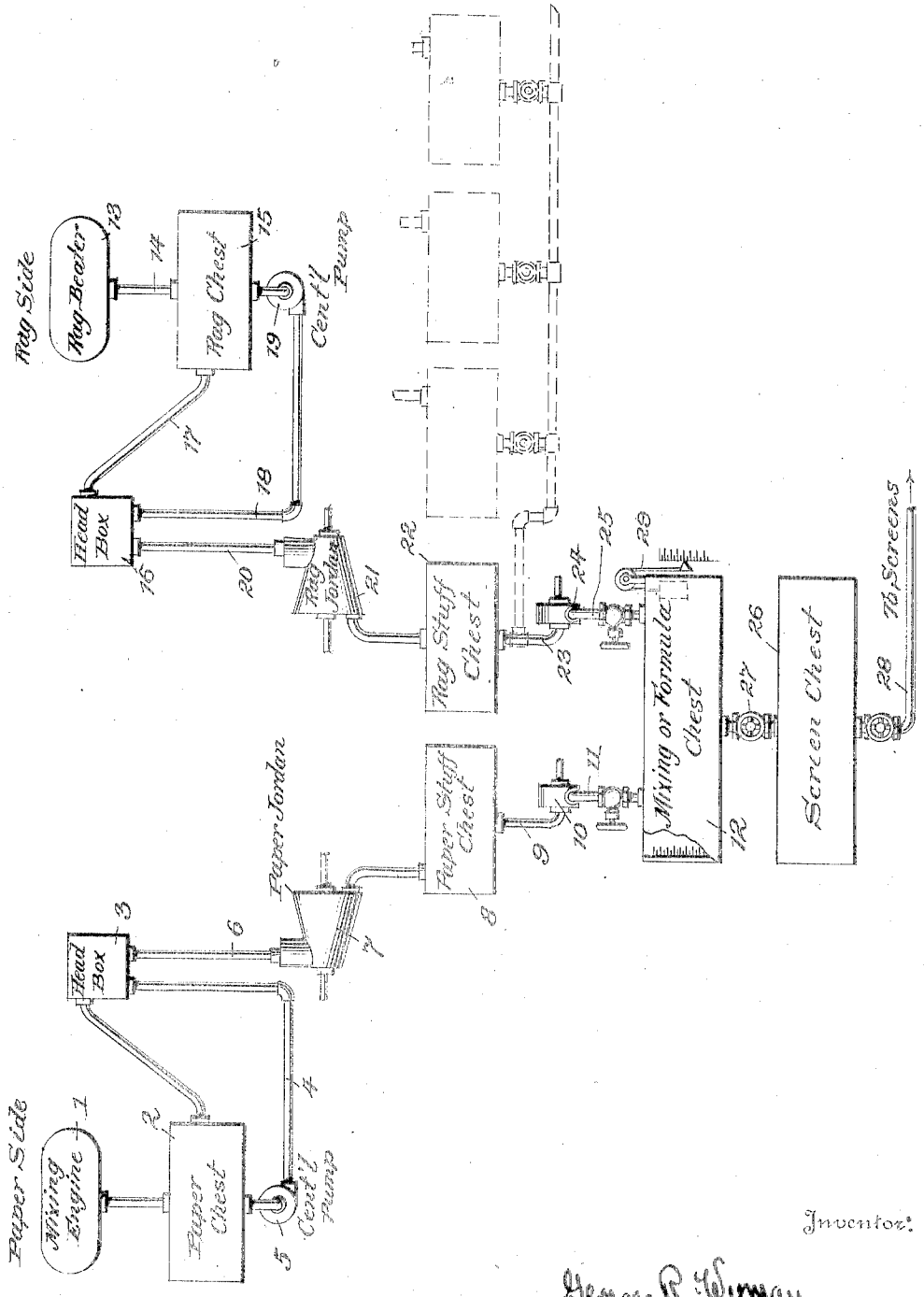
G. R. WYMAN.

METHOD OF AND APPARATUS FOR PRODUCING FELT PAPER OR FELT.

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1,388,685. Patented Aug. 23, 1921.



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METHOD OF AND APPARATUS FOR PRODUCING FELT PAPER OR FELT.

1,388,685. Specification of Letters Patent. Patented Aug. 23, 1921.

Application filed September 3, 1918. Serial No. 252,374.

To all whom it may concern:

Be it known that I, GEORGE R. WYMAN, a citizen of the United States, residing at East Walpole, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Methods of and Apparatus for Producing Felt Paper or Felt, of which the following is a specification.

This invention pertains to the production of felt paper, or felt, as it is commonly known in the paper and roofing art.

To insure the proper degree of saturation of felt by asphaltum, or the like, in the production of roofing material, it is essential that the felt contain the requisite proportions of the various ingredients which enter into its make up. This has heretofore been accomplished in a more or less roundabout manner and the proportioning is generally left to unskilled workmen who in their anxiety to keep the paper machine in operation will allow a surplus of one or another ingredient to pass to the machine, thereby causing a variation in the absorptive quality or degree of the felt. The felt is most commonly composed of a mixture of rag and paper stuff;—too much paper stuff will lower the degree of saturation of the felt, while on the other hand a deficiency of paper stuff will permit the felt to absorb or take up too much of the waterproofing material.

The present invention has for its main object a method or system whereby a constant supply of the stock will be fed from the screens to the paper making machine such stock being of the exact formula desired, that is to say, it will contain the proper proportion of rag stuff and paper stuff. The method may be carried out by an apparatus such as is shown in the annexed drawing, wherein the layout is diagrammatically illustrated.

