

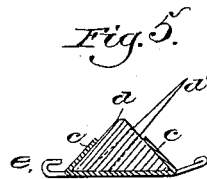
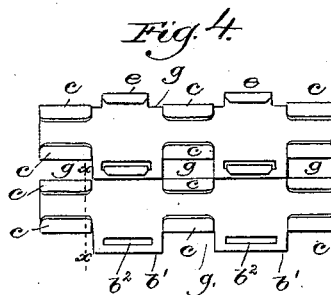
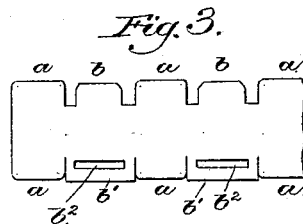
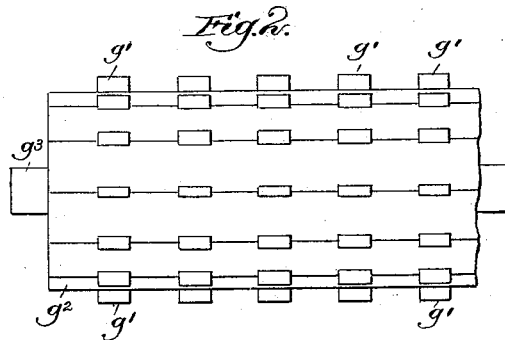
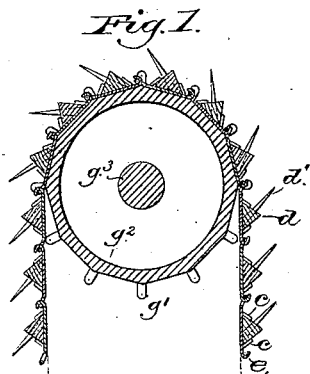
(No Model.)

W. C. BRAMWELL.

ENDLESS METALLIC APRON FOR CARD FEEDING MECHANISMS, &c.

No. 342,948.

Patented June 1, 1886.



Witnesses,
John F. C. Pringle
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UNITED STATES PATENT OFFICE.

WILLIAM C. BRAMWELL, OF HYDE PARK, MASSACHUSETTS.

ENDLESS METALLIC APRON FOR CARD-FEEDING MECHANISM, &c.

SPECIFICATION forming part of Letters Patent No. 342,948, dated June 1, 1886.

Application filed August 20, 1885. Serial No. 174,849. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. BRAMWELL, of Hyde Park, county of Norfolk, and State of Massachusetts, have invented an Improvement in Endless Metallic Aprons for Card-Feeding Mechanism, &c., of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention consists, essentially, in an endless apron composed of a series of metal strips hinged or jointed together, provided with slat-holding ears or projections, the slats being provided with sharp teeth to enter the wool or other fiber, as will be described.

Other features of my invention will be hereinafter pointed out, and specifically mentioned in the claims.

Figure 1, in section and by the full lines, represents part of an apron embodying my improvements, together with one of the cylinders or rolls to move the said apron, part of the apron and the second cylinder or roll to move it being shown by dotted lines. Fig. 2, in side elevation, shows part of one of the cylinders or rolls referred to. Fig. 3 shows part of one of the strips used in the production of the endless metal apron before the said strip is bent to form a link of the apron. Fig. 4 shows parts of two metal strips or links completed and united together, as in the production of my improved apron; and Fig. 5 is an enlarged sectional detail of one of the strips or links in the line *x*, Fig. 4, a slat being shown in place between the slat-holding ears or projections.

Heretofore endless toothed aprons to carry wool and other fiber through the machine in which it was being treated in the process of cleansing, assorting, feeding, &c., have been composed of leather or canvas, in whole or in part, and in one or more layers, and wooden slats with pins driven into them have been riveted to the apron. Experiment has shown me that such class of apron is objectionable for many reasons, among which I may state that the oil and other compounds in the wool act upon and rot the leather, and also soften the leather, so that it loses its strength, and so also that it stretches, in which event the apron fails to feed evenly. The slats attached to the flexible non-metallic backing by rivets are weakened at the points where

they receive the rivets, and they are also somewhat weakened where the sharp needle-like teeth enter them, and it frequently happens that a slat is torn from the apron, and also it frequently occurs that a tooth is forced backward through the slat and the flexible backing, thus destroying the full efficiency of the apron as a feeding device.

