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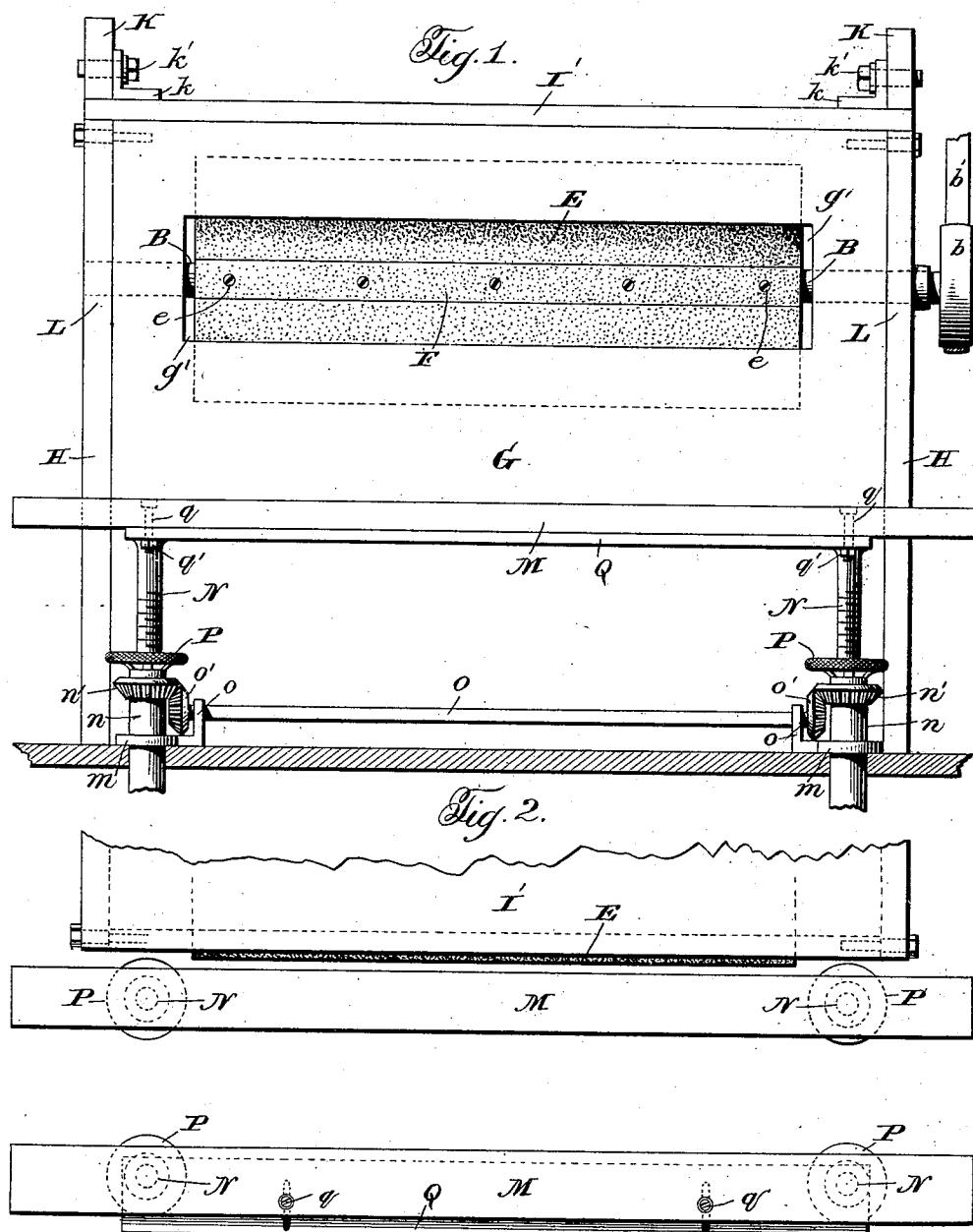
G. E. HARDIE.

BARREL TRIMMING OR FINISHING MACHINE.

APPLICATION FILED MAY 19, 1909 RENEWED AUG. 27, 1910.

Patented Mar. 28, 1911.

