Aug. 2, 1938. M. PLENGEMEIER 2,125,460

SANDER

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FIG. 1

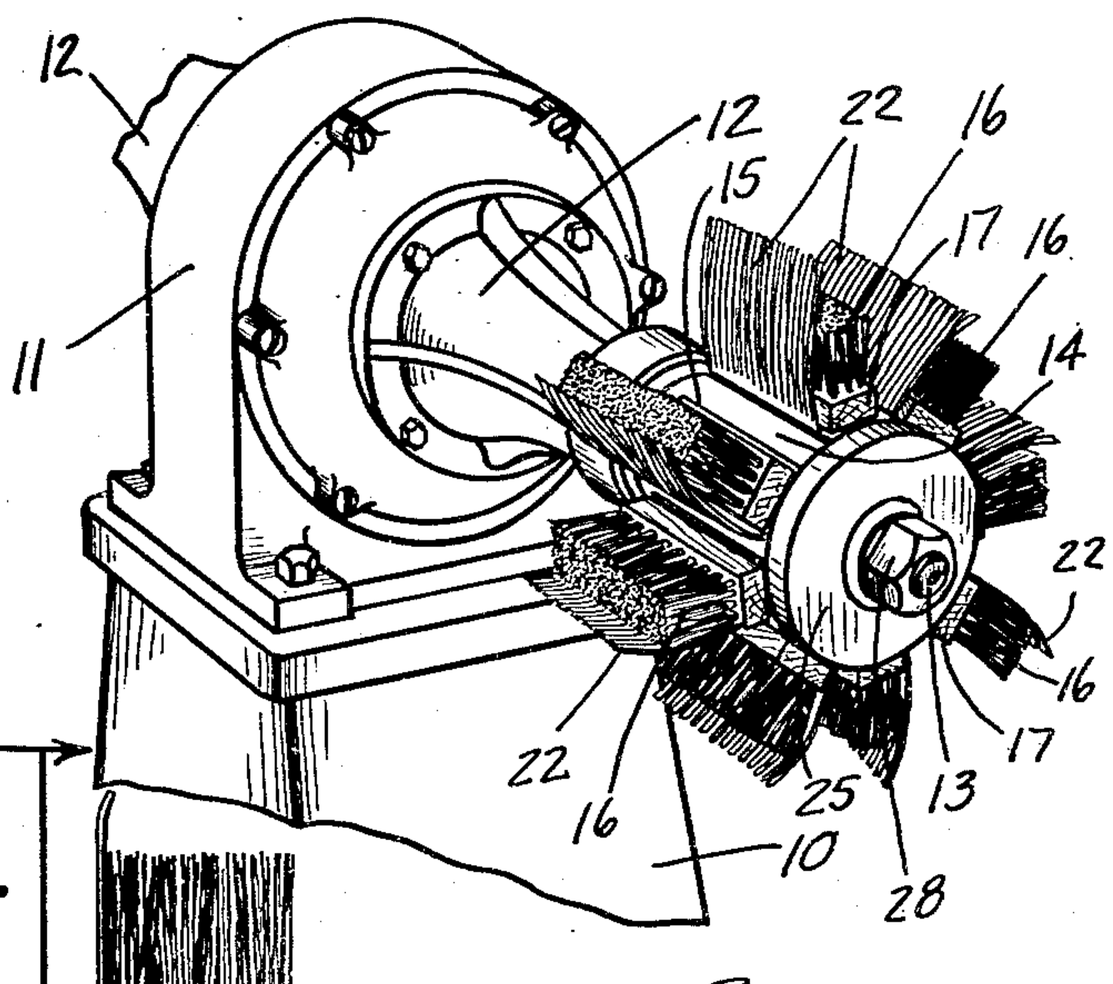

FIG. 2

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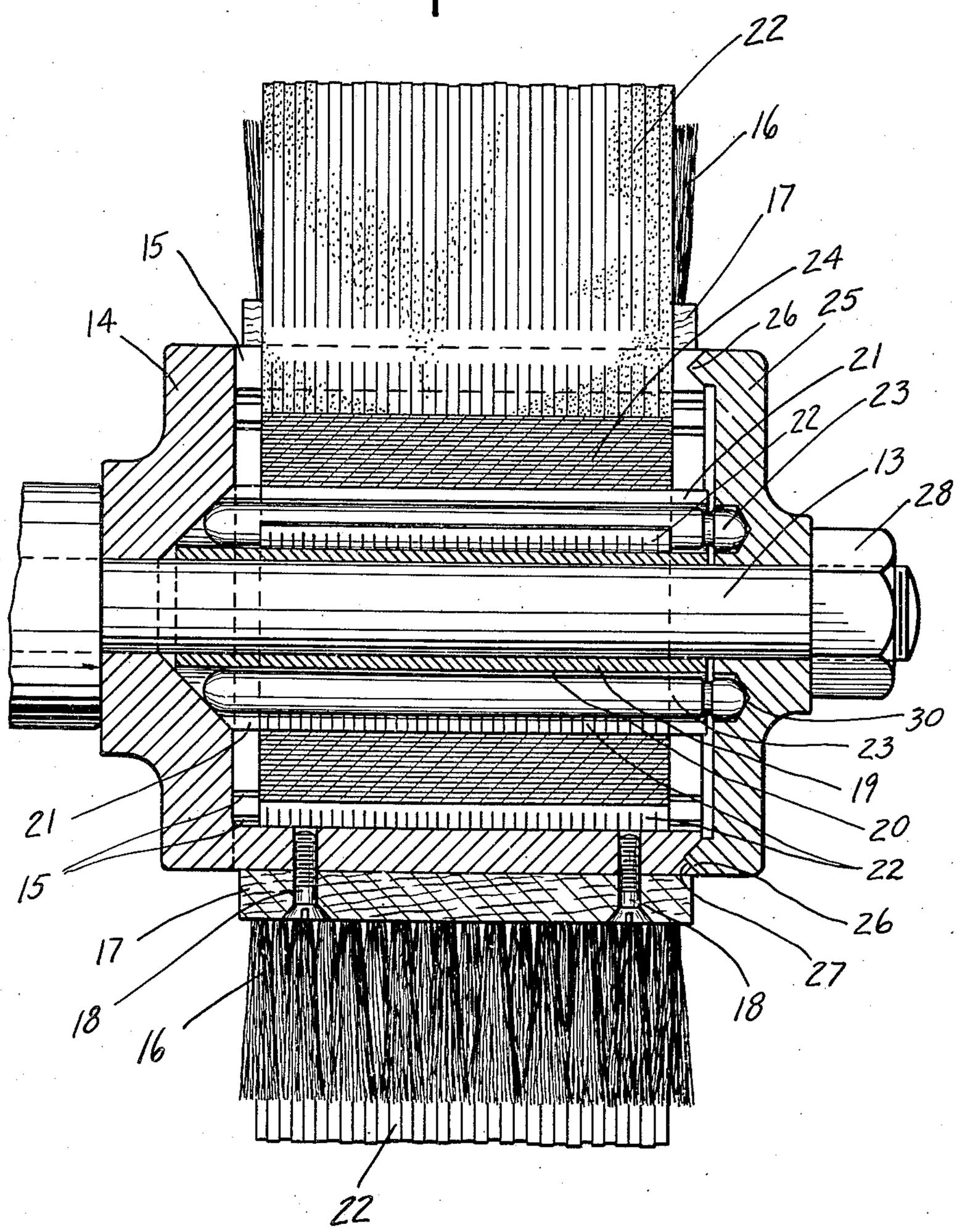
FIG. 3



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UNITED STATES PATENT OFFICE

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SANDER

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9 Claims. (Cl. 51—194)

This invention relates to a sander of the type generally employed in surfacing wood products, such as mouldings or wood pieces having irregular surfaces, and particularly a moulder spindle sander.

It is the purpose of the invention to provide a compact spindle sander unit, wherein small sturdy brushes are employed, as distinguished from the usual brooms, and the sand paper associated therewith is mounted upon a single roll instead of the usual plurality of individual rolls.

The feature of the invention resides in the simplified and compact construction, both in respect to the above and the method of locking and securing the sand paper and brushes in the unit, and mounting the unit upon the spindle.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

Fig. 1 is a perspective view showing the sander unit mounted upon a support and motor driven spindle. Fig. 2 is an end view of the sander removed from the spindle and with the locking cap removed from the unit. Fig. 3 is a section through the sander taken on the line 3—3 of Fig. 2, showing the spindle and locking pins in elevation.

