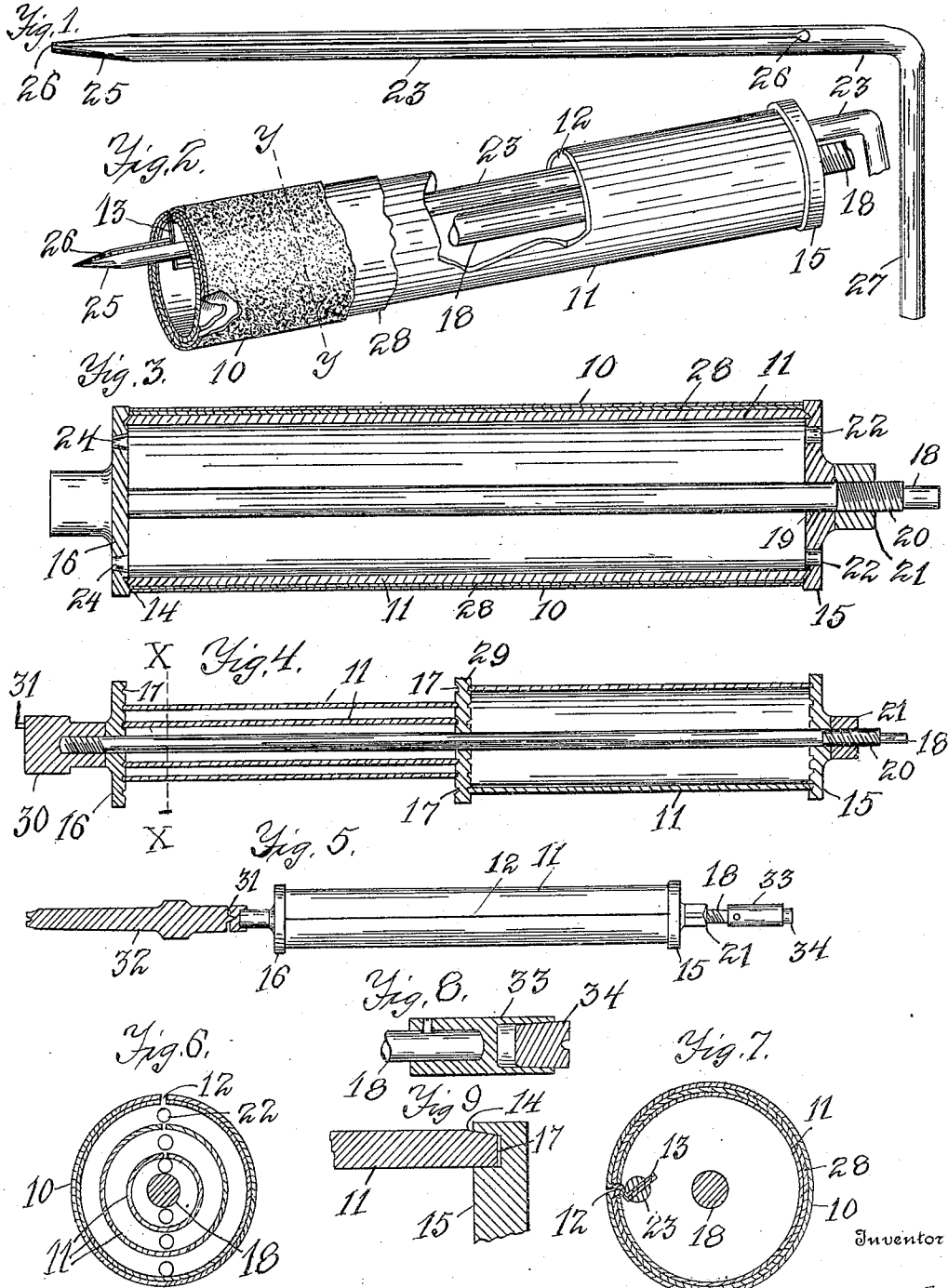


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CYLINDRICAL SANDER.
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944,431.

Patented Dec. 28, 1909.



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CYLINDRICAL SANDER.

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To all whom it may concern:

Be it known that I, OSMER H. HAYWARD, a citizen of the United States, residing at Falconer, in the county of Chautauqua and State of New York, have invented new and useful Improvements in Cylindrical Sanders, of which the following, taken in connection with the accompanying drawing, is a full, clear, and exact description.

