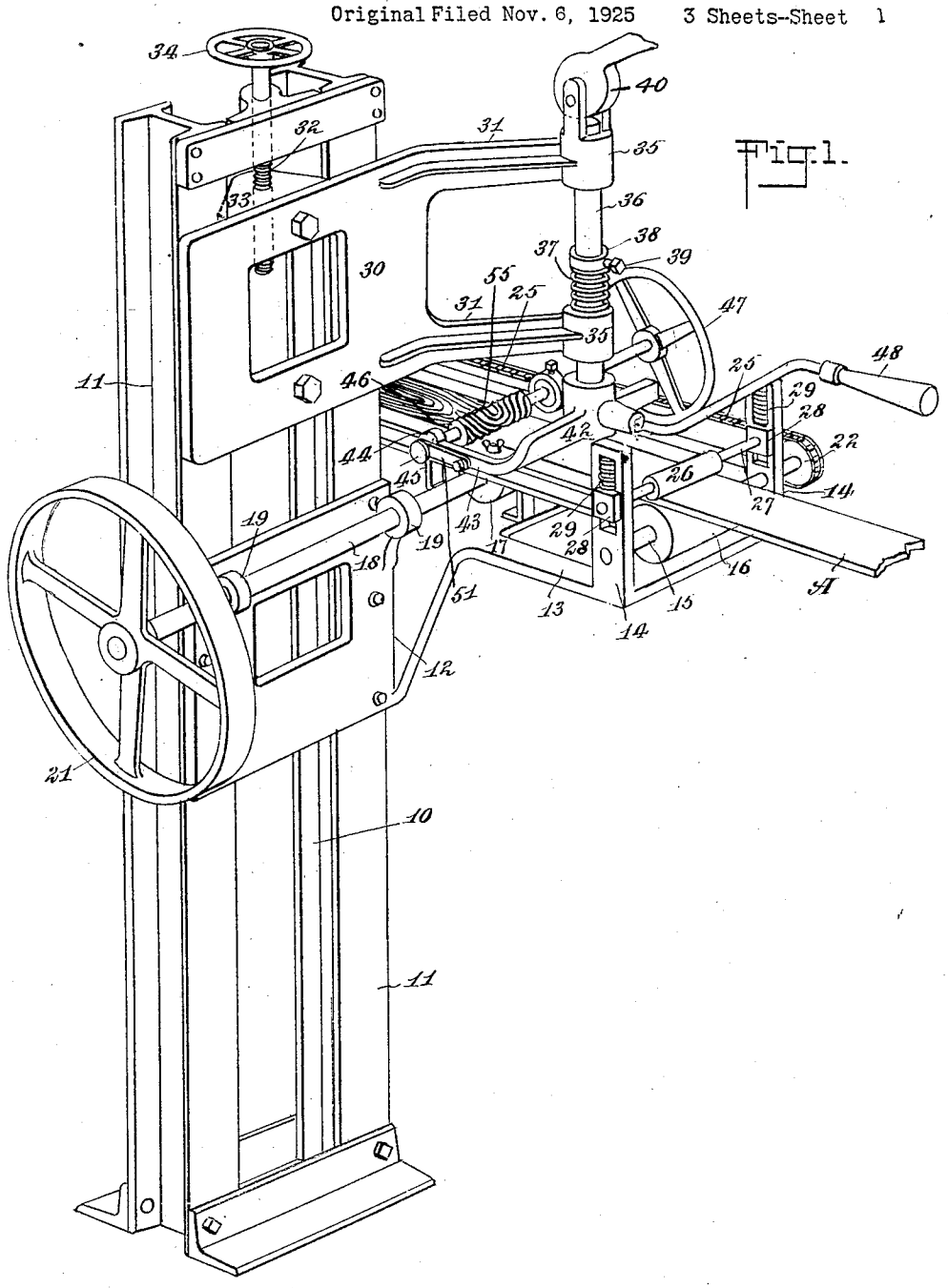
July 3, 1928. 1,676,111

E. H. REIBER

SURFACING MACHINE

Original Filed Nov. 6, 1925 3 Sheets-Sheet 1

Fig. 1.



