June 5, 1934. H. E. DOW 1,962,007

THERMOSTATIC WAX POT

Filed Nov. 16, 1929 2 Sheets-Sheet 1

Fig. 1

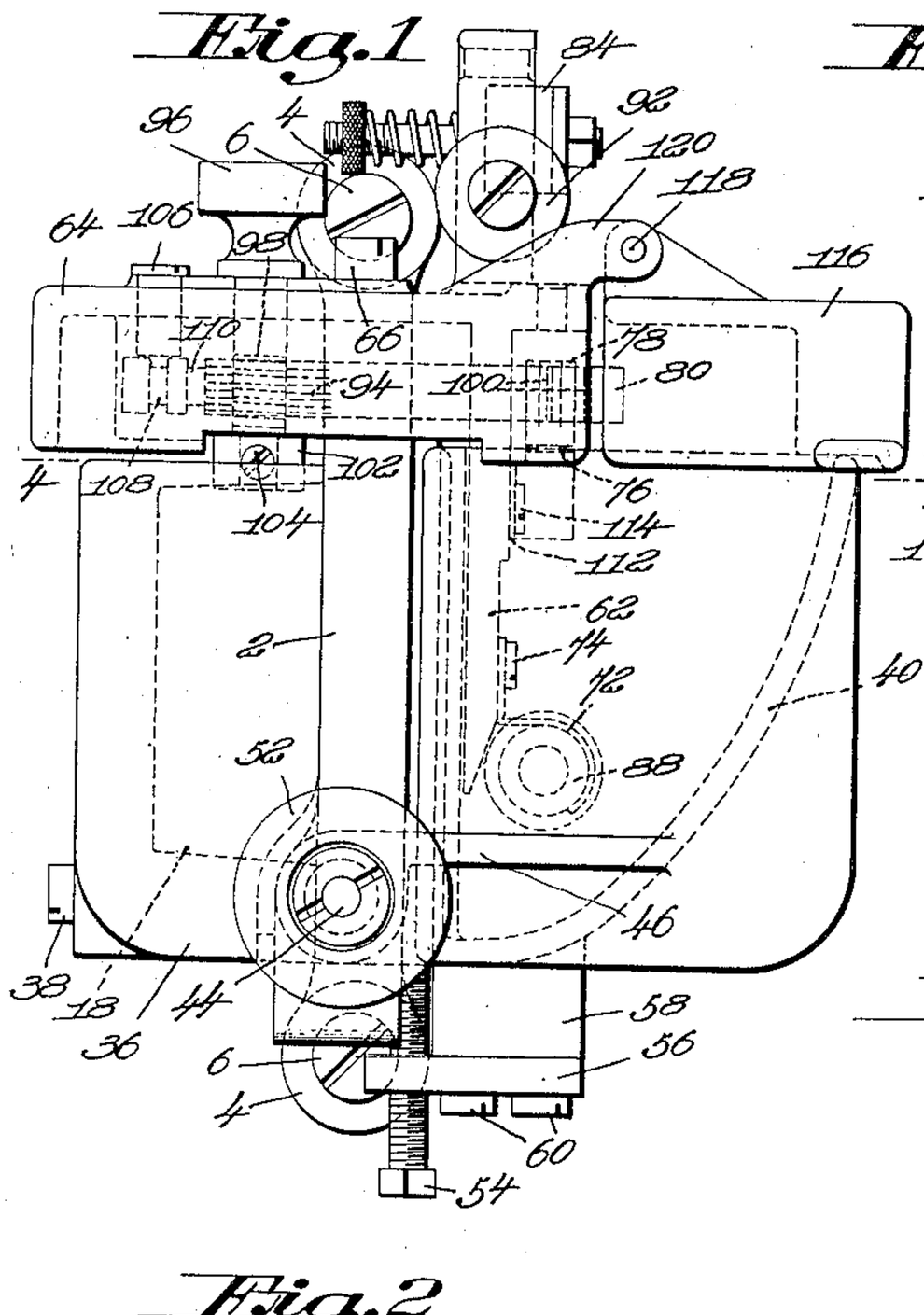

Fig. 3

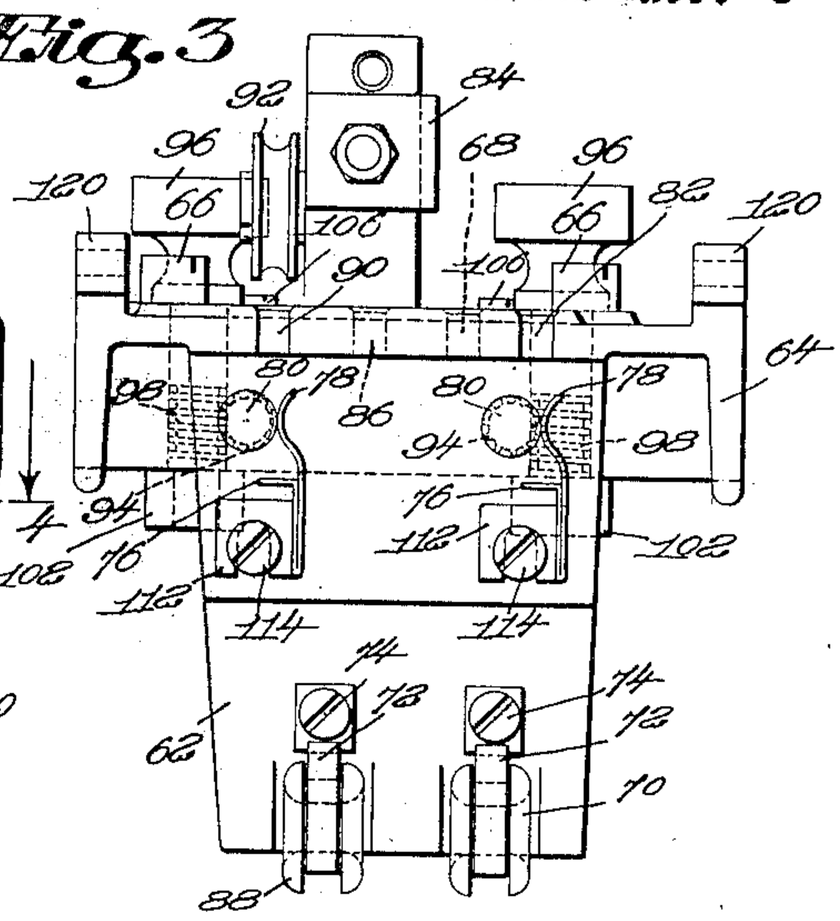

Fig. 9

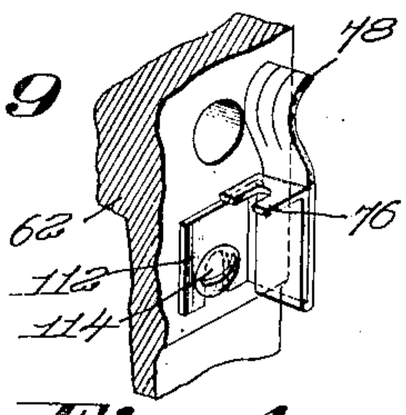