In the drawings there is illustrated a sander including a supporting base 10 upon which there is mounted an electric motor 11 driven from any suitable source of current, not illustrated. Extending from the motor there is a bearing housing 12, such housing preferably extending from both sides of the motor for balancing purposes and to provide dual sanding units. Driven by the motor and supported in the bearing housing there is a spindle 13 for supporting and rapidly rotating the sander unit.

The sander unit comprises a head 14 which is cylindrical in form and is provided with a plurality of slots 15 extending longitudinally of its periphery and in parallel relation. One end of the head is closed other than to admit the spindle 13, while the other end thereof is open. Said slots extend from adjacent the closed end to and through the open end.

Rigidly secured about the outer periphery of the head and extending longitudinally thereof there is a plurality of spaced brushes 16. Each of said brushes comprises bristles secured to a block 17, and each block is rigidly secured to the head by the screws 18. The brushes are mounted in spaced and parallel relation and extend substantially the full length of the head, there being one brush secured thereto between every other pair of slots. As shown herein there are provided eight brushes and sixteen slots, although as many brushes and slots may be provided as the particular work may require. It will be noted that the slots open through the head adjacent to and along each side of the blocks 17.

Mounted within the head and supported upon the spindle 13 there is a central support here shown in the form of a sleeve 19 having its outer periphery substantially spaced from and concentric with the inner periphery of the head. Said sleeve extends the full length of the head and is provided with a plurality of bores 20, corresponding in number to the number of brushes. Each bore is provided with a longitudinal slot 21 opening to the outer periphery of the sleeve through which an abrasive sheet 22, such as sand paper, may pass. Each abrasive sheet 22, one for each brush, has its inner end secured within the sleeve by passing partially about a locking pin 23, and from locking engagement with said pin within the bore 20 extends outwardly through the slot 21 to be wound about the sleeve in a roll, as indicated at 24. The several abrasive sheets having their inner ends secured by the locking pins within the sleeve, may thereby be rolled one upon the other in a single roll. Extending outwardly from the periphery of the roll, the free ends of each sheet pass through their respective slots 15 and about the forward sides of their respective brushes 16. As is well understood in the art, the abrasive sheets thus mounted are slotted so as to enable the strips thus formed to conform with uneven surfaces in the work to be sanded.

The sleeve and locking pins are secured in position by a cap 25 having a central opening through which the spindle 13 extends. The periphery of the cap has an inwardly-extending and beveled flange 26 adapted to seat within a corresponding annular end groove 27 formed in the outer end of the head 14. This peripheral interlocking structure reinforces and braces the head against distortion by the action of centrifugal force. The head is locked for rotation upon the spindle by a nut 28 which locks all parts together as an operative unit.

The cap is provided on its inner surface with a plurality of spaced recesses 30 for receiving the heads of the locking pins 23. Thus, the head, pins and sleeve are interlocked with the spindle. Also, the cap may be manually rotated relative to the head so as to rotate the sleeve to tighten or loosen the abrasive sheets wound thereabout.

In assembling and mounting the sander, each abrasive sheet is inserted through a slot 15 and the nearest slot 21 in the sleeve so as to extend into the corresponding bore 20, the locking pins 23 being removed. The locking pins are thereupon inserted in the bores to lock the ends of the sand paper therein. The cap is then loosely mounted in place so that the locking pins are engaged by the recesses 30. Upon manual rotation of the cap, the sleeve is rotated to wind the

abrasive paper into a roll, as indicated at 24, until the free end of each abrasive sheet is drawn into position to extend slightly beyond the outer surface of its respective brush 16. The entire unit is then locked in operative position upon the spindle by tightening up the nut 28, whereupon the sander is ready for use. As the ends of the abrasive sheet become worn, the nut is loosened so that the cap may be rotated to rotate the sleeve, whereupon the sheets may be drawn out through the slots 15 to present fresh surfaces.

The invention claimed is:

1. A sander unit comprising a cylindrical head, a plurality of brush blocks rigidly secured in spaced relation to the exterior surface of said head so as to extend longitudinally thereof and radially therefrom in parallel spaced relation, and short flexible bristles extending radially outwardly from said head a substantial distance beyond the surface thereof and secured thereto by said blocks.

