

2 Sheets—Sheet 1.

No. 488,914.

Patented Dec. 27, 1892.

Fig. 1.

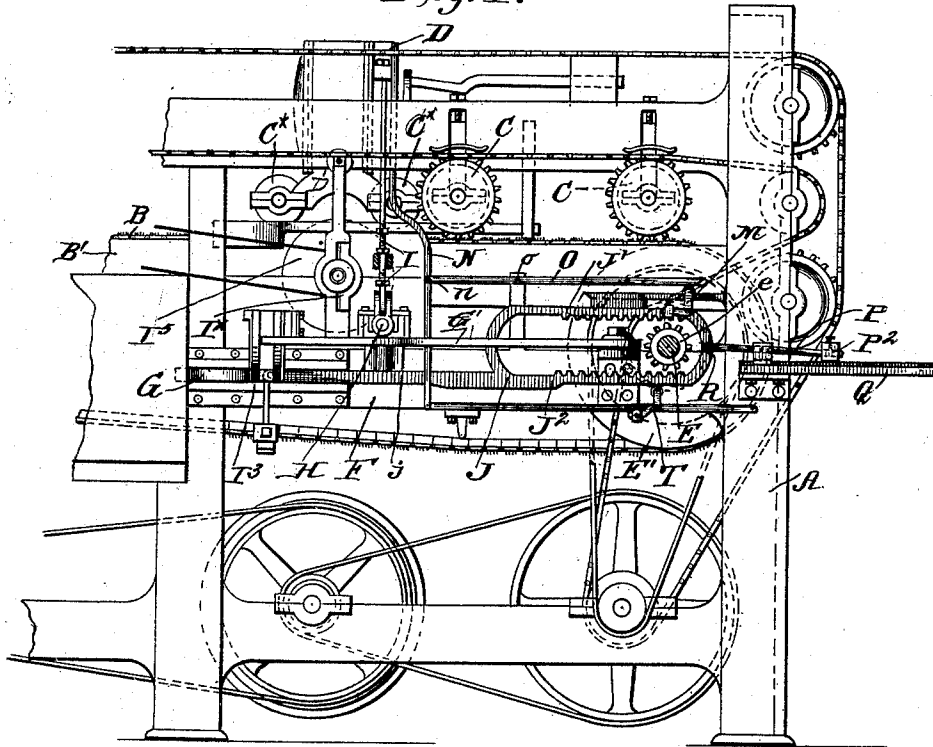
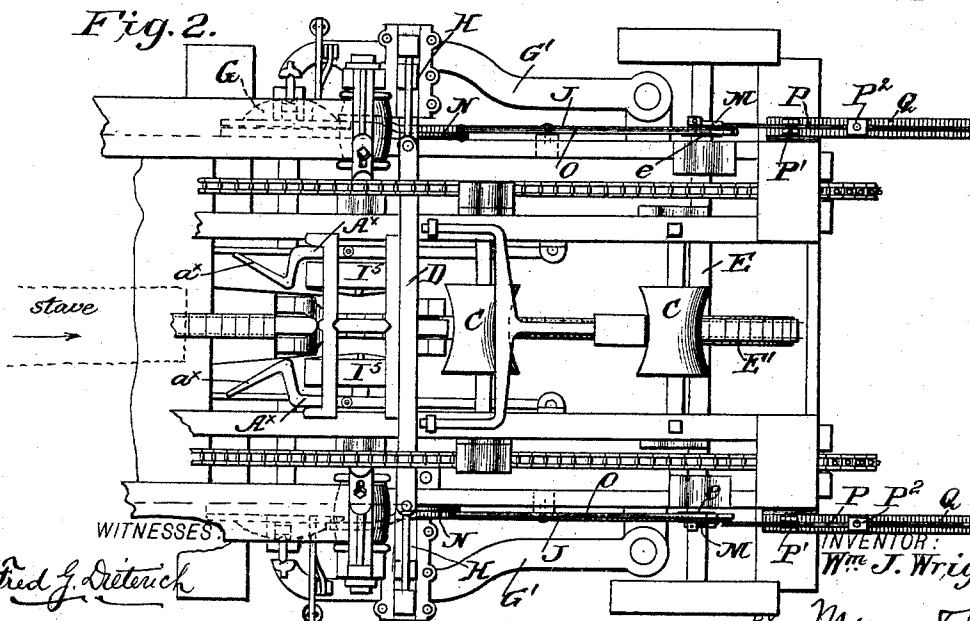


Fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

W. J. WRIGHT.
STAVE JOINTING MACHINE.

No. 488,914.

Patented Dec. 27, 1892.

Fig. 3.

