May 3, 1932. H. P. DE CORREVONT 1,856,694

APPARATUS FOR COVERING ARTICLES

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Fig. 1

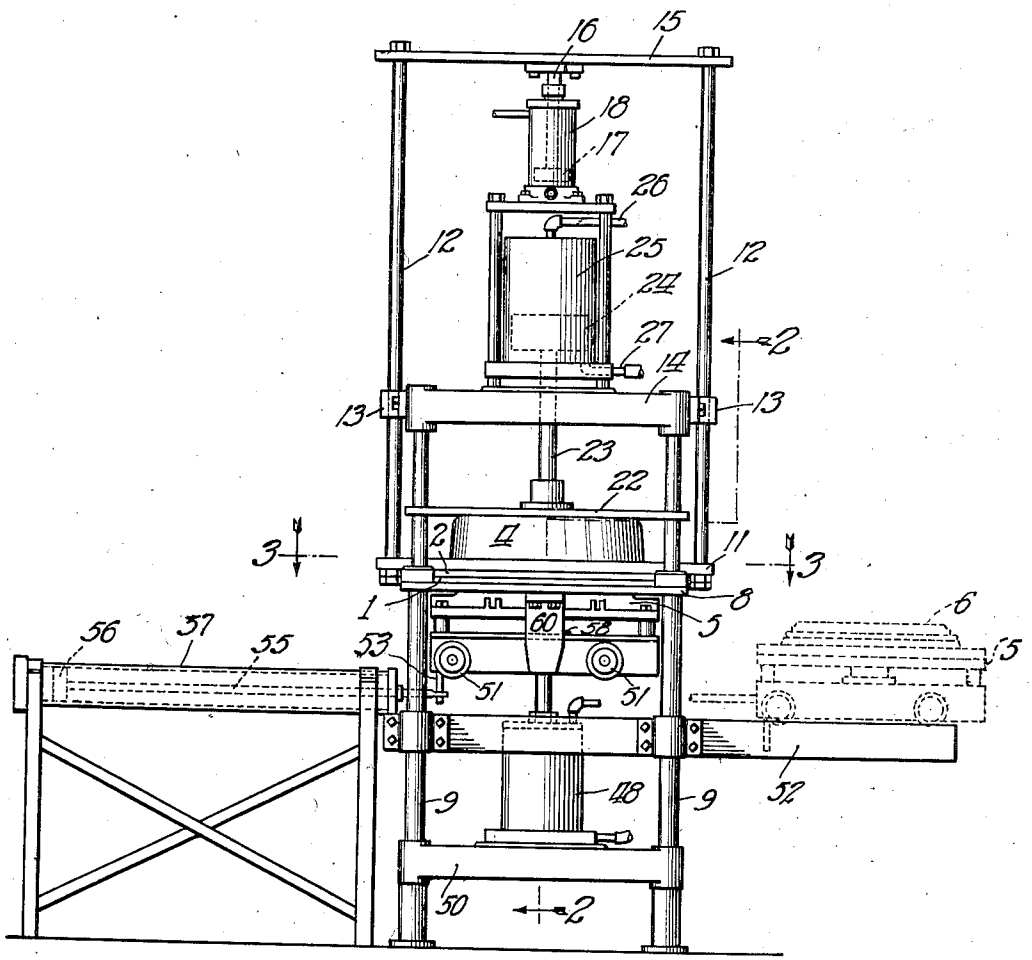

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Fig. 2