2 SHEETS—SHEET 1.



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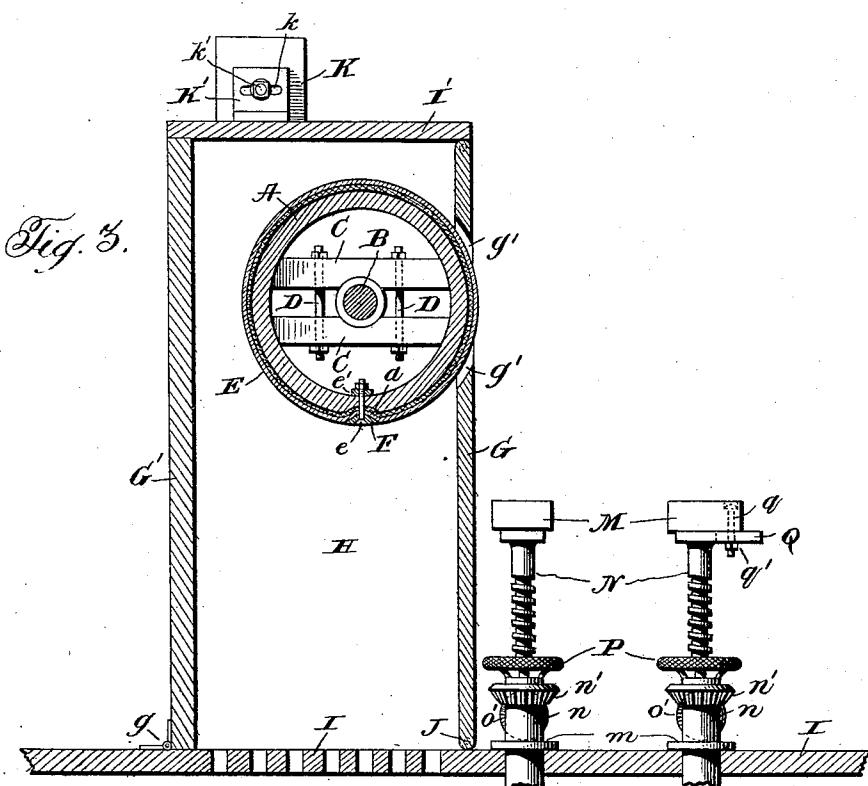
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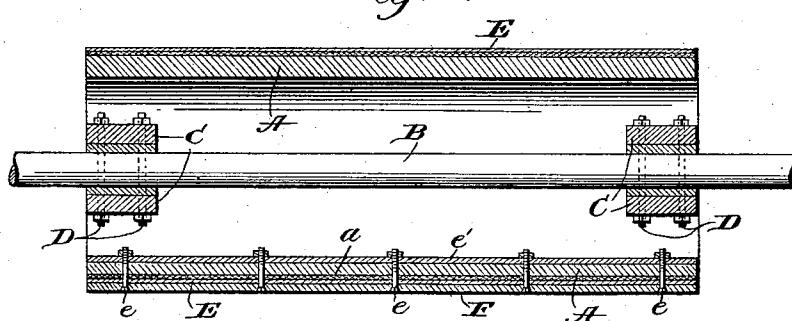
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2 SHEETS—SHEET 2.



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

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## BARREL TRIMMING OR FINISHING MACHINE.

987,982.

Specification of Letters Patent. Patented Mar. 28, 1911.

Application filed May 19, 1909, Serial No. 496,922. Renewed August 27, 1910. Serial No. 579,201.

To all whom it may concern:

Be it known that I, GEORGE E. HARDIE, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and 5 State of Pennsylvania, have invented certain new and useful Improvements in Barrel Trimming or Finishing Machines, of which the following is a specification.

This invention relates to trimming or 10 finishing machines and though susceptible of a variety of uses is primarily designed for the finishing of receptacles formed of wood or veneer, such as barrels, drums and boxes.

Primarily, the invention is intended to 15 trim the heads or ends of receptacles, more particularly barrels, and this in a very efficient manner, and overcoming in a satisfactory way any likelihood of marring or breaking away of the wood at the edges 20 operated upon incident to the usual manner of shaving.

