

NOTE.—It is not clear what the Inventor means by steam generated from a solution of prussiate of potash, as it is improbable that the small quantity of salt carried over by the evaporation would have any peculiar effect on the flax, as compared with its being boiled in a solution of that salt. One striking feature of the process is the feeding the leaf into the machine sideways.

CLASS II., *Sub-Class D.*—CORNELIUS THORNE, of London.—(Dated 9th November, 1867.)—Assignee of Letters Patent granted to JAMES STEART.

THIS invention has for its objects to extract, clean and prepare the fibre of China grass, reha, or Siam grass, flax, and other similar terrestrial fibrous plants or productions, and also of silk in the cocoon, wool, goats, camel, or other hair, and other animal or filamental products; and this object is effected by causing the decomposition or removal of the saccharine or gelatinous or fleshy portion of the plant or weed, and of the oily, gummy, or other coating or covering of silk, wool, hair, and other animal and filamental product through the action of a "pure" bath as hereinafter described, in which the plants or products aforesaid are placed for a suitable length of time, and then subject to pressure or friction by motion created by suitable apparatus, so as to detach any foreign or extraneous matter from the fibre. After having been subjected to this process the fibre is dried, and is then fit for manufacturing purposes.

The plants or products aforesaid are submitted to various degrees of pressure by means of rollers or beaters, for the purposes of bruising or loosening the outer sheath or skin, and the saccharine matter of terrestrial fibrous plants, and of loosening the gummy, oily, or other coating or covering of the animal products aforesaid; but this part of the process, though useful where the coating or covering of the plant or other product as aforesaid is unusually tough or dirty, is not indispensable and need not necessarily be adopted in the case of other descriptions of fibrous plants or other products as aforesaid, as it increases the labour required, and the plant or other product as aforesaid may at once be placed in a wash bath of cold water to be cleansed from external impurities. It is then removed and placed in a bath known in tanning as the "pure," with or without water. The pure bath is that obtained by digesting fish in a vessel through the action of heat and a small proportion of water, or steam alone. This pure bath may also be made from various animal substances or chemicals, as is well understood by persons conversant with the tanning of leather. When the plant, or weed, or other product as aforesaid has been exposed to the action of this bath for a sufficient time, the fibre will be freed, and it may then be removed from the bath, and the fibre detached by motion, washing, or friction, by means of suitable apparatus. By this process the saccharine or gelatinous or fleshy part of the plant, and the oily, gummy, or other coating or covering of the animal product as aforesaid, is decomposed and removed, leaving the fibre in an uninjured state, and experience teaches that 200 or 212 degrees of Fahrenheit is the most suitable and effective temperature of all the operations in the bath, and the length of time required for such operation varies from half an hour to three hours, according to the strength of the bath, the heat at which it is applied, and the nature and tenaciousness of the coating or covering of the fibre, and must be left to the judgment and experience of the operator. The fibre is then washed or cleansed in any manner most convenient, and is then finally dried and fit for manufacturing purposes.

CLASS II., *Sub-Class E.*—JOHN BOOTH, of Dunedin.—(Dated 19th August, 1869.)

THE principle or mode of operation by which the fibre is prepared, namely:—The leaves of the flax plant having been first split into two blades and boiled are laid upon the receiving table with the bottom or butt ends towards the india-rubber receiving rollers, and the gum or hard side uppermost. The machine is then set in motion, and the blades pass between the receiving rollers, and thence between the top knife-roller and the bottom spring-roller, which can be brought as near to the top knife-roller as desired by means of screw-bolts in a block; the top knife-roller scrapes all the gum from the uppermost side of the blades, which then pass between another pair of india-rubber rollers. thence the blades pass between the bottom knife-roller and top spring-roller, which can likewise be brought as near to the bottom knife-roller as desired by means of the screw-bolts in the block; the bottom knife-roller scrapes all the green vegetable matter from the outside of the blades, which then pass out of the machine over the delivery slope or table; the fibre thus delivered by the machine only requires to be rinsed in water, and dried, to render it available for manufacturing purposes, and, from the mode in which it has thus been prepared, can be used not merely for rope but for linen fabrics. The machine can be made of any reasonable width, and the fineness or coarseness of the fibre will be in proportion to the gauge of the spring india-rubber rollers to the knife-rollers, which is one of the material elements of the invention.

1. The scraping process on a spring surface, produced by the united action of the india-rubber spring-rollers and the knife-rollers, and which process is so complete that it dispenses with the necessity of "stampers," "beaters," or "compression rollers," by which all other machines used for the preparation of the flax fibre are distinguished.

2. The width of the machine, which can be increased or decreased without interfering with the design, and will allow of any number of blades being laid side by side, in which respect it not only greatly economizes labour, but also essentially differs from all other flax machines now in use.

3. The motive-power of the machine, which is considerably less than the motive-power of any flax machine now in use, inasmuch as this machine can be driven by about half-horse power, with ten blades of fibre passing through at a time, and the manual labour required in connection with the working thereof being only one man and one boy,—the former to feed the machine, and the latter to clear away the fibre as delivered.

NOTE.—This machine appears to be modified by the inventor: the scraping or percussion on elastic rollers is superseded by the substitution of small steel bars on elastic cushions; the process of boiling the leaf seems also to be abandoned.