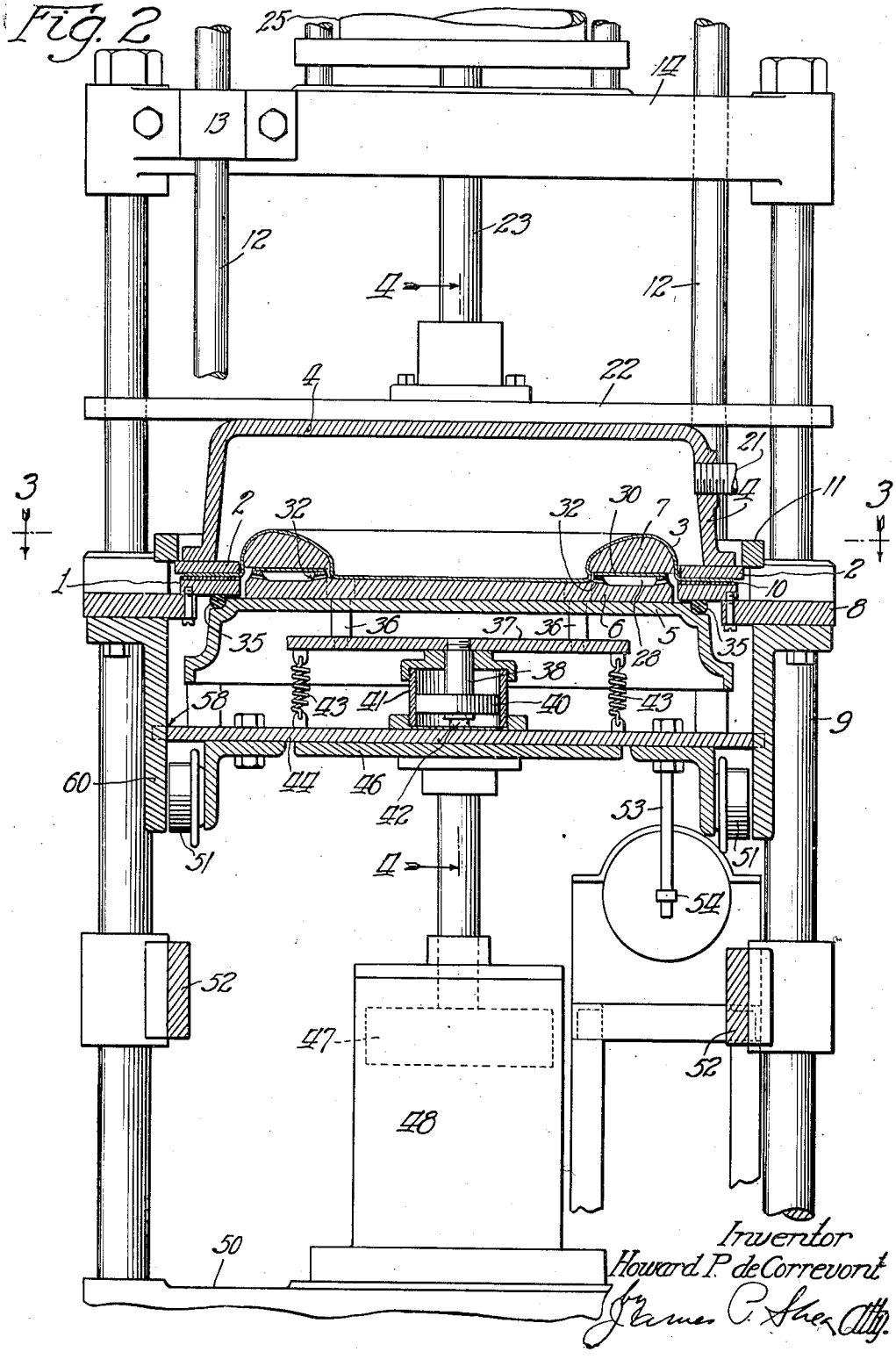

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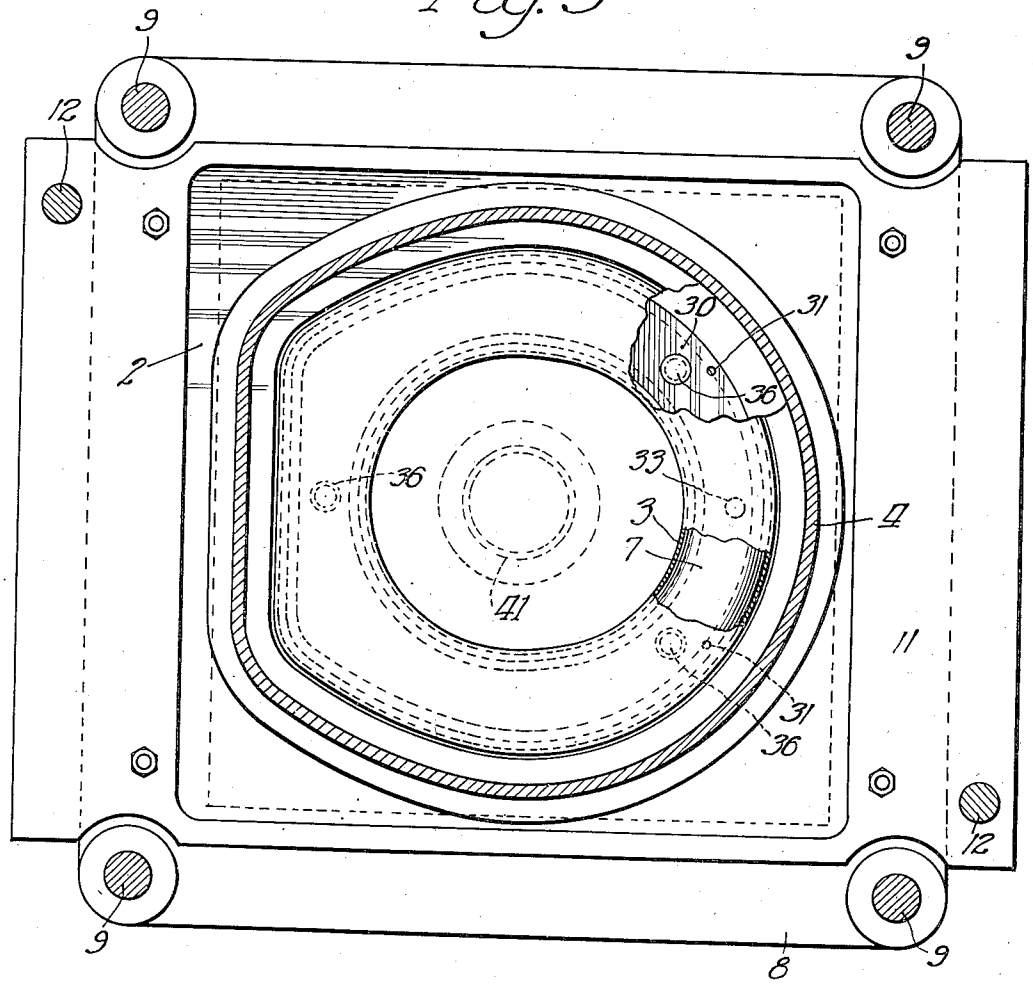
Fig. 3