It has been found in practice that in the formation of receptacles made up of a plurality of sections, such as the cylindrical 25 type of veneer barrels and boxes having as their make-up a series of staves or sections, it is extremely difficult, if not impossible, to so connect the sections that their ends aline and make a continuous and unbroken periphery at said ends. Again, in the art of 30 barrel making, it is customary in assembling to fit the heads within the barrels a slight distance from the ends, the heads being supported in position between two liner hoops, 35 the outer liner hoop being usually in line with the end hoop on the outer surface of the barrel body.

By the present invention it is designed to 40 trim the projecting ends of the barrel body flush with the outer liner hoop and the end hoop on the outer surface of the barrel. This is done not alone for neatness, but more particularly to afford a firm support for the barrel and taking the strain off of the ends 45 of the veneer sheets. By trimming the parts flush the liner hoops rest on the floor, the heads on the hoops and the load on the heads. The extended edge formed by the trimming operation is also of advantage in 50 rolling the barrel on edge, as will be obvious.

Therefore, it is the object of the present 55 machine to overcome existing defects in barrel constructions, in a very effective manner by the trimming mechanism about to

be described, and with this in view the machine embodies a novel construction and arrangement of parts in a compact structure, durable, and easily and moderately manufactured.

The novel details will be specifically pointed out hereinafter in the description following, which for a clear understanding of the invention should be considered in connection with the accompanying drawings 65 forming a part hereof and wherein a convenient embodiment of the invention is disclosed, for the purpose of illustration.

In the drawings, Figure 1 is a front elevation of the machine, Fig. 2 is a top plan 70 view of the guides for the work and a portion of the trimming roll, Fig. 3 is an end elevation with parts in section; and Fig. 4 is a longitudinal section of the trimming roll.

With more particular reference to the 75 drawings, A is a wheel conveniently a hollow cylinder of wood or metallic formation, and B a shaft extending therethrough and connected thereto as by brace members C and bolts D. Upon the outer surface of the 80 wheel A is a layer of carpet or cushioning material and a covering of grinding or sanding material, as sand paper E. The outer surface of the cylinder A is provided with a longitudinal slot or recess  $\alpha$  adapted to receive an elongated strip F of any desired 85 material which is designed to fit over the ends of the abrasive covering E, and when seated to firmly hold the latter in place. Suitable bolts or screws, the heads e of 90 which fit in recesses in the strip F project through the latter, as well as the wall of the cylinder and engage a securing plate e', it being observed that when the bolts are 95 seated the plate e' and strip F will be drawn toward one another and the abrasive covering E thereby secured in position, while at the same time the strip F offers no obstruction beyond the outer surface or periphery 100 of the sanding wheel.

Fitting about the sanding wheel is a suitable housing or inclosing casing preferably comprising the following parts: G is a front, G' a back, H sides or ends, and I a bottom which latter may constitute a flooring or rest for the several parts of the machine. The sides H are conveniently stationarily mounted upon the flooring I and the back G' is conveniently hinged to said flooring at the point g whereby ready access 110

may be obtained to the grinding cylinder for any desired purpose. The front member G is pivoted to swing laterally as by hinged connections J with the flooring I. A top member I' rests at its rear edge upon the upper edge of the back G' for relative sliding movement and has a pivotal connection at its front edge with the top of the front G. Projecting upwardly from the sides H are supports K, while projecting upwardly from the top I' are brackets K' having a transverse slot k arranged to receive a retaining bolt k' adapted to engage an aperture in the supports K. The front member G has a transverse opening g' of a length proportionate to the length of the grinding wheel and through which opening a portion of the working surface of the grinding wheel is adapted to slightly project.

From the description thus far, it will be observed that the amount of the grinding surface exposed is regulated by the position of the front G of the housing, and this position, as is obvious, may be readily shifted as occasion demands by swinging the front about its pivotal connection J, the back G' being of a width to allow of a slight movement of the top I' with the front, while still constituting a firm support for the top, and maintaining a closed housing regardless of the adjustment.

Suitable bearings L are arranged in the ends or sides H of the housing for the reception of the grinding wheel shaft B, which latter may project beyond one of said sides for connection, as by means of a pulley b and belt b', with any convenient driving mechanism.

Preferably that portion of the flooring I within the housing is slotted or grated whereby the dust or trimmings from the edge of the article operated upon may pass therethrough for collection and removal. Preferably, I employ some form of blower or blast below said flooring for aiding such deposit, such blower not being shown since the same constitutes no part of the present invention.

