June 6, 1933. W. WEISBROD 1,912,956

BARREL SANDING MACHINE

Filed March 26, 1931 2 Sheets-Sheet 1

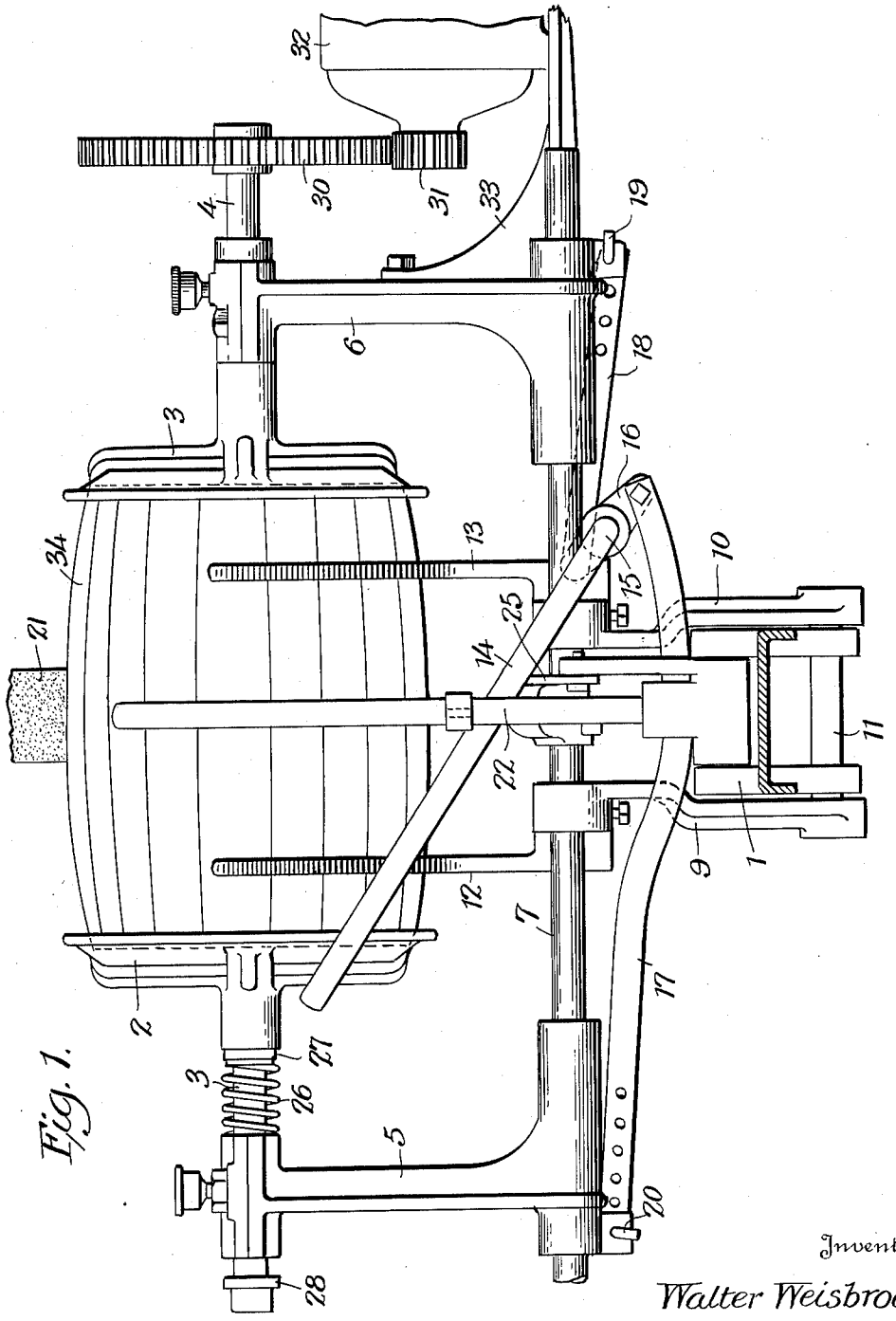


Fig. 1.

