M. E. BEASLEY & G., J. G. & M. O. REHFUSS.
BARREL MAKING MACHINE.
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Inventors:
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BARREL-MAKING MACHINE.


Application filed October 27, 1887. Serial No. 235,229. (No model.)

To all whom it may concern:

Be it known that we, MARI A E. BEASLEY, GEORGE REHFUSS, J. GEORGE REHFUSS, AND MARTIN O. REHFUSS, all citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Machines for Making Barrels, of which the following is a specification.

Our invention relates to certain improvements in the manufacture of barrels by machinery, the object of our improvements being to facilitate the operations which intervene between the shaping of the staves and the setting up of the staves into barrel form, and with this object in view we have devised certain combinations of mechanism for effecting the heating or steaming of the staves, the bending of the same, the maintenance of the staves in a bent condition while they are being fed from the bender to the setting-up machine, and the formation of the bung hole in one of the staves while it is in transit.

In the accompanying drawings, Figure 1 is a longitudinal section of part of the machinery embodying our invention; Fig. 1', a similar view of another part of the same. Fig. 2 is a plan view of that portion of the machine shown in Fig. 1. Fig. 3 is a transverse section on the line x x, Fig. 1. Figs. 4 and 5 are detached views of parts of the machine on an enlarged scale; Figs. 6, 7, and 8, diagrams illustrating the operation of the stave-bender; Fig. 9, an enlarged transverse section of the stave-feedway, and Fig. 10 a view illustrating a modification of the same.

The machine has two stave-feedways, one for the straight staves and one for the staves after they are bent, the first feedway consisting of opposite slotted or grooved guides 1 and the second stave way having end guide or bearing bars, 2, and a central bar, 10.

The first stave-feedway is in the present instance somewhat higher plane than the second, and between these feedways is interposed a bending bed, 3, so that the staves may be fed from the first way onto said bending bed, then bent by the action of a die, 4, and then fed onto the second way.

The guides 1, forming the first stave-feedway, are extended into and through the casing 5 of a suitable steam box, through which the staves are traversed by means of studs 6 over an endless chain, 7, which passes around a sprocket-wheel, 8, at each end of the steam-box.

The staves are fed into a hopper or receptacle 9, and the bottom stave of the pile is at the proper time pushed from the receptacle into the lower front end of the guides 1 beneath the chain 7, the discharge of the staves from the receptacle being effected by a sliding 60 pusher, 11, connected by a rod, 12, to a pivoted arm, 13, connected by a rod, 14, to a pivoted arm, 15, a stud on which engages with a cam, 16, carried by a counter-shaft, 17, the latter having at one side of the machine a sprocket wheel, 18, which gears into a spur-pinion, 19, on the driving shaft of the machine, said shaft being provided with a suitable belt-pulley, 20.

At the rear end of the steam-box the lower guides, 1, are curved, so as to be concentric with the endless chain, whereby the staves are carried up by the chain as it passes around the sprocket-wheel and pass into and through the upper portion of the steam-box.

As the staves issue from the steam-box they are acted upon by pivoted fingers 21, carried by opposite sliding bars 22, suitably guided on the frame of the machine, these bars being connected to a transverse rod, 23, the ends of which are adapted to slots 24 in the upper ends of levers 25, hung to the shaft of the forward sprocket wheel, 8, and connected by means of rods 26 to eccentrics 27 on the shaft 17, the fingers pushing the staves before them on the forward movement of the slide-bars, 85 but yielding so as to pass over the staves on the backward movement of said bars, the rearward movement of the staves being prevented by means of spring clips 28, which consist of elastic plates carried by the upper portions of the guides 1 and bent so that their convex faces project down from above into the guide-slots, as shown in Fig. 1, and act upon the end portions of the staves to retain the same.

