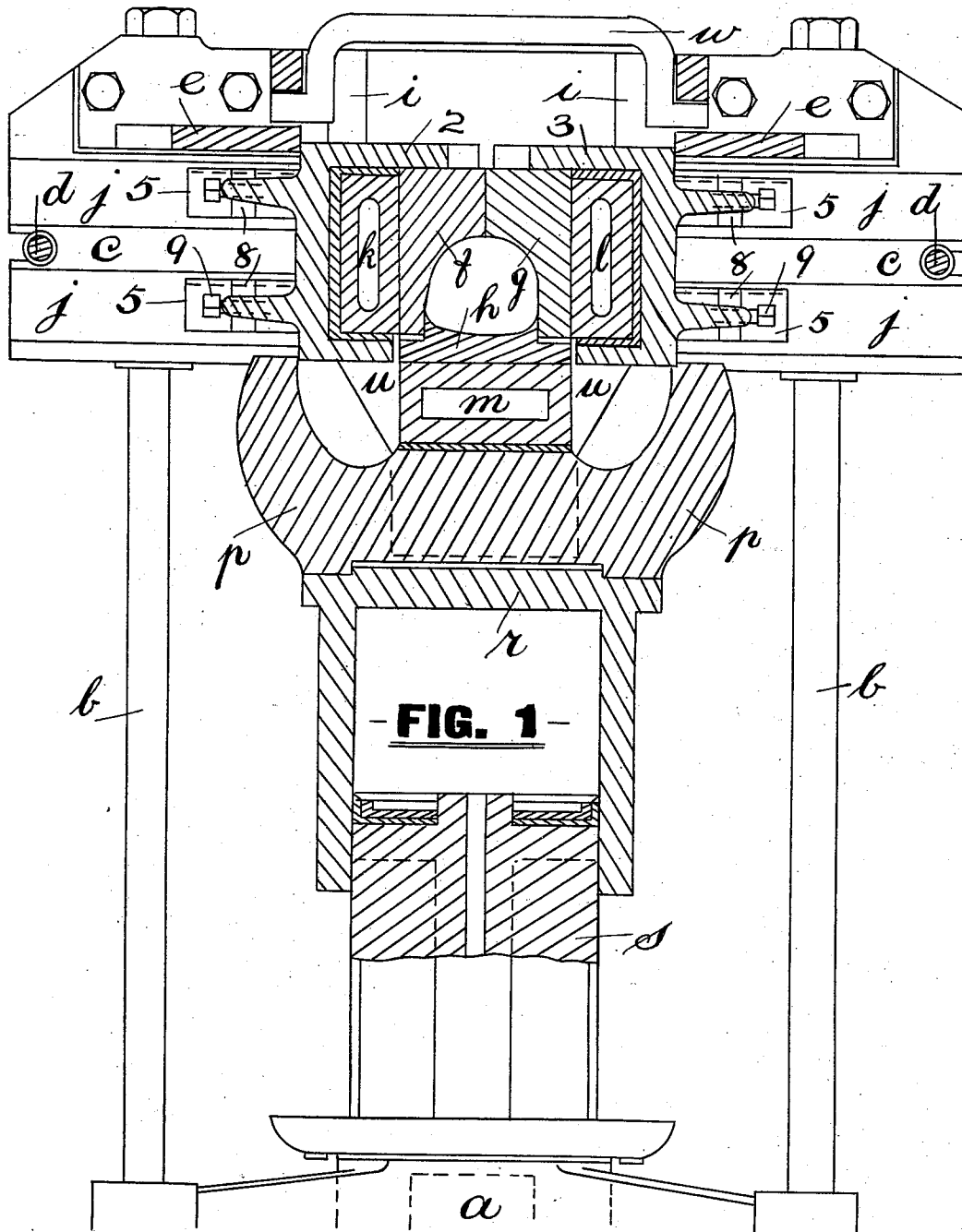
J. W. V. MASON.

PATENTED AUG. 18, 1908.