Fig. 2

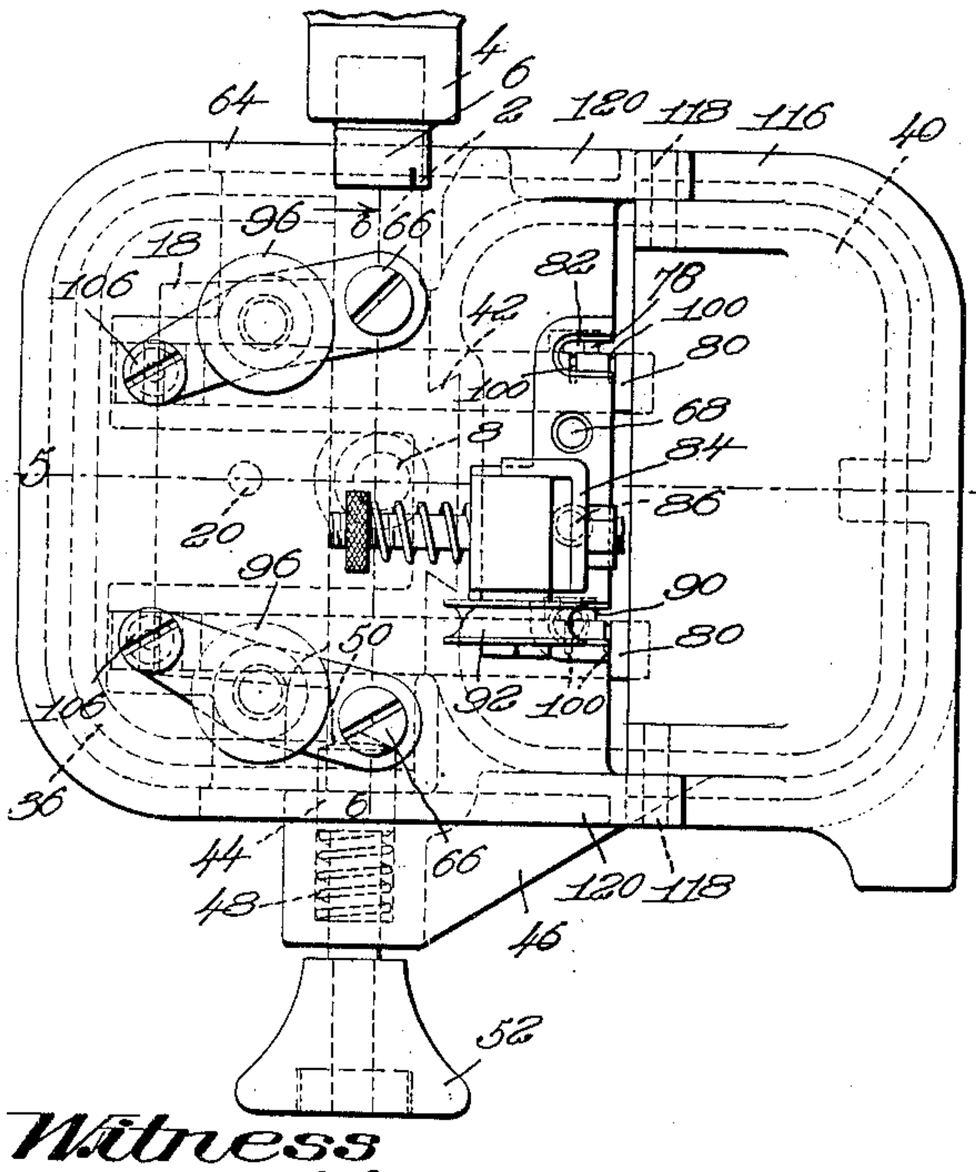

Fig. 4

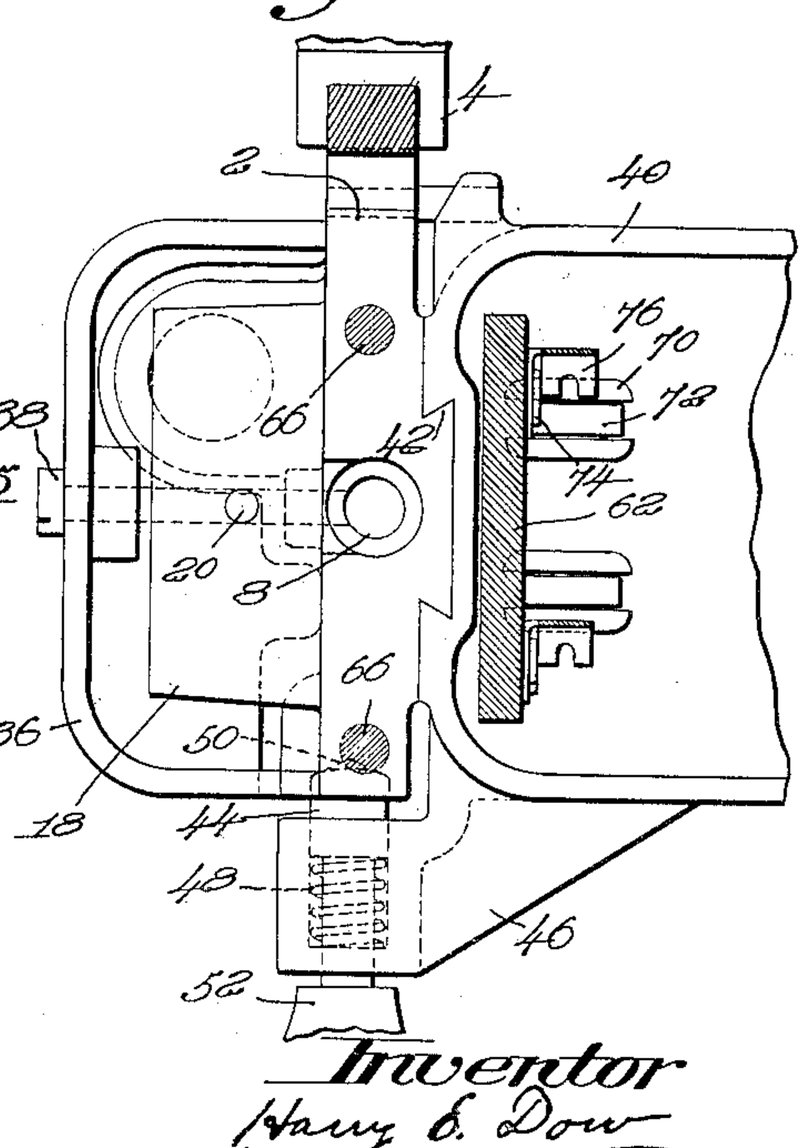

