R. SCHOFIELD.

SLIVER PAN FOR COMBING MACHINES.

APPLICATION FILED SEPT. 13, 1911.

1,102,298.

Patented July 7, 1914.

4 SHEETS—SHEET 1.

Fig. 1.

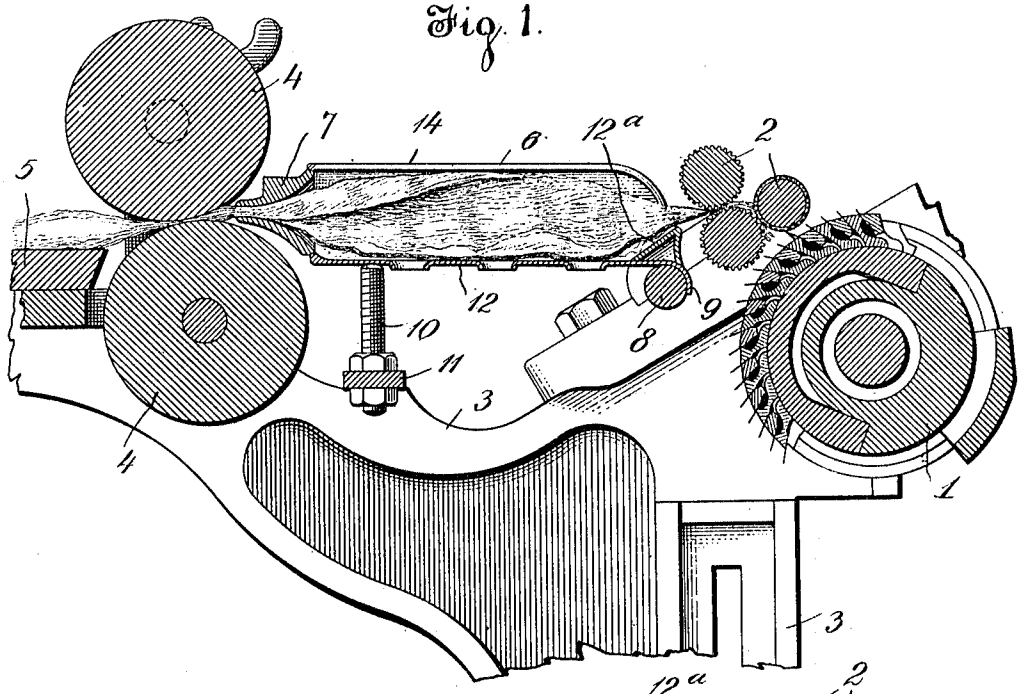
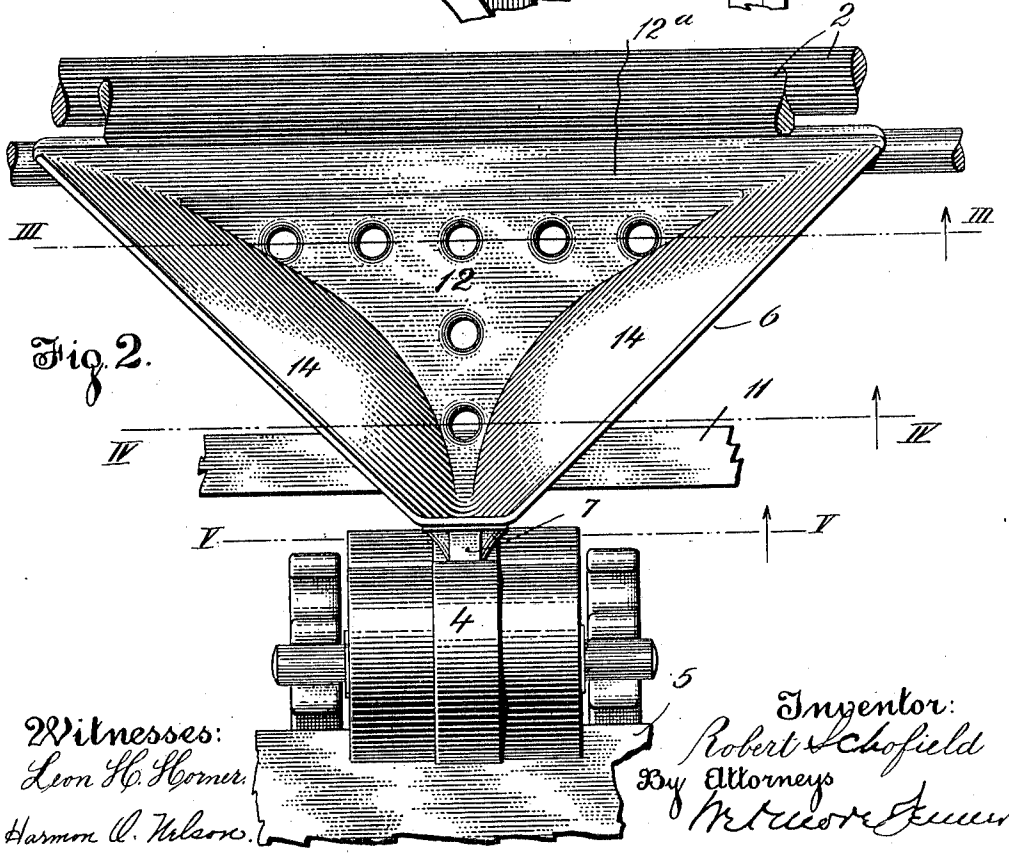