The invention relates to cylindrical sanders and is specially applicable to spindle sanders, though it may be used upon large sanding cylinders; and the object of my invention is to provide a perfect cylinder with means for quickly clamping the sandpaper thereon so that its outer surface will be perfectly cylindrical. The great difficulty in attaching the sandpaper to the cylindrical surface has been to give a perfect curve to the sanding surface. The point where the two edges of the paper come together is liable to have a flat or uneven surface, thereby giving a jumping or uneven movement to the cylinder when run at high speed and making it almost impossible to sand a perfectly even surface.

In the drawings figure 1 is an elevation of the slotted key for drawing the sandpaper on to the cylinder. Fig. 2 is a perspective view of the cylinder with one end, the central portion, and the different layers of the covering and sanding material broken away to show the construction of the same, and the key inserted to show the manner in which it draws the paper upon the cylinder. Fig. 3 is a lengthwise sectional view of a simple single cylinder. Fig. 4 is a lengthwise sectional view of a modified form showing a multiple cylinder and also showing different sized cylinders. Fig. 5 is a side elevation of the cylinder with its connection for inserting in a lathe. Fig. 6 is a sectional view at line X X in Fig. 4. Fig. 7 is a sectional view at line Y Y in Fig. 2. Fig. 8 is a lengthwise sectional view of the end connection for attachment in the lathe. Fig. 9 is a sectional view of the cylinder end and cylinder showing the groove and cylinder with its outward bevel.

Similar numerals refer to corresponding parts in the several views.

The numeral 10 indicates the sandpaper which is supported upon a spring steel cylinder 11 which has the lengthwise slot 12 therein to receive the ends 13 of the sandpaper. The ends 14 of cylinder 11 are ta-

pered on their outer side. The end parts 15 and 16 are provided in order to hold cylinder 11 and circular grooves 17 are cut in the opposite inner faces of ends 15 and 16. The outer side of grooves 17 is cut on the outward bevel corresponding to the taper of ends 14 of cylinders 11 so that as the ends 15 and 16 are clamped upon said cylinder it will tend to press upon the outer side of the cylinder and thereby close the slot 12. In order to obtain this pressure upon the two end parts, end 16 is preferably made with a central rod 18 attached thereto by means of a threaded opening and screw thread on the end of said rod and end 15 has a central hole 19 through the same and the end 20 of rod 18 is threaded to receive a nut 21. It is now apparent that nut 21 may be turned and thereby press upon end 15 and drawing upon end 16 thereby compressing the two ends 15 and 16 together and closing slot 12.

End 15 is provided with holes 22 therein to receive a key 23, and end 16 has a tapered hole which conforms to the tapered end of key 23. Key 23 is provided with a lengthwise slot 26 so that when the ends 13 of sandpaper 10 are inserted through slot 12, the end 25 of key 23 may be inserted through hole 22 engaging ends 13 in slot 26, the ends 13 guiding the key to the tapered hole 24 at the opposite end of the cylinder and the tapered end 25 fitting tightly in tapered hole 24 clamps the slotted key upon ends 13. The handle 27 of key 23 extends at an angle from the slotted portion so that by turning the key thereby, the clamped ends 13 will draw the sandpaper taut around the cylinder 11. By simultaneously turning nut 21 and key 23, the sandpaper 10 is clamped between the adjacent edges of slots 12 when it is drawn taut about the cylinder 11.

For many forms of work it is desirable to have a resilient or cushion surface for the cylinder 11. It is apparent that such a cushioning material 28 may be placed about the cylinder 11 and will be held firmly in place by the sandpaper when said paper is drawn through the slot. This is the preferable method of holding the cushioning material though it may be cemented onto the cylinder or be inserted through the slot 12 with the sandpaper in order to hold the same, without departing from my invention. A multiple cylinder sander is formed in