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Fig. 5

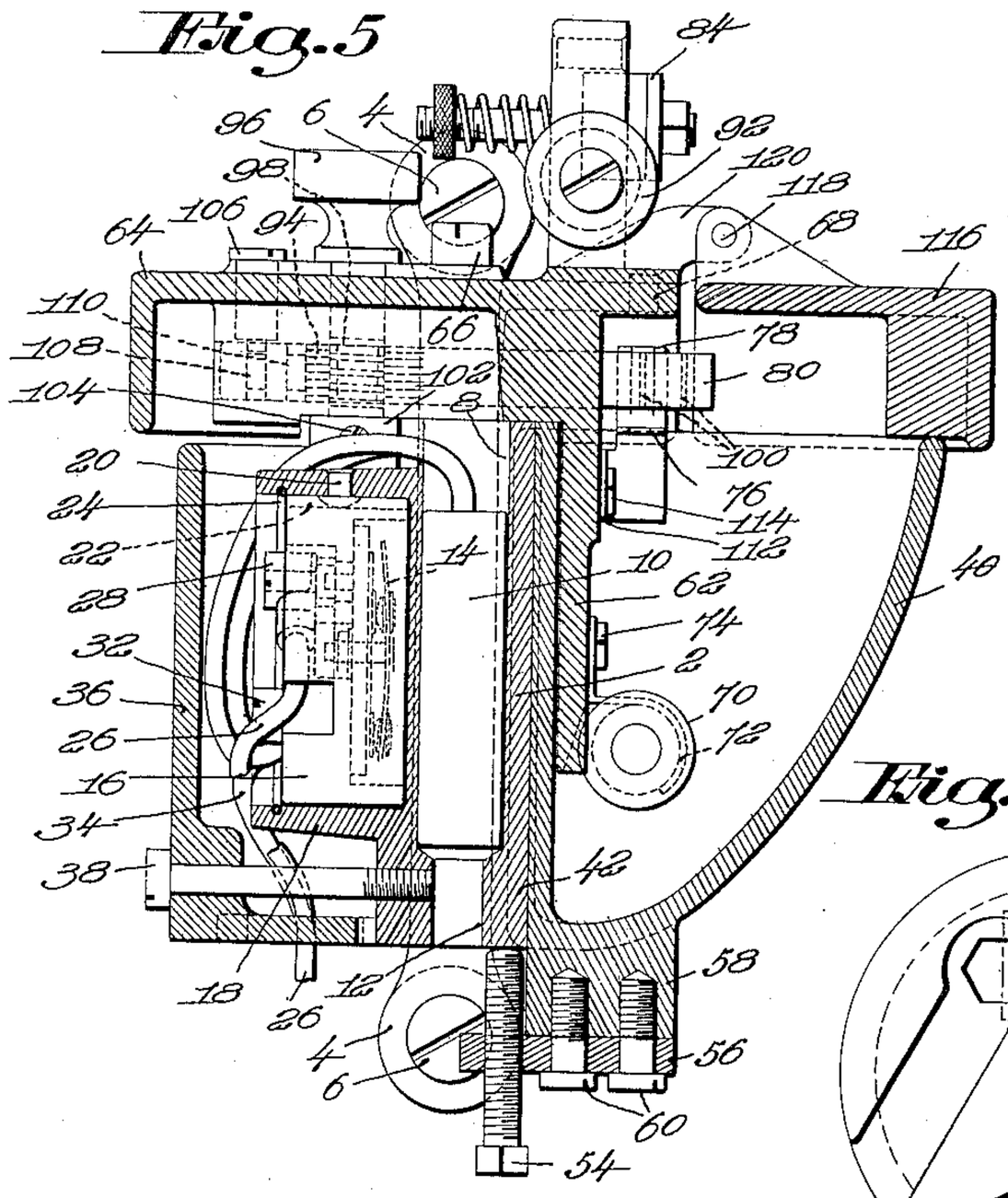


Fig. 7

