(No Model.) 3 Sheets—Sheet 2.

P. LITTLE.

BARREL MAKING MACHINE.

No. 521,319. Patented June 12, 1894.

Fig. 2.

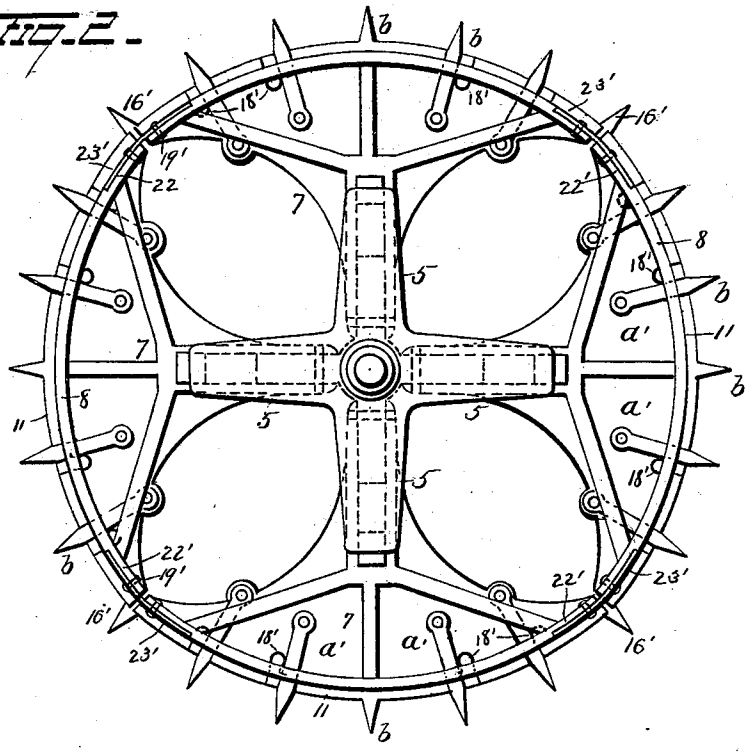
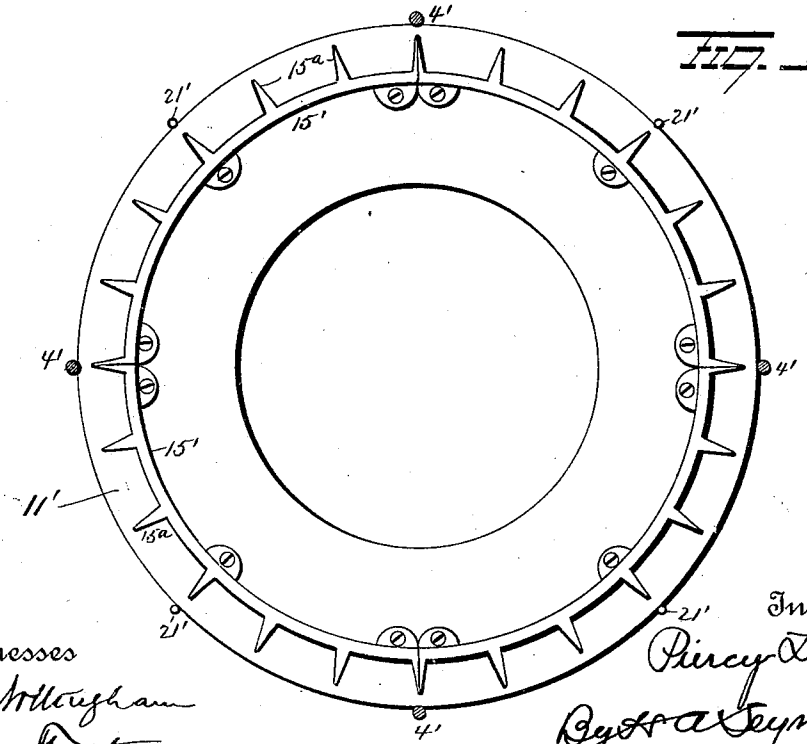


Fig. 3.



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(No Model.) 3 Sheets—Sheet 1.