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Fig. 2.

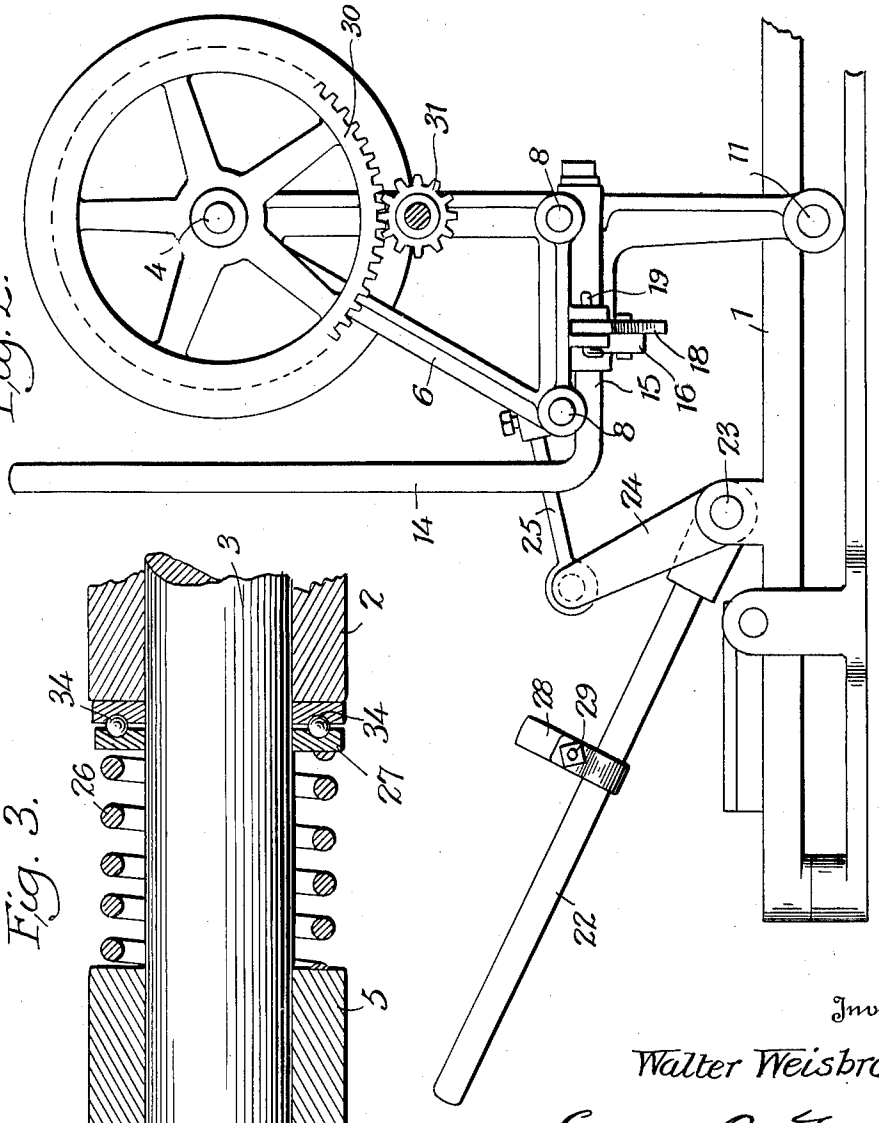


Fig. 3.

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Patented June 6, 1933 1,912,956

UNITED STATES PATENT OFFICE

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BARREL SANDING MACHINE

Application filed March 26, 1931. Serial No. 525,548.

This invention relates to improvements in a barrel sanding machine and an object of the invention is to provide means for clamping and retaining a barrel in operative position in such machine and in the provision of interlocking mechanism for maintaining the barrel in clamped position during the smoothing operation.

In the drawings the invention is disclosed in connection with a machine of the type shown in Patent 988,071 granted March 21, 1911. Certain features of construction clearly disclosed in this patent are illustrated in the drawings in connection with the improvements herein disclosed and claimed.