Fig. 2.



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4 SHEETS-SHEET 2.

Fig. 3.

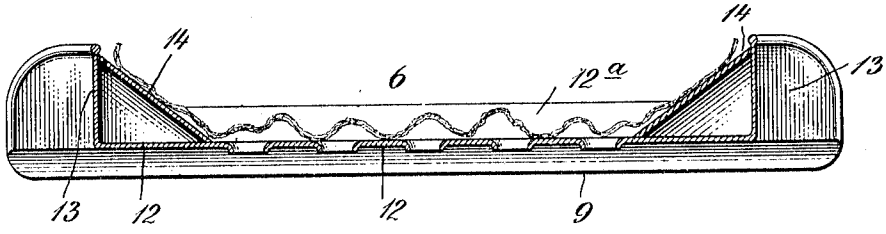


Fig. 4.

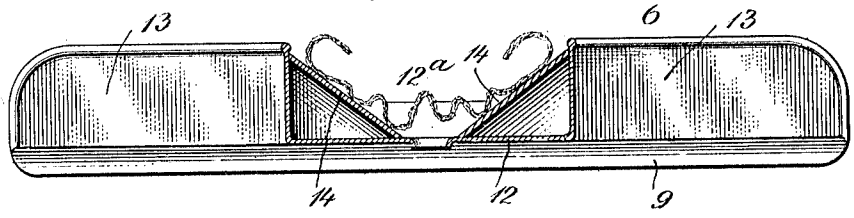
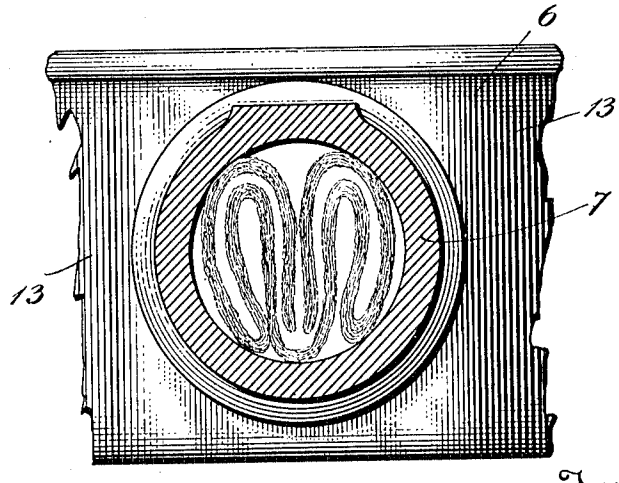


Fig. 5.