Extending longitudinally in front of the housing and throughout the length thereof are separated guides or runways M. Each of these runways is provided with adjustable upright supports N one adjacent each end. Various means may be employed for adjusting these supports vertically, as for instance, connected gearing operating to simultaneously raise each upright, but since it is desirable that an unobstructed space be left between the runways for a purpose to be described, such an arrangement of gearing should be placed below the flooring I, and therefore I have formed a satisfactory means of adjustment in providing a separate mechanism for each runway, thereby doing away with any connecting

shafts or gearing extending between said runways. The uprights proper N take the form of screws which may loosely project through bearings m fitted to the flooring I. Collars n threaded to the upright supports 70 rest upon said bearings m, and have annular bevel gears n'. A shaft O supported in bearings o extends longitudinally of each runway therebeneath and has bevel gears o' at its respective ends coöperating with the 75 bevel gears n' referred to. Suitable hand wheels P may be provided on one or more of the collars m, it being noted that movement of one of said hand wheels will cause both uprights of one runway to simultaneously raise or lower according to the movement of said hand wheel. One of the runways M, the forward one, is preferably adjustable laterally relative to its upright supports for a purpose to be described, and to 80 this end extension plates Q project outwardly from the upright supports, which said plates are slotted to receive bolts q carried by the runways. Nuts q' are provided to secure the parts in adjusted position.

The operation may be set forth as follows: The barrel or drum to be finished is positioned upon the oppositely disposed runways. It is apparent that the length of the 95 barrels to be treated varies, as also the distance between the hoops, and it sometimes happens that the rear hoop of the barrel might rest upon the rear runway while the forward hoop might avoid the forward runway, thereby elevating one end of the barrel, which, of course is objectionable. Therefore, the movable runway is adjusted to occupy a position beneath or to one side of the forward hoop to correspond with that position occupied by the rear runway relative to the rear hoop. This adjustment is also especially useful in this machine since, if the forward hoop of the barrel engaged directly in front of the forward runway, with 100 no provision for adjustment, the barrel or drum would not be permitted the requisite lengthwise movement to accurately engage the guide formed by the front G of the housing or the grinder projecting therethrough. 105 When the barrel or drum is placed upon the supporting runways, the latter are elevated to properly position the barrel or drum, according to size, relative to the exposed surface of the grinding wheel. The bolt k' 110 is thereupon loosened and the top I' of the housing adjusted upon the back G' with the result that, owing to the pivotal connection of the front G, the latter will be accordingly adjusted laterally thereby exposing more or less of the grinding surface of the wheel A. Of course, the amount of grinding surface exposed would depend upon the condition of the work operated upon. When adjusted, the bolt k' is again adjusted to hold the 115

bracket K' and in turn the parts connected therewith in their new position. Rotary movement is now imparted to the grinding wheel, and the operator passes between the 5 runways, the unobstructed space being provided therebetween for this purpose. He, the operator, walks between the runways, pushing the barrel ahead of him and at the same time imparting inward pressure by 10 one hand upon the forward end of the barrel. This pressure retains the outer end of the barrel in contact with the grinding surface and the abutment or guideway formed by the front G. Upon reaching the end of 15 the runway, the operator simply reverses the barrel, presenting the opposite end to the sand roller, and walking backward on the return trip, thus completes the trimming of both ends of the barrel. The operation is 20 very simple and quick, as two or three steps is all that is necessary to roll the barrel once around, with the edge of the veneer sheets against the sand roller, then quickly reversing the barrel the operator starts stepping 25 backward; he trims one end on the forward and the other on the backward step. On a small size of barrel, one long step is enough to finish one end, and the reverse also. Owing to the passageway provided between 30 the runways for the operator, he may impart the requisite pressure on the barrel in engaging the latter with the grinding surface and the rolling of the barrel is more readily accomplished. Again, the position assumed 35 by the operator makes it possible for him to follow with his eye each step in the grinding operation, he being positioned in substantial alignment with the edge being treated, thereby insuring a true trim, devoid of the usual 40 irregularities.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a finishing machine of the character 45 described, the combination of a grinding member, a support for the same, and runways arranged to one side of the grinding member and extending longitudinally of the working surface of said grinding member 50 comprising a pair of separated guides, the space between the said guides being unobstructed for the passage of an operator in moving the work along the guides and relative to the grinding member.