APPARATUS FOR MOLDING, VULCANIZING, AND FINISHING
RUBBER BOOTS OR SHOES.

APPLICATION FILED APR. 26, 1907.

4 SHEETS—SHEET 1.



Witnesses:

Arthur Gadd
Thomas Cartington.

Inventor:

John William Victor Mason.
per: William Gadd.
Attorney.

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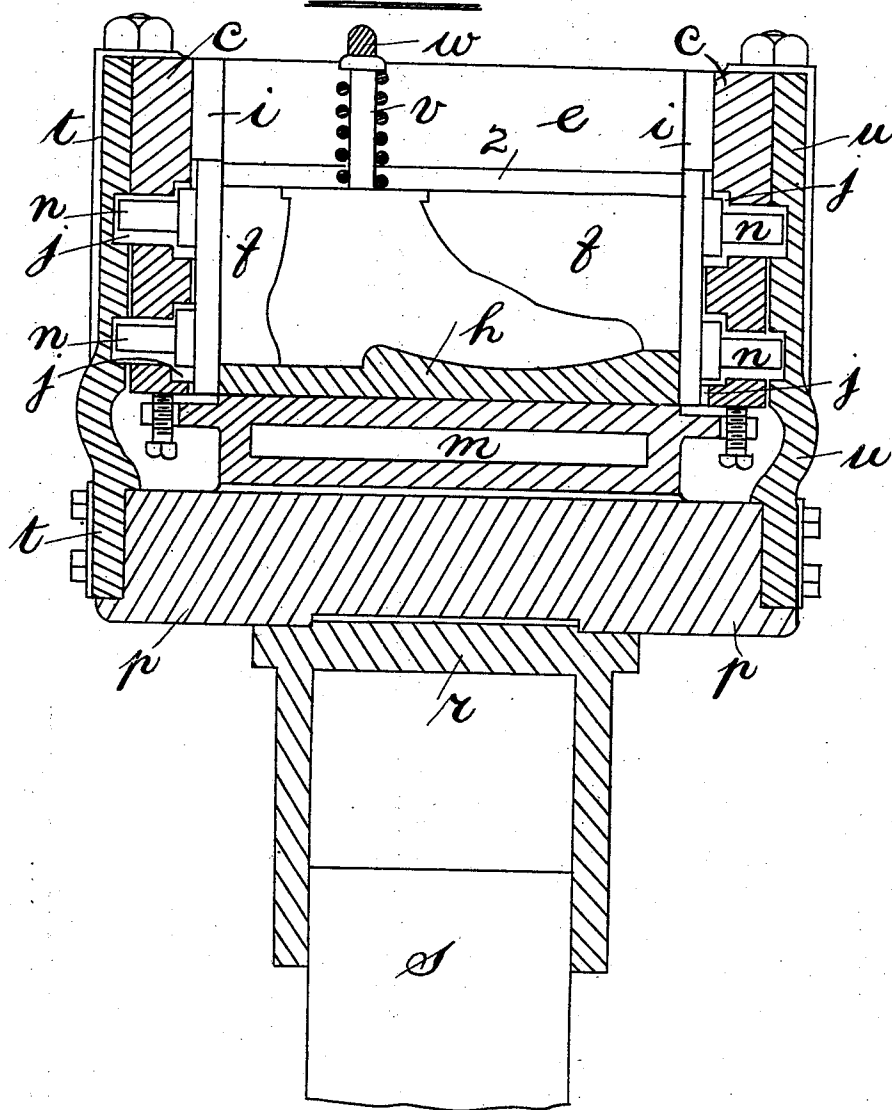
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4 SHEETS—SHEET 2.

