

(No Model.)

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MANUFACTURE OF PYROXYLINE MATERIAL.

No. 296,969.

Patented Apr. 15, 1884.

Fig. 1

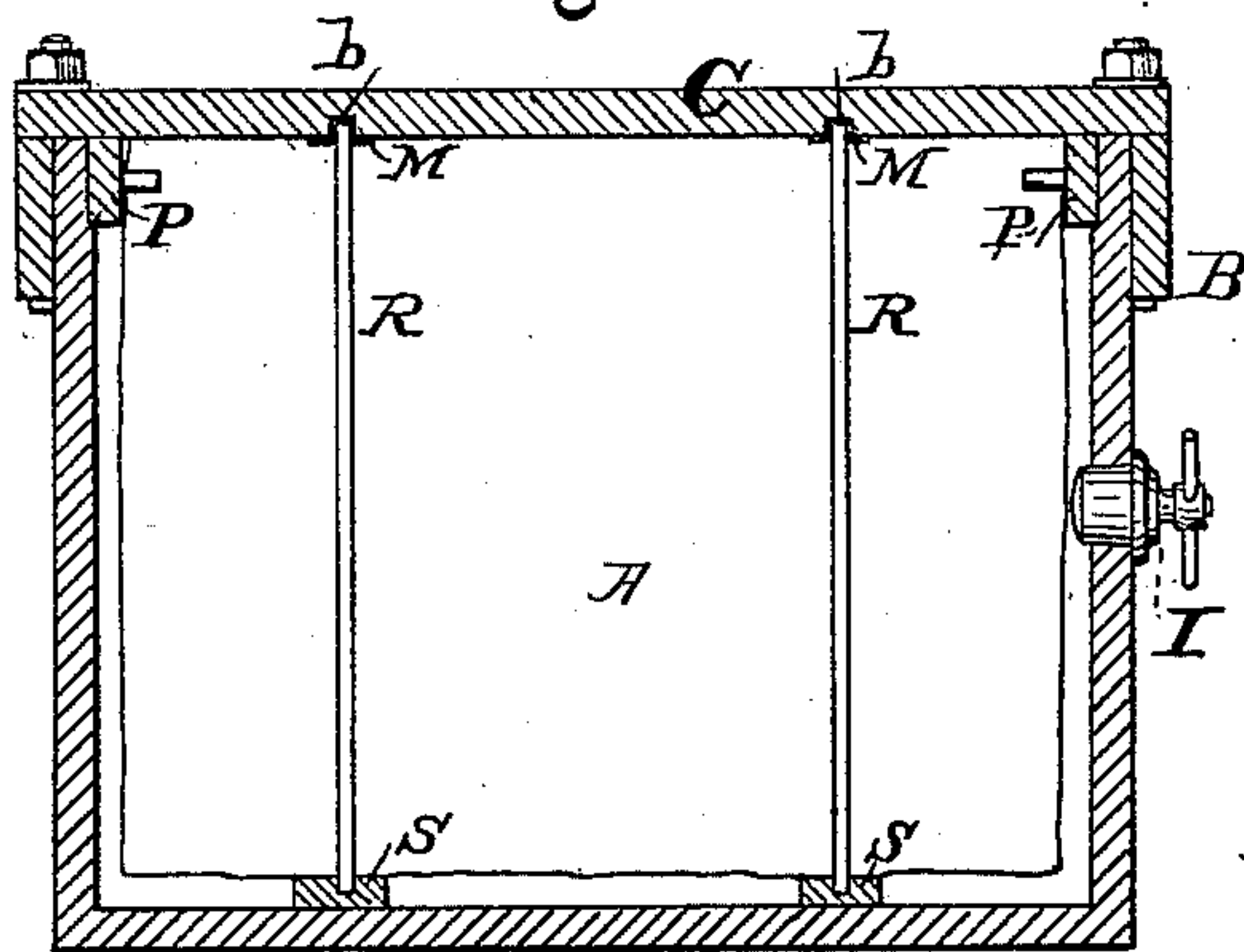


Fig. 2.

