March 8, 1932. G. M. GAY 1,848,877

MANUFACTURING FASTENERS

Filed Sept. 15, 1931

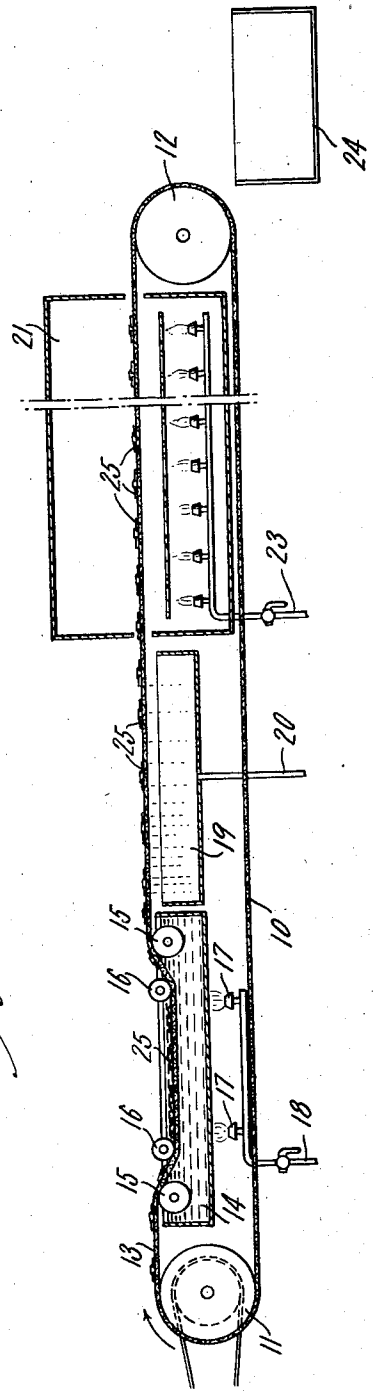


Fig. 1.

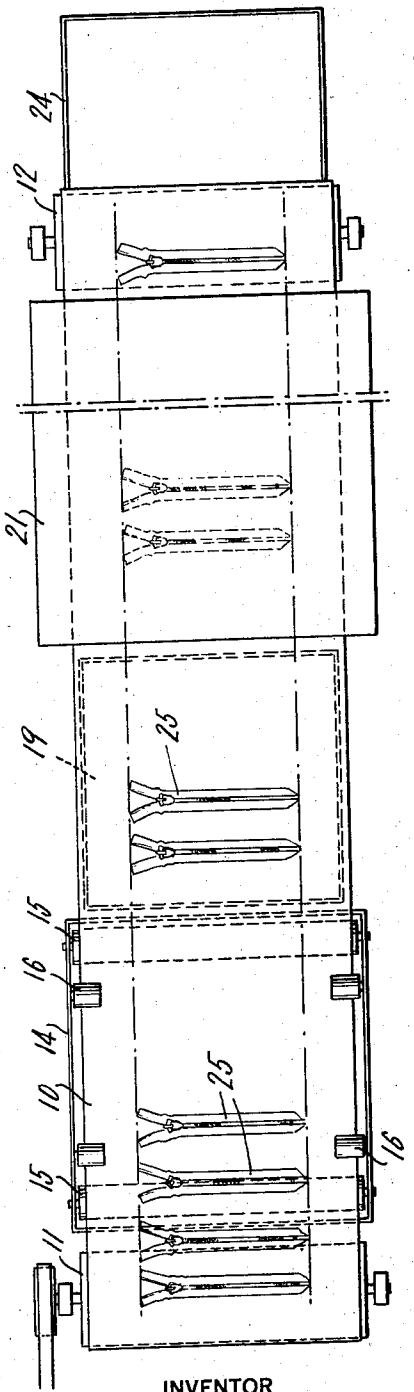


Fig. 2.

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UNITED STATES PATENT OFFICE

GILMAN M. GAY, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE SHOE HARDWARE COMPANY, OF WATERBURY, CONNECTICUT, A CORPORATION OF CONNECTICUT

MANUFACTURING FASTENERS

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My present invention relates to separable fasteners and more particularly to an improved method of manufacturing the same.