P. LITTLE.

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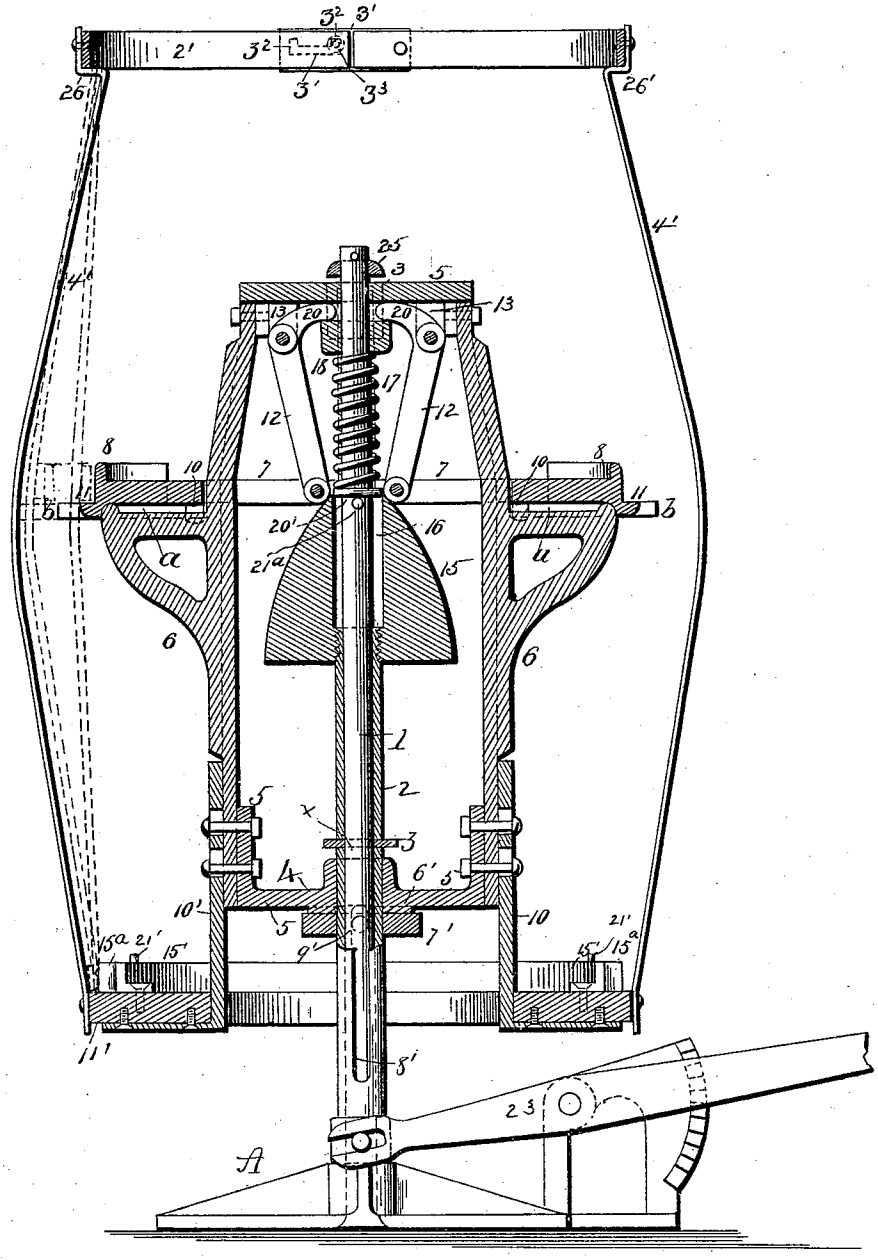

Fig. 1.

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(No Model.) 3 Sheets—Sheet 3.

P. LITTLE.

BARREL MAKING MACHINE.

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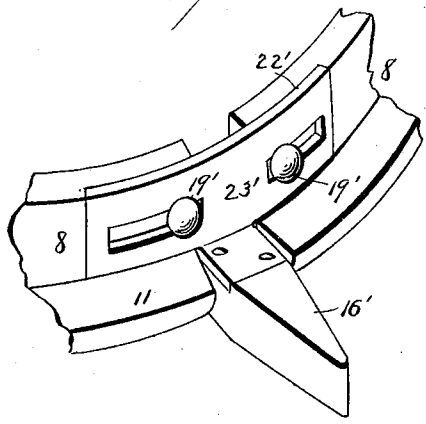
Fig. 4.