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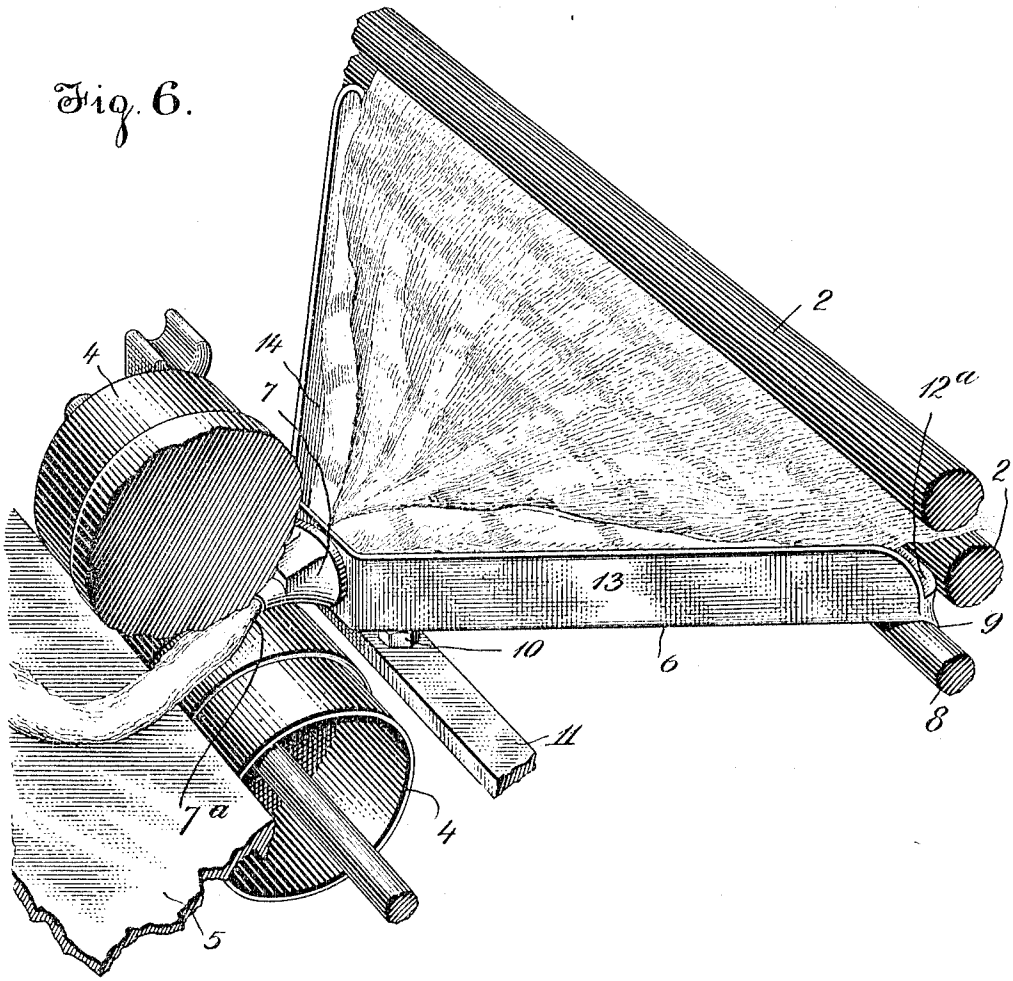
4 SHEETS—SHEET 3.

Fig. 6.



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4 SHEETS—SHEET 4.

