(No Model.) 3 Sheets—Sheet 1.

J. W. HYATT.

PRESS OR MOLD FOR COATING ARTICLES WITH CELLULOID, &c.

No. 280,745. Patented July 3, 1883.

Fig. 1

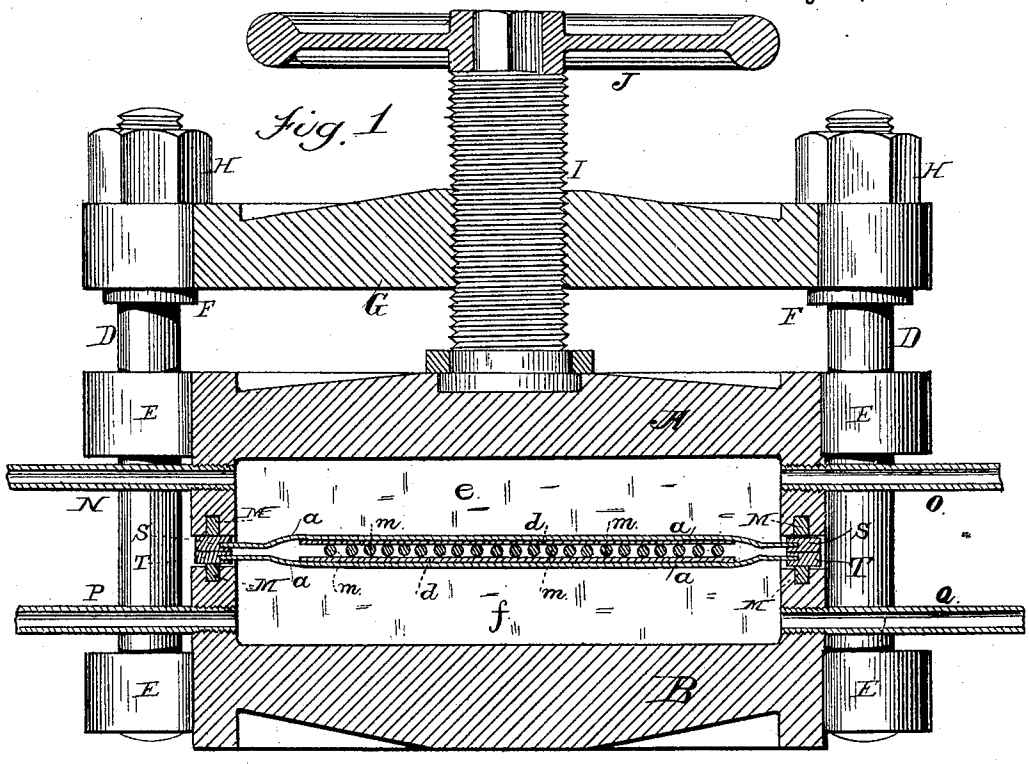
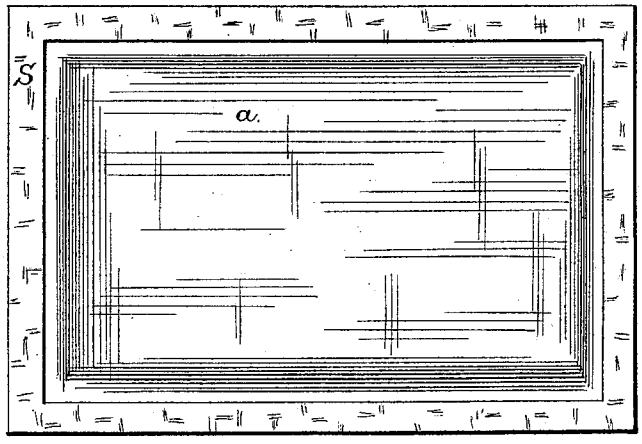


Fig. 4



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Fig. 2.

