

(No Model.)

3 Sheets—Sheet 1.

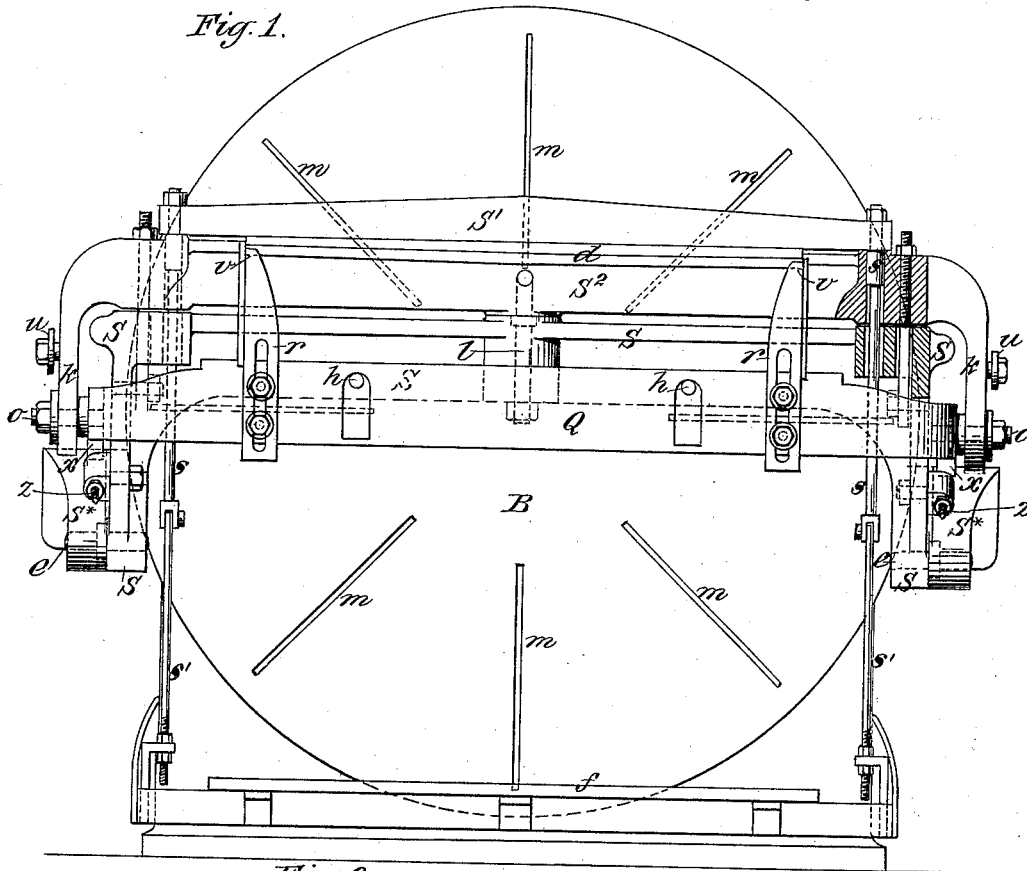
W. RITTER.

# JOINTING MACHINE FOR BARREL STAVES.

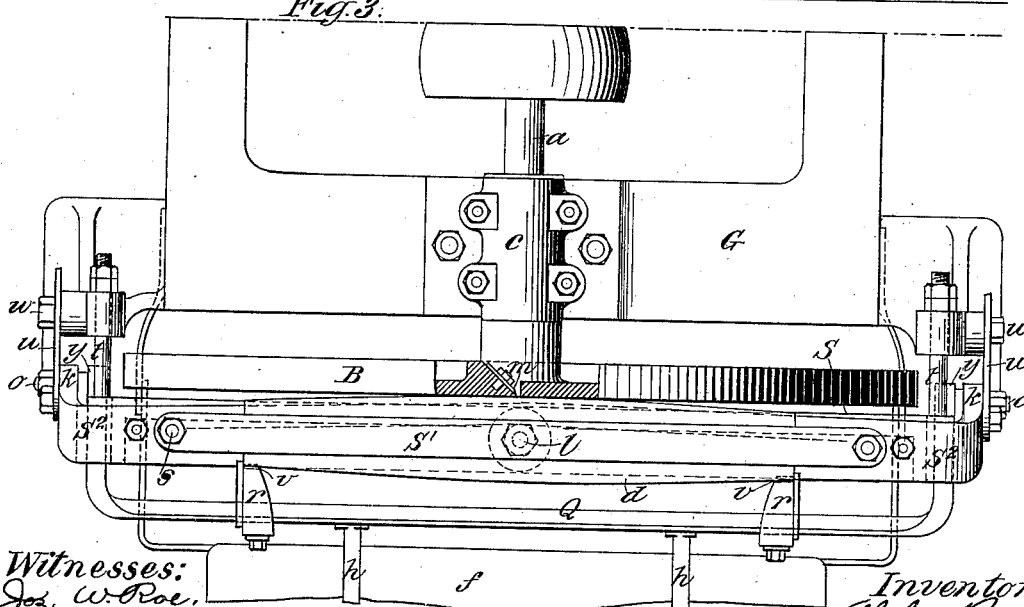
No. 383,249.

