No. 890,162. PATENTED JUNE 9, 1908.

C. W. MUNZ.

MACHINE FOR GRAINING WOOD.

APPLICATION FILED JAN. 14, 1907.

2 SHEETS—SHEET 1.

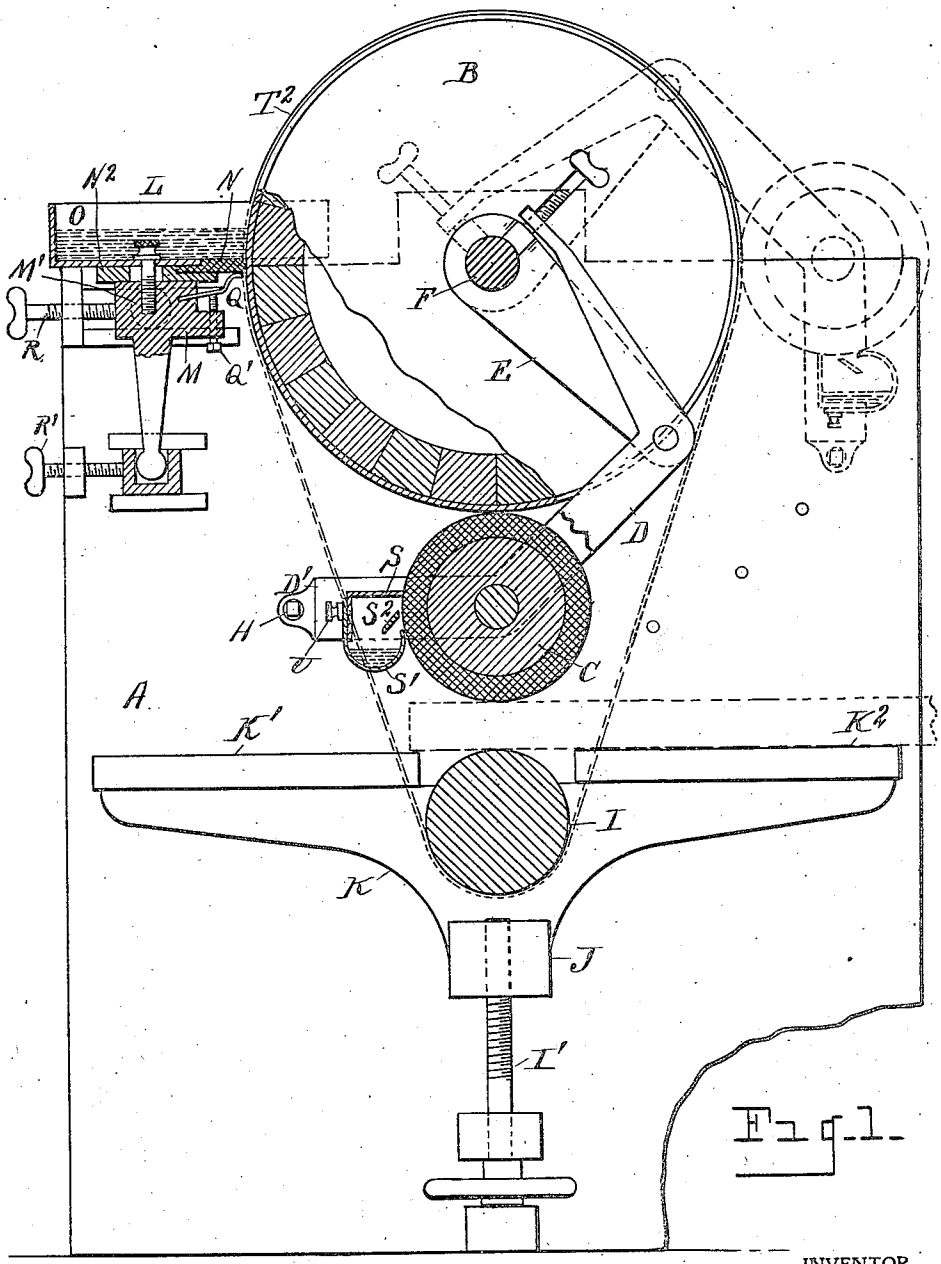


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 3.

