(No Model.) 2 Sheets—Sheet 1.

J. MOFFAT & W. W. VIRTUE.

MACHINE FOR GRINDING AND SHARPENING SHEARING COMBS AND CUTTERS, &c.

No. 494,072. Patented Mar. 21, 1893.

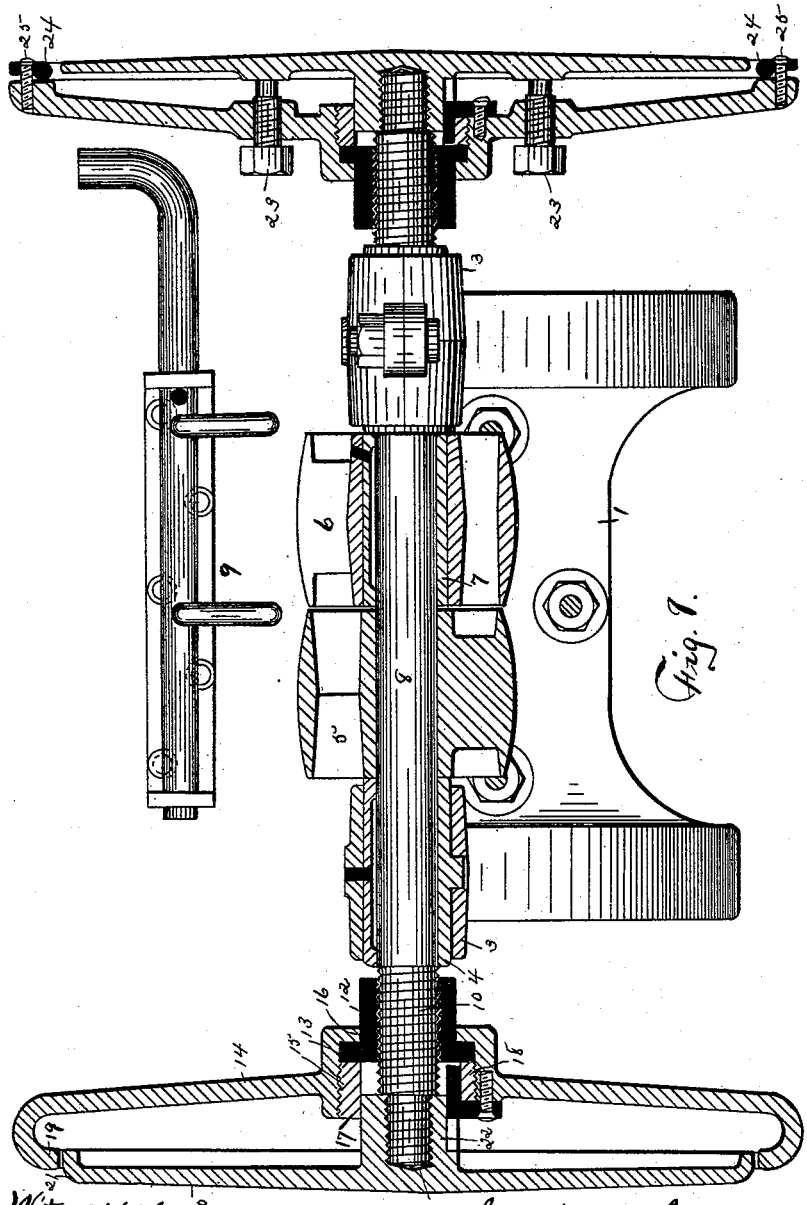

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

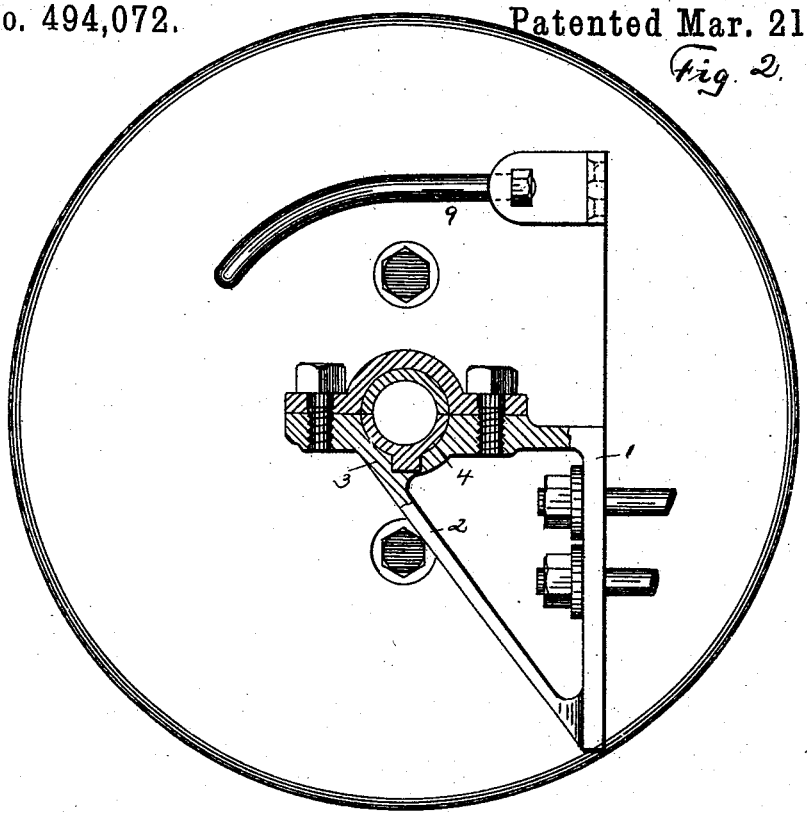


Fig. 3

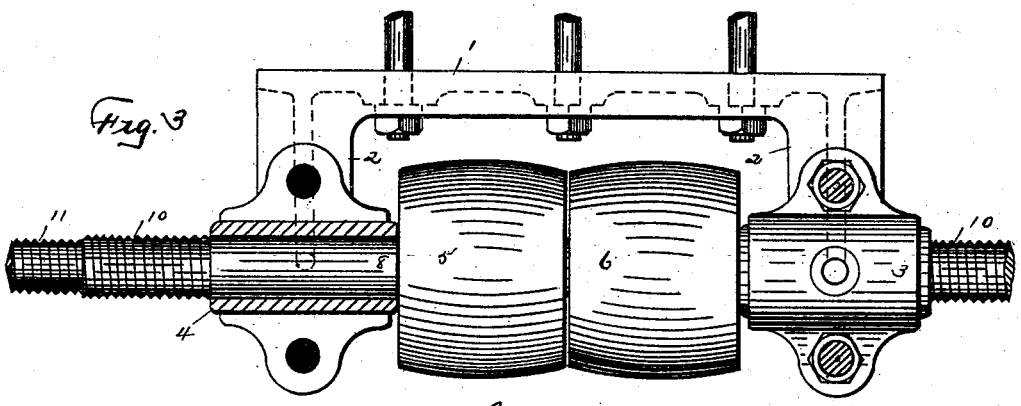
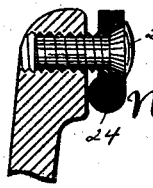


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN MOFFAT AND WILLIAM W. VIRTUE, OF SYDNEY, NEW SOUTH WALES.

MACHINE FOR GRINDING AND SHARPENING SHEARING COMBS AND CUTTERS, &c.

SPECIFICATION forming part of Letters Patent No. 494,072, dated March 21, 1893.

Application filed January 4, 1892. Serial No. 417,010. (No model.) Patented in New South Wales July 21, 1891, No. 3,134.

To all whom it may concern:

Be it known that we, JOHN MOFFAT and WILLIAM WRIGHT VIRTUE, subjects of the Queen of Great Britain, and residents of Sydney, in the Colony of New South Wales, have invented certain new and useful Improvements in Machines for Grinding and Sharpening Shearing Combs and Cutters, (for which we have obtained Letters Patent in New South Wales, No. 3,134, dated July 21, 1891;) and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in machines for grinding and sharpening shearing combs and cutters, and such other tools and instruments as can be ground and sharpened upon a rotating plate armed with an abrading face of emery or like material.

In carrying out the invention means are provided for stretching a sheet of emery cloth upon a disk and securing it thereon.

The main features of the invention are: first, stretching and securing the emery cloth in a single action by special means; second, securing the emery sheet, and when it is secured stretching it over the disk by an independent action.

The invention also embraces a construction whereon the sheet is gripped and stretched over a back plate to which it is secured by gluing.

Referring to the annexed sheet of explanatory drawings, Figure 1 is a longitudinal section through a double grinding machine, Fig. 2 a transverse section through one of the brackets, Fig. 3 a top plan of the frame, Fig. 4 a detail section enlarged showing an arrangement of gripping a ring.

The two main modifications of the invention are illustrated in Fig. 1, the first on the left and the second on the right of that figure.

