

UNITED STATES PATENT OFFICE.

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PROCESS OF RECOVERING WASTE FIBROUS MATERIAL.

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This invention relates to improvements and processes of recovering fibrous material and refuse, more particularly to the treatment of waste scrap paper containing bitumen, pitches, or the like, in the manufacture of fibrous sheets which are impregnated, saturated or coated with a bituminous or pitchy binder in which it is difficult if not commercially impractical to reuse the waste scrap material because of the difficulty in separating the fibre from the binder. If, on the other hand, the bituminous material is not separated from the fibre, it tends to clog the cylinder moulds and prevents the normal operation of the paper machine. It is therefore necessary to remove the binder from the fibre if the latter is to be reused. In addition to fibrous sheets which are saturated, impregnated or coated in the usual way with asphalt, waterproof sheets are now being made in which the bituminous emulsion is mixed with a fibre stock prior to the stock being felted on the paper machine. An emulsion of the character referred to may be made in accordance with my prior Patent No. 1,417,835. This emulsion as set forth in said patent may consist of suitable bituminous binder and colloidal clay and water.

The present invention is directed to the separation of the bitumen from the fibre in waste material whether the bitumen be applied to the fibre in the ordinary way, or is applied in accordance with a process set forth in my prior patent above referred to.

In carrying out the present invention the waste paper containing the bitumen is put in a suitable macerator or disintegrator with water and the bentonite is then added. The amount of bentonite will depend upon the character and amount of asphalt and other bitumen contained in the paper, but with most grades of saturated or impregnated paper, from ten to twenty percent of bentonite will be sufficient. This mixture is beaten up and macerated while kept in a relatively thick mass and at an elevated temperature, say 100° to 200° Fahrenheit. This

operation tends to release the pitch or other bitumen from the fibre and the bitumen tends to form an emulsion with the bentonite. The emulsion so formed will be miscible in water and will not tend to clog up the paper machine.

Accordingly the material can be mixed with other fibre stock and put back into the beaters of the paper machine and then run in the usual manner. However, before putting the material back into the beaters of the paper machine, it is desirable to add a flocculating agent such as alum, or silicate of soda in sufficient percentages to produce flocculation.

In some cases it may be desirable to separate the bitumen from the fibre by subjecting the mixture both to the action of heat and pressure. Where pressure is used a steam pressure will be generated of 60 lbs. per square inch, more or less. The action of the heat and pressure will tend to more readily treat the bituminous saturated material referred to and the use of pressure is particularly adapted where the material is of a refractory nature; as for example, where there is an excess of high melting point coating, or the like. Where pressure is used, the material should be thoroughly agitated so as to effect the desired detergent action.

In addition to the use of bentonite the foregoing cooking operation may be carried out by adding small quantities of caustic soda or soda ash.

I claim as my invention:

1. A process of treating fibrous stock containing a bituminous material, consisting in subjecting the same to the detergent action of bentonite in the presence of water at an elevated temperature and under pressure to separate the bituminous material from the fibres and form an emulsion with the bentonite.

2. A process of treating fibrous stock containing a bituminous material, consisting in subjecting the same to the detergent action of bentonite in the presence of water at an

elevated temperature and under pressure to separate the bituminous material from the fibres and form an emulsion with the bentonite, the bituminous material constituting the internal phase.

3. A process of treating fibrous stock containing a pitchy material, comprising subjecting same to the action of an argillaceous detergent in the presence of water at an ele-

vated temperature and under a superatmospheric pressure.

4. A process of treating fibrous stock containing a pitchy material, comprising subjecting same to the action of an argillaceous detergent and an alkali, in the presence of water at an elevated temperature and under a superatmospheric pressure.

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