Patented May 22, 1888.

*Fig. 1.*



*Fig. 3.*



Witnesses:  
Jas. W. Roe,  
O. Sundgren.

Inventor:  
Wilhelm Ritter.  
by attorneys.  
Brown & Hall.

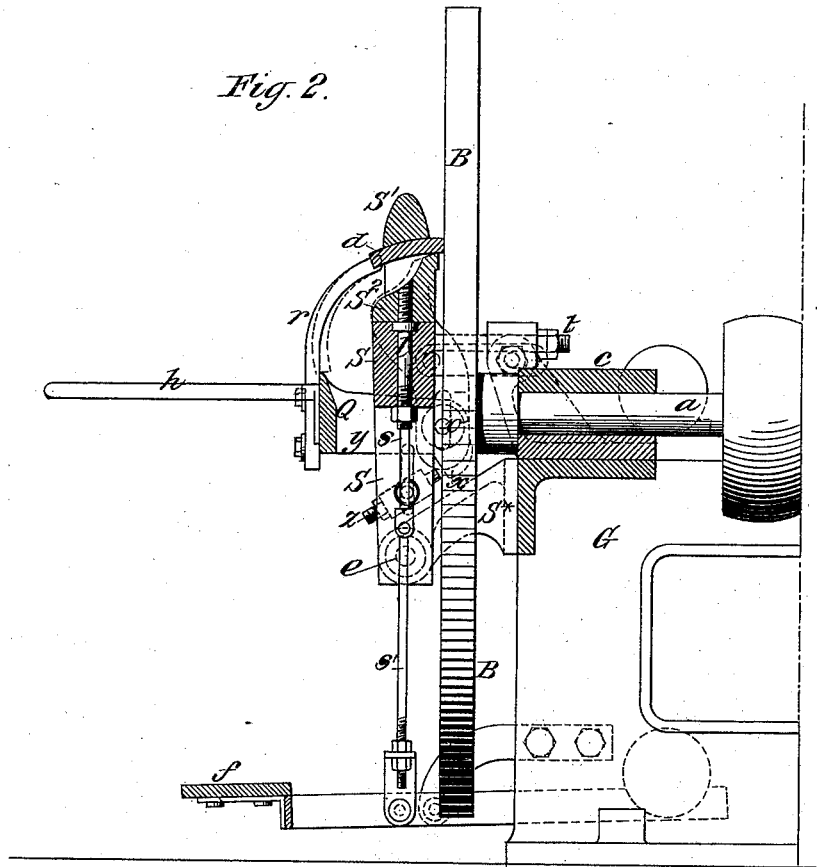
W. RITTER.

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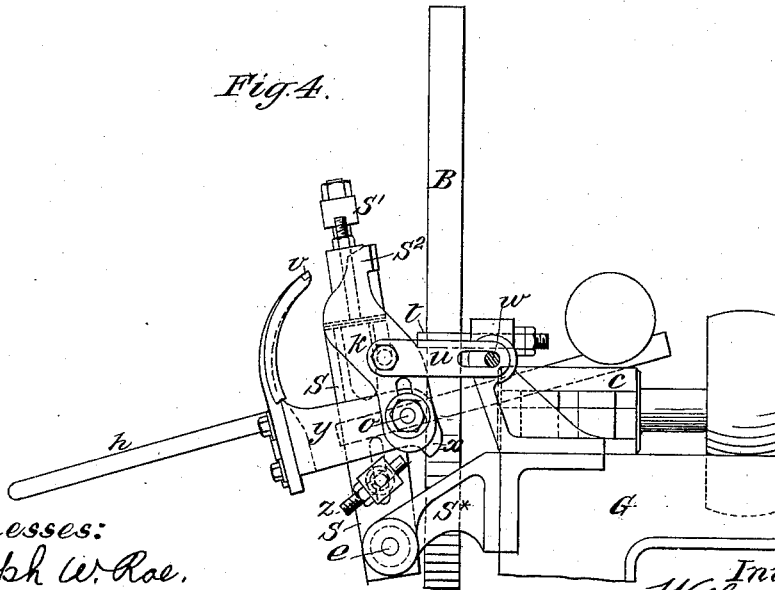
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Patented May 22, 1888.

*Fig. 2.*



*Fig. 4.*



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(No Model.)