— FIG. 2 —



Witnesses

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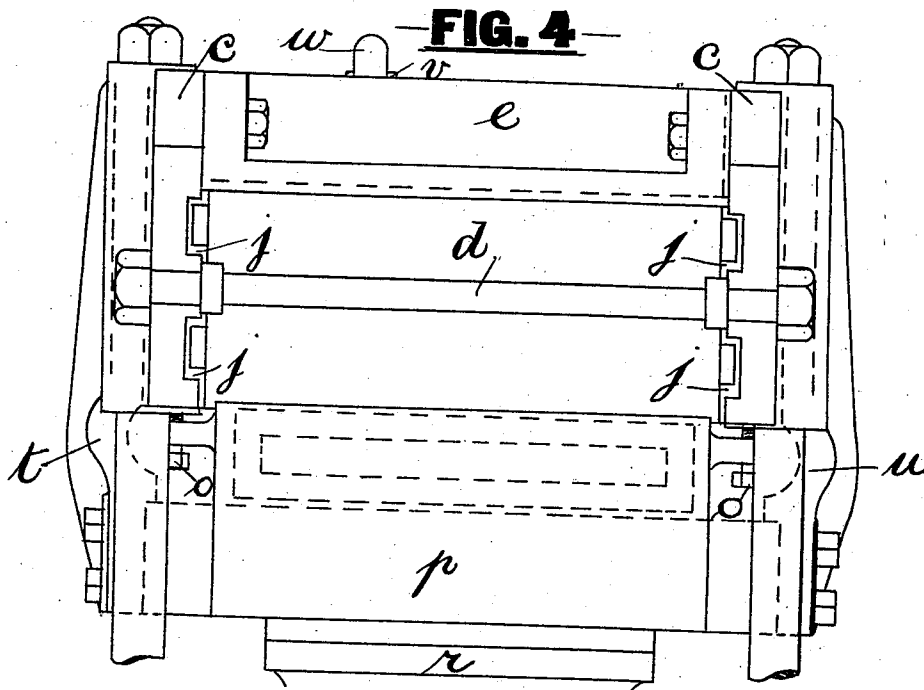
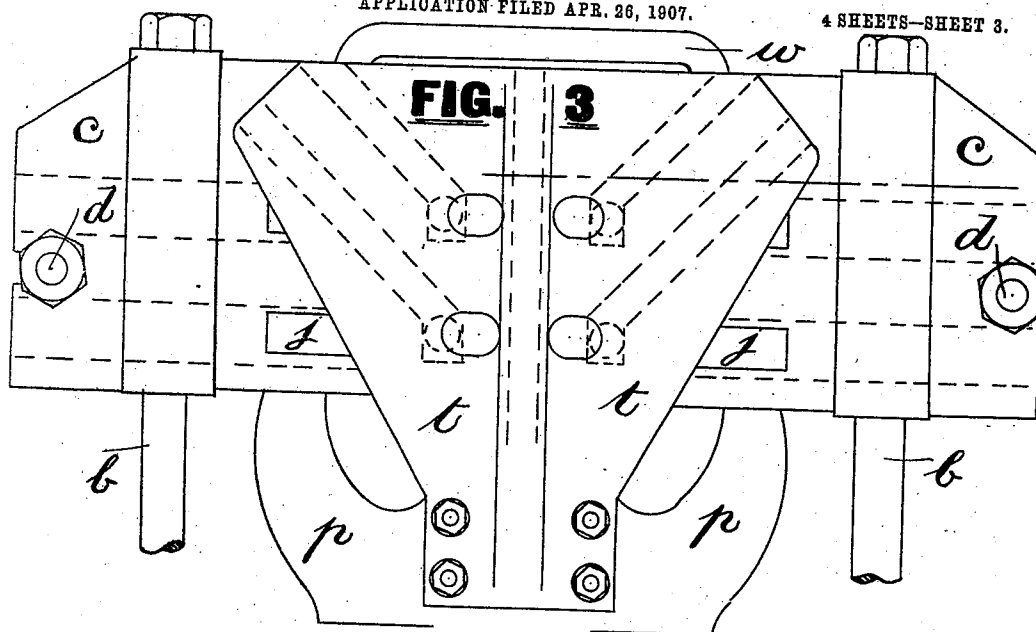
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4 SHEETS—SHEET 4.