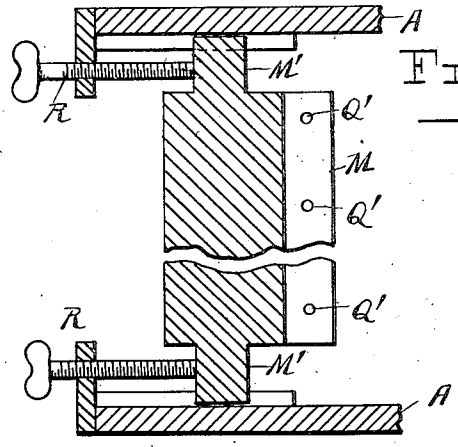
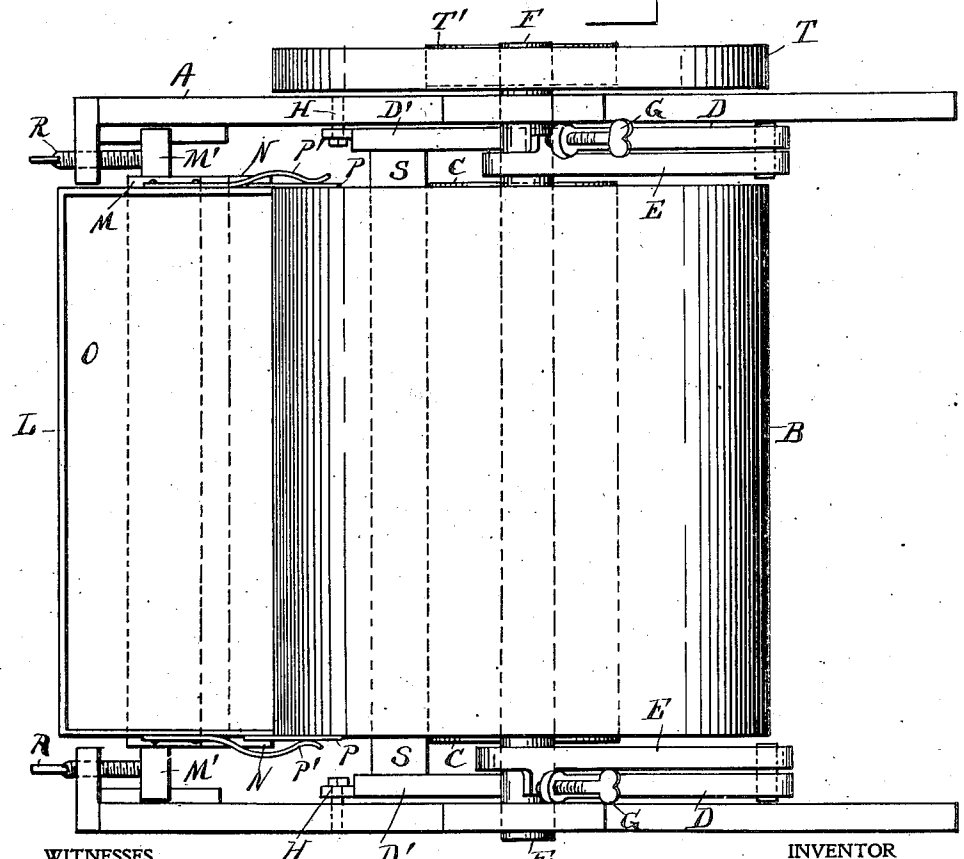


Fig. 2.



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MACHINE FOR GRAINING WOOD.

No. 890,162. Specification of Letters Patent. Patented June 9, 1908.

Application filed January 14, 1907. Serial No. 352,235.

To all whom it may concern:

Be it known that I, CHARLES W. MUNZ, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Machines for Graining Wood, of which the following is a specification, reference being had therein to the accompanying drawings.

It is the object of the invention to obtain a construction of machine which is adapted for a variety of work and which may be quickly adjusted for its various uses.

To this end, the invention consists in the novel construction and organization of parts as hereinafter set forth.

