Aug. 31, 1926.

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W. E. THOMAS ET AL

YARN DRAWING APPARATUS

Filed April 21, 1925

2 Sheets-Sheet 1

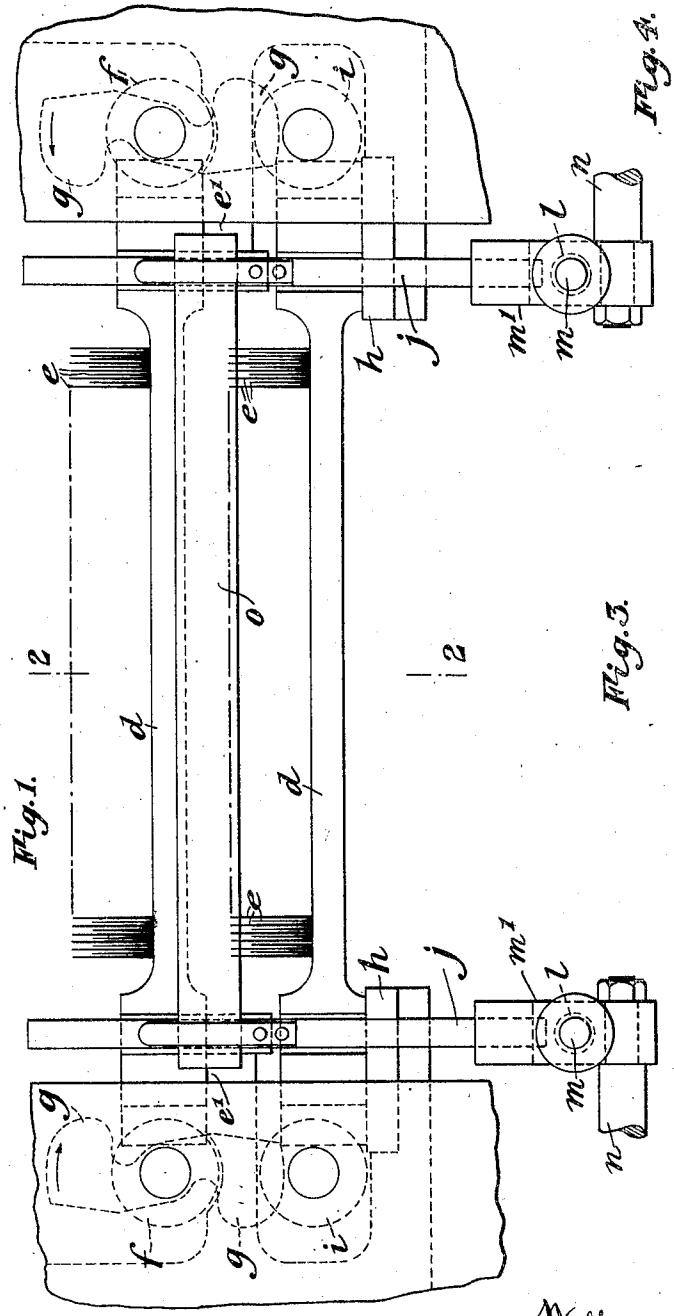


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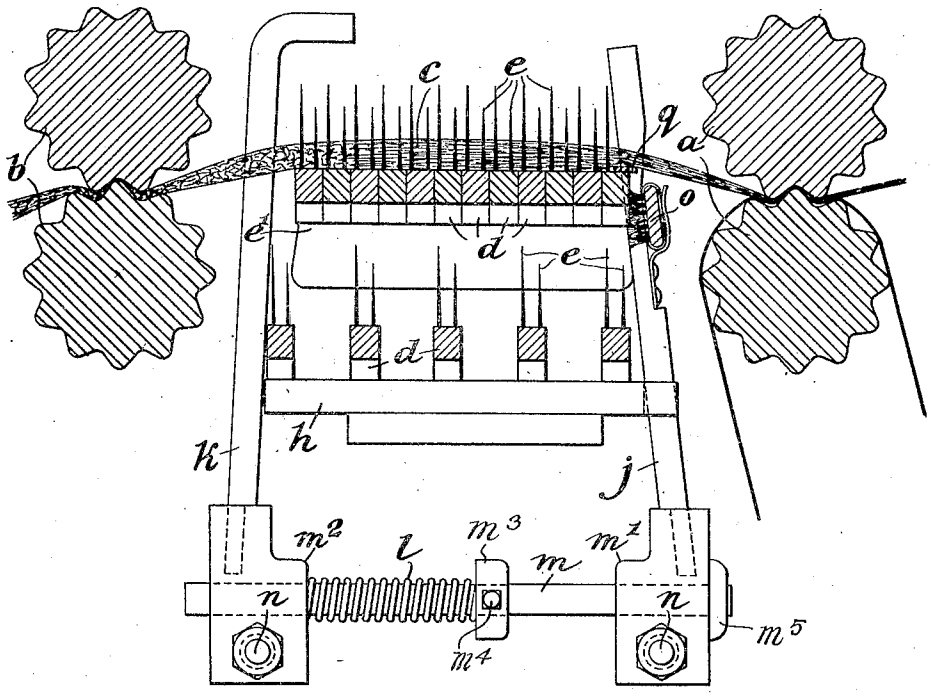
Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## YARN-DRAWING APPARATUS.