In machines of the type shown in the patent referred to above it is not uncommon for the barrel to become loose in the suporting chucks and be spun around by the moving sand belt and under some circumstances the barrel may even be thrown out of the chucks. To overcome this objection a compression spring has been provided between one chuck and its supporting bracket which when the chucks are clamped against the ends of the barrel permits a certain amount of flexibility in the connections which insures that the chucks shall at all times during the smoothing operation be securely clamped against the ends of the barrel and prevent any posibility of the barrel becoming loose or being disengaged from the chucks.

Another object of the invention is to provide an interlocking arrangement between the lever which clamps the chucks against the barrel and the lever for shifting the barrel from inoperative position into engagement with the sand belt. The cooperation between these levers when in operative position insures that the spring between the chuck and its suporting bracket shall at all times be under compression and consequently produce a clamping engagement between the chucks and the ends of the barrel even though barrels of different length, or which are defective at their ends, are held by the clamping chucks.

In machines of the type under consideration the barrel is held between a pair of chucks one of which is driven from a small electric motor mounted on the bracket of one of the chucks and the whole barrel holding device is pivoted on a horizontal pivot and provided with means for swinging the barrel into engagement with the sand belt and out of engagement with the same into a position in which the barrel may be taken out of the chucks and another barrel inserted. The movement of the barrel holding device about its horizontal pivot is controlled by a lever moving in a vertical plane and connected to the barrel holding device by means of a toggle. When the barrel is in engagement with the fan belt the toggle is straight and holds the barrel in operative position. Mounted on the barrel supporting device is another lever moving in a plane perpendicular to and across the plane of movement of the first lever which through link mechanism separates the chucks from the ends of the barrel and upon movement in the opposite direction moves the chucks into clamping engagement with the barrel ends.

When the lever last referred to is moved into barrel clamping position it crosses the path of movement of the first lever and when this lever is moved over to shove the barrel into engagement with the belt it substantially makes contact with the barrel clamping lever. Advantage is taken of this relative position of the levers in operative position to provide an interlocking means between the two levers which assures constant elastic clamping engagement between the chucks and the barrel when both levers are in operative position. Any suitable interlocking mechanism between these levers in the positions indicated may be provided. In the drawings there has been illustrated a lug or projection consisting of a piece of strap iron attached to the barrel shifting lever which extends over and holds down the barrel clamping lever when both levers are in operative working position. Other means performing the same function may of course be resorted to and are considered to be within the scope of applicant's invention as defined in the claims.

It may also be mentioned that in this type of machine the entire frame for supporting the barrel is oscillated about a fixed pivot so that all surfaces of the barrel may be

brought into engagement with the sand belt. A construction of this character is clearly disclosed in the Patent 988,071 referred to above.

Referring to the drawings, which are made a part of this application and in which similar reference characters indicate similar parts:

Figure 1 is a front view in elevation of a portion of the complete machine showing the manner of supporting the barrel holding mechanism and also showing the spring and interlocking lever arrangement which constitute important features of the invention.

Figure 2 is an end view of the machine showing the levers in disengaged relationship, and Figure 3 is a detail showing partly in section the arrangement of the compression spring with respect to the chuck and its supporting bracket.

Referring to Figure 1 the reference numeral 1 refers to the oscillating supporting means for the barrel holding mechanism. This supporting means is carried on rollers operated on a curved track and oscillates about a fixed pivot automatically in a manner similar to the corresponding construction referred to in the patent mentioned above. The barrel clamping chucks 2 and 3 are mounted on corresponding shafts 3 and 4 which are in alignment and are supported upon the respective brackets 5 and 6. These brackets are of triangular shape and at their lower portions are mounted upon two bars or rods 7 and 8 on which rods the brackets slide toward and from each other in order to clamp the barrel and to be disengaged therefrom. The rods 7 and 8 are supported upon brackets 9 and 10 which are pivoted to the member 1 at 11. From this construction it will be apparent that all of the barrel supporting mechanism is mounted upon the oscillating member 1 and that the barrel may be swung in a vertical plane about the pivot 11. The brackets 9 and 10 carry at their upper portions barrel supporting arms or cradles 12 and 13 which extend upwardly and are curved so as to form a support for the barrel and hold the same in position to be picked up by the chucks when they are moved toward each other and into clamping engagement with the ends of the barrels. These chucks are somewhat cone shaped on their interior faces and when moved into engagement with the barrel lift the same from the cradles 12 and 13 and into proper position for being operated on by the sand belt when moved into engagement therewith.

