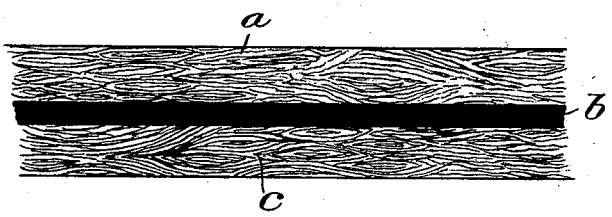
(No Model.) 2 Sheets—Sheet 1.

G. McTEAR.

VEGETABLE FIBER ROOFING.

No. 523,544. Patented July 24, 1894.

Fig. 1.



Witnesses
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L. Woolsey

Inventor
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(No Model.) 2 Sheets—Sheet 2.

G. McTEAR.

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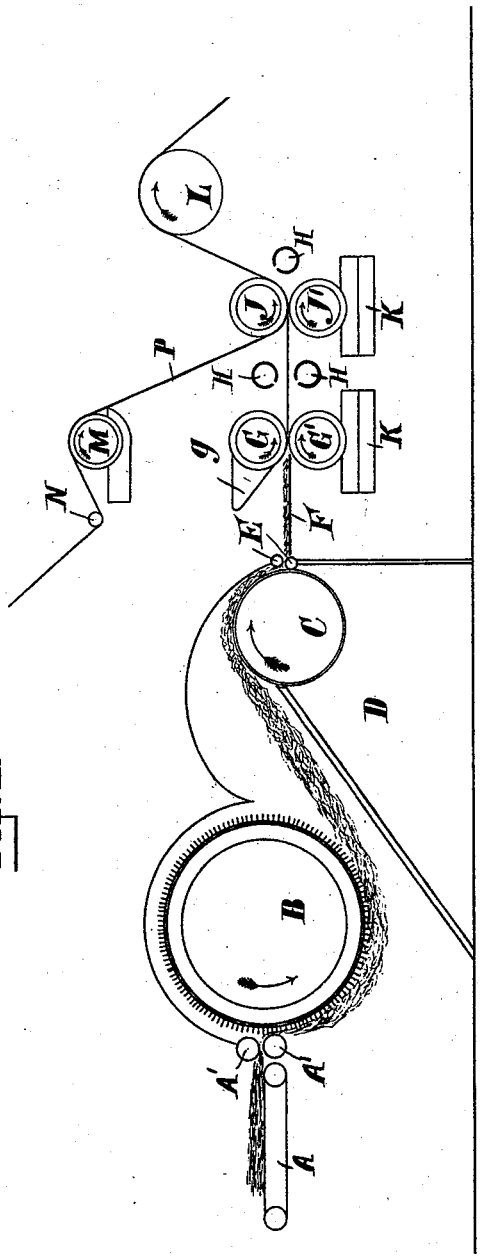

Fig. II.

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UNITED STATES PATENT OFFICE.

GEORGE McTEAR, OF BELFAST, IRELAND.

VEGETABLE-FIBER ROOFING.

SPECIFICATION forming part of Letters Patent No. 523,544, dated July 24, 1894.

Application filed October 3, 1893. Serial No. 487,070. (No specimens.)

To all whom it may concern:

Be it known that I, GEORGE McTEAR, a subject of the Queen of Great Britain, residing at Belfast, county Antrim, Ireland, have invented certain new and useful Improvements in the Manufacture of Flax or other Vegetable-Fiber Roofing, of which the following is a specification.

Vegetable fiber roofing is usually made out of card flyings, from the carding machines in mills, where flax, hemp, jute and such like fibers are spun, or from fiber straw machined.

The process of manufacturing is as follows:—The dry fiber is placed upon a feed apron which brings it to a pair of feed rollers, and discharges it on to a covered cylinder or drum furnished with pins or teeth and revolving at a high speed. After the fiber has been teased therewith, it is then, by the aid of air suction, brought upon a wire cylinder, where it is formed into a sliver or bat, and discharged through rollers upon a level plate, and then conducted through and over a number of rollers, where it is saturated with bitumen, dried and pressed.

From the foregoing description, it may be observed that vegetable fiber roofing is at present made of loose fiber caused to adhere together by pressure and bitumen.

When a roof has been covered with vegetable fiber roofing, in order to complete the work, it is absolutely necessary to give it a coating of bitumen varnish. It has been found that, when vegetable fiber roofing has been exposed to a great sun heat such as is usual during the summer months, if the varnish be not made of a stout body, it works through the fiber and is absorbed by the wood sheathing or escapes through the board joints. It is difficult also to arrive at a proper temper for the coating, as, in climates where at certain seasons there is extreme heat or cold, if it be of too stout a body, it will crack with the frost, and, if too liquid, it will work through the fiber with a strong sun heat as already explained. Now, by my invention, I add, in the process of manufacture, to the under side of this material a web of non-absorbing or only slightly absorbent Manila paper, woven fabric or like material, and at the same time cement the two together by a layer of bitumen. The paper, dense canvas, or other but slightly absorbent fabric does not absorb the bitumen or pitch, and thus it cannot escape but remains in the fabric and it is not requisite to varnish the upper surface as often as is customary with the ordinary material, owing to the under surface of the bitumen being protected, from the air, thus preventing disintegration.

Referring to the accompanying drawings which form a part of this specification:—Figure 1 is an enlarged section of my roofing material in which *a* is the fiber, saturated with bitumen; *b* is a layer of ordinary bituminous cement and *c* is Manila paper. Fig. 2 shows the apparatus used by me for making the roofing.

In Fig. 2, A is a feed apron for dry fiber; A′, two feed rollers; B, covered cylinder or drum furnished with pins and revolving at a far higher speed than that of the feed rolls, whereby the fiber is carded and drawn out; C, covered wire cylinder acted on by air suction and upon which is formed the sliver or bat; D, chamber partially exhausted of air by pump or other means not shown; E, delivery rollers with pressure to press the bat; F, iron plate to sustain the bat; G, upper heated roller with back pan *g* for bitumen, the edge fitting close to roller at an angle. The feed is regulated with screws advancing or settling back the pan from the rollers; G′ is the under heated roller revolving in pan of bitumen; H, three pipes extending over the saturated fiber, the ends being closed, but with a slit facing the material the length of its breadth. These pipes are connected with fan blowers and convey cold air for congealing the bitumen; J, is the upper pressure roller to press together the fibrous material and saturated fiber; J′, under roller for same purpose revolving in a pan to collect the bitumen which is pressed out; K, bottom pans for bitumen; L, a cooling roller arranged to hold ice water; P, paper or other fibrous material, usually Manila paper; M, roller revolving in pan to coat fibrous material with bitumen; N, guide roller for fibrous material. But my material differs from all that have

gone before it in that it consists of a combination of a vegetable fiber and bitumen which in the heated state is not strong enough to support its own weight except for very short distances but has to be supported, and a strong fibrous backing practically impervious to bitumen which is united to it by means of liquid or soft adhesive bitumen and pressure during manufacture.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The process of manufacturing roofing material which consists in saturating a bat or sliver of loose fiber with bitumen, passing it and a web of tough and practically impervious fabric between rollers with pressure and sufficient coating of bitumen to cause the two to adhere firmly.

2. As a new article of manufacture, a web of roofing material consisting of an upper layer of loose carded fiber saturated with bitumen and a lower tough layer of fibrous material practically impervious to bitumen, the two being tightly cemented together as one web.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE McTEAR.

Witnesses:
GEORGE BAXTER,
WM. ROSS.