Referring to Fig. 1,—1 is the frame, 2 brackets, 3 plumber blocks, 4 brasses, 5 fast pulley, 6 loose pulley, 7 bush, 8 main spindle, 9 belt gear, 10 screwed end of spindle, 11 reduced screwed end of spindle, 12 traveling nut, 13 collar thereon, 14 back plate, 15 hollow hub thereof tapped, 16 collar on hub 15, 17 collar ring screwed into the hub 15 and turned internally, 18 key or spline, 19 jaws of back plate, 20 face disk, 21 rounded edges of same, 22 hub or boss screwed into the part 11 and turned externally so as to slide within the collar ring 17. The spline 18 prevents the back plate turning relatively to the disk.

In fitting a grinding cloth in the construction shown in the left of the figure, the nut 12 is run out on the screw 10, whereby the back plate is made to advance until its jaws clearly overhang the surface of the face plate. The sheet of cloth is then spread on the face plate with the edges under the jaws of the back plate, and the nut 12 run back on the screw 10 slowly. As the jaws 19 retreat toward the rim of the face plate, the edges of the emery sheet become pinched between these parts, and as the motion is continued the sheet is drawn taut upon the face plate and held firmly thereon. The nut 12 is operated with a spanner, but if desired a hand wheel or lever may be secured to it for the purpose. In the alternative arrangement shown in the right of the figure the principle is different. The construction and combination of the parts marked 10, 11, 12, 13, 15, 16, 17, 18, 20, and 21, are however, similar; 23 are pinching screws, three or more in number, passing through holes in the back plate and making contact with the back of the face plate. These screws serve the purpose of putting extra tension on the cloth when necessary and truing the plate and preventing rotary motion of the disk and back plate relatively to one another; and it may be used, if desired, with the construction previously described.

24 is the gripping ring, and 25 screws securing the same to the back plate.

The emery sheet is set by running out the nut 12 until the back plate overhangs the surface of the face plate, inserting the edges of the cloth under the gripping ring and securing the same therein by means of the said screws 25, and then running back the nut 12, thereby drawing the back plate rearward relatively to the face plate and stretching the cloth upon the latter.

It will be observed that each form of mechanism shown in Fig. 1 constitutes a peripheral clamp for holding the emery cloth upon the face plate or disk.

The face plates are always made slightly higher toward the center than at the edges, in order to insure perfect contact of the cloth therewith at all points; but in this there is no novelty.

The back plate need not be solid; it may be formed with spokes, if desired.

We do not restrict ourselves to the use of emery cloth, as other textile substances or fabrics provided with abrading faces of emery or of other materials of a like nature, may be used in lieu thereof. And we would have it understood that the main essence of our invention is not confined to the mechanical details described and illustrated, but includes the several constructions and combinations hereinafter claimed.

We are aware that grinding and sharpening machines and sand-papering machines are known in which a sheet of emery cloth or paper, or glass cloth or paper has been glued or cemented to a face plate; and in which such a sheet has been secured against the face by means of a ring driven about or screwed upon the periphery of the face plate.

Having now particularly described and explained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

1. In a grinding and sharpening machine, the combination with the spindle, of the face plate or disk fixed thereon, the back plate fitted on said spindle and movable relatively to the face plate, a peripheral clamp adapted to hold the edges of the emery cloth, and means for moving the back plate so as to draw the cloth taut upon the face plate, substantially as described.

2. In combination with the spindle having the screw threaded portion and reduced screw threaded end, the traveling nut fitting said screw threaded portion and having a collar thereon, the back plate provided with a peripheral claw ring and a hub having a collar adapted to overlap the collar on the traveling nut, and the disk having a hub screwed onto the reduced end of the spindle, substantially as described.

3. In combination with the spindle having a screw threaded portion and reduced screw threaded end, the traveling nut and disk screwed onto said threaded portion and screw threaded end, respectively, the back plate provided with a peripheral clamp, and connections between said plate and nut whereby the plate may be moved to permit the insertion of the cloth and then drawn back relatively to the face plate so as to stretch the cloth upon the latter, substantially as described.

4. The combination of a face plate or disk, a sheet of emery cloth or like abrading fabric, a peripheral clamping ring for gripping such cloth or fabric about the edges, a movable support therefor, mechanism for retiring the clamping ring relatively to the face plate or disk, and a glue or equivalent film between the cloth and the disk.

5. An abrading cloth or fabric setting and stretching attachment for grinding and sharpening machines of the kind described, consisting of a peripheral clamping ring for gripping the cloth about the edges, a movable support therefor, and means for retiring such clamping ring relatively to the face plate or disk.

6. In a grinding and sharpening machine, the face plate or disk, the back plate movable relatively thereto, and the set screws passing through said back plate and engaging the back of the face plate, all arranged and adapted to operate substantially as described.

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