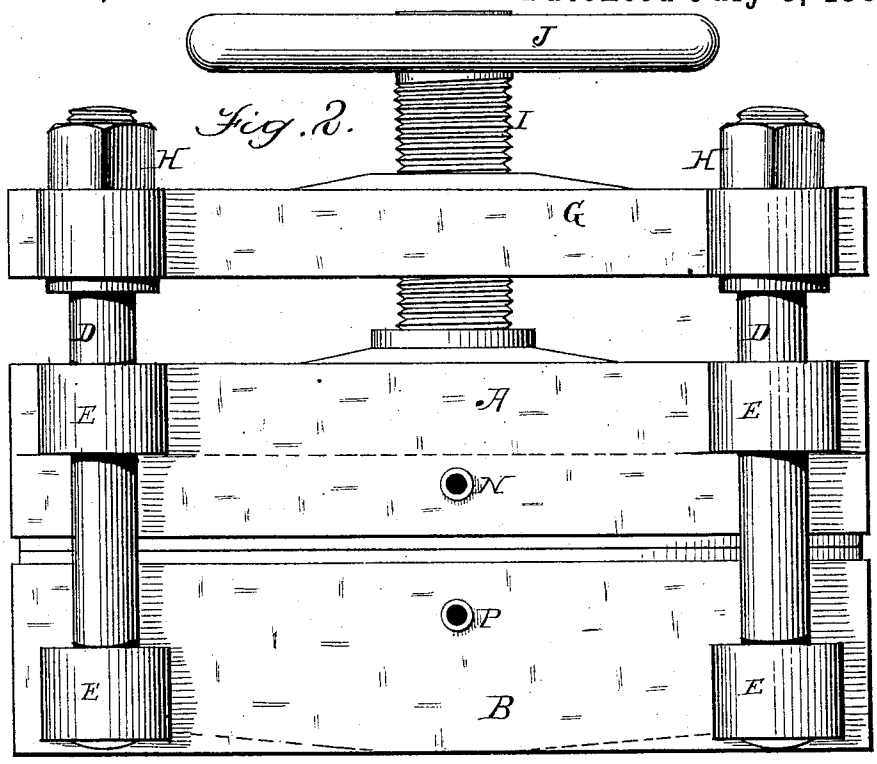


Fig. 5



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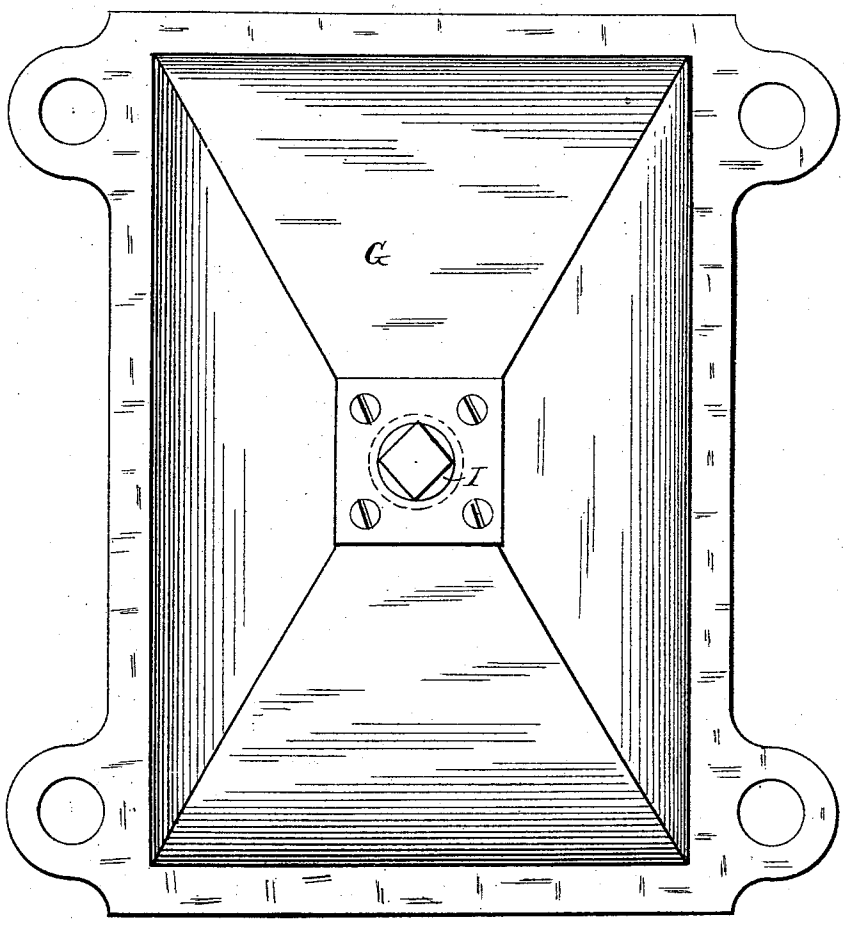
(No Model.) 3 Sheets—Sheet 3.