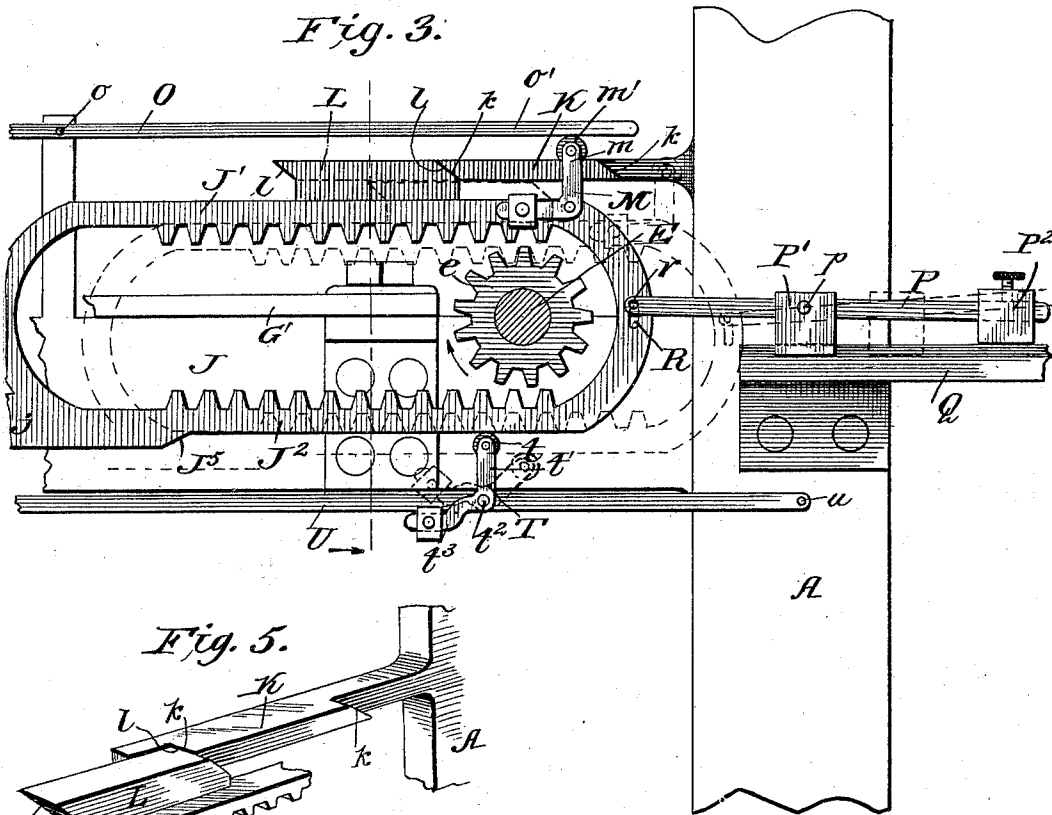


Fig. 5.

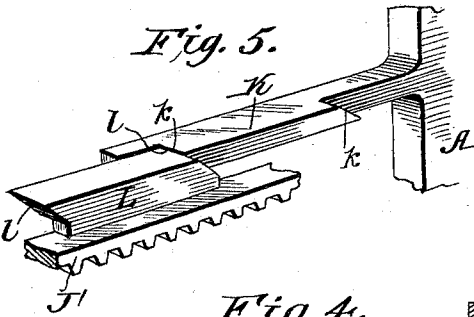
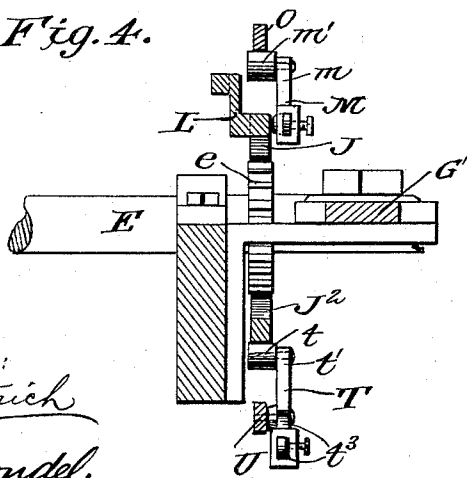


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM J. WRIGHT, OF COOPERSTOWN, ASSIGNOR TO THE STAVE JOINTER
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STAVE-JOINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 488,914, dated December 27, 1892.

Application filed November 3, 1891. Serial No. 410,798. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. WRIGHT, residing at Cooperstown, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Stave-Jointing Machines, of which the following is a specification.

This invention relates to stave jointing machines, and it more particularly refers to improvements upon the means for operating the bilge forming devices employed in a similar machine for which I have made application for a patent, filed April 11, 1891, Serial No. 388,466 and it consists in the peculiar combination and novel arrangement of the several parts, all of which will hereinafter be fully described in the annexed specification and particularly pointed out in the claims reference being had to the accompanying drawings in which

Figure 1 is a side view of a portion of a stave jointing machine with my improvements applied. Fig. 2 is a top plan view partly in section of the same and Figs. 3 and 4 are detail views hereinafter specifically referred to. Fig. 5 is a detail perspective view of the guide flanges K and L hereinafter specifically referred to.