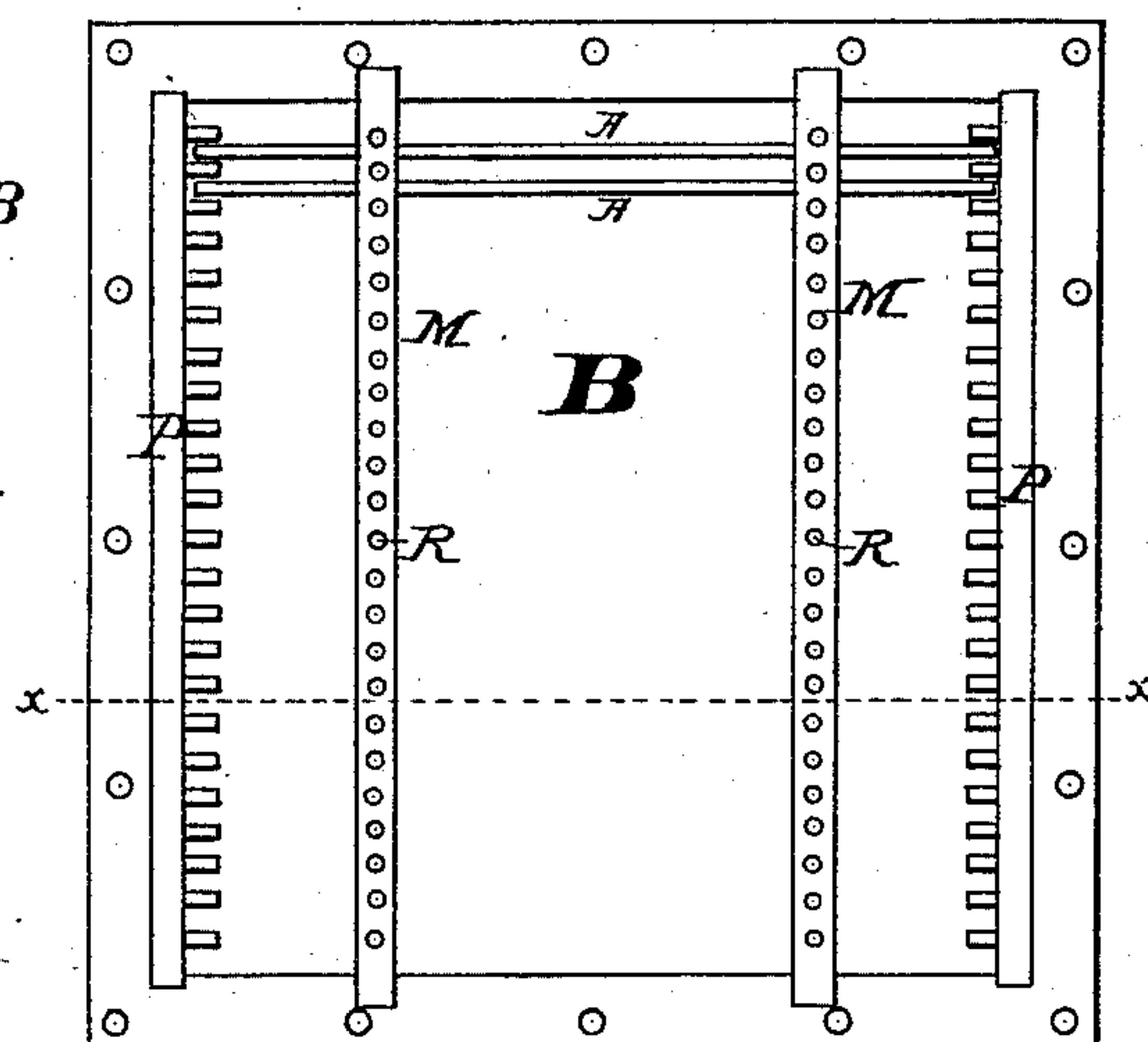
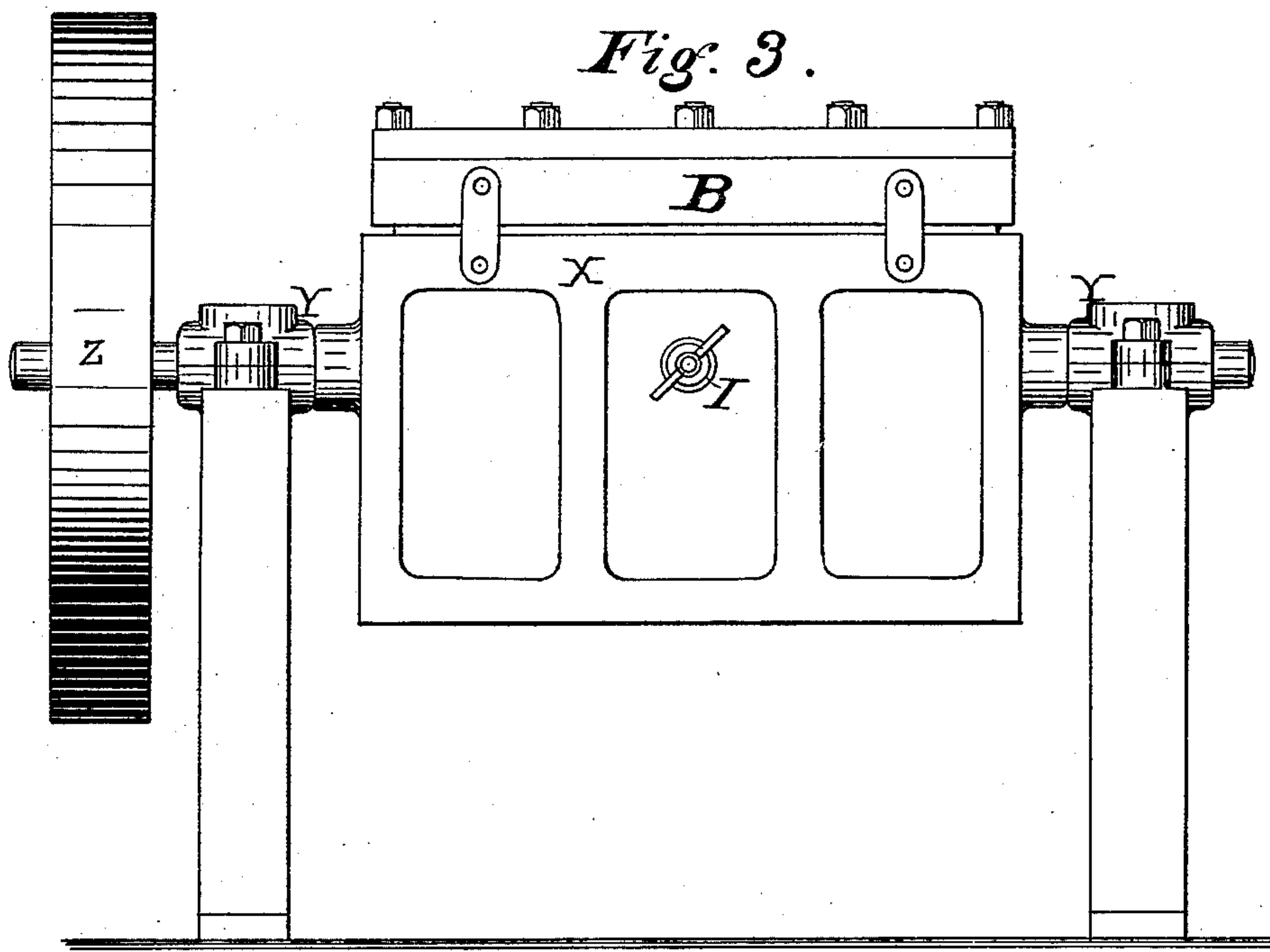