FIG. 5

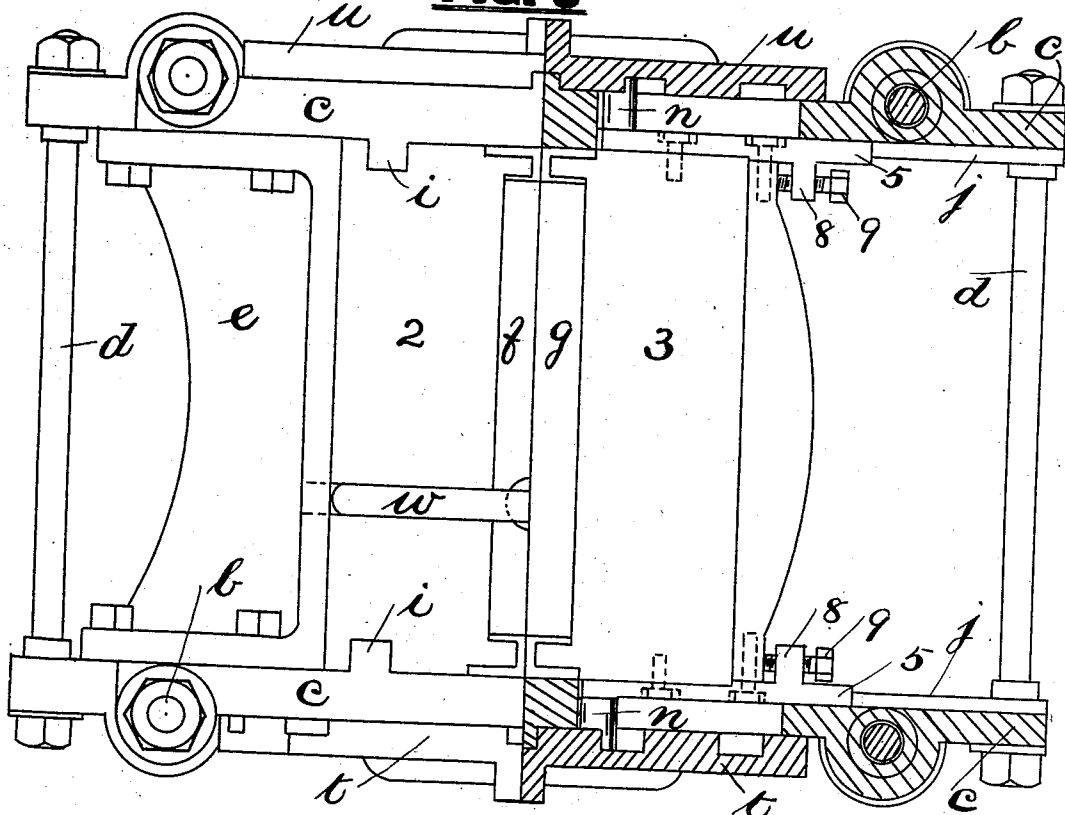
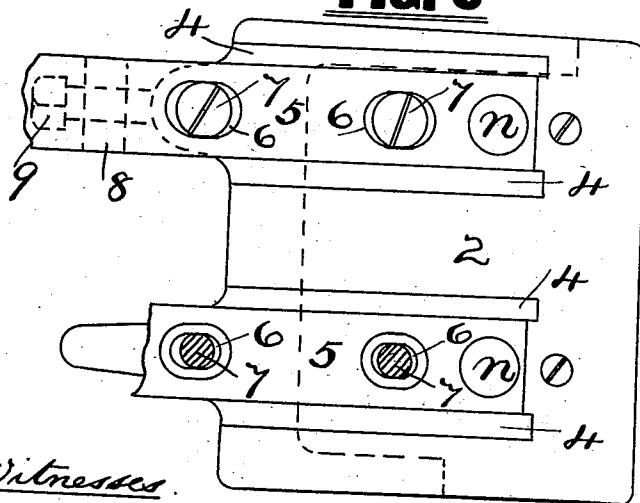


FIG. 6



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN WILLIAM VICTOR MASON, OF MANCHESTER, ENGLAND.

