A. J. ROOT & G. JACKSON.

Knitting-Machine Burr.

No. 211,791. Patented Jan. 28, 1879.

Fig. 1.

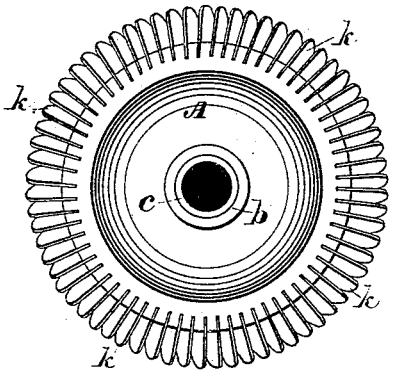


Fig. 2.

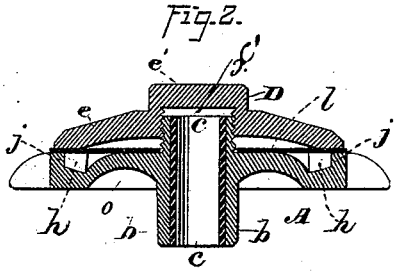


Fig. 3.

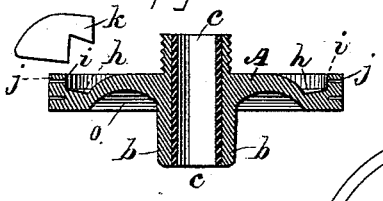


Fig. 4.

Fig. 5.

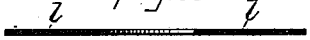


Fig. 4*

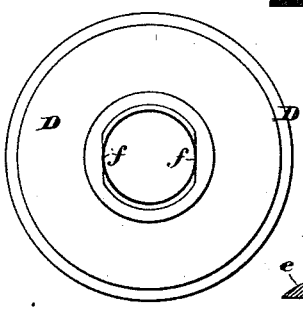


Fig. 7.

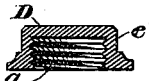


Fig. 6.

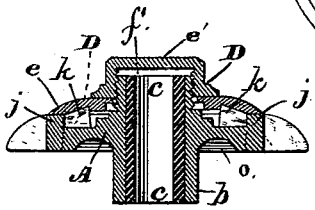
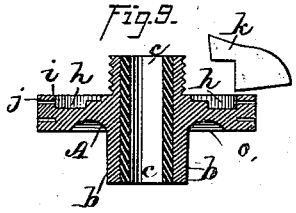


Fig. 8.

Fig. 9.



WITNESSES:

Jas. E. Hutchinson

Penn'a Walsted

INVENTORS:

Andrew J. Root,

and

George Jackson.

by J. F. Walsted,

Atty.

UNITED STATES PATENT OFFICE.

ANDREW J. ROOT AND GEORGE JACKSON, OF COHOES, NEW YORK.

IMPROVEMENT IN KNITTING-MACHINE BURRS.

Specification forming part of Letters Patent No. **211,791**, dated January 28, 1879; application filed July 25, 1878.

To all whom it may concern:

Be it known that we, ANDREW J. ROOT and GEORGE JACKSON, both of Cohoes, in the county of Albany and State of New York, have invented certain new and useful Improvements in Knitting-Machine Burrs; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our improvements belong to the class of burrs or wheels having removable blades or wings, and they are applicable either for cast-off burrs or for landing-burrs; and they have for their objects, mainly, making the nut which unites together the removable parts with a covered cavity, serving as an oil-chamber, into which oil is drawn up and retained and protected, and in making an annular cavity on the under face of the hub, as more fully hereinafter set forth.

Figure 1 represents a plan of the under side, and Fig. 2 a cross-section, of a cast-off burr made in accordance with our invention; Fig. 3, the body of the burr, showing its fixed hub projecting on both sides of the same, and one of its blades detached; Fig. 4, the nut-cap or cover in cross-section; Fig. 4*, a top view of the same; Fig. 5, the thin steel washer, these last three figures exhibiting all the parts (the blades excepted) which constitute the complete burr.