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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MANUFACTURE OF PYROXYLINE MATERIAL.

SPECIFICATION forming part of Letters Patent No. 296,969, dated April 15, 1884.

Application filed March 22, 1884. (No model.)

To all whom it may concern:

Be it known that we, JOHN W. HYATT, JOHN H. STEVENS, WM. H. WOOD, and JOHN EVERDING, citizens of the United States, and residents of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in the Manufacture of Pyroxyline Material, of which the following is a specification.

10 The invention relates to improvements in the manufacture of materials having a base of pyroxyline. Its object is, primarily, to produce a material by employing a small percentage of liquid solvents, and to dispense with some of the processes and apparatus heretofore availed of by those skilled in the art.

15 In practice, by preference, we first grind the wet pyroxyline with camphor and any desired coloring-matter, and press the compound pulp thus formed into cakes. The aqueous particles are then removed from the cakes by pressing the cakes between sheets of bibulous material, according to the process described in Letters Patent of the United States, numbered 133,229, granted to John W. Hyatt and Isaiah S. Hyatt, November 19, 1872, or removed in any other way. In the process described in said Letters Patent the cakes are left in a dry hard state, and it has heretofore been the practice to break them into pieces and apply the alcohol or other liquid solvent by stirring or mixing it in. To effect this, special machinery has been used for the purpose of breaking the cakes into pieces, the object being to obtain a uniform mixture of pieces of as near the same size as possible. This method, although the best that is known, has involved many difficulties and inconveniences, arising especially from the difficulty in effecting the complete impregnation of the blocks or pieces. Our improved process, hereinafter described, enables us to dispense with the machinery for breaking the cake and the process of stirring in the alcohol, which is effected by soaking the cakes without breaking them in the condition in which they are when taken from the drying-press. This we accomplish by the use of the apparatus illustrated in the accompanying drawings, 50 in which—

Figure 1 is a central vertical section on the line *xx* of Fig. 2, which is a top view of the apparatus, the cover thereof being removed; and Fig. 3 is an end view of the same.

