

C. W. SHARROCK.
 BARREL TRUSSING AND HOOP DRIVING MACHINE.
 APPLICATION FILED OCT. 9, 1909.

982,749.

Patented Jan. 24, 1911.

3 SHEETS—SHEET 1.

Fig. 1.

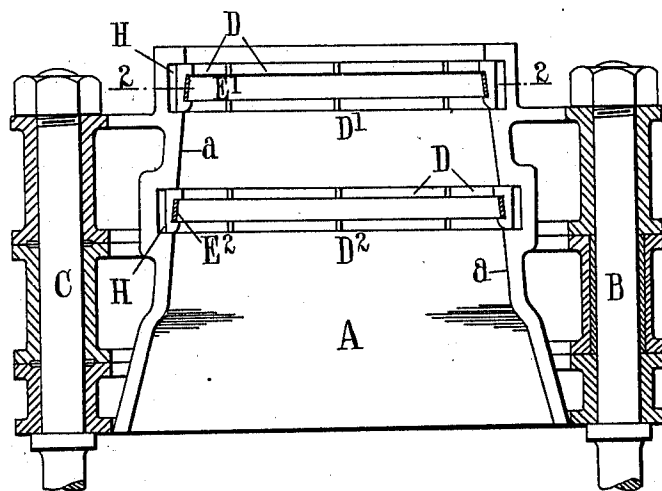
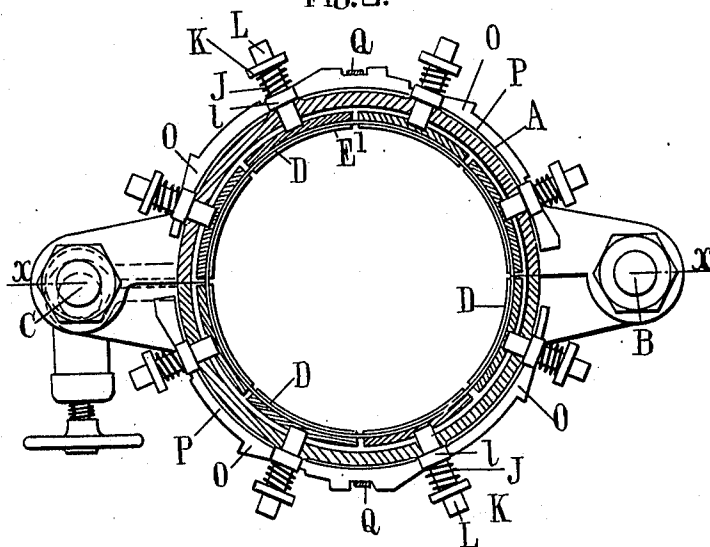


Fig. 2.



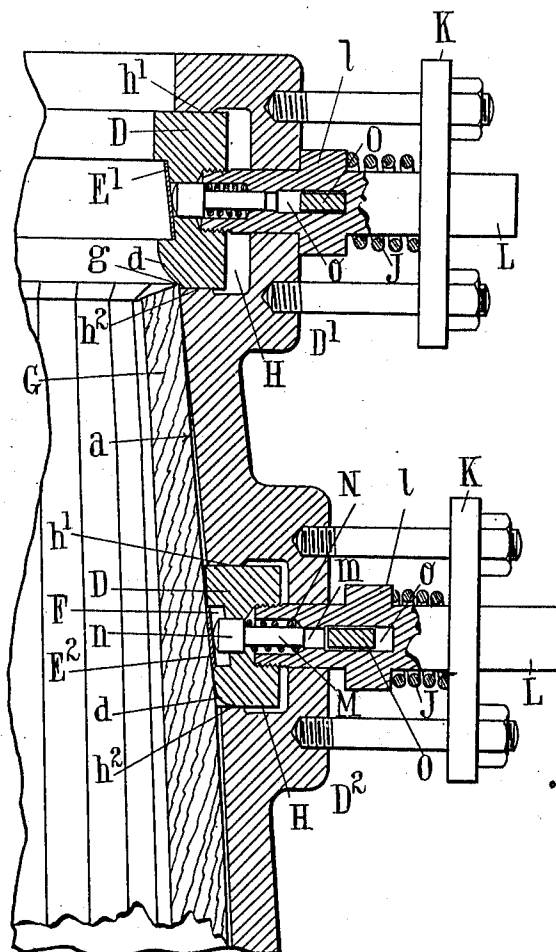
WITNESSES
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3 SHEETS—SHEET 2.