3 Sheets—Sheet 3.

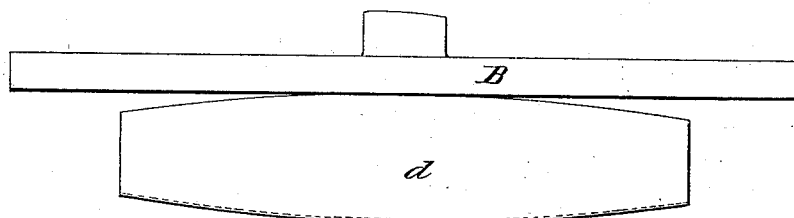
W. RITTER.

JOINTING MACHINE FOR BARREL STAVES.

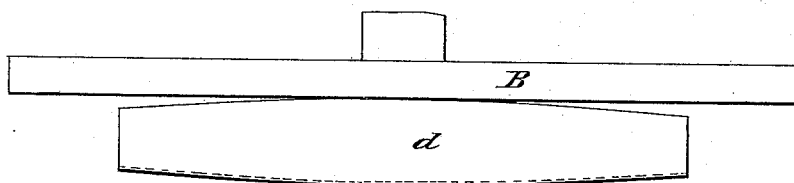
No. 383,249.

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*Fig. 5*



*Fig. 6*



Witnesses:

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Inventor:

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# UNITED STATES PATENT OFFICE.

WILHELM RITTER, OF ALTONA, PRUSSIA, GERMANY.

## JOINTING-MACHINE FOR BARREL-STAVES.

SPECIFICATION forming part of Letters Patent No. 383,249, dated May 22, 1888.

Application filed February 29, 1883. Serial No. 265,608. (No model.)

*To all whom it may concern:*

Be it known that I, WILHELM RITTER, of Altona, in the Kingdom of Prussia, Germany, engineer, have invented a new and useful Improvement in Jointing-Machines for Barrel-Staves, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to that class of stave-jointing machines in which the jointing is effected by means of rotary cutter-disks. In such machines the cutter-disks have commonly had concave surfaces corresponding or nearly corresponding to the shape of the edges of the staves to be jointed. The concave rotary disk in such machines being furnished with a number of cutters of corresponding form and rotated while the stave, supported by a swinging frame, is pressed against the disk produces a very rapid jointing of the stave. In machines thus constructed it will be understood that the shape of the jointing of the staves must depend entirely upon the shape of the disk-surface and of the knives or cutters attached to it. The cutters, which must be supported by the disk, can have their cutting-edges project but very little from the disk, and must therefore have very nearly the same convex shape as the rotating disk. One and the same jointing-machine can for this reason only be employed for staves applicable to the construction of barrels of the same or approximately the same size and shape.

The object of the present invention is to provide a jointing-machine capable of jointing staves of barrels of very different shape and size, and, furthermore, automatically to joint all the staves in proportion to their width, so that wider and smaller staves may be used for the same barrel, just as the wood may turn out. Broader staves must have a joint of sharper curve than such of smaller width if used for the same barrel. With the jointing-machines hitherto in use the width of the staves had to be uniform, or at least of no material difference, as the jointing-curve produced by the machine is in all cases alike and independent of the width of the stave placed in the machine.

In the accompanying drawings, Figure 1 is a front view, partly in section, of a machine

constructed according to my invention. Fig. 2 is a central vertical sectional view of the same. Fig. 3 is a ground plan, partly in section; and Fig. 4 is a side elevation of the upper part of the machine, representing the stave-support thrown out of its working position. Figs. 5 and 6 exhibit edge views of the rotary cutter-disk and top views of a wide and a narrower stave arranged against the face of said disk.

Similar letters of reference designate corresponding parts in all the figures.

B is the rotating cutter-disk, having a plane face and straight-edged cutters *m*, and being attached to a horizontal shaft, *a*, supported by bearings *c* of a frame, G.

To hold the staves and present them properly to the cutter-disk, the machine is furnished with a stave-support, which extends across the face of the cutter-disk and main framing, and which consists of four principal parts, viz: first, a swinging main support, S, which is pivoted by bolts *e e* to brackets S\* on the ends of the main framing G; second, a bar, S<sup>2</sup>, which constitutes the lower member of the stave-clamp, and which is pivoted to the said support S at the middle of its length by a perpendicular pivot, *l*, and at the ends of which there are arms *k*, which project downward over the ends of the main support S; third, a bar or pressure-plate, S', which constitutes the upper member of the stave-clamp, and which is connected with a treadle, *f*, by means of rods *s*, which pass through and fit into holes in the bar S<sup>2</sup> and other rods, *s'*, which form articulated joints between the said rods *s* and the treadle; fourth, a yoke, Q, which extends across the front of the main support S, and is pivoted by bolts *o o* to the arms *k* of the lower bar, S<sup>2</sup>, of the stave-clamp, and which carries two forwardly-projecting lever-handles, *h h*, and two backwardly and upwardly projecting arms, *r*, which receive between them the ends of the stave *d* when the latter is in the clamp S' S<sup>2</sup>.