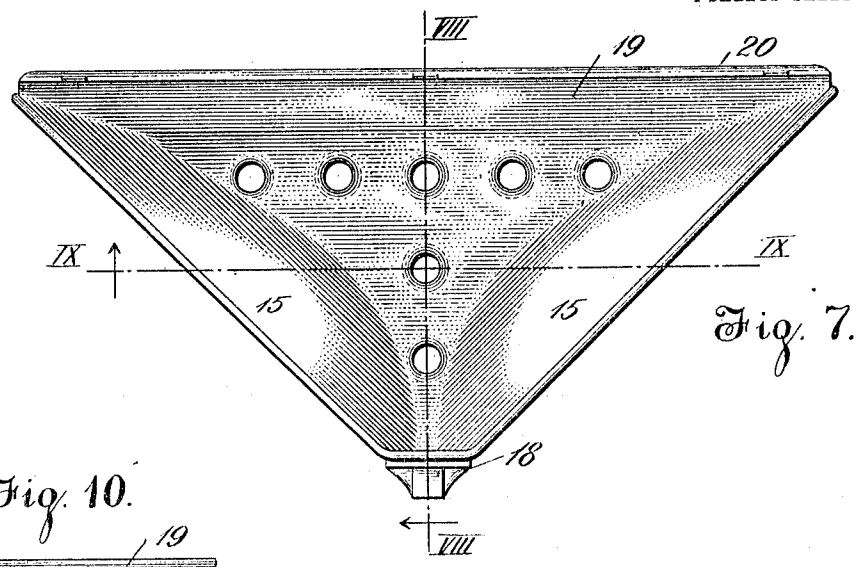


Fig. 7.

Fig. 10.

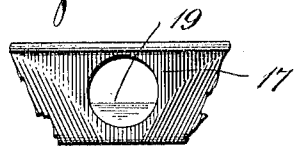


Fig. 8.

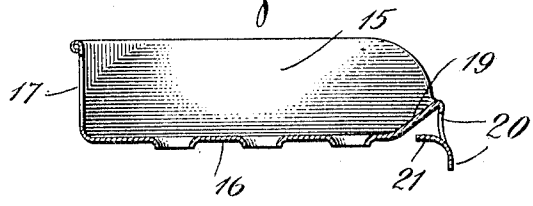
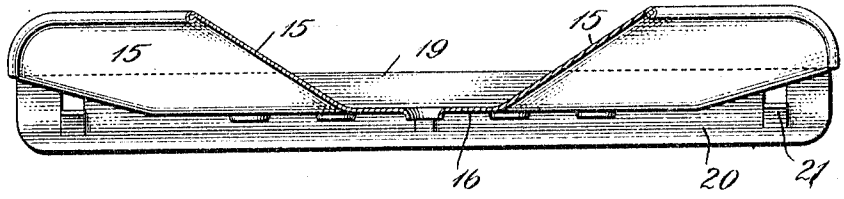


Fig. 9.



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UNITED STATES PATENT OFFICE.

ROBERT SCHOFIELD, OF NEW BEDFORD, MASSACHUSETTS, ASSIGNOR TO THE WHITIN MACHINE WORKS, OF WHITINSVILLE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

SLIVER-PAN FOR COMBING-MACHINES.

1,102,298. Specification of Letters Patent. Patented July 7, 1914.

Application filed September 13, 1911. Serial No. 649,063.

To all whom it may concern:

Be it known that I, ROBERT SCHOFIELD, a citizen of the United States, residing in New Bedford, Bristol county, Massachusetts, have invented the new and useful Improvements in Sliver-Pans for Combing-Machines hereinafter described.

The invention is an improvement in Heilman combers, and more especially in the means for conducting the freshly pieced sliver-lap from the piecing mechanism to the sliver apron.