In manufacturing separable fasteners, the usual method employed is to attach to the corded edge of tape or other flexible material series of interlocking elements arranged parallel to and spaced apart from each other, then to collect such stringers or other flexible material into pairs, cause the interengaging of the interlocking elements on the stringers preferably by means of a slider, connect the lower end of the stringers or flexible members either permanently or temporarily and attach to one or both stringers at the top thereof adjacent to the uppermost interlocking element a top stop or stops. The completed assembly thus described is usually called a separable fastener or a stringer and is marketed in this condition ready to be inserted into position as in a boot or shoe, bag, purse, tobacco pouch or in any other situation where it is desired to open or close a gap at will. The separable fastener or stringer in this condition, however, operates stiffly or harshly, that is, it requires considerable effort to move the slider longitudinally of the stringer and interlocking elements for the purpose of engaging or disengaging such elements and the harshness or grating of the elements during the engagement or disengagement thereof by the slider is very apparent. This harshness or stiffness of action is evidently due to the fact that the corded edge of the stringer or other flexible member is held under tension while the interlocking elements are being placed thereon in spaced relation to each other, and it is believed that the cord in the corded edge is slightly distorted or twisted during the setting operation of the elements thereon. It is possible that eventually this harshness or stiffness will wear out of the separable fastener in use, but this is always uncertain and fasteners that have been in use over a long period of time still retain this harshness or difficulty in engaging or disengaging the interlocking elements.

In my present invention I have obviated the difficulties enumerated and have discovered that it is possible to entirely remove the harshness or stiffness of the operation by subjecting the finished separable fastener or stringer to a process which consists in wetting or saturating the finished stringer with water or other liquid and then drying the same while simultaneously maintaining the interlocking elements in engagement with each other. I am not prepared to state at this time what effect this has on the cord in the corded edge of the stringer or other flexible elements, but the result of this treatment is that it is possible to work the slider along the stringers so as to engage or disengage the interlocking elements with a smooth feeling and with a minimum of effort.

The object of my invention, therefore, is an improved method of manufacturing separable fasteners and the like. In the accompanying drawings illustrating a form of apparatus by means of which my invention may be practiced;

Figure 1 is a side elevation, and

Figure 2 is a plan view.

Referring to the drawings, 10 designates an endless conveyor carried by a main driving pulley 11 and an idler pulley 12, such conveyor being composed preferably of foraminous material, such as wire mesh. Adjacent to one end 13 as the loading end of the conveyor 10, is arranged beneath the upper reach of the conveyor a shallow tank 14 containing water or other suitable fluid, and in the tank is arranged guiding rollers 15 and 16, which guide the upper reach of the conveyor 10 into and out of the shallow tank 14. Beneath the shallow tank 14 are arranged heating appliances 17 as gas burners fed from fuel led through a conduit 18 and by means of which the liquid within the shallow tank 14 may be heated. Adjacent to the shallow tank 14 is arranged a drip pan 19 into which fluid from the articles carried by the conveyor from the shallow tank 14 may drip, such dripped fluid passing from the drip tank 19 through a drain pipe 20. The upper reach of the conveyor 10 passes through an oven 21 heated by a plurality of devices 22 as gas burners fed from fuel passing through a conduit 23. After passing

through the oven 21, the upper reach of the conveyor 10 passes around the pulley or roller 12 and articles carried thereby are deposited in a receptacle 24.

Assuming that separable fasteners 25 are placed on the upper reach of the conveyor 10 at the point 13, it will be obvious that such separable fasteners will be carried through the shallow tank 14 where the same will be wetted or saturated with fluid and after passing out of the shallow tank 14, the excess of moisture in such separable fasteners 25 will drip into the drip tank 19, and the partially dried fastener 25 will pass into the oven 21. After passing through the oven 21 and being dried therein, such separable fasteners 25 fall into the receptacle 24. It is obvious, of course, that the device illustrated as being adapted to carry out my improved process may be different from the above described, or may be dispensed with altogether, it being only necessary in practicing my invenvention that the heretofore completed separable fasteners 25 be in assembled position while being subjected to a wetting operation after which they are dried and are then ready for use.

Having thus described my invention what I claim and desire to protect by Letters Patent is:

1. The method of treating separable fastener constructions including parallel tapes having interlocking elements attached thereto adapted to be engaged and disengaged by the operation of a slider, consisting of arranging such tapes with their interlocking elements interengaged, wetting the tapes and then drying the same.

2. The method of treating separable fastener constructions including parallel tapes having interlocking elements attached thereto adapted to be engaged and disengaged by the operation of a slider, consisting of arranging the tapes in pairs, engaging the interlocking elements on one of the tapes of a pair with those on the other tape, wetting the pairs and then drying the same.

3. The method of treating separable fastener constructions which comprise parallel tapes formed into stringers by having attached thereto a plurality of interlocking elements adapted to be engaged and disengaged by the operation of a slider, said method consisting of wetting the stringers while the same are arranged with the elements thereof in interlocked position and then drying the stringers.

Signed at Waterbury, county of New Haven, State of Connecticut, this 8th day of September, 1931.

GILMAN M. GAY.