J. W. HYATT.

PRESS OR MOLD FOR COATING ARTICLES WITH CELLULOID, &c.

No. 280,745. Patented July 3, 1883.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN W. HYATT, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE CELLULOID MANUFACTURING COMPANY, OF NEW YORK, N. Y.

PRESS OR MOLD FOR COATING ARTICLES WITH CELLULOID, &c.

SPECIFICATION forming part of Letters Patent No. 280,745, dated July 3, 1883.

Application filed May 18, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. HYATT, a citizen of the United States, residing in Newark, in the county of Essex and State of New Jersey, have invented certain new and useful improvements in presses or molds for coating or covering articles with celluloid or other compound of pyroxyline or analogous plastic material; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to an improvement in presses or molds for coating or covering articles with celluloid or other compound of pyroxyline; and it consists in a novel method and apparatus hereinafter described, and particularly pointed out in the claims.

The object of the invention is to afford a means whereby a number of articles may be simultaneously coated or covered with celluloid, whether the same be of irregular or uniform outline.

The invention will be readily understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical transverse section of an apparatus embodying the elements of the invention. Fig. 2 is a side view of same. Fig. 3 is a top view. Figs. 4 and 5 are detached views of the diaphragm, hereinafter described.

A and B denote, respectively, the upper and lower platens of the press or mold, which platens are secured at their four corners by the bolts D, passing through their ears E. The lower platen, B, is immovably secured, while the upper platen, A, is capable of a vertical movement upon the bolts D. Resting upon the annular shoulder F at the upper ends of the bolts D is the supplemental plate G, which is retained in position upon the shoulders by the nuts H. At the center of the plate G is formed a threaded aperture, in which the power-screw I has a vertical movement when revolved by the hand-wheel J or equivalent device. The lower end of the screw I is collared in the central portion of the upper surface of the platen A, as indicated, whereby when the screw is turned to the right or left the platen will be moved vertically by it upon the rods D. The platens A B have their interior removed or are cast hollow, as shown in Fig. 1, and are supplied around their edges with corresponding grooves, in which packing of rubber or other suitable material (lettered M) is placed, and from the hollow portion of the upper platen a pipe, N, passes to a suitable supply for water, steam, or other suitable agent, and from the said hollow portion of the upper platen an escape-pipe, O, leads from the press. The lower platen is also provided with a supply-pipe, P, and delivery Q, for steam, water, or other agent.

S and T indicate two rectangular frames, of brass or other appropriate material, each of which is provided with a diaphragm, *a*, of rubber or other suitable flexible or elastic material. The diaphragm *a* has its edges secured in the frame S, and will preferably be bulged or hung loosely at its center—that is to say, it will not be drawn taut between the sides and ends of the frame. The two frames S and T, with their diaphragm, are the same in all respects and particulars, and are of appropriate size to fit upon the packing M, arranged around the edges of and between the platens A B.

In the operation of my invention the platen A is drawn to the upper portion of the rods D. A sheet of plastic material, *d*, is placed upon the diaphragm of the frame T, (the frames with their diaphragms being at this time removed from the press.) The articles to be coated, whether they be knife-handles, umbrella-handles, or other devices, are laid upon the sheet of celluloid *d*, being removed from each other a suitable distance, according to their thickness and outline. Another sheet of celluloid is then placed upon these articles to be coated, and then the frame S, with its diaphragm *a*, is placed evenly upon the frame T, after which the two frames S T in this condition are slid between the platens A B, being allowed to rest upon the packing M of the lower platen, B. This step of the process being completed, the upper platen, A, by means of the screw I, is forced downward until its packing M presses directly upon and surrounds the edges of the frame S. The platen A is screwed firmly down cc.

