

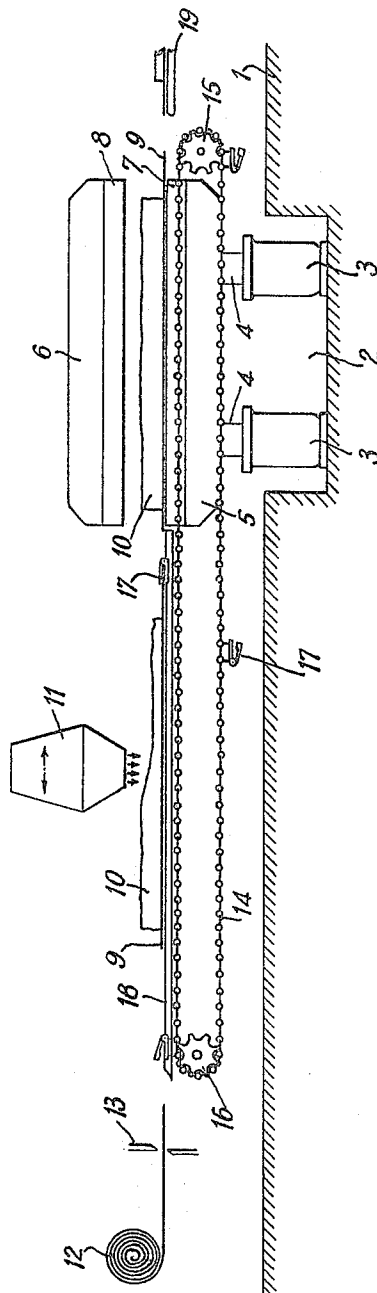
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APPARATUS FOR THE MANUFACTURE OF PRESSED BOARDS

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APPARATUS FOR THE MANUFACTURE OF PRESSED BOARDS

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1 Claim. (Cl. 18—4)

It is known to manufacture, from particles such as wood shavings, fibres and the like mixed with a heat hardening binder, boards provided with a coating and pressed in a heat press in one operation. The invention concerns apparatus used to practice a method in which at least one of the faces of the board must be provided with a coating. Until now, one distributed in a uniform manner by a suitable operation a mass of particles on separated press plates and then one disposed on the blank thus produced a coating sheet and one pressed the whole in a press to form a solid body. In many cases, one disposed on the rigid press plate a coating sheet before bringing the particles thereto. This was particularly necessary when one had to press in a single operation boards provided with a coating on both faces. In the known method, the press plates remain in the press during the whole pressing operation and must be brought back to the particle distribution point after the end of this stage of the method.

The main idea of this invention consists in employing the coating or facing sheets, designed to be pressed with the rough particle blank, also for the transport of the blanks and for the insertion of the latter into the press. According to the invention, particle blanks are formed separately on the coating sheets or coating films and the thus prepared blanks are transported by means of these coating sheets or films and inserted into the open press. In the press, the blanks with the coating sheets, serving for their transport and loading the press, are united together into compact boards.

Applicant's apparatus is used to practice a method which permits eliminating the press plates. This constitutes a considerable simplification. Thus, the cost of manufacture is reduced because the return movement of the plates is abolished, and it is no longer necessary to check whether the thicknesses and the weights of the plates are within the tolerance limits previously set. The coating sheets or faces fulfill two functions in the method according to this invention: first, they serve as a support during the distribution or the felting of the particles while a blank is preformed, and subsequently for the insertion of this blank into a press. Secondly, the coating sheets then serve, in another stage of the method, as supports during pressing, and at the same time being joined or bonded with the prefabricated or preformed blanks in the form of compact boards.

It has already been proposed in the case of the formation of endless strips of fibrous particles to provide them on the upper and lower faces simultaneously with a paper strip and to press the whole between two heated and moving endless steel bands in order to produce a body which is then cut into separate slabs. By this prior method the strip of coating paper does not however fulfill the function of a conveyor for the mat of particles, since the lower paper strip rests on a band or the like circulating during the movement. Moreover, it is not in the prior method a matter of pressing individual blanks consisting of loose particles.

The invention also includes equipment for carrying out the above method. This equipment is characterized by means for bringing coating sheets to a point of formation of particle blanks and by pulling means with pincers or similar members gripping the sheets for the transport

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of these sheets loaded with the preformed blanks from said point into the open press.

The single figure of the accompanying drawing shows, by way of a non-restrictive example, one embodiment of the equipment forming the object of the present invention.

To the right of the drawing is shown a single stage press. It consists of two hydraulic cylinders 3 mounted in a pit 2 formed in a base 1, these cylinders being fed with oil under pressure through ducts not shown. Press pistons 4 mounted in these cylinders support a lower press table 5. The upper press table is shown at 6. Heated press slabs 7 and 8 are integral with the press tables 5 and 6 respectively, these heated slabs having, for example, holes for the flow of a heating fluid. A distribution point 11 endowed with reciprocating motion is disposed in front of the press. Such distribution points are known which permit, for example, of distributing in several passages wood shavings for producing a blank of several layers on a stationary support. In the example shown, this distribution takes place on a sheet of newsprint paper 9 which, during this operation, rests on a stationary table 18. The paper sheets are separated from a strip issuing from a roller 12, through the agency of a cutting device 13 and have a width which slightly exceeds that of the blank to be produced.