APPARATUS FOR MOLDING, VULCANIZING, AND FINISHING RUBBER BOOTS OR SHOES.

No. 896,224.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed April 26, 1907. Serial No. 370,514.

To all whom it may concern:

Be it known that I, JOHN WILLIAM VICTOR MASON, a subject of the King of Great Britain, residing at 9 Birch Lane, Longsight, Manchester, in the county of Lancaster, England, have invented a new and useful Apparatus for Molding, Vulcanizing, and Finishing Rubber Boots or Shoes, of which the following is a specification.

10 This invention relates to mechanism for molding, vulcanizing, and finishing rubber boots or shoes, and has for its object to provide simple and effective means for the purpose, as hereinafter described.

15 In carrying out my improvements, I provide apparatus of the character illustrated in the accompanying drawings, wherein

Figure 1. is a vertical section, partly in elevation of one form of the invention, and 20 Fig. 2. a similar section at right angles thereto with the lower parts omitted, Figs. 3 and 4. are a side and end elevation respectively, of the upper portion of the apparatus. Fig. 5. is a plan view, half elevation, half section 25 and Fig. 6. is a detail view hereinafter to be described.

In the present example, the framing of the apparatus consists mainly of a base-plate *a*, supporting posts *b*, and a top frame comprising 30 side-pieces *c*, tie-rods *d*, and adjustable braces *e*.

The mold is formed of three parts, namely:—side molds and a sole mold each part being provided with a suitable steam 35 chamber *k*. *l*. and *m*. respectively, for vulcanizing purposes, and to which chambers steam may be admitted by any convenient means.

The side molds proper *f*. *g*. which together 40 with their steam chambers *k*. *l*. are mounted in carriages 2. 3. respectively, are capable of being moved together or apart, laterally, as hereinafter described, lugs or equivalent *n*, connected to such molds projecting within, 45 and riding upon guides or ways *j* in the framing, for the purpose.

The sole mold *h*, is preferably movable vertically, and, when in its lowest position, rests upon supports *o*. Beneath this mold 50 is a yoke or follower *p*, which may be raised or lowered by a hydraulic cylinder *r*, operating in manner as will be well understood, in conjunction with a hydraulic piston *s* mounted on the bed-plate *a*, or otherwise.

Fluid may be admitted to and withdrawn 55 from the cylinder by well known means.

The yoke or follower *p*, is provided with jaw extensions *q* forming a clasp, to grip the lower edges of the side molds when the latter are in a closed position, and, mounted upon 60 such yoke, or traveling therewith, are cam plates *t. u.* grooved or channeled to receive the projecting lugs *n*, of the side molds.

The side braces *e*, at the top of the apparatus are adjusted to fit the upper edges of 65 the closed side-molds, and in that position are securely bolted or attached to the framing. To insure the side-molds fitting together accurately in the closed position, I provide means such as are illustrated in Figs. 70 5 and 6. whereby the carriages may be adjusted in relation to the lugs *n*, which are used to bring such molds together.

Upon the two sides of each carriage are 75 projections 4. forming grooves for the sliding therein of bars 5. bearing the lugs *n*. aforesaid. These bars are slotted at 6, for the reception of the screws 7 which secure them to the carriage so that on loosening these screws, the desired adjustment may be ef- 80 fected. The bars 5, carry projections 8, at their outer extremities, to enable screws 9 to bear upon the carriage and retain the adjusted position. The said bars 5 project within and ride upon the ways *j*. in the frame. 85