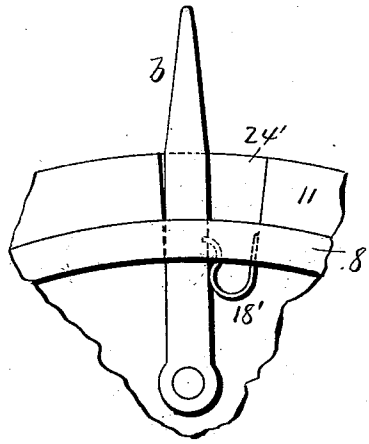


Fig. 5.

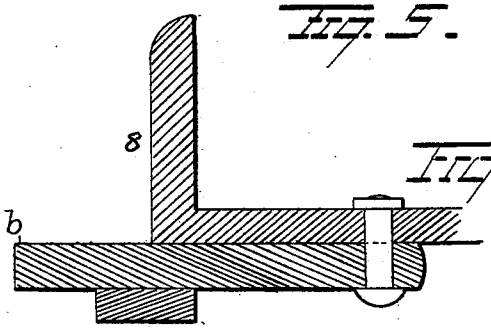


Fig. 6.

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UNITED STATES PATENT OFFICE.

PIERCY LITTLE, OF NORTHUMBERLAND, PENNSYLVANIA.

BARREL-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 521,319, dated June 12, 1894.

Application filed July 20, 1893. Serial No. 480,993. (No model.)

To all whom it may concern:

Be it known that I, PIERCY LITTLE, a resident of Northumberland, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Barrel-Making Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in barrel machines,—the object being to provide a machine for forming a bilge, ventilated barrel out of parallel staves, in which the openings are widest at the bilge and are closed at the ends.

With this object in view the invention consists in an expansible body, in combination with other features of novelty hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1 is a view in side elevation, partly in section. Fig. 2 is a plan view. Figs. 3, 4, and 5 are detail views. Fig. 6 is an enlarged section through one of the fingers *b* and the portion of the machine adjacent thereto.

A represents the base of the machine upon which it rests and 1 is a rod secured to the base and projecting upwardly therefrom. Fitted to this rod is a sleeve 2 made preferably of steam or gas pipe and composed of two sections, one of which is located above the other, they having a washer 3 interposed between their adjacent ends to prevent undue wear upon said ends. A pair of castings 3 and 4 are loosely mounted, respectively on the rod and sleeve, the upper one being retained in place by a washer 25 at the upper end of the rod, which washer is held in by a pin or equivalent device. The object of loosely mounting these castings is to admit of their turning relative to the central rod 1 when occasion requires. The lower casting 4 has a washer 6′ cast on its under side and this washer rests upon a collar 7′ secured to the rod 1 by a pair of set screws 9′ located on opposite sides of the collar. The lower section of sleeve 2 is provided with elongated slots 8′ through which the set screws 9′ pass in abutting against rod 1, the purpose of the slots 8′ being to admit of the sleeve 2 being raised and lowered upon the rod 1 and the object in making the sleeve in two sections is to admit of the upper section turning with the castings 3 and 4 and the other parts of the machine which is quite essential in the operation of forming a barrel.

The castings 3 and 4 have several arms 5, 5, preferably four in number, and to their outer ends, brackets 6 are firmly bolted. Several expanding segments 7, corresponding with the brackets, are arranged to slide in and out thereon. These expanding segments comprise arms, to the outer ends of which, curved rims 8 are secured or made integral therewith. These rims 8 are so curved that when expanded to their full extent or approximately their utmost, their outline will be substantially circular in form, for the purpose of corresponding to the circular shape of the barrel and also to impinge alike, as nearly as possible, at all points when the segments engage the interior of the barrel. The segments, or more properly speaking, the rims 8, are recessed as at 22′ on their faces to receive a small, thin segment 23′ having one tooth 16′, the recess allowing the segment 23′ to come on the same general line with the other teeth (hereinafter to be described) when the segments are expanded. Segment 23′ is connected to the rim 8 at the junction of two sections thereof, by pins 19′, the segment 23′ being slotted to receive said pin, whereby to permit said segment to move back and forth as the sections are expanded or contracted. The upper edges of the brackets 6 are straight and provided with lateral track flanges *a*. The expanding segments 7 are provided with claws 10, which embrace these flanges in order to guide the segments in their movement thereon. The outer edge of each rim 8 is provided with a ledge 11, to receive a hoop, which is to be secured inside of the barrel at the bilge, after the barrel has been properly expanded at this point. The ledge 11 is cut away to allow the teeth or spacers *b* to move into their proper position as the segments move outwardly, carrying the slats or staves with them, said teeth or spacers being pivotally connected to the webs *a*′ of the segments. The segments moving at right angles from each other makes it necessary that the teeth on each side of the center one (which is rigid) shall move from said central tooth so as to

