

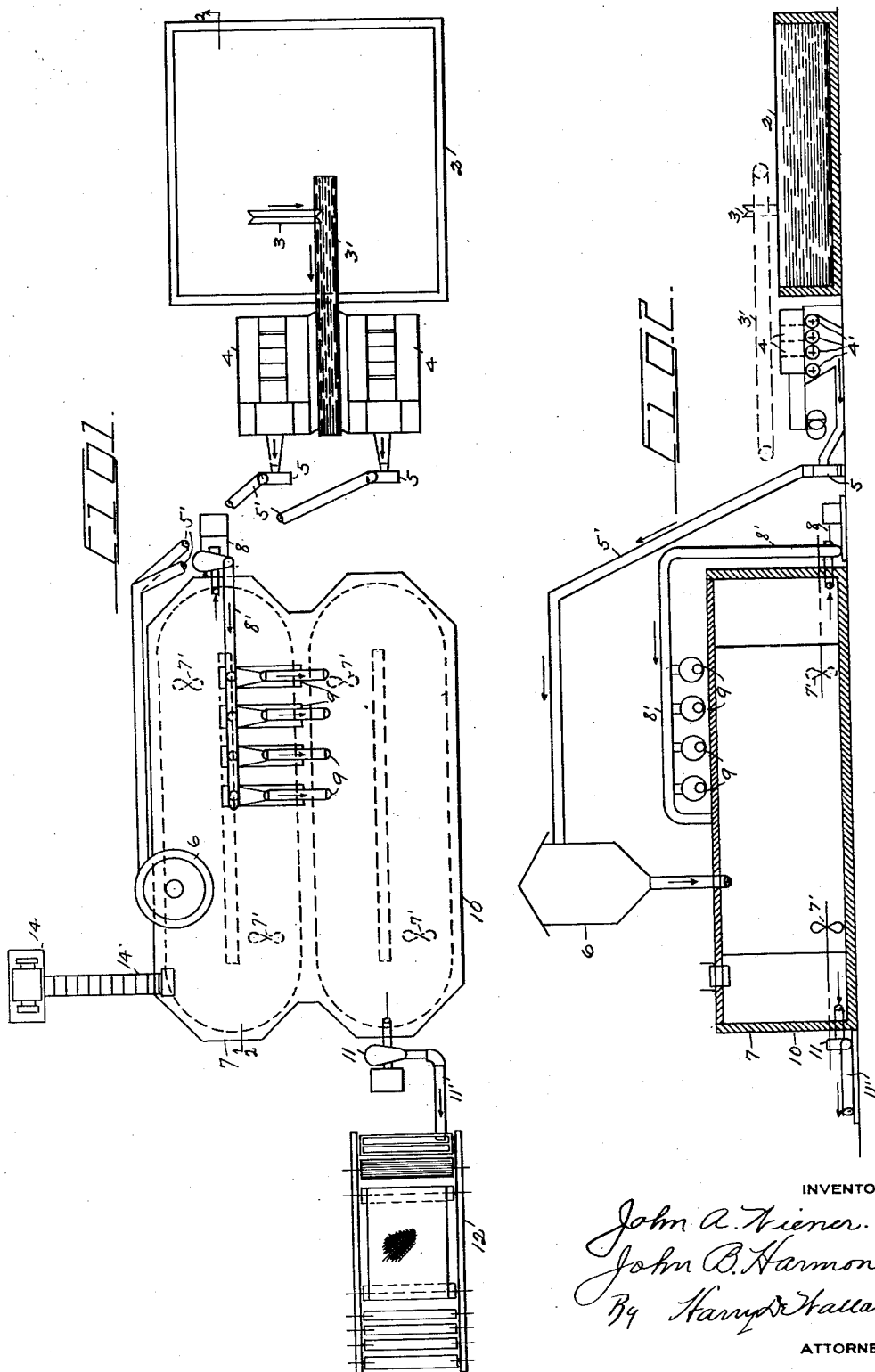
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METHOD OF PREPARING FIBERS

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METHOD OF PREPARING FIBERS

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This invention relates to the preparation of wood fibers and the like, and has particular reference to wall boards, and to the method of producing the boards.

One object of our method is to reclaim waste materials such for example as culled or defective pulp logs and the like, which are ordinarily discarded by paper mills; also slabs, edgings, and other saw-mill refuse or waste, as well as waste pulp such as ground wood, sulphite and sulphate screenings, by forming said materials into boards of dimensions and consistency suitable for covering walls of buildings and the like.