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Original Filed Nov. 6, 1925 3 Sheets-Sheet 2

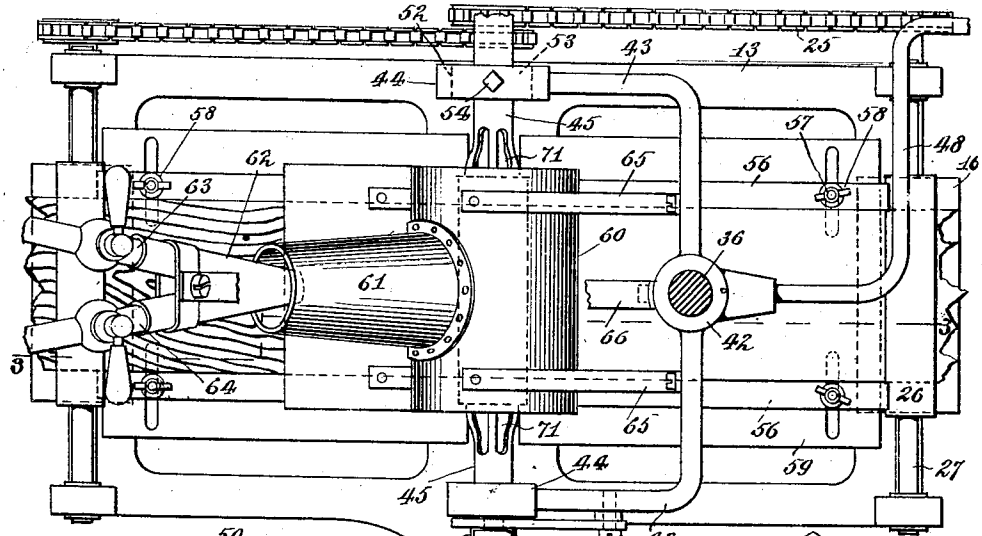


Fig. 2.

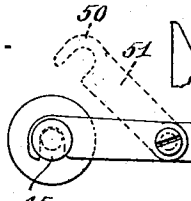


Fig. 4.

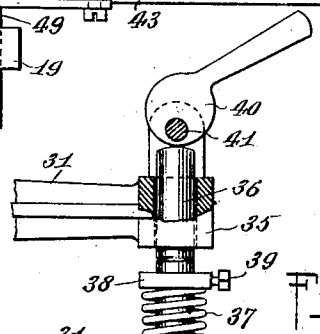
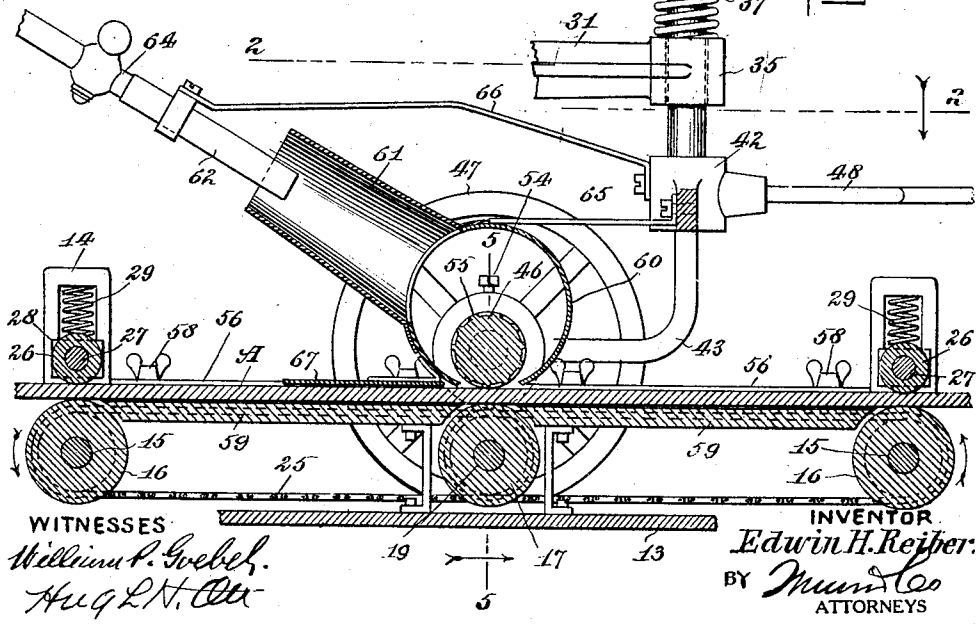