The object of the invention is to provide a sliver pan that will fold the freshly pieced sliver-lap as it passes from the piecing mechanism toward the apron and calender rolls so that the surface of the lap which is formed by the forward ends of the pieced detachments or tufts, usually the upper surface, will be turned into the interior of the folded or condensed sliver, while the rearward or tail ends of the tufts only will form the outside of such sliver. With this relation of its fibers the friction of the rounded sliver passing through the condenser trumpet and over the sliver apron will not ruffle back the fibers, as would otherwise be the case if the forward ends of the fibers formed the outside of the round sliver. In combers as commonly constructed, the trumpets and sliver pans condense the sliver by folding it in longitudinal plaits or creases so that much of the surface of the round sliver emerging from the trumpet is formed by the forward ends of the tufts, resulting in actual looping back of many of the fibers, which impairs the quality of the product of the comber, besides giving it an unsatisfactory and roughened appearance, all of which is avoided by the present invention in a simple and most inexpensive manner and without adding complication to the structure of the machine or to the operation of threading up the sliver after a break.

In the accompanying four sheets of drawings forming part hereof, Figure 1 is a transverse vertical section through so much of a comber of the type specified as will be necessary to indicate the relation of the invention thereto, this view showing the sliver pan in central section on a plane parallel with the forward movement of the sliver; Fig. 2 is a top plan view of most of the parts shown in Fig. 1; Fig. 3 is a section of Fig. 2 on line III—III of Fig. 2; Fig. 4 a section on line IV—IV of Fig. 2; and Fig. 5 is a similar section on line V—V of Fig. 2, somewhat enlarged; Fig. 6 is a perspective view of the parts shown in Fig. 2 illustrating the action of the new sliver pan; Fig. 7 is a top plan view of a modified form of pan; Fig. 8 a section thereof on line VIII—VIII; Fig. 9 a section thereof on line IX—IX; and Fig. 10 a detail of the apex of the pan.

The parts of the ordinary comber as shown in Fig. 1 and also in Fig. 2 comprise the combing cylinder 1 and the detaching and piecing rolls 2 which are mounted on a series of uprights such as 3, upon which also the calender rolls 4 and the sliver apron 5 are mounted. It will be understood by those skilled in this art that the piecing rolls receive the fiber combed by the combing cylinder in successive detachments or tufts and piece them together by overlapping the forward end of each tuft upon the tail ends of the immediately preceding tuft, thus making a flat lap or ribbon of overlapped fibers or tufts of which the upper surface is formed entirely by the forward ends of the fibers and the under surface by the tail ends of the fibers. This sliver lap is extremely tenuous and requires to be condensed into compacted or rounded form before it can be readily moved through or from the machine. It is made to pass, therefore, from the piecing rolls through a sliver conductor or pan, indicated generally at 6, into a condensing trumpet 7, which compresses and feeds it in rounded form to the bite of the two calender rolls 4, by which it is pulled through the trumpet and discharged on to the sliver apron 5, moving along the latter, as indicated in Fig. 6, to the delivery part of the machine, not shown. It is customary for combers of this type to be made in multiple units of some six or more similar combing heads, with a single sliver apron common to all, and the rounded sliver has thus to travel some distance upon the apron before it is finally coiled in the receiving can. In the present case the sliver pan 6 rests by its rear portion on a rod 8 or any other suitable form of support, for which purpose it is provided with a lip 9 fashioned in any suitable way to adapt it to the rod or such other support as may be provided. At its forward end it rests upon the tip of a set-screw 10, carried by a bar 11, which may or may not form part of an electric sliver pan stop motion,

not necessary to be here described. The pan has a bottom or floor portion 12 which is preferably perforated to allow free passage of air to and from the under side of the lap passing thereover so that the jerking motion which the lap ordinarily receives from the alternating forward and back motion of the piecing rolls, will not be likely to cause its rupture. The holes also serve to let out dust and dirt that would otherwise accumulate in the pan. Along its rear margin, the floor is provided with a beveled rib 12^a, over which the lap passes into the pan. The side walls of the pan may be of an indifferent height at the rear, near the piecing rolls, but at their forward ends they are preferably of about the height of the condensing trumpet 7 to which they converge, forming a generally triangular pan, as distinguished from the semi-circular pan now most commonly used. The condensing trumpet is secured to the side walls and floor of the pan in any manner that will provide a smooth interior passageway from one to the other, a soldered joint being preferred.