A further object of our method is the producing of single-ply boards in which the predominating constituent is wood fibers, which may be manufactured cheaply and possess highly efficient insulating, as well as sound deadening qualities; the fibrous stock evolved from said waste materials being so prepared in advance of the form operation that, boards having relatively fine and uniform texture and therefore great strength and durability can be produced. This desirable result may be accomplished by the following series of sequential steps wherein the work is continuous, there being no delay occasioned by waiting for any other part of the prepared product to be treated.

A particular object of the invention is to produce a highly efficient wall board by utilizing the sound fibers that may be obtained by shredding or defiberizing the culled logs and other wood waste which are usually rejected by paper mills as unfit for producing print, wrapper and other relatively thin and fine grain paper. A considerable proportion of the fibrous content of the wall board may be derived from the slabs, edgings and other saw-mill refuse and waste, which, when properly shredded and otherwise treated by the various steps of our process may produce a solid, tough and thoroughly homogeneous board that possesses nearly all of the characteristics of sawed natural lumber, but which can be produced at a fraction of the cost of prime saw-mill products.

In carrying out our process, a suitable plant is naturally required, and in order that

this description may be more clearly understood, reference may be had to the accompanying drawings, in which is diagrammatically shown the progressive steps of the method, and in which—

Figure 1 is a diagrammatic plan view of the apparatus employed to prepare the fibrous stock. And Fig. 2 is a side elevation of the same.

By the present method, boards may be formed which can almost immediately be applied to the walls of buildings and the like without requiring any prolonged or special seasoning or curing.

Our improved process consists primarily of placing the logs, slabs, or edgings in the common log-pond, as 2, which is preferably filled with hot water, wherein the wood becomes thoroughly soaked for softening the fibers. This wet wood is next carried by any suitable conveyors, as 3—3', from the pond to one or more defiberizing or shredding machines, as 4—4', where the wood may be shredded by a number of arbors, as 4', which may be built up by a massed arrangement of circular saws, or other type of shredding devices. The shredded product is then preferably drawn from the machines 4 by suction fans, as 5, which may also force the fibers through conveyors 5', or the fibers may be conveyed by any other suitable means (not shown) to a "cyclone collector", as 6, in which the fibers, in case they became matted may be thoroughly agitated and finely separated either by strong convulsive air currents created by said fans, or by other suitable agitating means. The fibers are next preferably discharged into a stock tank, as 7, in which they are admixed with water by mechanical agitators, the water preferably being hot, in order to further soften the fibers. The next step in the method consists of drawing off the mixture from tank 7, by means of a pump 8, which forces the stock through a conductor 8' to one or more pulp refiners, as 9, wherein the fibers are reduced to still finer state and rendered suitable for insulation of the wall boards. From the refiners 9, the stock may be discharged into a similar stock chest, as 10, for final agitation, and from 100

which the prepared stock may be delivered, by a pump 11, to a forming or felting machine, as 12, where the stock is formed or pressed into sheets ready for the final drying operation.

Our process also comprehends the utilizing, by admixture with the aforesaid shredded fibers derived from logs, slabs, and edgings, a certain proportion, not to exceed 25%; of waste pulp such as ground wood, sulphite or sulphate screenings, which cannot be used for manufacturing paper. The preparation of this waste pulp consists of passing it through an auxiliary shredder, or beater, as 14, from which the disintegrated pulp is carried by a conveyor 14', to the common stock chest 7, where it becomes thoroughly incorporated with the product of the defiberizing machines 4, and from which the combined stock is passed through the refiners 9, and the stock chest 10, and thence to the forming machine 12, as described.

Having thus described our invention, what we claim, is—

The hereindescribed method of producing wall board which consists in subjecting wood to the action of hot water to soften the fibers, then in shredding the softened wood into fibers, then in disintegrating the matted fibers by means of convulsive air currents, discharging the fibers into a stock tank containing a heated fluid and mixing therewith a predetermined amount of pulp mill refuse and thoroughly agitating the mixture, then in pumping the admixture into refiners where it is reduced to fine particles, discharging the particles into a second agitating stock tank where same are again thoroughly mixed and finally in passing said last named mixture to a felting machine for final shaping.

In testimony whereof we affix our signatures.

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