produce uniform spaces between all the staves. The springs 18′ are for the purpose of carrying back to their normal position, the teeth *b* as the segments are withdrawn to their normal position. Each spring is held in position by a slot in the side of the tooth and the end of the spring inserted in it, the other end of the spring working against the face of the cut-away portion of the ledge 11. The ledge 11 is deepened by one-fourth inch of iron, as at 24′, so that the portion of the ledge cut away for the teeth to move in, is covered by this one-fourth inch of metal, which supports the tooth and also prevents the spring 18′ from coming out.

The expanding segments are moved outward and inward by the following mechanism: A set of levers 12, are pivoted to hanger plates 13 depending from the upper casting 3. The lower ends of these levers are pivotally connected with the inner ends of the arms of the segments. A cone shaped cam 15 is secured to the upper end of the sleeve 2 in such position that its cam edges bear on the lower ends of the levers to force them outward when the cam is raised; also means is provided for drawing the segments inward when the cam is lowered. To this end the cam has a hollow center 16 and a stiff spiral spring 17 is seated on a washer 20′, which washer rests on a pin 20^a passing through the rod 1. Mounted on rod 1 and resting on the upper end of the spring 17 is a disk 18. The several levers 12, terminate at their upper ends in inwardly projecting arms 20 adapted to project over the edge of a disk 18 when they are normally held upward as far as possible by the tension of the spring, to the end that the segments shall be drawn inward as fast as the cone cam is depressed.

Small, round, spring steel rods 4′ are fastened to a platform 11′ by means of screws passing through the flattened lower ends of said rods, and extend upward the full height of the barrel (there are four of these rods). In order to support the platform 11′ brackets 10′, corresponding in number with the brackets 6, are bolted through the lugs on arm 5 of casting 4, their upper ends being long enough to allow of a number of holes or a slot to be made therein. If it be desired to change the length of the barrel by using longer or shorter staves, the bolts are loosened and the brackets 10′ moved up or down, thus raising or lowering the platform 11′ and the rods might be raised and lowered relative to the platform. The bottoms of the rods 4′ are the proper distance apart to allow the hoop of the proposed barrel to lie on the platform between them and they are bent out in the middle slightly more than the side of the barrel when completed. The tops of the rods 4′ are bent out at right angles to produce a ledge or offset 26′ the width of the barrel hoop from the top and deep enough to allow the hoop to rest on the offset inside of a spring steel band 2′. The steel band 2′ is made in two parts connected together by slotted latch plates 3′. The latch plate 3′ is pivoted at one end to one section of the band 2′ and the slot *z*′ in said latch plate is made with angular projections z^2 at its ends. A pin z^3 projects from one section of the band and enters said slot, said pin having a head adapted to project over the walls of said slot. After the barrel is set up, a liner is placed inside the staves and nailed from the inside through the staves and hoop 26′ and the points are clinched by being driven against the steel band 2′. The band 2′ is sufficiently flexible, so that after the barrel is formed, the latch at 3′ being opened, the ends will spring apart far enough to permit the barrel to be lifted up and out. The rods 4′ will also spring back enough for the same purpose. 21′ represents four studs in the platform 11′, placed half way between the uprights or rods 4′ to keep the lower hoop in place. A circular, iron plate 15′, with space teeth 15^a on it corresponding to the teeth on the segments, is fastened on the platform to keep the bottoms of the staves in their proper position while being set up, said plates being preferably made in sections.

Before explaining the operation of the machine, it is proper to add that this machine is designed for use in making a ventilated barrel out of paneled edged staves, they being spaced an equal distance apart and secured in position by an inside hoop, the staves being nailed to it while on the machine and the nails clinched on the inside. It is needless to say that the machine, being mounted on the collar 7′, can be moved around easily, thus bringing every part of it opposite the operator and facilitating the setting in of the staves and the nailing of them to the inside hoop after being set up. The staves can be crozed and chamfered before being set up, or these operations can be performed in the usual way afterward, or for the cheapest barrel, a liner can be nailed in on the machine on which the head can rest, the head being put in from the other end after the barrel is taken off the machine.