In order to bring the paper sheets 9 serving as a support together with the blanks 10 into the open press, there is provided an endless chain 14 passing over toothed wheels 15 and 16 and provided with pincers 17 distributed at regular intervals. These pincers extend over the whole width of the sheets 9 and a similar chain should therefore be provided on the other side of the table 18 and of the press, passing over chain wheels mounted on the same spindles as the wheels 15 and 16. In order to withdraw the pressed boards, use is made of a table 19 on the outlet side of the heat press.

The carrying out of the method with the equipment described is of the simplest. The end of the paper strip issuing from the roller 12 is gripped by a pincher 17 and a sheet is cut into sections by the cutting device 13, as soon as this pincer has been moved a predetermined amount by the chain 14. As soon as the pincer together with the empty paper sheet is at a specified point in front of the press, the chain conveyor is stopped, and the distribution point 11 is moved to and fro in order to distribute particles on the sheet 9 which is under the said point. During this period the press is closed. After the opening of the press, and the withdrawal of the still hot board which has just been pressed, the sheet 9 extending under the distribution point 11 together with the performed blank thereon, is pulled by means of a pincer 17 fixed to the chain 14 again in motion, so as to be brought into the empty and open press while, simultaneously, another coating sheet is brought under the distribution point 11. As soon as the particle blank is in the press, the corresponding pincer opens and the lower press table 5 is raised hydraulically. After the pressing operation, the coating sheets 9 and the blank 10 are pressed so as to form an inseparable whole. Of course, at the end of the distribution operation and before the insertion of the blank in the press, one may dispose another coating sheet on the upper face so that the final product be coated on both sides.

In the embodiment shown, a single stage press is employed. When it is desired to have a greater capacity of manufacture, use may be made of a multi-stage press. In such a case, it is necessary to dispose a loading frame which moves upwardly and downwardly next to the press. Moreover, it is assumed that sheets are brought to the distribution point 11, these sheets being separated over a predetermined length. In certain cases, one prefers to form the blanks on the paper strip itself by providing

spaces between them and only cutting this paper strip when the blanks are inserted in the press. By employing a single stage press, one could only proceed with the separation of the coating sheets after the pressing of the boards.

One may employ as coating sheets, paper, veneer sheets, synthetic resin sheets, or sheets impregnated with unhardened synthetic resin, as well, for example, as sheets of stratified plastic material. Further, it may also be advantageous to use textile or other fabrics for the designed purpose. According to the kind of coating sheets, these are either unwound from a roller, or withdrawn from a pile for example, by means of suitable sucking-disks forming part of a transport device.

Care must be taken that the coating sheets adhere completely to the boards after the processing operation. To this end, it is advisable to spray these sheets before the formation of the blanks with a binding agent solution or with dissolved components of a synthetic resin binder, preferably, with an aqueous solution of a concentrate of urea formaldehyde and of an aqueous urea solution. It is recommended furthermore to moisten the sheets, for example by adding water to such solutions specially for relatively high pressing temperatures; the additional moisture then prevents a too rapid undesirable drying of the outer layers and the premature solidification of the binding agent. If difficulties are encountered during the transport of the moistened sheets each loaded with a blank as a result of lower resistance to tearing, it is recommended to form air cushions reducing the friction between the stationary support and the loaded sheet. To this end, one may dispose in the stationary support several apertures for compressed air, suitably distributed. This principle may even be employed in the heat press. One here thinks, for example, of the possibility of regularly disposing on the lower press table a large number of small apertures and choosing the shape of these apertures in such a way that a print of these apertures on the finished board appears in the form of raised marks improving the aesthetic appearance of the surface of the board. On the other hand, if the surface of the coated board must be particularly fine and smooth,

and if the blanks consist of relatively coarse wood particles, one must arrange between the coating sheets and the blank a levelling wad-layer of very fine material such as wood-dust, sawdust and the like.

The embodiment of the invention shown and described is indicated merely by way of example and it is obvious that any modifications may be brought to the details of the invention, without however departing from the compass of this invention.

What I claim is:

1. Equipment for the manufacture of pressed boards, with a coating sheet on at least one side, by a single operation in a hot press, said boards being formed from relatively small wood particles, such as shavings, chips, fibers or the like, which have previously been coated with a thermosetting binder, characterized by a particle scattering station for the formation of particle blanks, means for delivering empty coating sheets to a point below said particle scattering station, a consolidating press, a stationary support which extends from said scattering station to said consolidating press and upon which the blank loaded sheets move, and driven endless chains having gripping members for gripping the blank loaded sheets and pulling them over the stationary support from said scattering station into said press.

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