Fig. 3.



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Original Filed Nov. 6, 1925 3 Sheets-Sheet 3

Fig. 5.

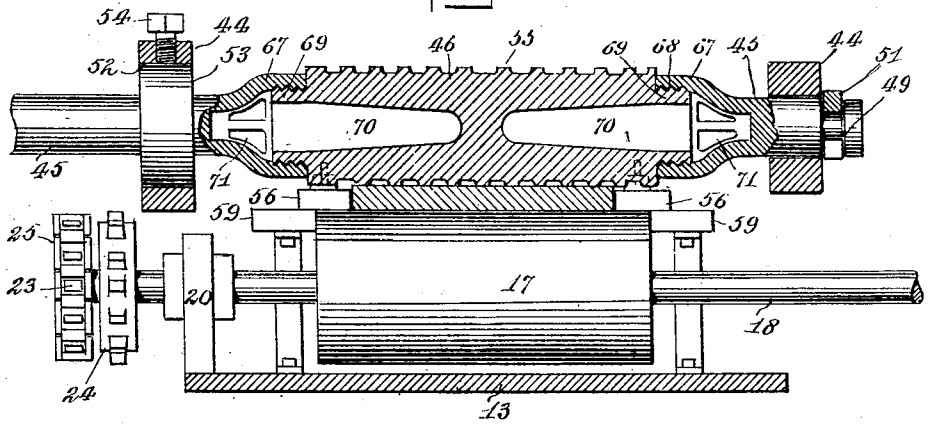


Fig. 6.



Fig. 7.



Fig. 8.

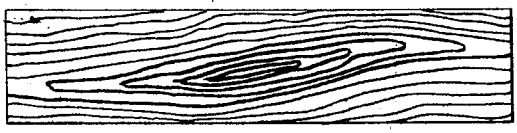
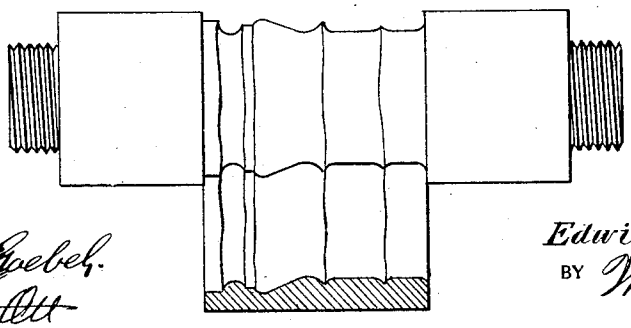


Fig. 9.



Fig. 10.



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UNITED STATES PATENT OFFICE.

EDWIN H. REIBER, OF WEST WEBSTER, NEW YORK.

SURFACING MACHINE.

Application filed November 6, 1925, Serial No. 67,361. Renewed May 15, 1928.

This invention relates to surfacing machines, and has particular reference to a machine for effecting burnt surface decoration upon lengths of material, such as wood, the same being in the nature of an improvement over my prior Patent No. 1,500,961, granted July 8, 1924.

In my prior patent use is made of a heated roller having an embossed peripheral pattern, the peripheral speed of which in the operation of the machine corresponds to the rate of speed at which the material to be surfaced is fed against the roller. It is hence obvious that each revolution of the roller produces a repetition of the pattern.