The operation of forming a barrel is as follows: The segments being in their normal inward position, a hoop is placed over them, resting on the platform 11′, another hoop is placed within the band 2′ at the top, resting on the offsets or seats of rod 4′. The staves are then set inside the hoops and between the points of the teeth in the segments and between the fingers of plates 15′ on the platform 11′. After the spaces are all filled, the lever 23 is slightly depressed, raising cam 15, forcing out the segments, the teeth carried by said segments holding the slats firmly in position. The inside hoop is then placed inside the barrel around the face of the segments. The lever 23 is then depressed, forcing the segments outwardly with the hoop, the teeth forcing the staves apart and producing the desired bilge. The lever is then locked fast and the operator proceeds to nail each slat or

stave to the inside hoop, the nails being clinched on the inside by coming into contact with the faces of the rims of the segments. As the staves at the top are practically set together the top hoop can be driven down its width to second place, the end hoop be placed on, and (if desired) the liner for the head to rest on is placed inside the staves at the top and nailed through the liner, staves and first hoop and the nails clinched against the steel hoop 2′. The lever 23 is then unlocked and the cam moved down. The segments return to their normal positions, the latch at 3′ is unlocked, causing the band 2′ to spring apart. The operator takes hold of the barrel and lifts it up and out, the rods spring out far enough to permit the bilge of the barrel to pass between them. The barrel is now ready for the head to be dropped in and be filled, and what was the lower hoop driven down to second place and another hoop with canvas covering the end of the barrel put on, or another head can be put in. The machine is now ready to repeat the operation.

Various slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope and hence I do not wish to limit myself to the precise details of construction herein set forth, but,

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

1. In a barrel making machine, the combination with a platform, of spring rods projecting upwardly from the platform, and a band connected with the upper ends of these spring rods, said band being substantially impenetrable and made expansible whereby it may be spread apart to furnish clearance for the removal of the barrel upwardly through it.

2. In a barrel making machine, the combination with a platform, of spring rods secured thereto and projecting upwardly from the platform, said rods having shoulders or ledges formed at or near their upper ends adapted to support a barrel hoop, and an expansible and substantially impenetrable band connected with the spring rods above the shoulders or ledges against which the nails are adapted to be clinched, substantially as set forth.

3. In a barrel making machine, the combination with a frame, and a platform vertically adjustable with relation to the frame, of spring rods projecting upwardly from the platform, and an expansible and substantially impenetrable band connected with the upper ends of these rods, substantially as set forth.

4. In a barrel making machine, the combination with a frame, and a platform vertically adjustable with relation thereto, of spring rods adjustable vertically at their lower ends relative to the platform and projecting upwardly, therefrom, and an expansible or separable band said band being substantially impenetrable and connecting the upper ends of these rods together, substantially as set forth.

5. In a barrel making machine, the combination with a platform, and spring rods projecting upwardly therefrom and bearing outwardly, of a separable and substantially impenetrable band connected with the upper ends of the rods, and a slotted latch plate pivoted to one end of the band and having an adjustable connection with a pin on the other end of the band, substantially as set forth.

6. In a barrel making machine, the combination with a frame, and segments for expanding a barrel carried by the frame, of fingers connected with said segments, small segments loosely connected to the ends of the main segments, and a tooth carried by each small segment, substantially as set forth.

7. In a barrel making machine, the combination with a platform having studs projecting upwardly therefrom, of rods, and an expansible and substantially impenetrable band for connecting the upper ends of the rods together, substantially as set forth.

8. The combination with the expansible segments of a barrel making machine, of pivoted spring sustained fingers connected thereto, substantially as set forth.

9. In a barrel making machine, the combination with the expansible segments, of a small segment connected to the adjacent ends of each two expansible segments in such manner as not to interfere with the movements of said expansible segments, and a tooth or finger carried by said small segment, substantially as set forth.

10. In a barrel making machine, the combination with the expansible segments, of a small segment having elongated slots, located at the junction of two expansible segments, pins projecting from said expansible segments and adapted to enter said elongated slots in the small segment, and a tooth or finger projecting from the small segment, substantially as set forth.

11. In a barrel making machine, the combination with a series of expansible segments having recesses in their rims, at the junction of two segments, of a small segment having elongated slots, located in said recesses, pins projecting from the expansible segments and entering said elongated slots, and a tooth or finger projecting from said small segments, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

PIERCY LITTLE.

Witnesses:
WM. A. SOBER,
GRANT NEWBURY.