The body A, as will be seen, comprises in a single piece the plate or stock for receiving the blades, the lower tube, *b*, which sustains the same on the spindle of the knitting machine or frame, and an upper prolongation, *c*, of the same tube, and this prolongation is threaded to receive the nut-cap or closed cover D. This cover D, as will be seen, is a disk or circular plate, *e*, somewhat dish-shaped on its under side, and having a diameter about equal to that of the body A, and, unlike nuts generally, it has no opening through it; but, on the contrary, it is made solid and thicker at its center, or furnished with a central dome or elevated part, *e*, which being made with two or more flat sides, *f*, allows it to be operated by means of a wrench or other tool to screw the plate to the threaded part *c* of the body, this dome *e* being cup-formed on its under side, as seen at *f'*, and threaded for this purpose, as shown at *g*.

When this cap or cover shown in any of the figures is screwed down to place to hold the blades, there is left a free space for the reception and retention of oil between it and the the top of the hub or tube *c*, this space affording an oil-chamber which is practically air and dust tight, and when the revolution of the burr causes the oil to be sucked up from the oil-cup in which the lower tubular projection, *b*, is immersed, this oil so drawn up remains in the chamber, except as it is gradually needed for lubricating the spindle on which it revolves, and it is impossible for any of the oil to overflow and soil the burr and the goods—a condition which is unavoidable in cases where the nut is not closed at its top.

The upper face of the body A has an annular channel or groove, *h*, as shown, the base of which inclines downward from the inner vertical wall, *i*, of the rim *j* of the body toward the center to receive the correspondingly-shaped nib *k* on the blades, the body having the customary series of slits or slots for the blades, such slits extending from the periphery through the rim *j* to the channel *h*.

The blades in the above-named figures have their top lines straight, and being all inserted the thin and somewhat flexible steel washer *l* is next placed over the threaded part *c* of the tube *b*, the washer lapping over and upon the nibs and tops of the blades; and, next, the only remaining part—namely, the internally-threaded covering-plate or closed nut—is applied and screwed to place, and the whole is complete.

The flexibility of the washer permits it to adapt itself to any slight or accidental variation in the level formed by the top lines of the system of blades, and the slightly concaved or dished form of the under face of the covering-plate D allows it to press and bind most closely upon the washer near its outer edge, and just over the nibs, where the pressure is needed to hold the blades in true position.

The lower face of the body A is concaved, as shown, thus affording a circular concavity surrounding the lower prolongation, *b*, of the tube, and when this prolongation is immersed in its oil cup this concavity permits the top of the cup to reach up to or above the plane of the lower surface of the body, and thereby practically prevents the admission of motes and dirt into such cup.

The fewness of the parts and the simplicity and cheapness of construction will now be apparent, and there is really nothing to get out of order. It will also be evident that but occasional oiling will be required, because, the top of the spindle being covered by the covering-plate D, dirt and dust have no access to the spindle from that quarter, and it is found in practice that about one oiling in a fortnight is sufficient.

In Figs. 6, 7, 8, and 9 we show a variation in our improvements, the same being illustrated as applied to a landing-burr, it being understood, however, that either of the modes shown and described by us is adapted for either a landing-burr or for a cast-off burr.

In these figures the nib *k* of the blade being inclined on its upper instead of its lower side, the annular groove *h* is made flat instead of inclined; and as the inclines of the blades project a little above the rim *j*, the thin washer *l* may, if desired, be omitted, and the closed nut-cover in such case is made in two pieces, as shown, the larger part, *e*, performing the duty of the disk or washer, and also that of the clamping or tightening plate, when the closed cover is screwed down to place, the inclined upper parts of the nibs of the blades being received in a corresponding annular groove made in the under side of the part *e*—in other words, the inclination of the tips *k* and the corresponding groove for their reception are the reverse and the converse of those first described.

This modification, it will be seen, is due to having the nibs of the blade project upward instead of downward, so that the annular groove for their reception must be in the part which is applied above them instead of in the plate or body of the burr.

We do not claim a single plate slotted for the reception of blades, nor such a plate having projecting hubs; but

We claim—

1. The combination of the body A, provided with the threaded part *c* and with removable blades, with the screw-cap D, constructed with a covered cavity having a depth greater than the height of said part *c*, whereby when the cap is screwed to place it shall leave a closed space or chamber between itself and the top of the part *c*, substantially as shown and described.

2. The knitting-burr having its stock or hub constructed with the annular cavity *o* in its under face, and with the tubular projection *b*, adapted to be immersed in the liquid in the oil-cup, and having also the screw-cap D, serving as a closed oil-chamber, all as set forth.

ANDREW J. ROOT.
GEORGE JACKSON.

Witnesses:
JOSIAH G. ROOT,
GEO. WATERMAN.