In the drawings, Figure 1 is a vertical cross section through the machine; Fig. 2 is a plan view showing the parts adjusted in different positions; Fig. 3 is a horizontal section through a part of the machine.

A is a suitable frame work, in which is mounted the pattern roll B having a surface of wood, the grain of which it is desired to reproduce.

C is a transfer roll formed with a yielding surface adapted to receive the ink in the grain of the wood pattern and to print the surface of the work.

With large graining machines, as heretofore constructed, it is usual to place the transfer roll above the pattern roll, so that in performing the work the printing is upon the bottom face thereof. A serious objection to such a construction is that with large work it is necessary to have more than one workman employed in removing the work from the machine which must be inverted before it is laid down to avoid blurring the printed pattern. Moreover, there is danger of injuring the print in the handling of the work while the printed face is downturned. With the present invention this difficulty is avoided by so arranging the transfer roll and the work supports that the printing is performed upon the upturned face.

A further use of the machine is in graining articles having curved surfaces, and which cannot be automatically fed to the transfer roll, but are held in contact therewith by hand. The arrangement of the transfer roll beneath the pattern roll would render the former inaccessible for this use, and I therefore provide means by which the transfer roll may be shifted in position when necessary.

As illustrated, the transfer roll C is mounted on bearings on arms D arranged at opposite sides of the machine. These arms are pivotally connected to hangers E which in turn are pivotally supported on the shaft F of the pattern roll B. The arms D are preferably in the form of bell-crank levers, and at their ends on opposite sides of the machine are provided with adjusting screws G bearing upon the hangers E, and by which the arms may be adjusted to move the transfer roll toward or from the pattern roll. Thus, by adjusting said set screws, the transfer roll is caused to bear with the desired pressure against the pattern roll, and by swinging the hangers E the transfer roll may be rotated about the axis of said pattern roll to different positions of adjustment. In its normal position, the transfer roll is, as before stated, beneath the pattern roll, and the hangers are secured to the frame in this position by suitable means, such as the bolts or screws H. By removing these bolts, the transfer roll may be swung around to the side of the pattern roll, and reclamped in this position to the frame.

The automatic feeding mechanism for the work comprises a presser roll I, which is arranged beneath the transfer roll C in its normal position. This presser roll is vertically adjustable to bring the upper surface of the work in proper relation to the transfer roll, preferably by screws I′, which support the bearings J for the presser roll. The screws I′ also support a vertically adjustable frame K, having work-supporting tables K′ and K^2 on opposite sides of the roll I. This construction permits the operator to place the work right side up upon one of the tables, as K′, and then feed it over to the roll I and in contact with the transfer roll C, until the surface is printed, and the work is supported by the table K^2. From this supporting table K^2, the work may be readily removed by a single workman without any danger of blurring the print.

The grain of the wood pattern is filled with the pigment from a receptacle L arranged in rear of the roll B. This receptacle performs the double function of filling the grain with the pigment, and also removing the surplus pigment from the surface of the pattern, the construction being as follows: M is a bar extending across the machine and supported at its opposite ends in the rock

arms M′. N is a leather scraper secured to a strip N^2 adjustably secured to the bar M, and O is a receptacle, preferably formed of sheet metal, arranged above the strip N^2 and a portion of the leather scraper N. At the opposite ends of this receptacle are leather strips P for overlapping the ends of the pattern roll B and metallic springs P′ pressing these strips in contact with said roll, so as to form a liquid tight joint. With this construction, the liquid pigment in the receptacle O is permitted to flow against the surface of the pattern above the scraper N to fill the grain of the wood. The rotation of the roll B is downward from the side on which the scraper N is arranged, and thus the surface of the pattern is cleaned when passing said scraper. To hold the scraping edge against the pattern, a series of springs Q are arranged beneath and bearing against the scraper N and individual adjusting screws Q′ are provided for reinforcing and altering the tension of these springs, and for pressing the scraping edge in contact with the irregularities in the wood pattern surface. The whole scraper is adjustable toward or from the pattern roll by adjusting screws R, which position the upper ends of the rock arms M′ and the lower ends of these arms are adjustable by screws R′ to vary the angularity of the scraper.

