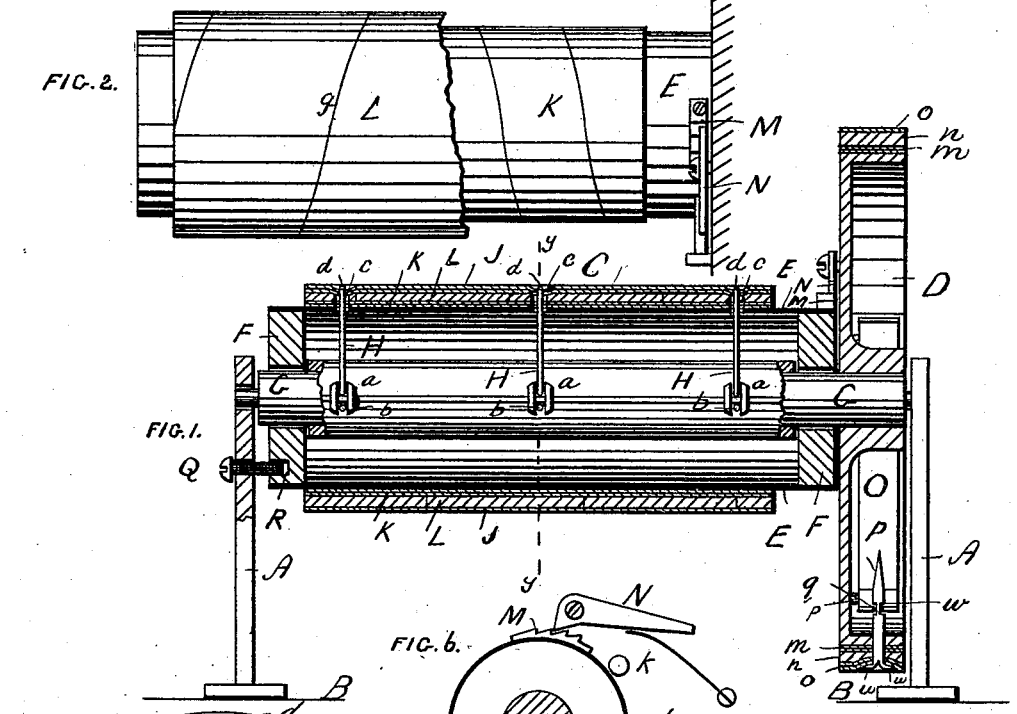
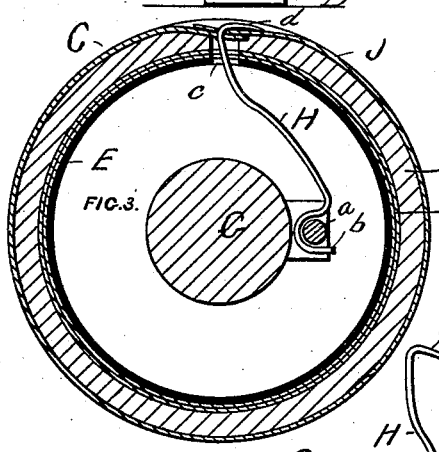
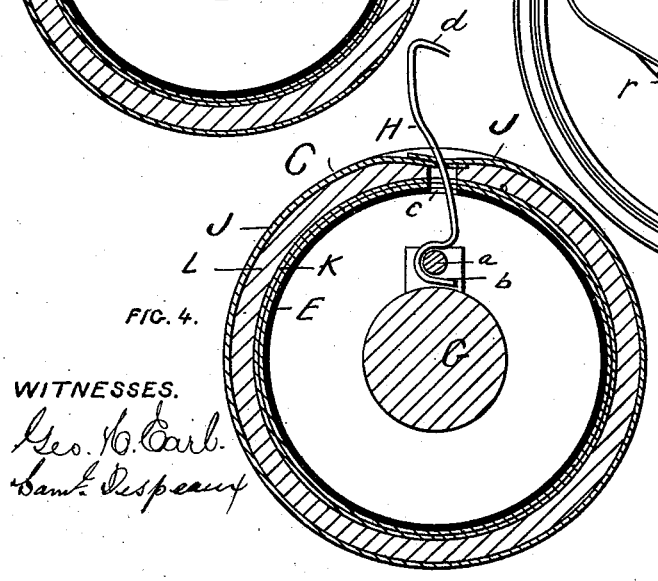
O. GILMORE.