The class of apron referred to as in common use is quite expensive to make, and much trouble and expense are experienced in making frequent repairs.

To obviate all the difficulties referred to, and produce a more durable and efficient apron, one which will not stretch or be affected by oil or moisture, and which may be readily repaired in case of any accident to the teeth or slats, I have devised an apron composed of metallic strips or links which co-operate as a chain to carry and hold the slats and back up the slats and teeth therein.

In the manufacture of my improved apron I take preferably sheet metal, and cut the same into pieces of a length substantially equal to the width desired for the apron, and of a width to correspond with the width desired for each joint or link of the apron. I have shown part of such a strip at Fig. 3, wherein it will be seen that the strip is so cut or shaped as to leave projections *a a* at intervals, and between the said projections, at opposite edges of the strip, are other projections, *b b'*, the latter having slots *b²*, the projections *b* being reduced in width as compared with the projections *b'*, the said projections *b* corresponding in width substantially with the length of the slats referred to. A blank, such as represented in Fig. 3, it being of proper length, has its projections *a a* bent into the form represented in Fig. 4, where it will be seen that the projections *a a* are made to constitute slat-holding ears or projections, (marked *c*,) the space left between the said ears or projections being adapted for the reception endwise of the wooden slats *d*, carrying the sharp-pointed pins or teeth *d'* driven therein. The metal strip or link constitutes a backing for the wooden slat, and prevents the forcing of the teeth backward through the said slat, the loss of teeth from a slat resulting in imperfect feeding. The projections *b* are bent to form hooks *e*, to enter the slots *b²*, referred

to, the hook of one strip engaging the slot of an adjacent strip, the two co-operating as a hinge to unite the strips together and form an endless apron or belt, the number of strips or links employed varying according to the length of the apron.

In bending the projections *a* to form the slat-holding ears or projections *c c*, there is left in line with each other and between the hooks *e e* on one side and the projections *b' b'* on the other side spaces *g* to receive the projections or teeth *g'* of the cylinder *g'* on the shaft *g'*, the said cylinder or roll being preferably many-sided, to permit the strips or links to rest flat on the cylinder as the apron passes about the cylinder, the cylinder herein shown having twelve flat faces.

In practice each apron will be passed over two cylinders, the shafts of one of them being positively driven by suitable mechanism—such, for instance, as used to drive the roller 4 in United States Patent No. 216,373, granted to me June 10, 1879. The slat-holding ears or projections *c c*, by embracing the wooden slats, prevent them from being easily split, the employment of the said ears obviating the use of rivets to attach the slats in working position. The slats when added to the strips or links are inserted longitudinally into the recess between the ears, and so also in case of an accident to one of the strips it may be readily drawn out, and a new strip substituted for it. An apron of this kind will not tear, and oil and moisture will not affect its working qualities.

So far I have described the strips or lags of the apron as composed of sheet metal, which I prefer, because of lightness and cheapness, yet I do not desire to limit my invention to the employment of only sheet metal, for the

links may be made from cast metal. The toothed slats herein shown are substantially triangular; but it is obvious that they might be of any other proper shape, the ears being bent or shaped to correspond with the slats to be used and to be held in working position.

I do not desire to limit my invention to any particular number of pairs of ears or projections, *a*, or of hooks by which to connect the strips or links, nor to the exact shape of each strip or link, nor to the exact shape of the hooks and ears or projections.

I claim—

1. An endless apron composed of a series of metal strips hinged or jointed together and having slat-holding ears or projections, and of toothed slats held by the said strips to operate substantially as described.

2. An apron composed of detachable metal links provided with slat-holding ears or projections and a series of toothed slats embraced by the said ears or projections, the strips or links constituting a backing for the toothed slats and preventing the backward movement of the teeth from the slats, substantially as described.

3. The cylinder *g'*, provided with teeth, combined with an endless apron composed of metallic strips hinged or jointed together and provided with slat-holding ears or projections, and having spaces *g* and with a series of toothed slats, substantially as described.

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

WILLIAM C. BRAMWELL.

Witnesses:

G. W. GREGORY,
W. H. SIGSTON.