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PROCESS OF SHREDDING AND DRYING PULP

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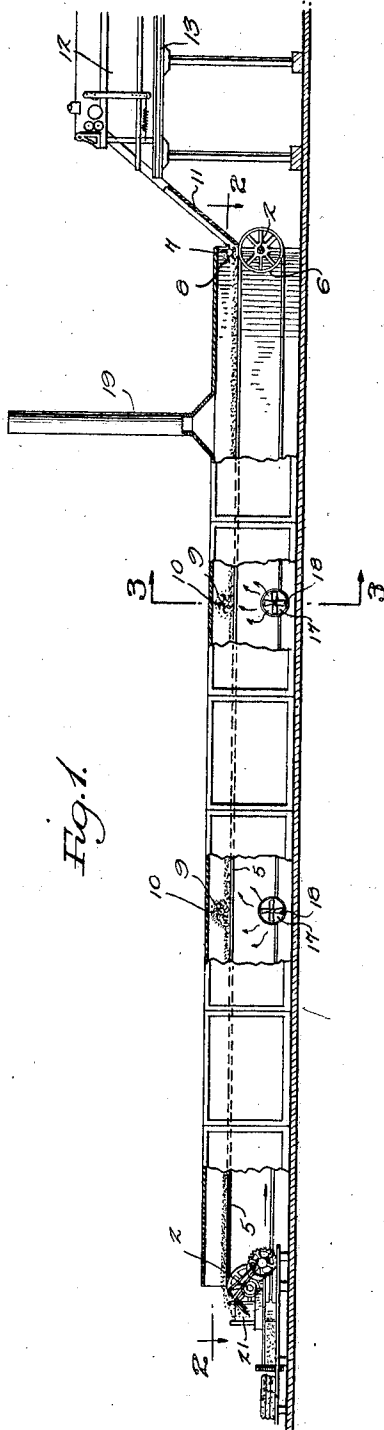


Fig. 1.

Fig. 2.

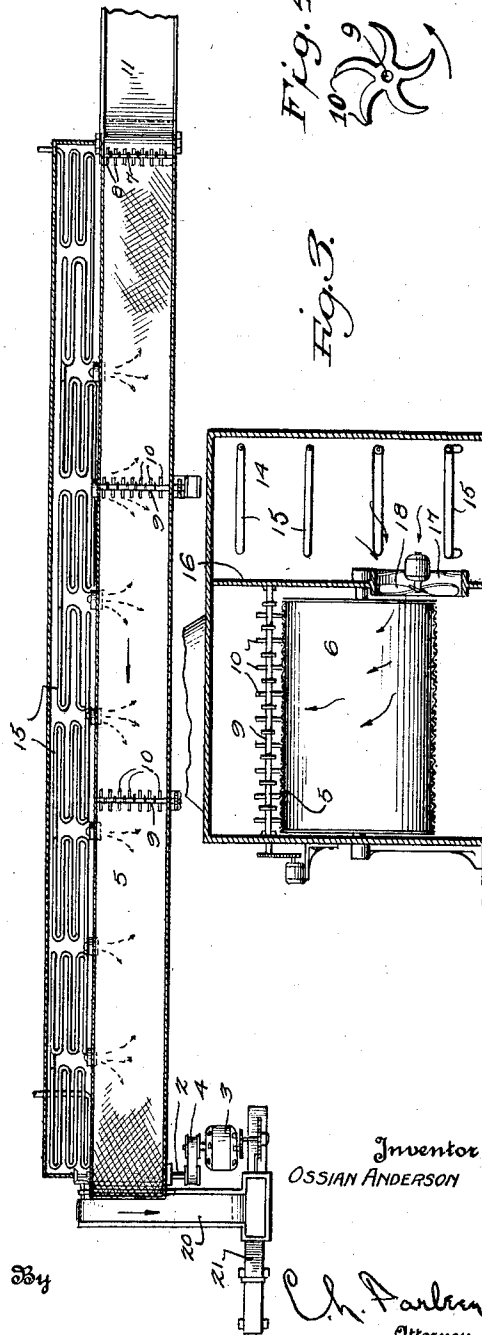


Fig. 4.

Fig. 3.

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PROCESS OF SHREDDING AND DRYING PULP.

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This invention relates to processes of and apparatus for shredding and drying pulp.

An object of the invention is to provide a method of treating wet pulp whereby it
5 may be prepared for baling and shipping.

A further object of the invention is to provide means for shredding the pulp as it passes into the drier whereby drying may be more effectually accomplished.