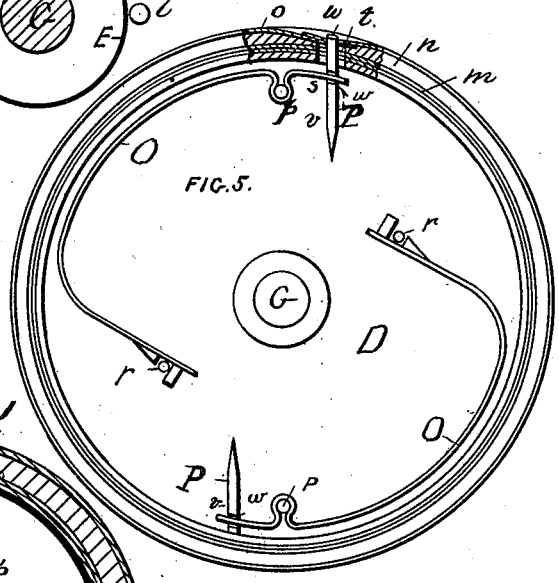
Sand-Paper Rolls.

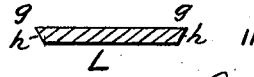
No. 212,371. Patented Feb. 18, 1879.











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UNITED STATES PATENT OFFICE

OTHNIEL GILMORE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SAND-PAPER ROLLS.

Specification forming part of Letters Patent No. **212,371**, dated February 18, 1879; application filed February 15, 1878.

To all whom it may concern:

Be it known that I, OTHNIEL GILMORE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sand-Paper Rolls, of which the following is a specification:

This invention consists, first, in a sand-paper roll having its body made of metal, and covered by one or more layers of paper glued or cemented thereto, said layers of paper being covered by a layer of felt secured thereto by a suitable adhesive material, and the whole adapted to receive a removable covering of sand or emery paper, substantially as described; second, in a sand-paper roll adapted to turn on its shaft for the operation of novel griping-jaws from within, in combination with a ratchet and pawl for regulating the adjustment of said jaws, as hereinafter described; third, in a sand-paper roll wrapped with a felt strip having beveled abutting edges, whereby is secured a close joint and an even surface for the roll.

In the accompanying plate of drawings, Figure 1 is a view, in vertical section, in the length of the roll and its shank-wheel; Fig. 2, a view of the roll, showing, in side view, on one end the felt, and on the other the paper, covering; Figs. 3 and 4, cross-sections on line *y y*, Fig. 1, to be hereinafter particularly referred to; Fig. 5, view of a modified form of fastening, applicable also to shank-wheels; Fig. 6, view in detail, and Fig. 7 a cross-section of the strip of felt covering the roll.

In the accompanying drawings, A A represent two standards, which are secured to a base, B, and carry between them, in suitable bearings, the combined sand-paper roll C and shank-wheel D of my improved construction; E, the body of the roll C. This roll E is made hollow and of metal, and has each end closed by a head, F, and through these heads F loosely passes the shaft G, which projects at each head, and at one head has the shank-wheel D secured to it.

The roll-shaft G turns in bearings of the standards A A, and within the roll-body it has three fixed staples, *a*, which are arranged in a line that is parallel with the axis of the shaft, and are at points intermediate of the length of the shaft.

To each staple *a* is hung the hooked end *b* of an arm, H, all of which arms H extend through and project at openings *c* of the roll-body E, which openings are suitably located therefor, and are all in a line which is parallel to the axis of the roll. The projecting end of each arm H is at an angle to the length of the arm, and makes a hooked jaw, *d*, which is suitable to gripe the sand-paper covering J to the roll-body E, as will hereinafter appear.

The exterior of the roll-body E is built up and cushioned with paper K and felt L, applied as follows: First, I coat the roll-body E with glue or any other suitable adhesive material, and then I tightly wind in a spiral direction about it from end to end a strip of Manila or other suitable paper, and, coating the paper surface thus formed with glue or other suitable material, I again similarly wind another strip of paper, and so on until a thickness of one-sixteenth of an inch, or thereabout, of paper is obtained. Over this paper-covered body K I now tightly wind, in a spiral direction from end to end of the body, a strip of felt, (first having prepared the paper with glue or other suitable adhesive material,) and when all is in proper condition I suitably trim the ends of the paper and felt, and at the proper points make holes through it corresponding to the holes *c* in the metal body. By covering the metal roll first with the glued or cemented layers of paper, I secure upon said roll a closely-fitting foundation capable of taking glue for the attachment of the felt, and which will not sag, nor be caused to wrinkle and break by the centrifugal force of the roll when in operation.

It has been found that the felt itself is not well held directly to the metal by glue or cement, but may be quite securely thus attached to paper, and it is for this reason that I make the paper foundation on the roll, as paper is firmly held to the metal by cement or glue, and, owing to its non-elasticity, it is not liable to sag or pull loose from where it is attached by the adhesive material.