As the machine is often used for printing surfaces of lesser width than the entire roll, it is necessary to remove the impression from the unused portion of the transfer roll before it completes a revolution, and receives a new impression from the pattern surface. This is accomplished by a scraper S bearing against the roll C, and preferably secured to extensions D′ of the arms D. The scraper S may be adjusted by means of the screw U and is preferably a metal strip, and preferably an angle bar, which, in conjunction with a rounded strip S′, forms a receptacle for collecting the pigment removed from the transfer roll. In addition to the scraping edge S, a strip S^2 is arranged beneath the same, the function of which is to receive the drippings from the scraping edge and direct them back into the pigment holding receptacle. The pressure roll I is driven at the same peripheral speed as the roll B by means of the endless drive connection T^2, connecting the pulleys T′ and T, respectively.

With the construction as described in operation, the pigment is placed in the receptacle L, and the latter is adjusted by the screws R and R′ so that the scraping edge N is in contact with the wood pattern surface and prevents the leakage of the liquid pigment. The roll B is then rotated and a similar movement of the same peripheral speed is imparted to the transfer roll C. If flat work is to be grained, this is placed upon the table K^2, and fed over the presser roll I against the lower face of the transfer roll C. If, on the other hand, the machine is used for rounded work of more or less irregular contour, the clamping screws H are removed, and the roll C adjusted around to the side of the pattern roll. This adjustment will carry with it the scraper S maintaining it in fixed relation to the roll C, and the shape of the receptacle, of which the scraper S is a part, is such that in its new position of adjustment, it will still receive and hold the scraped off pigment.

Whenever the edge of the scraper N becomes worn, an adjustment of the screws R and R′ will change the angularity of the scraper and present a new edge in contact with the wood pattern surface.

What I claim as my invention is:

1. In a graining machine, the combination with a revoluble wood pattern, of a transfer roll rotating in peripheral contact with said wood pattern, means for adjusting said transfer roll about the axis of said pattern, and automatic means for feeding the work with the surface to be fed turned upward and in contact with said transfer roll.

2. In a graining machine, the combination of a revoluble wood pattern, a transfer roll rotating in contact with said pattern, means for adjusting said transfer roll about the axis of said pattern, a presser roll beneath said transfer roll, and means for vertically adjusting said presser roll.

3. In a graining machine, the combination with a revoluble wood pattern, of a transfer roll rotating in contact therewith, and means for adjusting said transfer roll about the axis of said pattern, for the purpose described.

4. In a graining machine, the combination with a revoluble wood pattern, of a transfer roll normally located beneath said pattern, and rotating in contact therewith, and means whereby said transfer roll may be adjusted about the axis of said pattern roll, for the purpose described.

5. In a graining machine, the combination with a revoluble wood pattern, of a transfer roll rotating in contact therewith, a hanger for said transfer roll adjustable about the axis of said pattern, and means for adjusting said transfer roll and said hanger towards or from said wood pattern, for the purpose described.

6. In a graining machine, the combination with a revoluble wood pattern, of a transfer roll rotating in contact therewith, a hanger for said transfer roll adjustable about the axis of said wood pattern, and a scraper for said transfer roll secured to and adjustable with said hanger.

7. In a graining machine, the combination with a revoluble wood pattern, of a transfer roll rotating in contact therewith, a hanger for said transfer roll, adjustable about the axis of said wood pattern, a scraper for said transfer roll carried by said hanger, and

means independent of the location of said transfer roll for adjusting the scraper in relation thereto.

8. In a graining machine, the combination with a revoluble wood pattern, of a transfer roll rotating in contact therewith and adjustable about the axis thereof, a scraper for said transfer roll adjustable therewith, and a receptacle for receiving the pigment removed by said scraper in different positions of adjustment of said transfer roll.

9. In a graining machine, the combination with a revoluble wood pattern, of a pigment holding receptacle comprising a flexible strip in contact with said revoluble pattern forming the scraper and the bottom of said receptacle, means for adjustably reinforcing said strip, and end strips overlapping the ends of said pattern, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES W. MUNZ.

Witnesses:
AMELIA WILLIAMS,
JAMES P. BARRY.