Fig.3.



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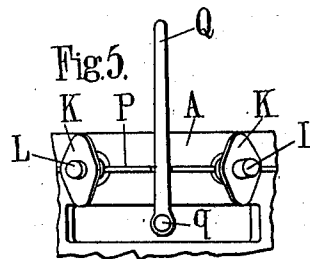
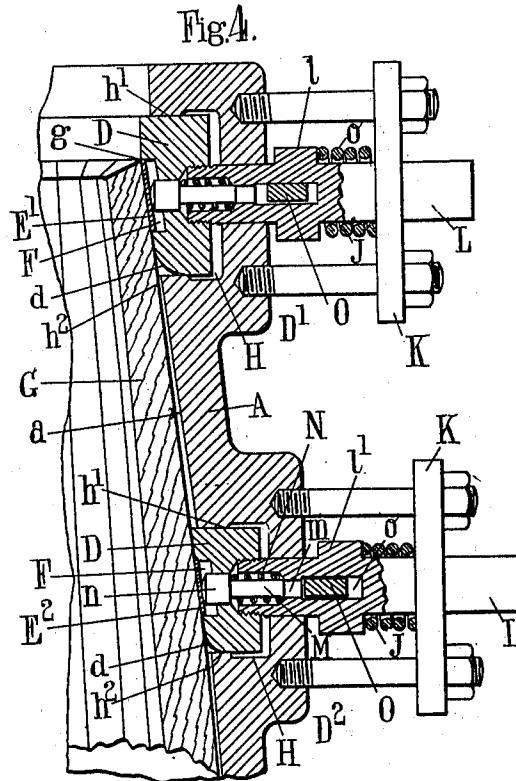
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UNITED STATES PATENT OFFICE.

CHARLES WILLIAM SHARROCK, OF DORINCOURT, GRAYS, ENGLAND.

BARREL-TRUSSING AND HOOP-DRIVING MACHINE.

982,749.

Specification of Letters Patent.

Patented Jan. 24, 1911.

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To all whom it may concern:

Be it known that I, CHARLES WILLIAM SHARROCK, a subject of the King of Great Britain, and resident of Dorincourt, Grays, in the county of Essex, England, works manager, have invented certain new and useful Improvements in Barrel-Trussing and Hoop-Driving Machines, of which the following is a specification.

This invention relates to the manufacture of casks (which term is to be understood as including all articles of cooperage to which the invention is applicable) and has for its object to enable any number of permanent hoops to be fixed in any position on a cask and with any desired degree of tightness during the process of assembling and bending the staves in a trussing machine as usual; the invention being designed to permit the direct application in the machine of permanent hoops of any ordinary description and material (such, for example, as metal hoops of plain conical form without flared edges, or wooden hoops), and moreover to enable both temporary trussing hoops and also permanent hoops of special construction, as well as magnetic or other adventitious devices for holding the hoops in place in the machine, to be dispensed with.

According to the present invention the bell of the trussing machine is provided with a hoop-holder or holders each comprising a series of radially movable sections presenting on their inner faces consecutive portions of a groove which extends around the circumference of the bell so as to be adapted to receive and support the hoop, the sections being yieldingly pressed toward the axis of the bell and adapted, while receding therefrom under the outward pressure of the staves as the latter are forced through the bell, to retain the hoop against longitudinal displacement. When, in consequence of the advance of the staves, a hoop has become tightened to the desired extent, the holder may be disengaged from the hoop without opening the bell, by retracting the several sections radially outward.