upon the frame S, whereby air-tight joints are formed between the platens A B, and the frames S T, and the water, steam, or other element which is admitted to the hollow portions *e f* is prevented from escaping except through its proper delivery. After the platen A has been screwed firmly down upon the frame S, hot water, steam, or other heating agent is admitted under, say, a pressure of about one hundred and twenty-five pounds to the square inch, more or less according to circumstances, through the supply-pipes N P to the hollow portions *e f* of the platens A B, the effect being that the diaphragms *a a* and the sheets of celluloid *d d* are pressed toward each other and around the articles *m* being coated. As the diaphragms move toward each other, they cause the sheets of celluloid to meet between the articles, forming joints and insuring the complete incasement of the articles in such manner that they can be separated and finished without injuring or disfiguring the coating. The combined heat and pressure of the said agent operates to soften the celluloid and wrap it closely around the articles, and to weld together those portions of the opposite sheets which come in contact with each other between the articles to be coated. After the heating agent has been continued under pressure against the diaphragms *a a* a sufficient length of time to effect the welding of the sheets of celluloid or other pyroxyline material, as aforesaid, it is relieved, and water or other cooling agent, also under pressure, is admitted to the chambers *e f*, whereby the celluloid is cooled and caused to "set" in the condition given to it by the heating agent.

The outlet-pipes Q O for the agent admitted through the pipes N P may return to the source of the supply separately, or they may be joined to a single return-pipe; or, in lieu of either of these arrangements, there may be one supply-pipe leading into the upper platen, and by means of a telescopic packed joint connecting the pipe O with the pipe Q immediately adjacent to the side of the press. The hot water or steam may be admitted through the telescopic joint to the platen and find its way back to the supply by means of the pipe Q, thus dispensing with the two separate return-pipes and making an unbroken circuit from the supply through the press. The parts of the telescopic joint will extend and collapse with the movement of the platen A, so as to permit the operation above described. Any degree of heat that will soften and permit the welding of the celluloid or other material, and any desirable means for conveying the heating agent to the upper and lower sides of the rubber sheets *a a*, may be adopted with satisfactory results, the main object being that sufficient heat and pressure be secured to press and weld the two sheets around the article or articles to be coated.

It is obvious that in lieu of securing the diaphragms or sheets *a a* to the metallic frames, as specified, the said diaphragms may have their edges secured to the edges of the platens of the press thus made to effectuate their functions in the operation of the invention.

While in the foregoing description I have specified the use of steam or water pressure, it will appear plain to those skilled in the art to which the invention relates that air-pressure may be employed in lieu of steam or water with good results.

After the sheets of pyroxyline material have been subjected to the action of the press, they will be cut vertically between the articles, which will then be finished in any convenient way.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The method herein described of coating one or more articles with celluloid or other plastic material, which consists in placing the same between sheets of the material, which sheets are encompassed by diaphragms or sheets of flexible material, and then applying pressure to the upper and lower sides of the diaphragms, substantially as set forth.

2. The process herein described of coating one or more articles with celluloid or other plastic material, which consists, first, in placing the article or articles between two sheets of the material; second, placing said sheets of material and the inclosed article or articles between two sheets or diaphragms of flexible material; third, inclosing the whole between two chambers; and, fourth, applying pressure within said chambers, whereby the sheets of celluloid or other material and the diaphragms are caused to be pressed toward each other around the article or articles to be coated, substantially as set forth.

3. The process herein described of coating one or more articles with celluloid or other plastic material, which consists, first, in placing the article or articles between two sheets of the material; second, placing said sheets of material and the inclosed article or articles between two diaphragms of flexible material; third, inclosing the whole between two chambers; fourth, admitting a heating agent under pressure to the said chambers; and, fifth, relieving the heating agent and admitting a cooling agent also under pressure, substantially as set forth.

4. The press herein described, consisting of the upper and lower platens, having interior chambers connected with supply and delivery pipes, in combination with two separable diaphragms of rubber or other flexible or elastic material, substantially as set forth.

5. The separable diaphragms, of rubber or other flexible or elastic material, in combination with a means for applying fluid-pressure on the upper and lower side thereof for the purpose of pressing the two diaphragms toward each other and against the material and article or articles inclosed by them, substantially as set forth.

6. The platens A B, having interior chambers, in combination with the diaphragms *a a*, inclosed by the frames S T, the chambers being provided with supply and delivery pipes, substantially as set forth.

7. The platens A B, having the chambers provided with supply and delivery pipes and supplied around their meeting edges with the packing M, in combination with the diaphragms *a a*, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. HYATT.

Witnesses:

CHAS. C. GILL,

HERMAN GUSTOW.