In the application above referred to I employ certain means arranged intermediate of one of the drive shafts, and the bilge formers, which are connected with the said formers, and operated by such drive shaft, and which are arranged to be thrown into and out of operative positions, by devices operated by the moving stave, such means consisting broadly of a transverse shaft provided with crank arms, which are connected by pitmen rods with the formers, and clutch mechanism on said transverse shaft, which is thrown in and out of gear by the moving stave.

To simplify the construction of the aforesaid devices and to render the operation of the formers more positive and uniform is the object of this invention.

Referring to the accompanying drawings A indicates one end of the main frame of the machine in which is journaled the main drive shaft E, upon which is mounted to turn therewith, a drive pulley E' over which passes the stave carrier belt B, which is disposed cen-

trally over the bed beam B' of the machine, as most clearly understood from Figs. 1 and 2 of the drawings.

I^s indicates the revolving cutter heads which are journaled in frames I^x pivoted on the main frame for lateral rocking movements, in a manner substantially like that shown in my patent No. 438,045 dated October 7, 1890.

H H indicate the head blocks which are connected with the cutter frames I^x and I I suitably arranged clamping levers connected with the cross head D presently referred to, which levers serve to clamp the head blocks to their properly adjusted positions after they are moved outward and set.

A^x A^x indicate the spreader arms, which are pivotally connected to the main frame and to the cutter heads, their inner ends a^x being bent inward, in the path of the moving stave to be engaged thereby, and whereby to properly set the cutters.

D indicates the cross head which is vertically movable in guide bearings on the main frame and carries at its lower end lifting rollers C^x C^x which the passing stave engage and elevate as it is carried between the cutters. C indicates the yielding pressure rollers which serve to hold the stave down against the carrier, and I^s I^s indicate the bilge former guides, G the bilge formers and G' the head block moving levers.

Having thus described the general arrangement and construction of a machine to which my improvements are especially adapted, I will now proceed to describe such improvements in detail.

Upon the outer ends of the shaft E are secured gear wheels e e, with which are arranged to engage the double rack frames J J the forward ends of which are formed into extensions or pitmen arms j j which are pivotally connected to the rear ends of the formers G G as shown. By reference to Fig. 1 of the drawings it will be observed that the rack frames J are each formed with the upper and lower racks J' J² which are arranged to alternately engage the gear wheels e whereby a reciprocating movement is imparted to the frames and to the formers.

In the practical construction of the bilge

former operating devices, the relative arrangement of the racks and the gear wheels on the drive shaft E is such that said racks will be moved a distance sufficient to pull or
 5 push the formers G a complete movement inward or outward during the passage of the stave between the bevel cutting devices, thus should the racks J be thrown into engagement with the gears *e* in the manner presently described, the said gears *e* which are of
 10 a much less diameter than the carrier wheel E' on the drive shaft E, will in its revolution draw the formers G backward their full movement, while the carrier wheel E' will
 15 move the carrier and stave its entire length past the cutters.

By reference to Figs. 2 and 3 it will be seen that upon the frame of the machine are formed guide flanges K K having oppositely
 20 beveled ends *k k*—with which are arranged to engage guide flanges L L having similarly beveled ends *l l* secured upon the reciprocating rack frames J J and upon the rear ends of
 25 such frames are secured weighted angle levers M in the upper arms *m* of which are journaled friction rollers *m'*.

N indicates the lifting rods which are secured to the cross head D which arms having pivoted to them at *n* above the rack frames J,
 30 rearwardly extending arms O fulcrumed at *o* to a bracket on the frame, and resting with their free ends on the rollers *m'*.

By reference to Fig. 1 which shows the rack frames, and the formers in their forward position, it will be observed that both the racks
 35 J' J² are held from engagement with the gear *e* and maintained in such position by means of the weighted lever P fulcrumed at *p* in a cross head P' held to slide on guide ways Q, the forward end of such lever having a transverse pin which engages the upper wall *r* of
 40 a vertical slot R in the outer end of the rack frame J. When in this position the weight P² is at its lowest position and held so by engaging the guide ways Q. When in this position the guide flange L will be in line with
 45 and forward of the guide K on the frame, the adjacent ends *k* and *l*, abutting whereby practically a single continuous flange is formed.
 50 Now assuming the machine to be in operation and the parts in the position just referred to, it will be seen that during the time no stave is passing under the cross head F the gear *e* will revolve freely between the racks J' J².
 55 Now when the stave comes under the aforesaid cross head and lifts it the rods N will be drawn up which swings the bars O on their fulcrums forces the rear ends O' down against the arms *m* on the rear ends of the frames J,
 60 and moves the upper racks J' into engagement with the gears *e* which serves to draw the frames J rearward, such movement causing the guides L to move under the fixed guides K, whereby to hold the rack J² in engagement until the guides L pass beyond the
 65 rear ends of the guides K, at which time the stave will have passed from under the cross