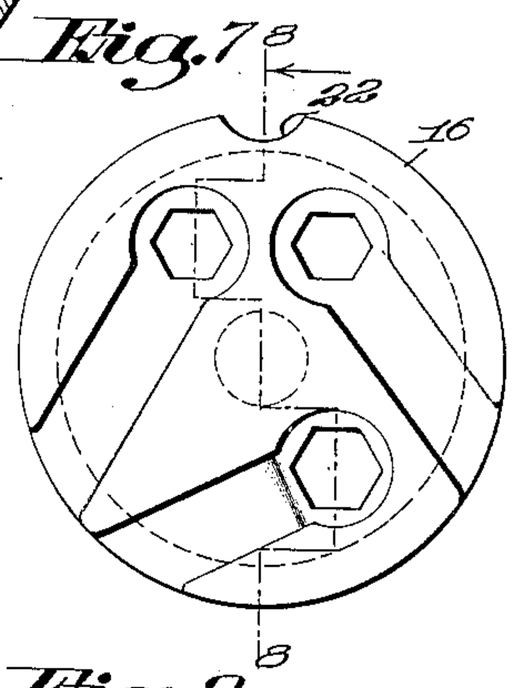


Fig. 6

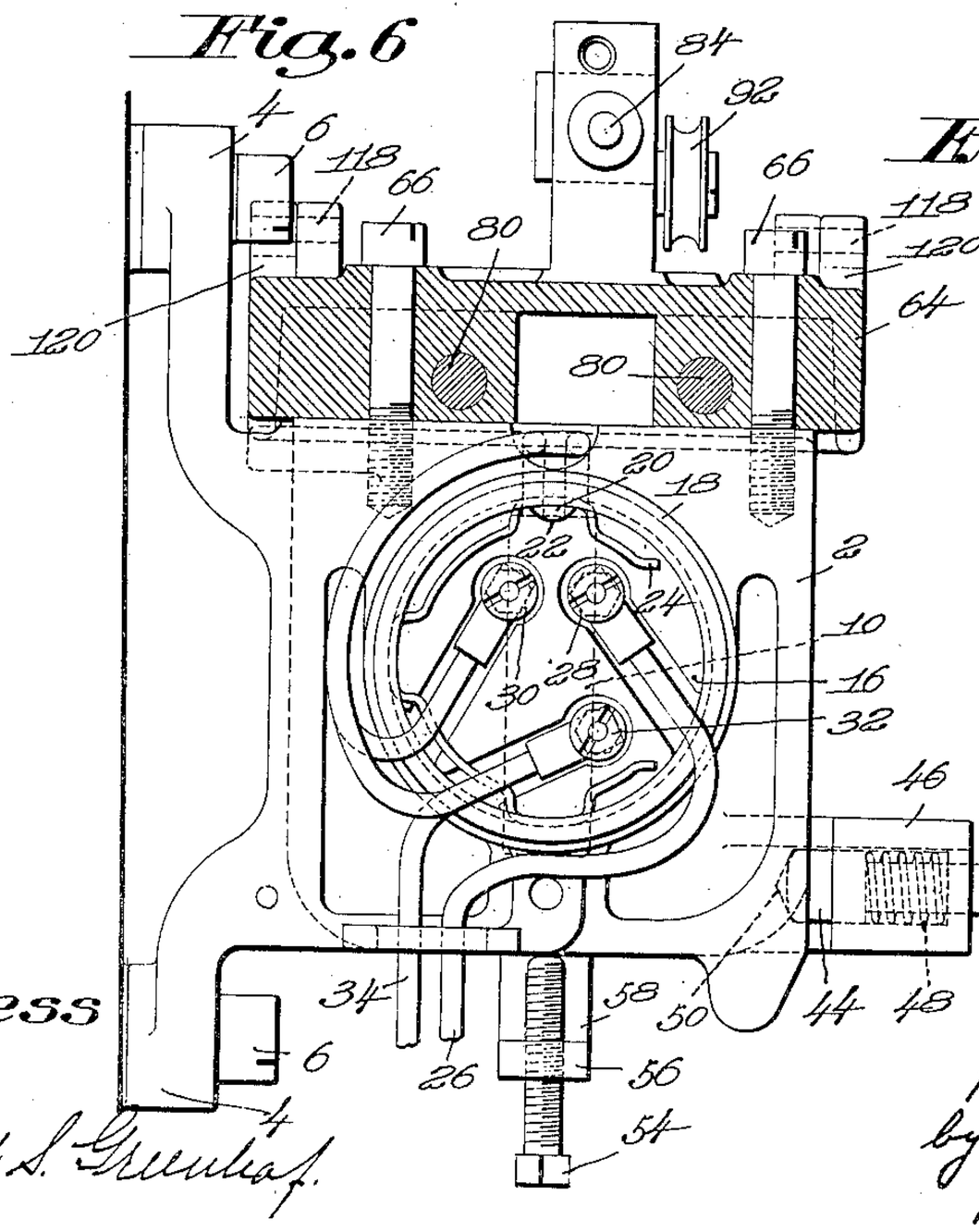
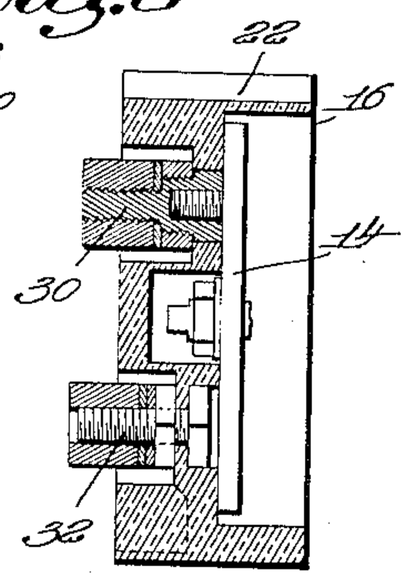