my construction by lengthening shaft 18 and by shrinking thereon or otherwise rigidly attaching a central disk 29 midway thereon. The central disk 29 has circular groove 17 on both sides so as to receive the tapered ends 14 of cylinders 11. Cylinder ends 15 and 16 can then be used in connection with central disk 29 the same as with one another in holding cylinders 11. Both ends of rod 18 are threaded and a cap 30 is provided as a nut for one end to compress cylinder end 16 upon the cylinder 11 as it presses against the fixed disk 29, and nut 21 presses end 15 against the cylinder on the opposite side of central disk or partition 29. It is apparent that by this construction the cylinders on either side of central disk 29 may be removed, or loosened for renewing the sandpaper without disturbing the cylinder on the opposite side of said central disk. A plurality of cylinders are of special benefit on work requiring the sanding of both large and small curves. It is apparent also that a number of concentric grooves 17 may be cut in the opposite faces of ends 15 and 16 or in the opposite faces of disk 29 and a series of cylinders provided to fit the different sizes of grooves, as shown in Figs. 4 and 6. The ends 15 and 16 may be clamped upon all of these simultaneously or any one of them may be placed therebetween as desired.

In order to use this sander in a common turning lathe, a cap 31 and a chuck 32 are provided for one end. In the opposite end, rod 18 is extended and a sleeve 33 is keyed thereon. Sleeve 33 contains a wooden plug 34 therein to receive the lathe chuck the same as in the end of any common piece of timber. It is obvious, however, that any ordinary method of holding the cylinder may be made use of without departing from my invention.

In order to attach the sandpaper 10 upon cylinder 11 it is cut to a size somewhat larger than the circumference of the cylinder and the edges are inserted through slot 12, said slot having been placed exactly opposite the holes 22 and 24 in ends 15 and 16. The slotted key 23 is then inserted through hole 22 engaging the edges 13 of the paper in slot 26, the paper guiding the key as it is inserted through the hole 22 and causing the end 25 to enter the hole 24 of cylinder end 16. As hereinbefore stated the hole 24 is of such a size as to clamp the halves of the key firmly upon the paper yet allow of the turning of the key in the hole 24. The key is then turned sufficient to draw the paper taut around the cylinder 11 and simultaneously with the turning of nut 21 so that as the paper is drawn smooth upon the outer surface of the cylinder it will be clamped between the edges of the cylinder adjacent to

slot 12 thereby preserving the perfect contour of the cylinder and making a perfect cylindrical sanding surface. It is also obvious that when it is desired to release the paper all that is necessary is to release nut 21 and the spring cylinder 11 will relax its hold upon the paper allowing of its removal.

I claim as new:—

1. A sanding cylinder comprising a slotted hollow spring cylinder having tapered ends, end pieces having tapered annular grooves to receive said tapered ends, sand-paper, and means for compressing said end pieces upon one another to close said slotted spring cylinder and hold said sand-paper.

2. A sanding cylinder comprising a slotted spring cylinder having ends beveled on their outer sides, end pieces for said cylinder having oppositely placed similarly beveled grooves to receive said cylindrical ends, a rod connecting said ends, sand-paper and means on said rod to compress said end pieces on said cylinder to close said slot and hold said sand-paper.

3. A cylindrical sander, a hollow spring cylinder having a lengthwise slot and tapered ends, end pieces for said cylinder having tapering grooves to receive said tapering cylinder end, a rod connecting said ends, and a thread and nut on said rod to compress said ends upon said cylinder to close said slot, said ends each having a hole adjacent to said slot, and a slotted key insertible in said holes to tighten the sanding material.

4. A cylindrical sander comprising a spring cylinder having a lengthwise slot therein, said cylinder having tapered ends on its outer side, end pieces having circular grooves to receive said cylinder ends, said grooves tapered on their outer side to correspond with the taper of said cylinder, a rod connecting said end pieces and having a thread and nut to compress said end pieces upon said cylinder to close said slot, substantially as and for the purpose specified.

5. A spring cylindrical sander comprising a cylinder 11 having a lengthwise slot 12 and tapered ends 14, end pieces 15 and 16 having circular grooves 17 on their inner faces to receive said tapered cylinder ends sand-paper, a rod 18 connecting said end pieces and having a threaded end and nut 21 to compress said end pieces upon said cylinder to close said slot on said sand-paper, a suitable key, and holes 22 and 24 in said end pieces to receive said key, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OSMER H. HAYWARD.

Witnesses:

A. W. KETTLE,

I. A. ELLSWORTH.