Application filed April 21, 1925, Serial No. 24,742, and in Great Britain February 12, 1925.

Our invention relates to improvements in or connected with gill-boxes, drawing boxes and like apparatus used in wool and worsted yarn manufacture, of the kind comprising a front pair of fluted rollers and a back pair of fluted rollers, the former of which rotate at a greater speed than the latter so as to draw out the wool as it proceeds from one to the other, and a number of so-called fallers arranged between the said pairs of fluted rollers and comprising bars carrying a number of pins through which the wool, as it is fed by the fluted rollers, passes and has its fibres straightened out, the fallers being caused to move horizontally between the pairs of rollers and at the end of their course knocked down and passed back and again brought into the upper path, these movements being effected by means of rotating screws which engage with them, and a brush being provided whereby the accumulated fibre and noil is removed from the faller pins or teeth as the said fallers drop from the forward end of their operative path.

The object of our invention is to prevent the brush from becoming foul by the lodgment therein of short fibre and dirt and to this end we provide one of the fallers with means for dislodging such fibre and dirt in its passage past the brush.

In a suitable arrangement according to the invention we provide along the front of one faller, in lieu of the first row of pins or teeth, a thin strip, preferably of metal, having a serrated edge which projects beyond the front-edge of the faller, so that, as the latter is struck down in the ordinary way, the serrated projecting edge of the said strip combs through the bristles of the brush and clears the latter of any short fibre or dirt which may have lodged in them.

Figure 1 is a front view of a gill-box having the improvements applied thereto, but with the fluted rollers omitted.

Figure 2 is a section on the line 2—2, Figure 1, but showing the two pairs of fluted rollers in position.

Figures 3, 4 and 5, are, respectively, a front view, an end view and a plan view of one of the fallers detached.

$a$, $a$ and $b$, $b$ are, respectively, the front and back pairs of fluted rollers and $c$ is the sliver of wool passing between, and gripped by, the members of each pair and being drawn out in its passage owing to the rollers $a$ rotating at a higher speed than the rollers $b$.

$d$, $d$ are the fallers arranged behind one another between the two pairs of rollers $a$, $b$ and consisting of bars provided with pins $e$ through which the wool sliver passes on its way from the rollers $b$ to the rollers $a$ so that its fibres are straightened out. The said fallers are supported at their ends on shelves $e^1$ and caused to travel horizontally towards the front rollers $a$ by the engagement of their ends with rotating screws $f$, $f$ which are provided at their front ends with the cams or tappets $g$ which, as each faller arrives at the front of the gill-box and is no longer supported by the shelves $e^1$, knocks the said faller down out of engagement with the sliver and on to the lower shelves $h$, $h$ where its ends engage with another pair of screws $i$, $i$ which traverse them to the back of the gill-box. At this point the fallers are again raised to engage the sliver by other tappets, not shown, similar to the tappets $g$ and carried by the said lower screws $i$.

$j$, $j$ are the front conductors which guide the fallers when knocked down by the tappets $g$ into engagement with the screws $i$ and $k$, $k$ are the back conductors for guiding the fallers when knocked upwards into re-engagement with the screws $f$. Two pairs of these conductors are employed, one at the front and one at the back of the gill-box, the members of each pair bearing against the adjacent fallers at the ends of the latter. The base-pieces $m^1$, $m^2$ of the front and back conductors $j$, $k$, respectively, are pivotally attached to the frame of the machine (not shown) by studs $n$. A rod $m$ passes through enlarged holes in the said base-pieces $m^1$, $m^2$ and has on it a collar $m^3$ fixed by a set-screw $m^4$ and at one end a cap $m^5$. A tension spring $l$ surrounds the rod $m$ and is fastened at one end to the base-piece $m^2$ and at the other end to the collar $m^3$, thus causing the said conductors to bear yieldingly against the fallers adjacent to them.

$o$ is the brush, preferably having short stiff bristles, shown attached to the front conductors $j$, $j$ which serves, as the fallers $d$

are struck down, to engage with the pins thereon and remove all collected fibrous matter therefrom.

*q* Figures 3, 4 and 5 is the strip of metal having a serrated edge, which we apply to one of the fallers after having removed the front row of pins or teeth of the faller thereof and which serrated strip serves, during the passage of the said faller past the brush *o*, to comb from the bristles thereof any fibre and dirt which have lodged therein.

Claims:

1. In apparatus for drawing yarn, in combination with means for moving the sliver, a plurality of traveling fallers, and a brush located adjacent to the path of the fallers for cleaning the faller pins, and means carried by one of the fallers for engaging the brush and removing fibre or dirt therefrom.

2. In apparatus for drawing yarn, in combination with means for moving the sliver, a plurality of traveling fallers, and a brush located adjacent to the path of the fallers for cleaning the faller pins, a cleaning strip carried by one of the fallers, for engaging the brush during the normal travel of the said fallers, and removing fibre or dirt from the brush.

3. In apparatus for drawing yarn, in combination with means for moving the sliver, a plurality of traveling fallers, and a brush located adjacent to the path of the fallers for cleaning the faller pins, and a brush engaging strip projecting laterally from one of the fallers, and provided with a serrated edge to engage the brush, and comb the bristles thereof, to remove collected fibre or dirt therefrom.

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