55 2. In a machine of the character described, the combination of a grinding member, of a pair of runways extending longitudinally of the working surface of the grinding member and to one side thereof, 60 upright supports for the runways, the supports lying within the vertical plane of the inner edges of said runways, and the place between the runways being unobstructed and free from protuberances, as and for the 65 purpose described.

3. In a machine of the character described, the combination of a grinding member, of a pair of runways extending longitudinally of the working surface of the grinding member and to one side thereof, 70 the runways being spaced laterally from one another, upright supports for the runways, means for moving said supports and the runways carried thereby vertically relative to the grinding member, and said supports 75 and runways being constructed and arranged to offer no protuberances between the respective runways, whereby the operator may have an unobstructed passage therebetween in feeding the work relative to the grinding member.

4. In a machine of the character described, the combination of a rotary cylinder having a grinding surface, a runway extending longitudinally in front of the cylinder, 85 upright supports adjacent opposite ends of the runway and gear mechanism between the respective supports for simultaneously raising and lowering said supports.

5. In a machine of the character described, 90 the combination of a rotary grinding member, of a pair of supported runways extending longitudinally of the working surface of said grinding member in front thereof, one of said runways being laterally adjustable.

6. In a machine of the character described, a work support, a rotary grinding member, a guide member interposed between the work support and grinding member, the 100 guide member having an opening for exposing a portion of the working periphery of the grinding member, said guide member being adjustable laterally to regulate the amount of exposure of the grinding member. 105

7. In a machine of the character described, the combination of a rotary grinding cylinder, a runway for the work extending longitudinally in front of the cylinder, a 110 housing for the grinding member, one surface of the housing constituting a guide for one end of the work fed along the runway, and said surface of the housing having an opening for the exposure of the operating surface of the grinding member.

8. In a machine of the character described, the combination of a rotary grinding cylinder, a runway for the work extending longitudinally in front of the cylinder, a 115 housing for the grinding member, one surface of the housing constituting a guide for one end of the work fed along the runway, and said surface of the housing having an opening for the exposure of the operating surface of the grinding member, and means for adjusting the position of said opening.

9. In a machine of the character described, the combination of a rotary grinding cylinder, a runway for the work extending longitudinally in front of the cylinder, a hous- 120

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ing for the grinding member, one surface of the housing constituting a guide for one end of the work fed along the guideway, and said surface of the housing having an opening for the exposure of the operating surface of the grinding member, means for adjusting the runway vertically, and means for adjusting the position of the opening in said guide surface of the housing.

10 10. In a machine of the character described, a rotary grinding member, an elongated runway extending longitudinally of the working face of the grinding member, a vertically arranged partition interposed between the runway and grinding member, the partition having an opening for exposing a portion of the grinding surface of the grinding member, and the partition having a pivotal connection whereby it may swing laterally between the grinding member and runway.

11. In a machine of the character described, the combination of a grinding member, a housing therefor having an opening for the exposure of the grinding member, a runway to the side of the grinding member, and means for adjusting the housing relative to the runway.

12. In a machine of the character described, the combination of a grinding member, a horizontally extending runway to one side of the grinding member and extending longitudinally of the grinding surface there-

of, and an adjustable vertical partition between the runway and grinding member, 35 said partition having an opening opposite the grinding member, as and for the purpose described.

13. In a machine of the character described, the combination of a rotary grinding surface, a runway extending longitudinally of said surface and spaced therefrom, a housing inclosing said grinding member and having a longitudinally extending opening in its front wall at a point opposite the 40 grinding surface, means whereby said front wall may be adjusted relative to the grinding member, and a perforated floor for the housing.

14. In a machine of the character described, the combination of a longitudinally extending grinding member, a support for the same, elongated runways extending longitudinally of the grinding member to one side thereof, the runways constituting guides 55 for a barrel or the like, and being separated from one another to form a passageway for the operator in feeding the work along the runways.

In testimony whereof I affix my signature 60 in presence of two witnesses.

GEORGE E. HARDIE.

Witnesses:

JAMES L. CRAWFORD,  
GEO. D. RILEY.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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