The edges *g* of the felt strip are trimmed to a bevel in the thickness of the felt, as shown at *h*, Fig. 7, whereby a closer lay and joint of the felt along its contiguous edges is secured when wound as described.

M is a ratchet rack-bar secured to periphery of roll-body E, at the end having the shank-wheel D; and N, a spring-pawl hung on the inner face of the shank-wheel D, in position to engage with the ratchet rack-bar M.

When the pawl N and ratchet M are engaged, the roll-body E and its shaft G are locked together, so that they turn as one.

When the pawl is released and held released from the ratchet, the roll-body is free to be turned on its shaft G, or the shaft in the body, and thus the griping-jaws can be made either to gripe the felted covering of the roll-body or to be lifted therefrom; and if lifted, and if the strip of sand-paper which is to make the sand-paper covering be suitably punched at one end and be by that end placed over the several griping-jaws, and at the other end brought round the roll and disposed under the plane of the griping-jaws, by then turning the roll-body on its shaft in the proper direction, obviously the sand-paper sheet will be griped to the roll-body, and, interlocking the pawl N with the ratchet M, there firmly held.

As before described, the griping-jaws *d* are hung by hooks *b* to the shaft-staples *a*, and this connection of the jaws with the shaft enables any one or more of the jaws to be readily detached from the shaft at the outside of the roll when the shaft is turned sufficiently to take off the strain or pull upon them by the staples of the shaft.

In Fig. 3 the griping-jaws are shown as griping the felt-covered body, and in Fig. 4 as lifted from such gripe.

In Fig. 4 is shown the position of the shaft when the griping-jaws can be detached, as has been stated.

To prevent the accidental turning of the shaft to the extent necessary for the detachment of the griping-jaws from it, the inner face of the shank-wheel D is furnished with a detachable stop-pin, *k*, in position to abut against the end of the ratchet M, and thus to stop the movements of the shaft in season to prevent the result stated.

I prefer to locate the stop-pin *k* so as to stop the roll-shaft when rotated at the best point for the jaws to receive the sand-paper.

In addition to the stop-pin *k*, I use another stop-pin, *l*, which, when the stop-pin *k* is removed, serves as a stop to the shaft when rotated, so as to leave it in the best position for detachment of the jaws, as described.

The periphery of the shank-wheel D is built up with paper *m* and felt *n*, applied substantially as has been described, in connection with the roll-body, except that it is wound straight round the periphery instead of spirally. Over this felt covering *n* is wound a strip of sand-paper, *o*, to secure which in place I provide the following mechanism: O is a spring-lever hung upon a fulcrum, *p*, of the outer face of the shank-wheel. This lever at one end has a notch, *q*, and by such notch the lever is interlocked with a fixed pin, *r*, on the wheel, and the lever at its end *s* carries a pointed pin, P, which passes through a hole, *t*, in the periphery of the wheel D, and clamps by its arms *u* the paper on the face of the wheel D.

The shank *v* of the pointed pin P is notched on each side, and by these notches *w* it is interlocked with the forked end *s* of the lever O.

In the use of the above-described mechanism I disengage the notched end of the spring-lever O from the wheel-pin *r*, and then disengage the pointed pin from the lever O and remove it from the wheel. I now wind the strip of sand-paper about the periphery of the wheel, and, having overlapped its two ends at the hole *t* in the wheel, I force the pointed end of the pin P through the same, and interlock the pin with the spring-lever O, after which I interlock the spring-lever O with the wheel-pin *r*, which causes the arms *u* of the pointed pin P to tightly gripe the sand-paper strip *o* to the wheel.

In lieu of winding the paper and felt spirally about the roll-body E, either or both may be wound straight about the same; but I prefer to wind it spirally.

Q is a pin screwing through one of the standards A A, and R a hole in the end of the roll, which is at such standard to receive the end of said pin, and thus hold the roll-body stationary while the shaft is being worked to detach or attach a strip of sand-paper.

I am aware that the periphery of a wheel has been provided with a band composed of emery and soft rubber applied as a coating to a strip of cloth or leather, the latter being intended to render the band capable of being secured to a wheel by cement; but such is not my invention, and is hereby disclaimed.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A sand-paper roll having its body made of metal, and covered by one or more layers of paper glued or cemented thereto, said layers of paper being covered by a layer of felt secured thereto by a suitable adhesive material, and the whole adapted to receive a covering of sand or emery paper, substantially as described.

2. A sand-paper roll adapted to turn on its shaft, and for the operation of griping-jaws *d*, substantially as described, in combination with a ratchet, M, and pawl N, applied relatively to the roll and its shaft, substantially as and for the purpose specified.

3. The sand-paper roll wrapped with the felt-strip having beveled abutting edges, substantially as and for the purpose set forth.

OTHNIEL GILMORE.

Witnesses:
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