In the drawings, 1 denotes a mixing engine adapted to receive paper to be disintegrated and embodied in the ultimate felt. Said engine is connected with a chest 2, to one side of which is connected a head box 3. A pipe line 4, having interposed therein a centrifugal pump 5, extends from the chest to the head box. A draw-off pipe 6 leads from the head box to a paper jordan 7, said jordan discharging into a paper stuff chest 8. Said chest has a pipe 9 leading therefrom to a centrifugal pump 10, the pump discharging through a valved pipe 11 to a mixing or formula chest 12. The same general layout is employed on the rag side of the apparatus. There is present a rag beater 13 which communicates through a pipe 14 with a rag chest 15. Said chest is in communication with a head box 16 through a pipe 17. A pipe 18 connects the head box with the rag chest 15, a centrifugal pump 19 being interposed in the line. Pipe 20 extends from the head box 16 to a rag jordan 21, which latter discharges into a rag stuff chest 22. A pipe 23 leads from said chest into a centrifugal pump 24, which, in turn, discharges into a mixing or formula chest 12 through a valved pipe 25. Said chest 12 leads to a screen chest 26 through a valved connection 27 and a valved pipe 28 leads from the screen chest to the screens of the paper or felt making machine.

Ordinarily, in the production of felt for roofing purposes, 20% of paper pulp, and 80% of rag stuff are employed in the mixture which passes to the screens. If found desirable a plurality of rag stuff chests 22 connected up in the manner above set forth, may be employed, and such chests are shown at the right hand side of the drawing connecting into the line or pipe 23 so that any one or more of them may be called upon to deliver rag stuff to the mixing or formula chest 12.

In carrying out the method, the operator having charge of the mixing or formula chest will turn one or the other of the valves in the line 11 or 25 and permit the requisite amount of stuff to pass to the chest, say, for instance, he will open the valve in the line 11 and permit 20% of paper stuff to pass into the chest, such amount being indicated by the filling up of the chest to a given level, or by a suitable indicating mechanism, as 29, which is located adjacent to the chest and is operated by the rising of the material within said chest. When the requisite amount of paper stuff has passed into said mixing or formula chest, the valve in pipe 11 will be closed down and that in pipe 25 opened and a requisite amount of rag stuff will be allowed to pass into the chest. The inflow and impingement of the rag stuff into the paper stuff will cause a thorough commingling and mixing of the materials. When the chest has been loaded

to the desired extent the valves in lines 11 and 25 will be closed and the valve in line 27 opened, permitting the mixed stuff to pass to the screen chest and thence to the screens. Once the formula chest is emptied, valve in line 27 will be closed and the operation as above set forth to effect a proper proportion and mixture of the materials will be again carried.

From the foregoing it will be seen that the operation of securing a felt stock having the proper percentage of constituent ingredients may be readily effected and this without the employment of expensive labor or machinery. All the operator has to do is to watch his gage and fill the mixing or formula chest to a given number of inches only with one material and then with the other to produce a mixed stuff suitable for the production of a felt for roofing purposes.

As above noted the degree of absorptiveness of the felt is materially affected by a variation in the ingredients which enter into the felt, and by the method as above set forth the percentage of each element may be readily determined and a felt of uniform density and texture produced.

It is to be understood that the drawings, as above noted, are merely diagrammatic and that the various elements and machines will be so located with reference to each other that the materials will flow from one to the other except where it is necessary and essential that pumps be employed.

While I have specifically set forth the use of paper and rags as the material entering into the composition of the felt, it is to be understood that in so far as the broad and underlying principle is concerned, materials other than these may be employed, or, in fact, added to them, in which event a similar layout will be utilized, leading to the mixing or formula chest. Thus, for instance, it may be employed in the production of fiber or leather board in which latter case leather scrap is beaten up and subsequently admixed with other fiber or fiber and suitable waterproofing materials.

While I have referred to the introduction of the paper stuff into the formula chest in advance of the rag stuff, the order may be reversed. So, too, suitable stirring mechanism may be employed in said chest to insure a proper admixture of the constituent elements of the felt, though in practice this has not been found necessary.

What is claimed is:

1. That method of producing felt for use in the manufacture of roofing material, which consists in producing paper stuff and passing it through a paper jordan to a paper stuff chest; producing rag stuff and passing it through a rag jordan to a rag stuff chest; discharging said stuffs in the proper portion, to produce a felt which has the desired degree of absorptiveness, into a mixing chest; then discharging such admixed pulp into a chest leading to screens; and finally forming the sheet from said admixed screened stuff.

2. That method of producing a practically uniform quality of paper or felt, which consists in separately forming the various constituent stuffs and discharging the same into separate stuff chests; discharging predetermined quantities of such prepared stuffs from said chests into a formula chest and therein securing an admixture of the various constituents; passing the admixed stuff into a screen chest preparatory to passing the same to the screens of a paper making machine and replenishing the formula chest at intervals so as to maintain a supply of pulp having a predetermined formula.

3. In an apparatus for the continuous production of paper, the combination of a formula chest; a plurality of stuff chests discharging into said formula chest; means under the control of the operator for regulating the amount of stuff passing from each stuff chest into the formula chest; means for supplying stuff to each of said stuff chests; and a screen chest adapted to receive the intermixed charge from the formula chest.

4. In an apparatus for the continuous production of paper, the combination of a formula chest; a plurality of stuff chests discharging into said formula chest; means under the control of the operator for regulating the amount of stuff passing from each stuff chest into the formula chest; means including a jordan for supplying stuff to each of said stuff chests; and a screen chest adapted to receive the intermixed charge from the formula chest.

In testimony whereof I have signed my name to this specification.

GEORGE R. WYMAN.