Fig. 8



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Patented June 5, 1934 1,962,007

UNITED STATES PATENT OFFICE

1,962,007

THERMOSTATIC WAX POT

Harry E. Dow, Beverly, Mass., assignor to United Shoe Machinery Corporation, Paterson, N. J., a corporation of New Jersey

Application November 16, 1929, Serial No. 407,668

4 Claims. (Cl. 219—19)

The present invention has relation to wax pots, such as are used in connection with wax thread sewing machines for impregnating the thread with liquid wax just prior to the incorporation of the thread in the seam being formed by the sewing machine. The invention relates more particularly to wax pots wherein the wax is maintained in molten condition and at a proper temperature for thoroughly permeating the thread by means of electrical heating devices.

The invention has as its object the provision of a novel and improved wax pot having advantages over prior constructions through providing a receptacle for the wax which shall be quickly and easily removable from its supporting means, leaving behind and without disturbing the thread guiding and stripping devices and the heating and heat controlling devices, so that it may be entirely separated from the rest of the wax pot for the cleaning-out that is necessary at frequent intervals and also so that easy access may be had to the thread guide which leads the thread into and through the liquid wax without soiling the operator's fingers. A further object of the invention is to provide a wax pot having the advantages just detailed which also presents a smoothly-rounded interior devoid of angles, corners, and projections so that it may be easily and thoroughly cleaned.

To these ends, the invention consists in a wax pot having a supporting bracket, a receptacle for the wax supported thereby with capacity for easy removal, an electric heating unit adapted to impart heat to the bracket which, in turn, transmits such heat to the receptacle to melt the wax therein, and a thermostat in connection with the bracket governing the degree of heat attained by the heating unit and transmitted by the bracket proportionately to the receptacle and to the thermostat. The invention includes also the provision of novel and improved means for effecting and regulating the stripping of the excess wax from the thread as it is drawn out of the liquid wax. The manner in which this is accomplished, as well as other features of the invention and their advantages and the means whereby they are attained, will be apparent to those skilled in the art from the following description and the claims appended hereto taken in connection with the accompanying drawings showing the illustrated embodiment of the invention in its preferred form.

In the drawings, Fig. 1 is an elevation and Fig. 2 a plan of the improved wax pot; Fig. 3 is a side view of the head of the bracket with the receptacle for the wax and its cover removed, showing the thread guiding and stripping means; Fig. 4 is a partial plan view in section on line 4—4 of Fig. 1 looking in the direction of the arrow; Fig. 5 is a vertical section on line 5—5 of Fig. 2 looking in the direction of the arrow; Fig. 6 is a view in vertical section on line 6—6 of Fig. 2 looking in the direction of the arrow; Fig. 7 is a face view of the insulating porcelain base which receives the thermostat; Fig. 8 is a view in vertical section on the broken line 8—8 of Fig. 7, showing details of the electrical connections to such thermostat, and Fig. 9 is a perspective view of one of the spring-blades of the stripping devices.