In the accompanying drawings, Figure 1 is a vertical axial section of the bell of a trussing machine of the ordinary type provided with two hoop-holders constructed in accordance with the present invention, and adapted for use with metal hoops of plain conical form. Fig. 2 is a horizontal section

on line 2—2 of Fig. 1, showing only the parts at or about the level of the plane of section. Fig. 3 is a part vertical section of the bell, drawn to a larger scale, showing the staves of a cask passed through the lower and about to pass through the upper hoop-holder. Fig. 4 is a similar view showing the staves at the moment when they have passed through the upper hoop. Fig. 5 is a part outside elevation of the bell, showing a means of withdrawing a holder from the hoop.

The bell A of the trussing machine may be either circumferentially continuous or in separable segments, that shown in the example illustrated (wherein the bell is vertical) being as usual in halves divided upon the longitudinal axial plane $x-x$ of the work and secured together at one side by a hinge as at B and at the other side by a locking device as at C. The bell is preferably provided with hoop-holders as at D¹, D² at intervals corresponding approximately to the positions to be occupied by the hoops on the cask. In the example illustrated the upper holder D¹ is designed to accommodate the end hoop E¹ of a cask of the size which the trussing machine is intended to produce, the lower holder D² being designed to accommodate an intermediate hoop E². Obviously, however, any number of holders may be provided according to requirements.

Each holder comprises a series of independent radially movable sections D, preferably of segmental form, as indicated, arranged around the bell A so as conjointly to constitute an approximately continuous annulus, the sections D presenting on their inner faces consecutive portions of a groove F which extends (or may be regarded as extending, if the sections are not practically continuous) horizontally around the entire circumference of the bell, and which is adapted to receive the hoop (E¹ or E²) and support it during the tightening operation without adventitious aid.

The several sections D of each holder are normally projected, by elastic pressure, radially inward beyond the inner peripheral surface a of the bell so as to engage the hoop in such manner that as the convergent staves G, in being thrust upward through the bell A past the level of the holder D¹ or D², pass within and through the hoop E¹ or E², the sections D of the holder will be

caused (by contact with the staves) to recede outward and give passage to the staves, while nevertheless continuing to support the hoop and prevent its displacement lengthwise of the bell.

When, by the continued passage of the convergent staves G through the hoop E^1 or E^2 , the latter has attained the desired degree of tightness, or the predetermined position lengthwise of the cask, the sections D of the holder are retracted by any convenient means from engagement with the hoop, the latter thereupon participating in the advancing movement of the staves; while a similar operation or operations may be performed, either simultaneously with or subsequently to the first, in connection with any number of hoops which it may be desired to fix upon the cask at positions in the length thereof between the first hoop (which may be the end hoop) and the bilge.

It is preferred to support the sections D of each holder against displacement in either direction lengthwise of the bell, by fitting the sections to slide radially between the upper and lower walls h^1 , h^2 of a horizontal annular channel H encircling the bell and opening out at the inner peripheral surface a thereof.

As each hoop E^1 , E^2 would preferably be made of a diameter not more than sufficient to just permit the passage of the staves G at the corresponding part of the bell, it will be obvious that owing to the necessary depth of the groove F wherein the hoop is received, the inner face of each section D of the holder will, before the passage through it of the staves, project inward beyond the hoop to a distance corresponding to the depth of the groove, as indicated in the upper part of Fig. 3. Hence, in order to insure and facilitate the thrusting aside of the sections D by the staves G, the lower and inner side or edge of each section is, as indicated at d , beveled or provided with a cam-surface adapted to be encountered by the outer edge or corner g of the upper ends of the staves as the latter advance, this cam surface d further serving to obviate the risk of the staves being split by their edges g encountering the lower edge of the hoop.

As the hoops, whatever the material of which they are composed, always tend to stretch, it is in practice generally found that, with conical metal hoops as shown, the best results are obtained by making the internal diameter of a hoop slightly smaller than the virtual diameter of the bell at the level of the hoop. In cases where this is done, it will be seen that the cask may be trussed, not by contact with the wall of the bell itself, but by contact with a hoop or hoops (according to the diameters given to the respective hoops); as for example, by contact with the lower hoop E^2 as indicated

in Fig. 4. Hence it is possible to entirely eliminate the risk of slackness in any hoop.