The present invention furthermore comprehends for one of its principal objects an improvement in a machine of this character which consists in the provision of means for obtaining a wide range of variation in the surfacing effects produced and this by the use of the same peripheral pattern.

More specifically the invention comprehends in a machine of the character set forth, means for effecting turning movements of the roller at various speeds relative to a uniform feeding of the material to be surfaced; means for effecting lateral movement of the roller with respect to the material being surfaced, and means for advancing and retracting the roller with respect to the surface being treated whereby to increase and decrease the depth of the pattern reproduced in the surface.

The invention furthermore comprehends a machine of the character set forth which is comparatively simple both in its construction and mode of operation, which is inexpensive to manufacture and operate, and which is highly efficient in its purpose.

With the above recited and other objects in view, reference is had to the following specification and accompanying drawings, in which there are exhibited certain examples or embodiments of the invention which are in no way intended as limitations upon the scope of the appended claims as it is to be clearly understood that variations and modifications which properly fall within the scope of said claims may be resorted to when found expedient.

In the drawings—

Figure 1 is a perspective view of the machine in use with the roller-heating means removed;

Fig. 2 is a fragmentary sectional plan view illustrating the heating means applied, the same being taken approximately on the line 2—2 of Fig. 3;

Fig. 3 is a fragmentary longitudinal sectional view taken approximately on the line 3—3 of Fig. 2;

Fig. 4 is a detail fragmentary sectional view of the roller bearing latch;

Fig. 5 is a transverse sectional view taken approximately on the line 5—5 of Fig. 3;

Figs. 6, 7, 8 and 9 are diagrammatic plan views of the material surfaced by the machine, and

Fig. 10 is a fragmentary view of a modified adaptation of the invention.

Referring to the drawings by characters of reference, 10 designates generally the frame of the machine, which includes a pair of spaced vertical members 11 preferably in the form of I-beams. Secured to the main frame 10 and projecting laterally therefrom is a supporting bracket 12 which carries at its outer end a horizontal shelf 13 at the forward and rear ends of which are pairs of laterally spaced upstanding bearing arms 14. Horizontal transverse shafts 15 are journaled in each pair of bearing arms 14, and driven feed rollers 16 are secured to certain of said shafts. An intermediate transversely disposed feed roller 17 is secured to a drive shaft 18, which is journaled in bearings 19 on the bracket 12 and an intermediate bearing 20 on the shelf 13. A drive pulley 21 operatively connected with any suitable power means (not shown) operates to turn the shaft and the intermediate feed roller 17. The remaining feed rollers 16 are driven in unison with the intermediate feed rollers through the medium of sprockets 22 on the outer ends of the shafts 15 and the sprockets 23 and 24 on the drive shaft 18 around which sprocket chains 25 are trained. Pressure rollers 26 secured to transverse shafts 27 mounted in vertically slidable bearings 28 overlie the

outermost feed rollers 16 and tension springs 29 normally advance the pressure rollers 26 toward the feed rollers 16 so that the strip of material A to be surfaced which is introduced between the feed and pressure rollers, is fed longitudinally of the shelf 13.

A vertically adjustable frame 30 having laterally and forwardly projecting vertically spaced arms 31, is carried by the upper end of the main frame 10 and is adjustable by means of a jack screw 32 threadedly engaging a block 33 on the frame 30, a suitable manipulating wheel 34 being secured to the jack screw for the purpose of effecting said adjustment. The outer free ends of the arms 31 are formed with vertically alined bearing sleeves 35 in which a shank 36 is mounted for relative vertical adjustment and turning movement. A spring 37 is interposed between the lowermost bearing sleeve and an adjustable abutment collar 38 provided on the shaft 36 and maintained in adjusted position by a set screw 39. The spring 37 normally exerts a tension in a direction to move the shaft upwardly while an eccentric lever 40 fulcrumed at 41 in the upper bearing sleeve 35, coacts with the upper end of the shank to effect movement of the shank upwardly or downwardly at the option of the operator of the machine. The lower end of the shank 36 has secured thereto a bifurcated or forked bracket 42, the furcations 43 of which are disposed horizontally and provided at their free terminals with bearings 44 in which a horizontal shaft 45 is journaled, which has secured thereto a surfacing roller 46 arranged in superposed relation to the intermediate feed roller and adapted to overlie and engage the upper surface of the strip of material A to be surfaced. The outer end of the shaft 45 has secured thereto a hand manipulating wheel 47 while the forked bearing 42 has secured thereto a manipulating handle 48.

