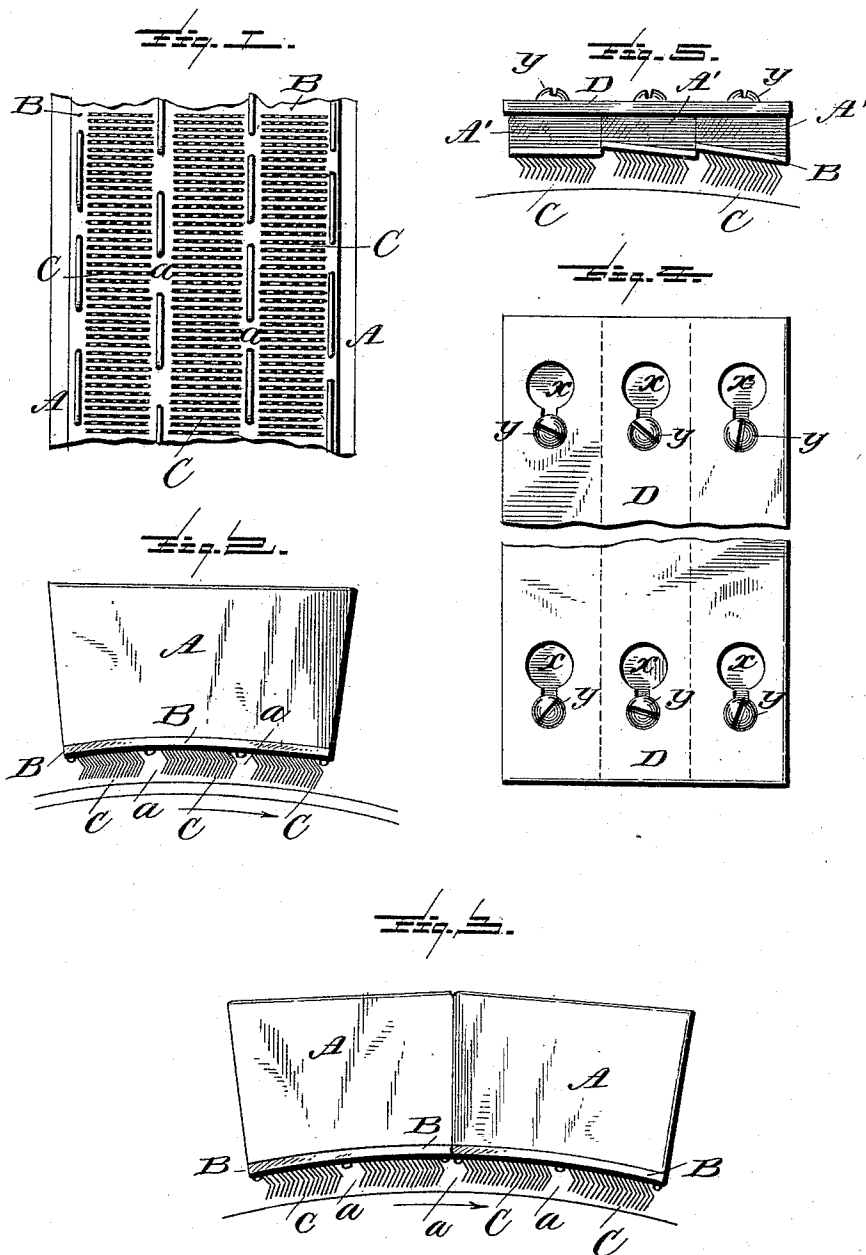


(No Model.)

J. F. FOSS.
CARD FLAT.

No. 462,121.

Patented Oct. 27, 1891.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN F. FOSS, OF LOWELL, MASSACHUSETTS.

CARD-FLAT.

SPECIFICATION forming part of Letters Patent No. 462,121, dated October 27, 1891.

Application filed March 6, 1891. Serial No. 333,998. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. FOSS, of Lowell, in the State of Massachusetts, have invented a new and useful Improvement in Card-Flats, of which the following is a specification.

My invention consists of a card-flat provided with two or more separate beveled faces or "touches." By "touch" I intend and mean the face formed by the steel-tempered teeth of the usual card-clothing. The ordinary card-flat now in use is a one-touch flat and it is about two inches wide on its cylinder side. To narrow this width materially would necessitate a material increase in the number of flats, resulting in an undesirable multiplicity of troublesome parts and in complicating the stripping mechanism. If such a flat were clothed up to or nearly up to each edge—say, for example, to within three-sixteenths of an inch of each edge—this would result in too much waste, or, in other words, the face or touch would be of such excessive width that it would take off too much good cotton from the carding-cylinder during the carding process. Consequently in the one-touch flat the clothing stops short a considerable distance of each edge. This narrowing of the face, while remedying the difficulty referred to, is, however, productive of another and equally serious difficulty, because thereby the space between the teeth of one flat and those of the next is made wider than the length of the staple of ordinary cotton, and the result is that in carding at high speed the staple is apt to and in practice frequently does become tangled and snarled. Again, to produce the best results in carding the "bites" of the successive faces or touches (by "bite" I intend that longitudinal edge of the beveled face or touch of the card-flat which is nearest the cylinder) should be only about thirty-five per cent. farther apart than the length of the staple carded—as, for example, for three-fourths-inch staple the bites should be from one and one-sixteenth to one and one-eighth inches apart. Manifestly this would be unattainable in the ordinary one-touch flat, unless by narrowing the flat itself, which, for the reasons above given, would be undesirable and, in fact, impracticable. Furthermore, the capacity of the machine is augmented and the