10 In the accompanying drawings I have shown an organization of apparatus elements particularly useful in practising the process and forming a part of the invention. In this showing,

15 Figure 1 is a side elevation, parts being shown in section,

Figure 2 is a horizontal sectional view of the drying apparatus substantially on line 2-2 of Figure 1,

20 Figure 3 is a vertical transverse sectional view on line 3-3 of Figure 1, and Fig. 4 is a side view of the agitator.

Referring to the drawings the reference numeral 1 designates generally the casing
25 of the drier or kiln. At each end of the casing I provide a shaft 2 disposed horizontally and at the outlet end the shaft is connected to a motor 3 or other source of power by a belt 4 or other suitable connecting means. An endless belt or apron 5 is
30 adapted to pass over rollers 6 mounted on the shafts 2. At the inlet end of the casing I provide a shaft 7 arranged above the apron and provided with knives or shredders
35 8. At spaced points within the casing I further provide transverse shafts 9 having suitable agitating blades 10 arranged thereon. At the inlet end of the machine there is provided a chute 11 adapted to deliver material to the belt from a standard wet machine mounted at a suitable elevation on a platform 13. At one side of the casing I provide an auxiliary compartment 14 extending substantially throughout the length
40 of the casing and provided with heating coils 15. A partition 16 separates the auxiliary compartment from the main compartment and this partition is provided with a plurality of openings 17 adapted to receive
50 fans 18. As shown, a stack 19 is connected to the casing adjacent its inlet end.

At the outlet end of the machine I pro-

vide a transverse conveyor 20 adapted to deliver the material to a suitable baler 21.

In practicing the process the pulp is discharged from the machine 12 and is carried
55 over the chute 11 to the inlet end of the drier in the form of a sheet of average thickness of one-quarter of an inch. The wood pulp is fibrous in nature, and in high
60 grade pulp the fibres are depended upon to lend strength to the finished paper stock. When the pulp is in a wet condition, however, the fibers readily absorb moisture thus almost wholly losing their tensile strength,
65 and it is difficult to effect the shredding of the pulp without injuring the fibres thereof. It has been found that any rapidly rotating shredder of the beater type is wholly impracticable for use in shredding wood pulp,
70 and accordingly I employ a knife shredder of the character referred to. The shredding knives are rotated at a relatively low speed, the knives gently pulling small pieces of pulp from the body of the sheet and thereby substantially finely dividing it. The pulp is not
75 finely shredded, but is divided into relatively small pieces which range up to approximately one inch in diameter. The pieces of pulp thus shredded pass to the
80 belt 5 in a substantially loose divided form and pass through the kiln to be dried. The hot air generated in the compartment 14 by the steam coils is fed into the main section of the drier casing by the high speed fans
85 18 and exhausted through the stack 19. A temperature of substantially 120° F., is maintained in the drier and the speed of the conveyor regulated to a speed of substantially 7 feet per minute. The pulp is
90 turned during its travel by the agitator blades 10 to present opposite sides of the pieces of pulp to the action of the hot air and to maintain the pulp in its loose condition, the dry pulp being discharged from
95 the outlet end of the machine on to the conveyor 20 whence it is conveyed to the baler. The dry pulp may then be compressed into bales and baled for shipment.

It is to be understood that the form of
100 the invention and the method herein described are to be taken as preferred examples of the same and that various changes in the practice of the method and in the

size, shape and arrangement of parts may be made without departing from the spirit of the invention or the scope of the sub-joined claims.

5 I claim:

1. The method of treating wood pulp which comprises delivering wet pulp to a knife shredder in a relatively thin layer to substantially finely divide the pulp without injury to the fibres thereof, and then passing the shredded pulp through a drier.

2. The method of treating wood pulp which comprises delivering wet pulp to a knife shredder in a relatively thin layer to substantially finely divide the pulp without injury to the fibres thereof, and then passing the shredded pulp through a drier at a temperature of substantially 120° F.

3. The method of treating wood pulp which comprises delivering wet pulp to a knife shredder in a relatively thin layer to

substantially finely divide the pulp without injury to the fibres thereof, passing the pulp through a drier, and turning the pulp at intervals within said drier.

4. The method of treating wood pulp which comprises separating wet pulp into a substantially loose divided condition by pulling relatively small pieces from the body of the pulp without injuring the fibres thereof, and drying the pulp while in such condition.

5. The method of treating wood pulp which comprises shredding wet pulp in a substantially loose divided condition by pulling relatively small pieces from the body of the pulp without injuring the fibres thereof, and subjecting the pulp to the action of heated air to dry it.

In testimony whereof I affix my signature.

OSSIAN ANDERSON.