In order to render the surfacing roller 46 and its shaft removable so that the same may be interchanged readily the inner end of the shaft 45 is provided with an annular peripheral groove 49 which extends inwardly beyond the innermost bearing 44 and receives the hooked terminal 50 of a pivoted latch 51. The outer bearing 44 is provided with an opening 52 of a diameter slightly greater than the diameter of the surfacing roller 46 to permit of the withdrawal of the surfacing roller therethrough when the latch is disengaged. A bearing collar 53 is normally positioned within the opening 52 and maintained in place by a retaining screw 54, said collar being releasable and removable when the rollers are interchanged. The periphery of the surfacing roller is formed with a suitable embossed pattern or design 55.

In order to guide the strips A as they are fed through the machine and to prevent lateral displacement thereof, gauge strips 56 are adjustably supported by the shelf for relative lateral adjustments and are maintained in adjusted relation by retaining bolts 57 having wing nuts 58 extending through the slotted bed plate 59.

In use and operation, the surfacing roller 46 is heated in any suitable manner so that its contact with the upper surface of the strips of material A will effect the burning of a design or ornamentation in correspondence with the pattern of the surfacing roller and the manner in which said roller is manipulated by the operator of the machine. For instance, as illustrated in Figs. 6, 7 and 8, the design or ornamentation is varied to lengthen the grain by turning the hand manipulating wheel 47 at relatively slower rates of speed with the same portions of the embossed periphery of the surfacing roller engaging the strip. The design or ornamentation will be further varied as illustrated in Fig. 9, by a further retarding of the speed of rotation of the surfacing roller, while imparting to the roller supporting bracket, a lateral swinging movement upon manipulation of the handle 48. Further, it is possible to vary the depth of the ornamentation or design burned into the surface of the strip by manipulating the eccentric lever 40 which will consequently effect a greater or lesser pressure of the surfacing roller against the strip surface. The vertical adjustment of the frame by the jack screw 32 is employed only upon the initial setting of the machine in accordance with the thickness of the strip which is being surfaced, and this adjustment is in no way intended as a means for varying the depth of the design or ornamentation of the surface. As illustrated, it is intended that the handle 48, the hand manipulating wheel 47, and the eccentric lever 40 are to be actuated manually, but it is, of course, to be understood that mechanical means for accomplishing the purpose may be resorted to if desirable without in any way affecting the scope of the invention.

It is further to be understood that while the drive shaft 18 is ordinarily intended to be operated at a constant speed, if found desirable the same may be driven at a variable rate of speed without departing from the spirit of the invention.

From the foregoing it will thus be seen that a surfacing machine has been devised by means of which a practically unlimited variation of surface design or ornamentation may be accomplished as it is obvious that varied manipulation of the three controlling factors will cause the same surface of the surfacing roller to impart a wide variation of designs by virtue of minute ad-

justments. Where straight grainings are to be produced a particular surface or periphery of the roller 46 is turned into contact with the surface of the strip A and the roller is held against turning movement. At the same time, the handle 48 may be operated to swing the bracket 43 laterally to impart a lateral wave to the grain or the eccentric lever 40 manipulated to either lightly or deeply impress the grain. In lieu of the graining rollers, it is obvious that carving rollers for reproducing handcarvings or hand planed moldings, as illustrated in Fig. 10, may be employed.