quality of work done by it is improved as the number of beveled touches presented to the cylinder is increased. For the reasons hereinbefore stated there can be no material increase of this character with the ordinary one-touch flat.

It is to remedy the difficulties and to realize the advantages above referred to that my invention has been devised. My improved flat has on its cylinder side an acting surface composed of a plurality of independent beveled faces or touches. These several touches are separated from each other by an interval (say from three-sixteenths to three-eighths of an inch) less in width than the length of the common cotton staple, and the teeth are brought so near the longitudinal edges of the flat that the space between adjoining faces or touches of contiguous flats will be of corresponding width. Thus the staple will be bridged from one touch to the next, whether the touches be on the same flat or on contiguous flats, and in this way I avoid the tangling or snarling of the staple above alluded to. Furthermore, in this way I am enabled not only to bring the bites into that proximity with one another needed to obtain the best results in carding, but also to obtain in an efficient and practical way that multiplication or increase in the number of the touches which is so desirable. The several independent touches or faces of each flat can be and preferably are assembled upon a single sheet of clothing, and the fact that they are thus assembled offers no serious obstacle to the grinding of the faces, although each has its own independent bevel. In Letters Patent No. 428,082, of May 20, 1890, is illustrated and described a machine for doing this work. This patented machine, indeed, was devised more particularly for grinding the flat, which is the subject of my present application.

In the accompanying drawings, Figure 1 is a plan of a portion of a flat embodying my invention. Fig. 2 is an end elevation of the same, together with a diagrammatic representation of part of a carding-cylinder, for the purpose of indicating the relation of the flat to the cylinder. In these figures the flat has three separate independently-beveled faces or touches. Fig. 3 is an end view of two flats placed side by side, each having two

separate faces or touches. Figs. 4 and 5 are respectively a top view and an end view of a modification, hereinafter more particularly referred to.

5 A is the body of the flat, of any usual or suitable construction.

B is the leather strip or backing in which the wire teeth are set. C are the faces or touches formed of these teeth, said faces being separated from one another by spaces or intervals *a*, as hereinbefore indicated, and the several faces of each flat being in one sheet of clothing. The teeth adjoining the longitudinal edges of the flat are placed so near to these edges that when flats are placed together side by side adjoining faces or touches of contiguous flats will be separated by an interval about the same as that which separates adjoining faces on the same flat. This is indicated in Fig. 3. The flat shown in the figure last named is a "two-touch" flat, and its body A is of the same dimensions as the ordinary one-touch flat. The latter can thus be readily fitted out with my invention by removing the ordinary clothing with which it is faced and substituting therefor a two-touch clothing, such as shown in the drawings.

Each face or touch, as indicated, has its own independent bevel, and it is desirable in most instances that in each individual flat each succeeding face should be slightly nearer the carding-cylinder than the one before it, as shown more particularly in Fig. 2.

35 A compound flat with a plurality of faces or touches assembled in accordance with my invention might be made by attaching several flat sections of the same general structure as the ordinary flat, but having thinner and considerably narrower bodies to one and the same back plate. Such a structure is shown in Figs. 4 and 5. The separate flat sections (three in number in this instance) having comparatively narrow and thin bodies A' are se-

cured in proper relation to one another to the back plate D by suitable means. The means in this instance consist of key-hole slots *x* in the plate and screw-studs *y* on the sections. The heads of the studs overlap the edges of the narrow parts of the slots, and by screwing down the studs the flat sections will be held in place. This construction allows each touch to be removed and handled independently of the others. I consider it, however, inferior on the whole to the construction first above described.

Having described my invention and the manner in which the same is or may be carried into effect, what I claim as new, and desire to secure by Letters Patent, is—

1. A card-flat having a plurality of separate independently-beveled faces or touches, substantially as described.

2. A card-flat having a plurality of separate independently-beveled touches on one and the same sheet of clothing, substantially as described.

3. A card-flat having a plurality of separate independently-beveled touches, the teeth composing the several touches being of such relative length that each succeeding touch will as a whole project (in the direction of the carding-cylinder) slightly beyond the touch before it, substantially as described.

4. A card-flat having a plurality of separate independently-beveled touches and consisting of flat-sections armed or provided with said touches, and a back plate to which the individual sections are independently and detachably connected, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN F. FOSS.

Witnesses:

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