In the form of sliver pan shown in Figs. 1 to 6, the side walls are formed of upright portions 13 of the floor 12 bent up at right angles thereto and beaded at the top, with the interior of the angle between the floor and upright portion filled in with opposite fillet plates 14, which are inclined or sloped downwardly at an angle of about 45 degrees, forming the side walls proper of the pan, and which engage and control the sliver passing therethrough.

In the form of the invention shown in Figs. 7 to 10, the sloped side walls 15 and the floor 16 are made in one piece which can be bent up from a flat blank with little difficulty and beaded around its margins for additional rigidity and strength. The sloped and converging side walls 15 increase in pitch as they converge from the piecing rolls toward the trumpet, being steeper near the trumpet and nearly level near the piecing rolls.

Both forms of the device operate uniformly and reliably to cause the margins of the pieced sliver-lap to curl and fall over upon the upper central surface thereof as the lap advances toward the trumpet. The successive positions or shape of the lap are shown in Fig. 6 and in the section views of Figs. 3 and 4. Fig. 5 indicates with fair accuracy the condition of the lap as it enters the large end of the trumpet. The bottom surface of the lap, which is composed entirely of the tail ends of fibers, as above explained, is turned onto the outside of the folded lap before or while it passes through the trumpet and the outer surface of the rounded condensed sliver that emerges from the trumpet, as indicated at 7^a in Fig. 6, is thus completely formed of tail ends of fibers or fibers with their free ends projecting rearwardly with respect to the forward motion of the sliver. It is thus best adapted to travel over and past the guiding devices on the sliver apron without being roughened in so doing, and the sliver is thus superior to slivers in which the fibers are otherwise arranged.

In the one-piece form of Figs. 7 to 10, the forward apex of the triangular pan is formed by an upright wall 17 which is perforated to receive the trumpet 18 secured therein by solder or in any other suitable manner. In this form of pan also the rear margin of the floor is bent upwardly, as shown at 19, to form a beveled entrance to the pan corresponding to the rib 12^a in the form first described, the material being then bent downwardly as a lip 20 on which tabs 21 are struck out, on which the rear of the pan is intended to rest. Irrespective of its function of folding the upper side of the lap into the interior of the round sliver, it will be observed that the form of pan just described possesses distinct advantages in respect of the simplicity of its structure and the economy of its manufacture.

It will be readily understood that the shape and general appearance of the pan may be considerably modified from the two forms specifically illustrated in the drawings, while still operating to fold the sliver in the manner above described. The sloped walls, for instance, may or may not be continuous, as desired, and may or may not extend the full distance between the piecing rolls and the trumpet. All of the corners of the pan are preferably in any case rounded so as to have no plane surface whatever and hence no corners. It is to be especially observed that the use of the improved pan entails no additional operation on the part of the operator, and that it may be substituted for existing forms of pan without any change in the structure of the machine.

I claim:

1. A sliver pan for Heilman cotton combers comprising a floor portion having an integral inclined rib along its rear margin and opposite integral side walls converging toward the forward end of the pan, and a condensing device mounted on such forward end.

2. A sliver pan for Heilman combers comprising a generally triangular floor portion and side and end walls bent up in one piece from the floor portion and an inclined entrance rib bent up from the rear margin of the floor portion.

3. A sliver pan for Heilman combers, comprising a generally triangular pan having a floor portion, converging side walls bent up from the floor portion and an integral supporting lip along the rear mar-

gin of the floor portion having tabs struck out therefrom adapted to engage the pan support.

4. In a Heilman comber, a sliver pan adapted to be removably supported in a fixed position between the piecing and the calender rolls and consisting of a single floor portion bridging the space from one set of rolls to the other, and provided with downwardly and inwardly sloping side walls which converge toward said calender rolls, and a trumpet carried by said sliver pan at the said point of convergence.

In testimony whereof, I have signed this specification in the presence of two witnesses.

ROBT. SCHOFIELD.

Witnesses:
E. KENT SWIFT,
G. M. WHITIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."