The several sections D of each holder are preferably spring-pressed in the direction to engage the hoop, a convenient arrangement consisting of a coiled spring J interposed between an abutment (constituted by a bridge-piece K attached externally to the bell) and a shoulder l on a guide-rod L attached to the segment D and extending radially outward from the latter through the spring and through guide-holes in the bridge-piece K and bell A, the shoulder l on the rod serving further to limit the inward movement of the segment D under the pressure of the spring J.

It will be obvious that a hoop, before its holder is encountered by the ends of the advancing staves, is concentric with the bell, and should so remain until the ends of the staves have passed within the hoop, after which the staves themselves insure the hoop remaining concentric. In order to prevent any tendency on the part of a hoop to become displaced eccentrically with reference to the bell as the several segments D of the holder move radially outward in consequence of the pressure exerted upon the cam-surface d of each by the edge g of the staves, the inner end of each guide-rod L may be made tubular as at m to accommodate a radially movable plunger M having an inwardly presented head n which passes through a guide-hole in the corresponding section D of the hoop-holder and bears against the outer surface of the hoop E^1 or E^2 , the plunger being pressed inward by a spring N of sufficient strength which is confined between the back of the head n and the outer end of the enlarged chamber wherein the head is fitted to work.

For the purpose of withdrawing the several segments on each half of the bell from the engagement with the hoop without opening the bell, each half of the latter is provided with a half ring P provided with a plurality of tangentially disposed wedge surfaces O passing through slot holes o in the several guide rods L just mentioned and also bearing against the outer surface of the bell A. Each half ring P is provided with a hand lever Q fulcrumed to the bell as at q , engaging a notch in the half ring as indicated, whereby the latter is rotated about the corresponding half of the bell as to cause the wedge surfaces O to slide through the slots o in the guide rods L and thus retract the latter and with them the corresponding segmental sections D against the pressure of the springs J.

Claims:

1. In a barrel-trussing and hoop-driving machine, the combination with a bell having an internal circumferential groove and grooved segmental sections fitting within

5 said groove and adapted to hold a hoop, of
a radial rod attached to the segmental sec-
tions, a spring tending to force the rod and
segment inward, an abutment for the spring,
10 and means for maintaining the hoop concen-
tric with reference to the bell consisting of
spring pressed plungers adapted to bear
against the hoop and movable radially
through an aperture in the segmental sec-
15 tion, substantially as set forth.

2. In a barrel-trussing and hoop-driving
machine, the combination with a bell having
an internal circumferential groove and
grooved segmental sections fitting within
15 said groove and adapted to hold a hoop, of
a radial rod attached to the segmental sec-
tion, a spring tending to force the rod and
segment inward, an abutment for the spring,
a spring-pressed plunger adapted to bear
20 against the hoop and movable radially
through an aperture in the segmental sec-
tion, means for simultaneously withdrawing
the several segmental sections from engage-
ment with the hoop without opening the bell

consisting of a notched segmental ring mov- 25
able circumferentially on said bell having a
cam surface adapted to engage a correspond-
ing surface on each radial rod, and means
for moving the cam ring circumferentially
30 of the bell at will, substantially as set forth.

3. A machine of the character specified,
comprising a sectional bell having spaced
internal annular grooves, a plurality of hoop
holding segments arranged in each groove,
each segment having its inner face grooved 35
to receive a hoop, and having its lower face
beveled for engagement by the staves to
force the segments outwardly, radial guide
rod connected with each segment, the inner
end thereof being recessed, a plunger in the 40
recess for engaging the hoop, springs press-
ing the segment and the plunger inwardly,
and manual means for moving the segments
outwardly.

CHARLES WILLIAM SHARROCK.

Witnesses:

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R. J. WILLIAMS.