The improved wax pot is designed to be mounted in appropriate position upon the pedestal or other portion of the frame of a wax thread sewing machine by means of a bracket 2 provided with eyes 4 through which attaching screws 6 may extend into such pedestal or framework. The bracket 2 is formed of aluminum, as are all the other main parts entering into the construction of the wax pot, in order to secure maximum diffusion of heat. A bore 8 is formed within the center of the relatively thick bracket, to receive an electric heating unit 10 of well known cylindrical shape and familiar construction, such bore being reduced and continued through to the bottom end of the bracket as indicated at 12 to facilitate expelling the heating unit from the upper end of the bore 8 in case of need for replacement. This heating unit is controlled by a thermostat 14 of well-known type having a concavo-convex heat-responsive member adapted to change its curvature and interrupt or reinstate the flow of electrical current according to the changes of its temperature. This thermostat is mounted in electrically-insulated relation with respect to the wax pot by means of a cup-shaped porcelain base 16 which is received within an appropriate cup-shaped housing 18 formed upon one face of the bracket 2. The insulating base 16 is held against rotation within the housing 18 through engagement of the head of a rivet 20, put through the housing, with a corresponding notch 22 in the rim of the base 16, and is retained in such housing by means of a spring 24 overlying the outer surface of the base 16, and expanding into a groove formed for it on the interior of the housing 18. The heating unit 10 is wired in series with the thermostat, the current from an appropriate source being brought through the lead 26 to one terminal 28 of the thermo-

stat, thence passing through the thermostat to the terminal 30 and from there to and through the heating unit, on its return being brought to an insulated binding post 32, which simply serves as a point of junction with the return lead 34 to the source of electrical current. The thermostat and its connections are enclosed and protected by a cover 36 which is secured to the bracket by means of a screw 38.

The wax is put into a receptacle 40 also of aluminum, which is fitted to the opposite surface of the bracket 2 by means of a dove-tailed tongue-and-groove joint, the tongue being formed as indicated at 42, upon the material of the side of the bracket closely adjacent the bore 8 within which is the heating unit 10. The corresponding groove is formed in the material of the receptacle 40 and the adjoining surface of both the bracket and the receptacle are machined to fit closely against each other at and about the tongue so that there will be efficient transfer of heat from the bracket to the material of the receptacle, to heat the latter and melt the wax placed therein. While permitting free transfer of heating across the joint from the bracket to the receptacle, the fit is such as to permit easy sliding movement of the receptacle up into working position along the tongue 42, and down and off from the bracket to permit removal of the receptacle for cleaning. The construction is such that dirt and other foreign matter will not accumulate and prevent the receptacle entering into close heat-transmitting contact with the bracket. The receptacle is maintained in working relation with the bracket by means of a catch formed by a bolt 44 mounted in an extension 46 from the receptacle 40 and pressed by a spring 48 into a recess 50 in the edge of the bracket, the bolt registering with the recess when the receptacle has been slid upward into proper position. A knob 52 upon the bolt facilitates its manipulation when it is to be withdrawn to permit lowering or removal of the receptacle for the wax. In the event that difficulty is experienced in sliding the receptacle downward upon the tongue 42, because of the parts being expanded through heat or resisting movement through other reasons, a screw 54 is threaded through a steel strip 56, applied to an integral lug 58 on the bottom of the aluminum receptacle 40 by means of screws 60. This screw bears against the bottom edge of the bracket 2, as shown in Fig. 6, and when turned upwardly serves to pull down the wax receptacle 40 and start it free.

The thread guiding and stripping means are mounted upon a flange 62 depending from a head 64 that is mounted transversely on top of the bracket 2 by means of screws 66. Thus the thread guiding and stripping means are separate from the receptacle 40 for the wax, and are not disturbed or moved when the receptacle is lowered or removed. Provision is made for waxing both the needle thread and the bobbin thread, the former passing into the wax pot through eye 68 in the head 64, and through a guide 70 standing below the level of the melted wax in the receptacle 40 when the latter is adequately filled and in working position, said guide being affixed to the lower end of the flange 62 by a strap 72 and screw 74. Thence the needle thread passes upwardly through a scraper 76 and between a spring blade 78 and an eccentrically grooved pin 80 which cooperate to effect the main stripping action, and emerges through the notch 82 in the edge of the head 64. The bobbin thread is passed through the dry-thread tension 84, of well known design, entering the wax pot through the eye 86 in the head 64, passing down and through a guide eye 88 similar to guide eye 70 in all respects, and returning through scraping and stripping means 76, 78, 80, similar to those just described and emerging through the notch 90 in the edge of the head 64, thence passing over the truck 92 to the bobbin winding devices, (not shown).