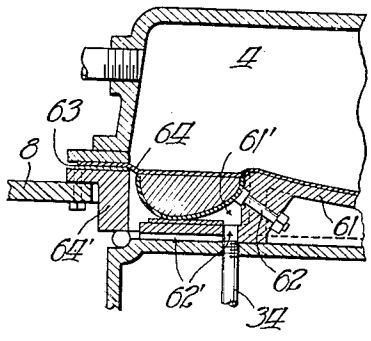


Fig. 5

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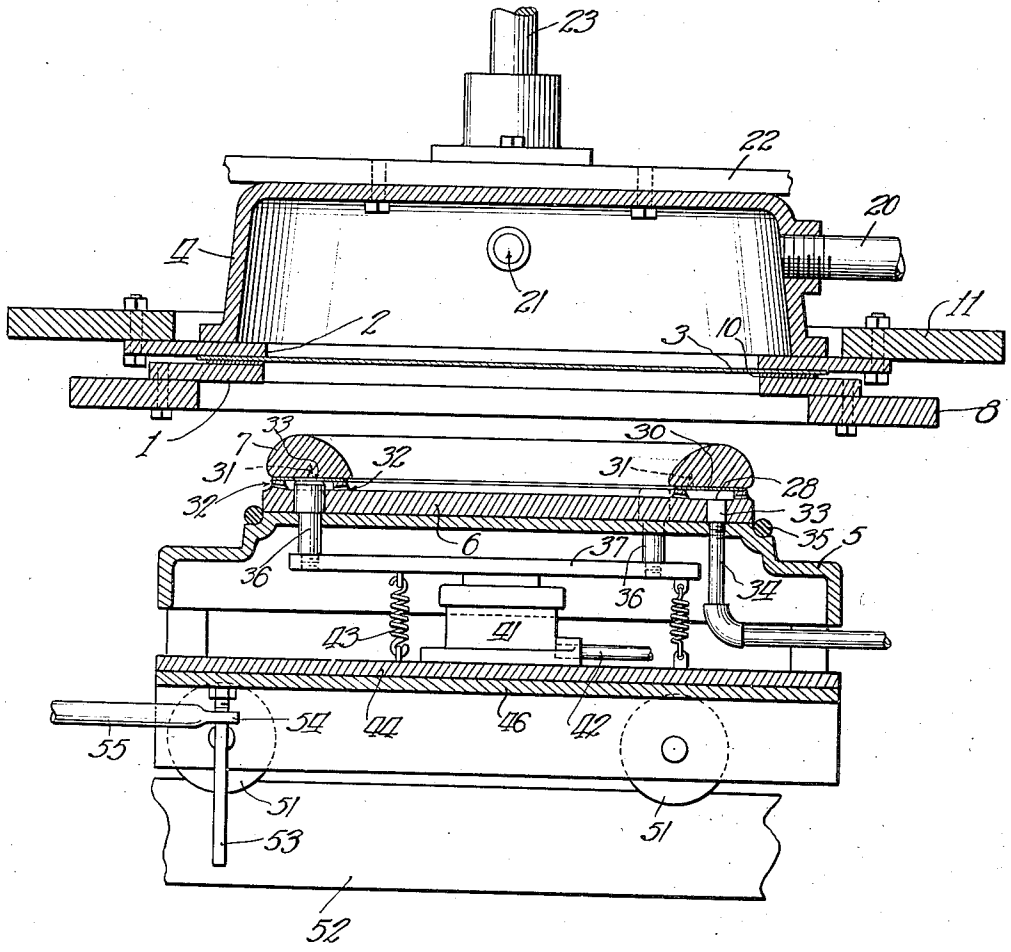
Fig. 4



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UNITED STATES PATENT OFFICE

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APPARATUS FOR COVERING ARTICLES

Application filed November 1, 1929. Serial No. 404,036.

My invention relates to a method and an apparatus for coating an article, particularly a toilet seat, with a sheet of pyroxylin.

One object of my invention is to provide a method and an apparatus in which suction is utilized to wrap a sheet of pyroxylin about a core.

Another object of my invention is to provide a method and an apparatus in which a sheet of pyroxylin is subjected to the action of heat whereby it is rendered plastic, and also to a partial vacuum for wrapping the sheet about a core.

Other objects and advantages will appear as the description proceeds.

Referring to the accompanying drawings:—

Fig. 1 is a front elevational view of a machine embodying my invention and by which my process may be carried out, the parts being shown in the position they occupy after the sheet has been drawn about the core;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1, parts being broken away;

Fig. 3 is a sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a sectional view on the line 4—4 of Fig. 2, parts being broken away; and

Fig. 5 is a sectional view showing the core in an inverted position together with those parts immediately adjacent the core, parts being broken away.

The illustrated machine comprises a pair of clamping plates 1 and 2 for gripping a sheet of pyroxylin 3 therebetween, a chest or receptacle 4 adapted to receive steam or hot air to render the pyroxylin sheet plastic, a bottom plate 5, and a seat 6 carried thereby for supporting a core 7 in position to be wrapped by the pyroxylin sheet.

The lower clamping plate 1 is detachably secured to a frame 8 on a plurality of supporting posts 9 and has a gasket 10 thereon. The upper clamping plate 2 is carried by a frame 11 which is secured to a pair of rods 12. Guides 13 on a head 14 supported by the posts 9 are provided for directing the movement of the rods 12.

The rods are connected at their top by a cross-bar 15 which is secured to a rod 16 on a piston 17 reciprocable in a fluid pressure cylinder 18.

A pipe 20 communicates with the steam chest or receptacle 4 for admitting steam thereto and the chest is provided with an outlet 21 for the emission of steam, so that substantially no pressure develops in the chest.