The chuck supporting brackets 5 and 6 are shifted with respect to each other by means of a lever 14 which is pivoted to the bracket 10 as indicated at 15. Lever 14 is fixed to cross bar 16 the ends of which are connected to the respective brackets 5 and 6 by links 17 and 18. These links are adjustably connected to the respective brackets by means of pins or bolts 19 and 20 inserted in holes in the links and brackets. This adjustment is for the purpose of varying the length of movement of the chucks to correspond to setting of the machine and operation upon barrels of different length.

The mechanism for shifting the barrel into and out of engagement with the sand belt shown at 21 comprises a lever 22 pivoted at 23 on the member 1. The connection between the lever 22 and the bar 7 comprises a toggle mechanism having two links 24 and 25 which when the lever 22 is moved into the position shown in Figure 1 straighten out and hold the barrel in engagement with the sand belt and effectively lock the same in operative position.

In order to secure a proper and effective clamping engagement between the barrel and the chucks the spring 26 is mounted on the chuck shaft 3 between the bracket 5 and the thrust bearing 27 which engages the sleeve of the chuck 2. It will be readily seen that when lever 14 is swung to the left in Figure 1 the barrel will be caught between the chucks and the spring 26 placed under compression. Under these conditions it becomes desirable to provide some means for holding the lever 14 in operative position since something must be provided to take up the reaction of the spring 26. It has been found necessary in machines of this type in which no compression spring was employed to place a weight upon lever 14 in order to hold it in operative position to maintain the barrel properly between the chucks. The use of a weight on the lever 14 was not only cumbersome but also imposed an undue amount of labor upon the operator of the machine since it was necessary to shift this weight every time the levers were operated in changing barrels. This objection has now been overcome by providing a spring which holds the barrel in proper position under all circumstances and providing a means for holding the lever 14 in operative position by means of interlocking means between it and the lever 22. As suggested above in normal operation a barrel is placed on the cradles 12 and 13 and the lever 14 swung to the left to clamp the barrel between the chucks, then the barrel shifting lever 22 is moved in the direction of the sand belt and shifts the holding mechanism in that direction and when the toggle 24—25 straightens out the barrel will be in an engagement with the sand belt and the lever 22 will be practically in engagement with a portion of the lever 14. In other words these levers cross each other when both are in operative position and in order to hold the lever 14 in operative position a lug or strap 28 is clamped by means of a bolt or other fastening device 29 to the lever 22 at the position indicated in the drawings

which lug engages the upper surface of the lever 14 and holds it in operative position due to the reaction of the spring 26 and to the fact that the toggle mechanism maintains the lever 22 in operative position due to the fact that it is swung over past the pivotal support 11 and the weight of the barrel holding mechanism will assist in straightening the toggle levers 24 and 25 and will partially rest against the sand belt. As shown in the drawings, the chuck 3 is the live chuck for driving the barrel and is operated by gear mechanism 30 and 31 driven by the electric motor 32 mounted on a bracket 33 which is attached to the bracket 6.

The entire driving mechanism is mounted so that it may be swung with the barrel supporting means as the barrel is moved into and out of engagement with the sand belt. The particular driving mechanism for the chuck 3 is not of the essence of this invention but is shown in order to illustrate one method of driving the chuck. The barrel 34 of course is rotated in a direction opposite to the direction of travel of the sand belt 21.