The stripping means has novel features. The eccentrically grooved pins 80 are rotatably mounted in the head 64 and have a portion of their length fluted or toothed as indicated at 94. Cooperating with this fluted portion is a thumb screw 96 extending at right angles to the pin and having its threads 98 engaging with the fluted or toothed portion 94 of the pins after the manner of a worm and gear, so that rotation of the thumb screw serves to impart a corresponding rotation to the pin 80. This arrangement facilitates adjustment of the stripping action effected by the eccentric notch 100 in the end of the pin, the adjustment being effected from the top of the wax pot instead of from within or from a side to which other parts of the sewing machine may bar access. Further, the stripping pin 80 may be easily rotated a complete turn whenever necessary to remove wax caked thereon and interfering with the stripping action. The thumb screws 96 are retained in place by means of collars 102 which are secured by clamping screws 104 upon the reduced extremities which extend out from the under side of the material of the head 64. The stripping pins 80 are each provided with duplicate eccentric grooves 100 so that as one groove wears the pin may be moved endwise to put the other of such grooves in operation. Each pin is held against endwise movement, so as to keep its stripping groove in proper relation with its coacting spring blade 78, by means of a screw 106 threaded into the head 64 so that its reduced extremity enters a groove 108 cut in the pin, a duplicate groove 110 being formed in proper position to align the alternative eccentric stripping groove 100 with the spring blade 78 when it is necessary to shift the pin lengthwise.

The spring blade 78 which presses the thread against the fixed surface constituted by the pin 80 has its upper extremity split to form three separate spring-fingers, the central one of which registers with the eccentric stripping-groove in the pin 80, while the other two bear against the surface of the pin at each side of such groove. By this arrangement a thread drawn upwardly from the molten wax beneath the central finger of the spring blade 78 will be prevented from escaping sidewise from between the pin and the spring blade in the event that a knot or other enlargement on the thread be drawn through the stripper, as the outer pair of fingers press closely against the surface of the pin 80 and act as guides preventing lateral deviation of the thread along the surface of the pin. This stripping arrangement is easily and quickly threaded up, and through retaining its hold on the thread in spite of knots, etc. prevents the annoyance of having the thread-handling parts become fouled by the action of an unstripped thread. The spring blade 78 and the scraper 76 are formed integrally of a single piece of bent spring steel, a portion of which is bent at right angles to form

the attaching bracket 112 which is attached by a screw 114 to the flange 62.

A cover 116 is hinged at 118 to lugs 120 upon the head 64, and serves to exclude dirt and to give easy access to the receptacle 40 for the replenishment of the supply of wax.

It will be apparent that the receptacle 40 containing the wax may be easily and quickly removed for cleaning or for the purpose of threading-up the wax pot by pulling out the bolt 44 and sliding the receptacle downward along and off from the tongue 42 of the bracket. In this manœuvre no other part of the wax pot is moved, adjusted, or disturbed. The wax receptacle 40 may be replaced easily and rapidly by the simple reversal of this procedure.

The wax stripping device herein disclosed forms the subject-matter of a divisional application filed October 4, 1933, Serial No. 692,119.

Having thus described the invention, what is claimed is:

1. A wax pot having, in combination, a supporting bracket, thread guiding and stripping means supported on the bracket, a receptacle for the wax removably supported on the bracket by a dove-tailed tongue-and-groove joint, and an electric heating unit mounted in the bracket adjacent such joint, said receptacle being removable without disturbing said thread guiding and stripping means.

2. A wax pot having, in combination, a supporting bracket provided with a dove-tailed tongue and means for heating the latter, thread guiding and stripping means supported on the bracket and a receptacle for the wax having a correspondingly shaped groove to receive the tongue and to derive heat therefrom, said receptacle being removable without disturbing said thread guiding and stripping means.

3. A wax pot having, in combination, a supporting bracket, thread guiding and stripping means supported thereby, a receptacle for the wax, means for securing the receptacle to the bracket in good thermal-conducting relation, said means being arranged to permit the removal of the receptacle without disturbing said thread guiding and stripping means, and a thermostatically-controlled electric heating unit mounted in the bracket to impart heat to the bracket to be transmitted thereby to the receptacle to melt the wax.

4. A wax pot having, in combination, a supporting bracket, thread guiding and stripping means supported from the bracket, heating means for the bracket, a receptacle for wax, and a slide connection between the receptacle and bracket for securing the receptacle to the bracket in good thermal-conducting relation thereto with the thread guiding means immersed in the wax, said slide connection being further arranged to permit the receptacle to be slid off the bracket without disturbing the thread guiding, thread stripping and heating means.

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