The staves delivered from the guides 1 onto the bending bed 3 are there subjected to the action of the bending die 4, which is carried by a slide, 30, suitably guided in a transverse
The staves are delivered from the feedway into a barrel setting up or forming machine of any suitable construction. The machine may, for instance, be of a character similar to the one forming the subject of application No. 225,328, dated January 24, 1887. When the proper number of staves have been fed into this setting-up machine, it is necessary to stop the operation of the feeding devices and other parts of the machine, and a like stoppage is necessary when a defective stave is delivered from the bending apparatus. For this reason we mount the spur-wheel 18 loosely on the shaft 17 and secure to said shaft outside of the spur-wheel a disk, 62, which carries a clutch-finger, 63, actuated by a spring, 52, and engaging with a recess, 53, in the face of the spur-wheel 18, as shown in Fig. 4.

The outer end of the clutch-finger is beveled, and in a suitable bearing, 64, adjacent to the end of the fingers, is adapted to slide on a stop-rod, 65, having a beveled head, 66. Under ordinary circumstances this head is withdrawn, as in Fig. 4, so as to be out of the path of the end of the clutch-finger 62; but when it is desired to stop the machine the rod is moved so as to bring its beveled head into the path of said stop-finger, which is thereby retracted and withdrawn from the recess in the spur-wheel 18, thus effecting the stoppage of the shaft 17 and of all the parts driven thereby.

When the feeding of the staves has been stopped for the purpose of permitting the setting up of the barrel, opportunity is afforded for boring the bung-hole in one of the staves, and for this purpose we mount on a suitable cross-bar, 67, a bearing, 68, for an auger-spindle, 69, the latter being driven in the present instance by bevel-gears 70 and 71 from a short shaft, 72, having a pulley, 73, for receiving a driving-belt. The auger-spindle 69 is splined in the hub of the bevel-wheel 70 and can be raised and lowered by means of a suitable lever, 74, the latter being operated by the attendant or by one of the attendants in charge of the setting-up machine.

If desired, the central bearing-bar, 10, of the second feedway may be dispensed with; but in this case we prefer to provide the guides 2 with bearing-rollers 49 for the ends of the stave, as shown in Fig. 10, for instance.

We claim as our invention—

1. The combination of stave-bending dies, 120 a stave-feedway having opposite guides constructed to press upon the ends of the staves, and mechanism whereby the staves are fed from the binder to the guides and caused to traverse along the latter, all substantially as specified.

2. A stave-feedway in which are combined a central bar pressing upon one side of the stave at or near the middle and end bars pressing upon the opposite side of the stave at and near the ends of the same and having their bearing-surfaces in a different plane from that of the central bar, all substantially as specified.

3. The combination of the stave-bending
dies, the fingered feed-bars, means for reciprocating the latter, and stave-guides constructed to press upon the staves as they are being fed forward, all substantially as specified.

4. The combination of the stave-bending die with spring clips at the ends of the same for preventing undue recoil of the stave on the rise of the die, all substantially as specified.

5. The combination of a steam-box, a stave-feedway and endless feed-chain traversing said steam-box, a stave-receptacle, and means for conveying the staves from said receptacle to the feedway and chain, all substantially as specified.

6. The combination of the steam-box with the endless feed-chain and its sprocket-wheels, and the endless feedway comprising upper and lower guides and curved connecting guides concentric with the feed-chain at one end, all substantially as specified.

7. The combination of stave-bending dies, retainers for preventing undue recoil of the bent stave, a stave-feedway having bearings whereby the stave is held in bent form, and means for feeding the stave directly from the bending dies into said stave-feedway, all substantially as specified.

8. The combination of a stave-feedway, a reciprocating feed-bar having yielding presser-fingers, and elastic clips whereby the staves are prevented from moving backward on the retraction of said fingers, all substantially as specified.

9. The combination of opposite longitudinal feedways, means for intermittently feeding the staves along the same, an auger spindle adapted to bearings located above the feedways and intermediate of the same, and means for rotating and reciprocating said spindle, all substantially as specified.

10. The combination of the main shaft of the machine, a loose driving-pinion thereon, a disk secured to the shaft and having a clutch-finger engaging said pinion, and a stop rod having a beveled head for engaging with said finger and moving it to disengage the pinion therefrom, all substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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