In the drawings, B is a box or receptacle 55 for holding the cakes of material. On the upper inner sides of the receptacle B are secured the bars P P, each carrying a row of pins and arranged in grooves, so that they may be withdrawn at pleasure. Within the receptacle, and secured to the base thereof, are arranged the wooden strips S S, containing seats for the lower end of the two rows of rods R R, the upper ends of which are sustained in position by metallic strips M M, 65 which are removable, and will preferably be made of zinc, and are directly over the wooden strips S S, and contain holes corresponding with the seats in said strips S S. The rods pass through the holes in the strips M M, and rest in the corresponding seats in the strips S S, whereby they are effectually sustained in position at given distances from each other, and may be withdrawn at will. The apertures in the strips M M are arranged in such relation to the pins in the bars P P that when a cake is inserted between two of the rods R R, as indicated at A in Fig. 2, its edges will pass between the pins in the bars P P, and be thus effectually sustained in position. 80 Thus both the rods and pins operate to retain the cakes of pyroxyline material in place. The cover of the box or receptacle B is lettered C, and contains in its inner face two grooves, *b b*, which, when the cover is placed 85 in position, cover and receive the upper ends of the rods R R, as indicated in Fig. 1. In the side of the receptacle B is provided an aperture, in which is arranged a compression-plug, I. The receptacle B is of such size that 90 a space of about three-fourths of an inch will be left on each side of the box, to permit the liquids to flow readily. The said bars P P and strips S S serve to keep the edges of the cakes from coming in contact with the walls 95 of the box or receptacle.

The box or receptacle B should be made water-tight, and of such form that it can be placed in a frame of convenient description and revolved by machinery.

In Fig. 3 is illustrated a receptacle, B, arranged in a frame, X, and having axles which are mounted in bearings Y, one of which is supplied with a belt-wheel, Z, whereby power may be applied and the receptacle B secured in the frame X, revolved as rapidly as may be desired. The cakes, after being removed from the drying-press, are placed on edge in the box or receptacle between the metal pins and rods R R. The metal strips M and cover of the box or receptacle are then secured, and the liquid solvent poured in through the aperture in the side, the compression-plug I being removed for that purpose. After the solvents have been introduced, the plug I is applied and the receptacle rotated by machinery until the solvent is sufficiently absorbed, when the box is opened, the metal strips M, pins, and rods separated from the material, and the cakes either left in the box or thrown into another air-tight receptacle and permitted to remain about fifteen hours, when they will be found to have become uniformly permeated by the solvents and are ready for conversion. The length of time necessary to turn the box containing the cakes and liquid depends upon the hardness and thickness of the cakes, the kind of liquid solvent it is necessary to introduce, and other circumstances. This a matter which the operator can ascertain by occasionally removing the plug I. If no liquid flows from the hole, it shows that it is all absorbed and the operation of rotating the receptacle B may be stopped.

While we prefer to practice the invention according to the method hereinbefore described, it is not essential that the cake should be formed by the method specifically referred to. We do not, therefore, limit our claim to any particular manner of forming the cakes.

It is also to be understood that while the apparatus which we have described is a desirable one, we do not limit our claim to any particular form of apparatus, the essential consideration being that the cakes of material shall be separated in such a way that their impregnation will be completely accomplished by the agitation of the vessel in which they are held. The instrumentalities by which the cakes are held in position and their impregnation effected are matters of secondary consideration, which may be varied according to circumstances, as may be preferred.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The process herein described of effecting the impregnation of pyroxyline material with liquid solvents, which consists in, first, forming it into cakes or plates; second, placing it in a suitable vessel; third, introducing the liquid solvent, and, fourth, agitating the liquid solvent by rotating the vessel or otherwise, whereby the solvent is caused to pass over the surface of the cakes or plates until they are impregnated, substantially as described.

2. The process hereinbefore described of impregnating cakes of pyroxyline with liquid solvents, which consists in causing the passage of the solvents over the surfaces of the cakes while said cakes are held apart until they have absorbed a sufficient amount of the solvents.

3. The process hereinbefore described of treating pyroxyline material, which consists, first, in forming it into cakes or plates; second, causing liquid solvents to flow over the cakes until a sufficient amount has been absorbed while the cakes are held apart, and, third, then allowing the material to remain in an air-tight case for a proper length of time.

4. The apparatus hereinbefore described, consisting of a receptacle of suitable dimensions to receive the cakes of material, and provided with an inlet for the liquid solvents, and means for retaining the cakes apart during the agitation of the receptacle.

5. The receptacle for receiving the cakes of pyroxyline, provided with the detachable rods R R, the bars P P, carrying pins, the strips M and S, substantially as set forth.

6. The receptacle provided with the bars P P, carrying pins, the detachable rods R R, strips S S and M M, and the inlet-aperture having a compression-plug, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 20th day of March, A. D. 1884.

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