2. A sander unit comprising a cylindrical hollow head having a plurality of spaced parallel slots extending substantially longitudinally thereof, a cylindrical sleeve mounted within said head spaced from the inner surface thereof and embodying a plurality of cylindrical bores communicating with the exterior surface by longitudinal slots, a plurality of brushes mounted in spaced relation about the periphery of said head adjacent the slots thereof, a plurality of abrasive sheets rolled upon said sleeve and extending through the slots of said head and sleeve, and means for locking the inner ends of said sheets within the bores of said sleeve.

3. A sander unit comprising a cylindrical head having a plurality of spaced parallel slots extending substantially longitudinally thereof, a cylindrical sleeve mounted within said head and embodying a plurality of cylindrical bores communicating with the exterior surface by longitudinal slots, a plurality of brushes mounted in spaced relation about the periphery of said head adjacent the slots thereof, a plurality of abrasive sheets extending through the slots of said head and sleeve, and a removable locking pin extending into each bore for engaging and locking the end of the respective abrasive sheets therein.

4. A sander unit comprising a cylindrical head having a plurality of spaced parallel slots extending substantially longitudinally thereof, a support mounted within said head, means for securing to and winding upon said support a plurality of abrasive sheets having their free ends extending through said slots, flexible members mounted peripherally about said head for resiliently supporting said abrasive sheets, a locking member adapted to be secured to one end of said head, and means for interlocking said member and support whereby rotation of said member will cause said support to be rotated for winding or unwinding said sheets.

5. A sander unit comprising a cylindrical head having a plurality of spaced parallel slots extending substantially longitudinally thereof, a cylindrical sleeve mounted within said head having a plurality of bores communicating by slots with the outer surface thereof, abrasive sheets extending through the slots in said head and sleeve into said bores, locking pins removably mounted in said bores for locking the ends of the sheets therein, and a removable cap mounted upon the free end of said head having recesses into which the ends of said pins extend, whereby said abrasive sheets may be wound or unwound upon said sleeve through the rotation of said cap.

6. A sander unit comprising a cylindrical head having a plurality of spaced parallel slots extending substantially longitudinally thereof, a cylindrical sleeve mounted within said head having a plurality of bores communicating by slots with the outer surface thereof, abrasive sheets extending through the slots in said head and sleeve into said bores, locking pins removably mounted in said bores for locking the ends of the sheets therein, a removable cap mounted upon the free end of said head having recesses into which the ends of said pins extend, and annular interlocking shoulders on said cap and head for bracing said head and maintaining said cap in concentric position with respect thereto, whereby said abrasive sheets may be wound or unwound upon said sleeve through the rotation of said cap.

7. A sander unit comprising a cylindrical head having a plurality of spaced parallel slots extending substantially longitudinally thereof, a cylindrical sleeve mounted within said head having a plurality of bores communicating by slots with the outer surface thereof, abrasive sheets extending through the slots in said head and sleeve into said bores, locking pins removably mounted in said bores for locking the ends of the sheets therein, a removable cap mounted upon the free end of said head having recesses into which the ends of said pins extend, annular interlocking shoulders on said cap and head for bracing said head and maintaining said cap in concentric position with respect thereto, whereby said abrasive sheets may be wound or unwound upon said sleeve through the rotation of said cap, and a plurality of radially-extending brushes secured in spaced relation about the periphery of the head intermediate the slots therein for yieldingly supporting abrasive sheets extending therethrough.

8. A sander unit comprising a cylindrical head, a plurality of brush blocks rigidly secured to the outer surface thereof in parallel spaced relation and extending radially therefrom, short bristles extending radially outwardly from said blocks, said head being provided with a plurality of radially-extending slots, one of said slots extending along each side of each of said blocks and immediately adjacent thereto, a sleeve secured within said head, and a plurality of abrasive sheets secured about said sleeve, each sheet extending through one of the slots adjacent each of said blocks and being adapted to extend through the slot on the other side of said block.

9. A sander unit comprising a head, a plurality of brushes secured thereto and extending outwardly therefrom to provide flexible supports for an abrasive sheet, said head being provided with a plurality of slots, one of said slots extending along each side of the individual brushes and lying immediately adjacent thereto, and a plurality of abrasive sheets mounted within said head having their free ends extending through the series of said slots on one side of said brushes for engagement and support thereby and being adapted to extend through the series of slots on the oppositely-disposed sides of said brushes for reversing their relative positions thereto.

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