The operation of the molds is as follows:—Supposing the shoe or the like, to be placed in position upon the sole mold, fluid is admitted to the cylinder *r*, which thereupon rises, carrying the yoke *p*, and the grooved 90 cam-plates *t. u.* with it. The angular grooves, acting upon the lugs *n*, of the side molds, draw the said molds together, and, as the same are closed, the yoke *p*, comes in contact with the sole mold, which thereupon 95 rises into the closed position; the jaws of the yoke meanwhile gripping the lower edges of the side molds. Further rise of the cylinder carries the combined molds upward, so that the top edges of the side molds are forced 100 within the braces *e*, and against stops *i*, as shown in Fig. 1. The molds are thus securely locked together, against internal pressure, and are allowed to so remain while the vulcanizing and molding operation is in 105 progress, after which, the cylinder is caused to descend. The side molds are withdrawn from the braces *e*, their lugs *n*, again resting

upon the guides or ways *j*, from which they were lifted on the up-stroke. Descent continues, and the yoke is lowered, releasing the side molds which are then drawn apart by the downward movement of the cam-plates. When the side molds are fully apart, the finished shoe may be removed, and further work substituted.

Means may be provided, if desired, for automatically opening and closing the steam passages to the molds, as the latter are operated. In some cases, I may provide an extensible covering between the shoe and the last, or otherwise within the shoe, to the interior of which covering I may admit air or other fluid under pressure, or a mobile substance such as fine sand, whereby the shoe may be distended so as to effect more intimate contact with the molds. When compressed fluid is employed, I may provide a suitable conduit or connections to enable the desired inflation to be effected, but where a more solid substance is interposed, and in cases where distribution by the outside pressure of the molds is not deemed sufficient, and a ram or piston is provided to exert pressure upon such mobile substance, I prefer to bring the outer extremity of such piston (illustrated at *v*.) beneath a swiveled bar *w*, which, being mounted on the braces *e*, or otherwise fixed to the framing, resists the upward movement of the piston, and thus effects the desired compression and distribution of the mobile substance aforesaid, while the molds are being brought into the operative position.

The bar *w* may be removable otherwise than by being swiveled, but in the present instance, when the molds are to be opened, it may be thrown over upon its pivots, to enable the work to be removed.

Asbestos, or other heat resisting packing may be placed between the steam chamber walls and the carriages 2, 3, and yoke *p* to prevent radiation of heat to some extent, and other detail variations may be made without departing from the nature of the invention.

I claim:—

1. In apparatus of the character herein indicated, the combination with a frame of side molds, a sole mold, a movable support for said sole mold, a movable clasp adapted to engage the lower edges of the closed side

molds, and fixed braces on said frame adapted to receive the upper edges of said side molds, substantially as set forth.

2. In apparatus of the character herein indicated, the combination with a frame of a movable three part mold, a core of mobile material situated within said mold, a plunger projecting within said core, and a bar mounted on said frame and in contact with said plunger, substantially as set forth.

3. In apparatus of the character herein indicated, the combination with a frame of a ram, side molds, a sole mold, a support for said sole mold, mounted on said ram, cams mounted in connection with said ram and engaging with said side molds, a clasp in connection with said ram and adapted to engage the lower edges of said side molds, and fixed braces on said frame, adapted to receive the upper edges of said side molds, substantially as set forth.

4. In apparatus of the character herein indicated, the combination with a frame of a work support, a three part vulcanizing mold, means for heating each part of such mold, means for closing the two side parts over the sole mold, a movable clasp adapted to engage the lower edges of the closed side molds, fixed braces on said frame, adapted to receive the upper edges of said molds, and a sole mold support adapted to move the said clasp and combined molds, substantially as set forth.

5. In apparatus of the character herein indicated, the combination with a frame of a core with collapsible walls inclosing a replaceable substance, a three part vulcanizing mold, means for heating each part of such mold, means for closing the two side parts over the sole mold, a movable clasp adapted to engage the lower edges of the closed side molds fixed braces on said frame, adapted to receive the upper edges of said molds, and a sole mold support adapted to move the said clasp and combined molds, substantially as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JOHN WILLIAM VICTOR MASON.

Witnesses:

ARTHUR GADD,
THOMAS PARTINGTON.