The chest is secured to a plate 22 which has apertures at its corners to receive the posts 9, so that the chest may be guided in an up-and-down movement.

The plate 22 is secured to a rod 23 actuable by a piston 24 which is reciprocable in a cylinder 25 by means of fluid admitted through pipes 26 and 27.

The seat 6 has a chamber 28 therein which is covered by a plate 30 constituting a portion of the seat and on which the core 7 is secured by means of retaining pins 31 projecting upwardly from the seat into the body of the core.

The seat is also provided with a plurality of small ducts 32 which are placed along the outer periphery of the core 7.

Where the core is provided with a central opening, as in the case of a toilet seat, which is the form of core illustrated in the drawings, the ducts 32 are also provided on the inner edge of the core.

The seat 6 is also provided with an opening 33 which communicates with the chamber 28 and also with a pipe 34 carried by the bottom plate 5. The pipe 34 communicates with a suction pump, not shown, or some other device for producing a vacuum.

A gasket 35 is carried by the bottom plate 5 and interposed between it and the clamping plate 1 and a pair of knockout pins 36 project upwardly through the bottom plate 5 and through openings in the seat 6 and engage the bottom of the core 7 for forcing it off the retaining pins 31 after the wrapping operation is completed.

The knock-out pins 36 are mounted on a plate 37 which is connected by a rod 38 to a piston 40 in a cylinder 41 and fluid is admissible into the lower part of the cylinder through a port 42 for raising the piston and the knock-out pins. On the release of fluid

pressure, the plate 37 is retractable by means of springs 43 which extend between it and the carrier 44 to which the cylinder 41 is secured.

The carrier may be engaged and moved up and down by a head 46 actuable by a piston 47 which reciprocates in a cylinder 48 on a block 50.

The carrier is provided with wheels 51 which on its downward movement are engageable with tracks 52 mounted on the posts 8 to permit the carrier to be rolled laterally, and in order to accomplish this lateral movement a rod 53 is provided on the carrier, projecting downwardly and slidable upwardly and downwardly through an eye 54 in the end of a rod 55 which is reciprocable by means of a piston 56 in a cylinder 57.

The carrier 44 is movable laterally from the position shown in dotted lines in Fig. 1 till it is directly over the head 46 and has a recess at 58 to receive a guide 60 depending from the clamping plate 1, the lower end of the guide being tapered slightly so that as the carrier is moved upwardly it will be caused to center more accurately in position.

Fig. 5 illustrates an arrangement of parts used when the core 7 is inverted so that the sheet of pyroxylin may be applied to its upturned bottom.

In place of the seat 6, a seat 61 of somewhat different shape is here provided having a peripheral recess 61′ in which the core is mounted, resting on bolts 62 which are adjustable in position. The suction pipe 34 on the bottom plate communicates with the recess through ducts 62′, and the outer portion of the seat carries a gasket 63 which engages a sheet of pyroxylin 64. A clamping member 64′ is substituted for the clamping plate 1 on the frame 8.

In carrying out my improved process the sheet of pyroxylin 3 is placed on the clamping plate 1 and the clamping plate 2 is then brought down by means of the piston 17 and the rod 18 until it engages the periphery of the sheet, which is thus securely retained.

The steam chest or receptacle 4 is then lowered until its lower edge engages the clamping plate 2. Steam is then admitted to the chest and the sheet of pyroxylin is thus made plastic.

The carrier 5 may at this time be in the position illustrated in dotted lines in Fig. 1. The particular seat desired is placed on the carrier. It will be understood that the machine may be used for coating objects of various shapes, and accordingly seats of different shapes may be provided. Furthermore, even in coating a core of the shape illustrated, either the bottom or the top may be first covered, and therefore either seat 6 or seat 61 may be first placed on the carrier. It is assembled by merely lowering it onto the knock-out pins 36 which enter the openings in the seat and center it in position.

If seat 6 is used as illustrated in Figs. 1 to 4 of the drawings, the core 7, after having cement applied along its edges for securing the pyroxylin coating, is next assembled by forcing it down upon the retaining pins 31. By means of the piston 56 and the rod 55 the carrier 44 is then drawn into position over the head 46.