head, thereby allowing such cross head to drop back to its normal position and relieving
 pressure from the upper end of the frame J. 70
 When the frame J is forced downward as stated, it lifts the weighted end of the lever P, and moves the cross head P' in which the lever is pivoted back on the guides Q. Now
 as the pressure is relieved from the said frame 75
 J when it has been drawn outward to its farthest movement, the weight on the lever P will cause its front end to raise the frame J up to its normal position and thereby disengage it from the gear *e* and hold it disengaged 80
 until the next stave raises the cross head at which time it will be again thrown into engagement with the gear *e* but at this time with its rack portion J', which is accomplished in the following manner. *t* indicates a roller 85
 journaled in the vertical member *t'* of an angle lever T fulcrumed at *t²* upon a long arm U pivoted at *u* to the main frame and connected at its forward end to the lower end of
 the arm N, the long arm *t³* of the lever T extending forward and being weighted as shown. 90
 When the frame is drawn backward as before stated and as it gets to the limit of its movement an incline or stop lug J³ on its lower member engages the roller *t* and swings 95
 the arm down, and holds it down until the downward pressure is released from the frame J, when the weight on the lever T rocks it back to its normal position which lifts the 100
 lever P' to bring the frame to its normal position and at the same time places arm *t* in position to lift the frame J to bring the rack J' in engagement with the gear *e* the moment 105
 the arm N is again raised by the passing stave, such gear as it engages the rack J' serving to push the frame J and former G forward, the gear and rack J' being held engaged by the lug L rising on top of the lug K. As the thickness of the staves varies, the 110
 arms N will be lifted to different degrees of movement and to prevent undue friction between the racks J' J² and the gears *e* is the object of providing the weighted levers M and T, in the manner shown such weights being 115
 arranged relatively so that when too great a lift is given the rods N, the levers will swing on their fulcrums and the weights lifted thereby. By means of the aforesaid construction it will be observed that the moment the 120
 staves lift the cross head the frames J will be set into engagement with the gears *e* and a continuous and uniform movement will be imparted to the formers thereby allowing for such formers being easily prepared from the 125
 gage to which it is desired to cut the bilge. It will also be seen that the same bilge formers can be used on staves of varied lengths, to form the proper bilge, by simply putting on different sized gears *e'*. Thus I can make 130
 staves for making barrels of different lengths but of the same diameter.

When it is desired to cut staves for barrels of uniform length but of different diameters,

it will only be necessary to place between the guides C C formers G having the proper bilge gage.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. The combination with the main frame, the bilge formers held to reciprocate thereon, the drive shaft E formed with a gear *e*, a rack frame arranged to be reciprocated by said gear, and normally held from operative connection therewith, of lifting devices arranged to be operated by the passing stave, and operating to throw said rack frame in mesh with the gear *e*, and means for carrying the stave substantially as and for the purpose described.

2. The combination with the main shaft E provided with a gear *e*, the stave carrier, the cross head D, and the reciprocating formers G of the double rack frames J, connected at one end to the formers G and provided at their opposite ends with the racks J' J² means operated by the cross head for alternately throwing said racks into engagement with the gear *e* and devices for normally holding the said racks from engagement with such gear *e* substantially as and for the purpose described.

3. The combination with the main frame the cross head, the stave carrier, the carrier drive shaft formed with the gears *e* and the reciprocating bilge formers G of the frames

J, formed with racks J' J², operating over said gears *e* and normally held from contact therewith, means operated by the cross head for alternately throwing said racks J' J² into engagement with the said gears *e*, the guide lugs L on said frames J the guides K on the main frame arranged to engage said lugs L for the purpose stated, substantially as and for the purpose described.

4. The combination with the shaft E formed with gears *e* the stave carrier operated thereby, the cross head and the bilge formers G held to reciprocate on the main frame, of the frames J, having upper and lower racks J' J² operating over the wheels *e* slots in the outer ends of the frames, the weighted levers P having transverse pins operating in said slots, the sliding fulcrums P', the pivoted levers U arranged below said frames J, the weighted levers T secured thereto, stop lugs V formed on the lower members of the frames J, adapted to engage the lever T, the arms N connected to said levers U, the pivoted levers O connected to said arms N, the weighted levers M on the frames J adapted to be engaged by said levers O and the guide lugs K and L on the main frame and rack frame J respectively, all arranged substantially as and for the purpose described.

WM. J. WRIGHT.

Witnesses:

F. W. HAYS,
WM. MOYAR.