It is further intended within the scope of the invention to employ surfacing rollers for the purpose of imparting to the strip surface, bark simulations and numerous other simulations of this type. In order to illustrate one means of heating the surfacing rollers, use is made of a substantially cylindrical transverse heating jacket 60 having a radially disposed intake sleeve 61, the outer end of which has projecting therein a manifold jet nozzle 62 into which is led a valved fuel supply 63 and a valved air supply 64 for imparting a forced draft to the flame jet. The jacket 60 as well as the jet 62, may be supported by bracket arms 65 and 66 from the bifurcated bracket 42. A snuffer or smothering plate 67 is preferably attached to and projects rearwardly from the heating jacket 60 to overlie and contact with the face of the strip A for extinguishing and smothering sparks or flames after the surfacing operation. It is also proposed to brush or otherwise remove the charred particles from the surfaced material.

In order to permit of dissipation of the heat from the surfacing roller 46 to prevent conduction of the same through the shaft 45, it is proposed preferably to split said shaft into sections and flare the ends 67 to provide interiorly threaded sockets 68 for receiving the threaded boss terminals 69 of the surfacing rollers. The surfacing rollers will also be provided with outwardly flared axial bores 70 extending from a point adjacent the longitudinal center of the rollers through the boss 69. The flared ends 67 of the shaft sections will be provided with radial heat outlet apertures 71 so that the heat may be dissipated therethrough. This also permits use of the same shaft sections in connection with surfacing rollers of different types and having different surface or peripheral patterns.

What is claimed is:

1. In a machine for effecting a burnt surface decoration on lengths of material, a heated roller having a pattern on the periphery thereof, and means for varying the speed of rotation to obtain variations in the nature of the decoration imparted to the material.

2. In a machine for effecting a burnt surface decoration on lengths of material, a heated roller having a pattern on the periphery thereof, and means for respectively varying the speed of rotation and stopping the roller to obtain a variation in the nature of the decoration imparted to the surface of the material.

3. In a machine for effecting a burnt surface decoration on lengths of material, a heated roller having a pattern on the periphery thereof, and means for respectively varying the speed of rotation, stopping the roller and effecting lateral movements between the roller and material to obtain variations in the nature of the decoration imparted to the material.

4. In a machine for effecting a burnt surface decoration on lengths of material, a heated roller having a pattern on the periphery thereof, and means for effecting lateral movements between the roller and a material fed into the presence of the roller periphery to obtain variations in the nature of the decoration imparted to the material.

5. In a machine for effecting a burnt surface decoration on lengths of material, a heated roller having a pattern on the periphery thereof, and means for intermittently stopping the rotation of the roller to obtain variations in the nature of the decoration imparted to the material fed into the presence of the roller periphery.

6. In a machine for effecting a burnt surface decoration on lengths of material, a heated roller having a pattern on the periphery thereof, means for feeding the material in the presence of the peripheral pattern, and means for respectively varying the speed of rotation and stopping the roller to obtain variations in the nature of the decoration imparted to the material.

7. In a machine for effecting a burnt surface decoration on lengths of material, a heated roller having a pattern on the periphery thereof, means for feeding the material in the presence of the peripheral pattern, and means for respectively varying the speed of rotation and stopping the roller to obtain variations in the nature of the decoration imparted to the material said means consisting of manipulating means connected with the roller and manually operable.

8. In a machine for effecting a burnt surface decoration on lengths of material, a heated roller having a pattern on the periphery thereof, means for feeding the material in the presence of the peripheral pattern, means for respectively varying the speed of rotation and stopping the roller, and means for effecting lateral movements between the roller and material to obtain variations in the nature of the decoration imparted to the material.

9. In a machine for effecting a burnt sur-

face decoration on lengths of material, a heated roller having a pattern on the periphery thereof, means for feeding the material in the presence of the peripheral pattern, means for respectively varying the speed of rotation and stopping the roller, and means for effecting lateral movements between the roller and material to obtain variations in the nature of the decoration imparted to the material, each of said means consisting of manually operable devices connected respectively with the roller and roller-supporting means.

EDWIN H. REIBER.