The piston 56 and the head 46 are then moved upwardly, bringing the latter into engagement with the carrier 44, raising it and the parts associated with it, thus causing the core 7 to engage the pyroxylin sheet 3 and to move upwardly into the steam chest 4 to the position shown in Fig. 2, the upward movement of the core causing the pyroxylin sheet to stretch and to begin to wrap about the core.

Suction is then applied to the chamber 28 by means of the suction pump, not shown, and the air is evacuated on the lower side of the sheet, thus drawing it downwardly. The location of the ducts is such that the sheet is drawn inwardly about the lower edges of the core, the shape of the seat being such as to guide the sheet underneath the core.

The steam chest or receptacle is next moved upwardly exposing the top of the coated core, the clamping ring 2 is elevated, releasing the edges of the pyroxylin sheet, and the knock-out pins are actuated to force the core 7 from the retaining pins 31. The core being thus released is manually removed from the machine and the head 46 is then lowered, causing the wheels 51 to engage the track 52, after which the carrier is moved laterally to the position shown in Fig. 1.

The pyroxylin sheet is next trimmed away from the edges of the core and the seat 61 is substituted for the clamping plate 1. Another application of cement is then made on the bottom of the core along its edges and it is then placed in the seat 61 in an inverted position as shown in Fig. 5. The clamping member 64′ is substituted on the frame 8 in place of clamping plate 1 and the sheet of pyroxylin 64 is placed thereon. A new cycle of operations is then performed, substantially in the manner above described, and the new sheet of pyroxylin is drawn snugly against the bottom of the core.

After the bottom is thus coated the core is removed from the machine and the pyroxylin sheet is trimmed away from its edges.

The surface of a core coated by the described method will be found to be smooth and free from wrinkles but it may be further smoothed by sanding operations such as have been used heretofore with hand-coated cores.

It is contemplated that the above described method and apparatus may be modified extensively without departing from the spirit of the invention. For instance, the steam

chest may be mounted fixedly in position, and the clamping plates may be moved upwardly into cooperative relation therewith. A substantial range of equivalents is contemplated within the scope of the appended claims.

What I claim as new and desire to protect by Letters Patent is:—

1. In a device for coating a core with a sheet of pyroxylin, the combination of means for holding said sheet about its periphery, a fixed support for said means, a movable heating chest having an open end, a support for said core movable into position to constitute a closure for said chest with said sheet interposed therebetween as a partition, said support having openings for the discharge of air from the space on one side of said sheet, means for moving said chest and said movable support into said position, and means for producing a condition of lesser pressure on the side of said sheet at which said movable support is located whereby said sheet, being plastic because of the action of said heating chest, is drawn about and around the edges of said core.

2. In a device for coating a core with a sheet of pyroxylin, the combination of a plurality of fixed guides, a clamp member fixed on said guides and having an enlarged opening therein, a similar clamp member mounted for sliding movement into a position for gripping said sheet of pyroxylin between it and said fixed clamp member, a heating chest having an open end, means for raising said chest or lowering it into engagement with said slidable clamp member, a support for said core mounted for lateral movement to and from a position beneath said sheet, said support being upwardly movable from a position beneath said sheet into engagement with said fixed clamp member and having apertures for the discharge of air therefrom, means for effecting said upward movement, and means for producing a condition of lower pressure beneath said sheet and of greater pressure thereabove whereby the air is discharged from beneath said sheet and said sheet when rendered plastic by the action of said heating chest is drawn downwardly about said core.

3. In a device for coating a core with a sheet of pyroxylin, the combination of means for gripping a substantially flat sheet of pyroxylin along its periphery, means for heating said sheet, means for forcing a core against said sheet as thus gripped and thereby stretching it and producing a partial wrapping of said sheet about said core, and means for producing a condition of lesser air pressure on the side of said sheet which said core engages and of greater pressure on the other side to thereby further wrap said sheet about said core.

In testimony whereof I hereunto subscribe my name.

HOWARD P. DE CORREVONT.