In the position shown in Fig. 4, representing the whole of the stave-support thrown back away from the cutter-disk and cutters, the yoke Q and its arms *r r* will be caused to turn on the pivots *o* when the handles *h h* are raised by the operator; but when a stave has been

placed in the holder  $S'$  and clamped fast by the action of the pressure-plate  $S'$ , produced by the foot of the operator on the treadle, the whole of the stave-support will be caused to  
 5 move on the pivots  $e$ , and the stave will be carried forward toward the cutter disk when the handles  $h$  are raised.

The stave support is manipulated in the following manner: While the said support is  
 10 thrown back in the position shown in Fig. 4 and the pressure-plate  $S'$  is raised the stave  $d$  to be jointed is placed between the bar  $S^2$  and the said pressure-plate, with the ends in recesses  $v$ , provided in the arms  $r$  of the yoke.  
 15 Before the plate  $S'$  is forced down by means of the treadle  $f$  the arms  $r$  are lifted by levers  $h$  sufficiently to adjust the position of the stave  $d$ , so as to bring that edge of it which has to be jointed about half an inch beyond  
 20 the front or inner side of the bar  $S^2$ . The treadle  $f$  is then forced down and the stave held fast between  $S'$  and  $S^2$ . After this has been done, the stave is prevented from further sliding between  $S'$  and  $S^2$ . By further lifting  
 25 the handles  $h$  the whole support  $S$ ,  $S'$ ,  $Q$ , and  $S^2$  is caused to turn on the fulcrum-bolts  $e$ , attached to brackets of the machine-frame and the stave is pressed against the revolving disk and its cutters.

30 The required curve of the jointing is produced in the following manner: The part  $S^2$  of the support being pivoted by the vertical bolt  $l$ , Figs. 1, 2, and 3, to the main support  $S$ , the stave-holder  $S'$  can be turned within certain  
 35 limits. As the bar  $S^2$  is connected by the arms  $k$ , bolts  $o$ , and cross-piece  $Q$  with the hand-levers  $h$ , the stave clamp or holder inclosing the stave can be turned on the upright center pivot by pressing and moving the said levers  $h$  side-  
 40 wise. After the middle part of the stave has been jointed the operator turns the hand-levers sidewise first in one direction and then in the other until either movement is stopped by a set-screw,  $z$ , attached to the lower part of  
 45 the main support  $S$  and a projection,  $x$ , of the corresponding end of the arms  $y$  of the yoke. (See Figs. 2 and 4.) Now, it will be understood by reference to the figures last mentioned that the distance between the projection  $x$  and  
 50 its corresponding set-screw  $z$  will be increased as the levers  $h$  are lowered, and will be reduced

as the levers  $h$  are lifted against the upper parts,  $S'$  and  $S^2$ , of the support. As a broader stave requires a greater distance apart between the arms  $r$  and the holder  $S'$  than a stave of  
 55 less width, the levers  $h$  have a lower position with regard to the main support  $S$  in case a broader stave has to be jointed than in case of a smaller stave. In consequence of this the distance apart between  $x$  and  $z$  is larger when  
 60 a broader stave has been put into the machine than when a smaller stave has to be jointed, and as this distance apart regulates the distance which the upper part of the support can be turned on the center pivot,  $l$ , it will be  
 65 understood that a broader stave automatically receives a comparatively sharper curved joint than a narrower stave.

The forward movement of the main support  $S$  toward the cutter-disk is limited by adjustable stop-screws  $t$ , screwing through posts on the main frame, and the backward movement of said support is limited by links  $u$ , which are pivoted to it, and which run on bolts  $w$ , secured in posts on the main framing.  
 75

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the rotary cutter-disk and cutters, of a stave-support capable of moving bodily toward and from the said disk,  
 80 and a stave clamp or holder pivoted to the said support at or near the middle of said support to advance either end of the stave clamp or holder toward the disk, substantially as and for the purpose herein described.  
 85

2. The combination, with the rotary cutter-disk, of the pivoted swinging main stave-support  $S$ , the stave clamp or holder  $S'$ , pivoted to the main support by a pivot perpendicular to the pivots of the said support, the yoke  $Q$ ,  
 90 having arms  $r$ , for receiving the ends of the stave and furnished with lever-handles and pivoted to the ends of the stave-holder, the stops  $x$ , provided on said yoke, and the adjustable set-screw  $z$  in the said main support  $S$ ,  
 95 all substantially as and for the purpose herein set forth.

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Witnesses:

F. ENGEL,  
 A. SCHAPER.