From the above description it would be apparent that means has been provided for elasticity and securely holding the barrel between the chucks and provides means not involving any heavy weights for holding the chucks in position so that the barrel will not become disengaged due to any small irregularity in length or the condition of the ends of the barrels. There is also provided an interlocking means between the two control levers for insuring that the barrel will be securely clamped at all times when the same is moved into operative engagement with the sand belt.

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

1. In a barrel sanding machine in combination, a sanding belt, a pivoted barrel supporting mechanism, a pair of barrel holding chucks, chuck supporting brackets mounted on said mechanism, a compression spring separating one of said chucks from its supporting bracket and lever mechanism for moving said chucks into clamping engagement with a barrel, a lever mechanism for shifting said barrel supporting mechanism into engagement with said belt and means for interlocking said levers to maintain said chucks in clamping engagement with the barrel to be operated upon.

2. In a barrel sanding machine, pivoted barrel supporting means, barrel holding chucks mounted on said means for resilient holding engagement with a barrel to be sanded, means for shifting said supporting means, a lever mechanism for moving said chucks into engagement with the barrel and an interlock between said lever mechanism and said shifting means for maintaining the chucks in engagement with the barrel.

3. In a sanding machine, a pivoted barrel supporting mechanism, a sanding belt, a lever for moving the mechanism in the direction of the sand belt through a toggle connection, barrel holding chucks supported by said mechanism, a lever for moving said chucks into and out of engagement with a barrel to be operated upon and a compression spring between said lever and one of said chucks and interlocking means between said levers whereby when the barrel is clamped between the chucks the spring will be put under compression to securely clamp the barrel.

4. In a barrel sanding machine in combination, a pivoted barrel supporting mechanism, a sand belt, a lever movable in a vertical plane and operating to shift said mechanism into working position with the sand belt, barrel holding chucks mounted on said mechanism, a lever for operating said chucks, said last mentioned lever moving in a plane perpendicular to that of said first mentioned lever and interlocking means between said levers operative when both levers are in normal working position.

5. In a barrel sanding machine in combination, a pivoted barrel supporting mechanism, a sand belt, said mechanism comprising a pair of parallel bars, brackets slidable on said bars and supporting at their upper ends a pair of barrel holding chucks, a compression spring located between one chuck and its corresponding bracket, power operated means mounted on the other bracket and driving the corresponding chuck, lever mechanism moving in a plane parallel to said bars for moving said chucks into and out of engagement with a barrel to be operated upon, a lever mechanism for swinging said barrel mechanism about its pivot and moving in a plane perpendicular to the plane of movement of said first lever mechanism and interlocking means between said two lever mechanisms.

6. In a barrel sanding machine in combination, a pivoted barrel support, a lever and toggle for swinging said support into operative position, barrel holding chucks mounted on said support, brackets supporting said chucks, a compression spring between one of said chucks and the corresponding bracket, motor means mounted on said support and in driving engagement with said other chuck, a lever for shifting said chucks, said first lever provided with a lug for engaging and holding said second lever when both levers are in operative position to clamp and hold a barrel in working position.

7. In a barrel sanding machine in combination, a pivoted barrel support, a lever and toggle mechanism for swinging said support into work position, a pair of barrel holding chucks on said support, one of said chucks being resiliently mounted, a lever for recip-

rocating said chucks to engage and disengage a barrel to be sanded and means interlocking said levers when both levers are moved to working position.

8. In a barrel smoothing machine, shiftable means for supporting a barrel, a pair of adjustable barrel holding chucks mounted for resilient holding engagement with the ends of a barrel to be smoothed, a lever mechanism for moving said chucks into and out of engagement with the barrel and a toggle mechanism for shifting the barrel supporting means and cooperating with said lever mechanism through interlocking means to hold the said chucks in barrel engaging position.

9. In a barrel smoothing machine, a pair of adjustable barrel holding chucks, means for moving said chucks into and out of barrel holding position, a compression spring located between one of said chucks and its corresponding moving means, a lever mechanism interlocking with said means to control the position of said chucks and toggle mechanism cooperating with said lever mechanism and said means to hold said chucks in barrel holding position.

In testimony whereof I affix my signature.

WALTER WEISBROD.