

J. NAYLOR, Jr., & P. VOLLMAR.  
Stave Jointing Machine.

No. 197,394.

Patented Nov. 20, 1877.

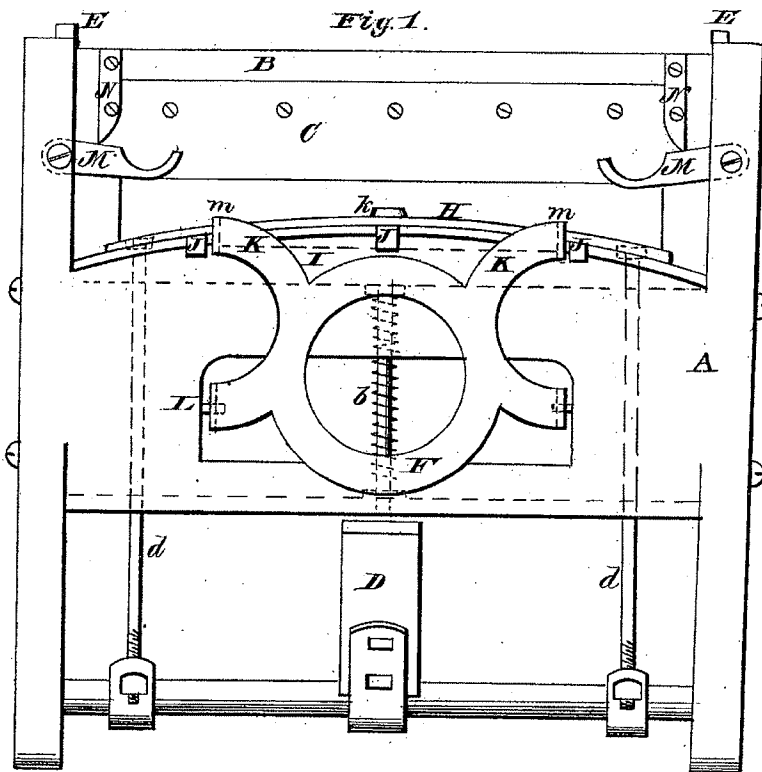
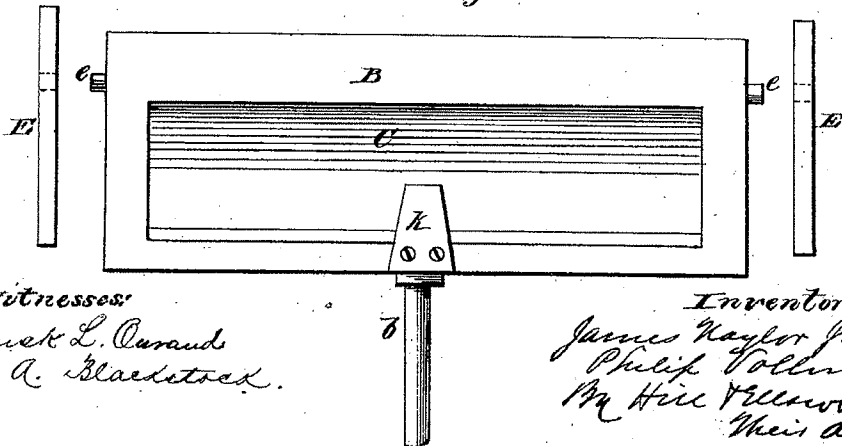


Fig. 2.



Witnesses:

Frank L. Curand  
W. A. Blaedrock.

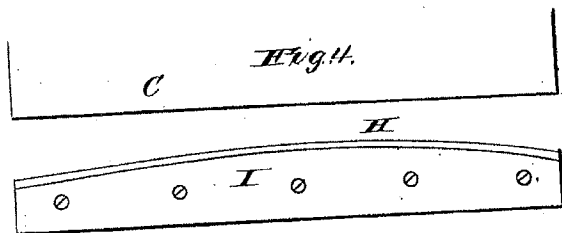
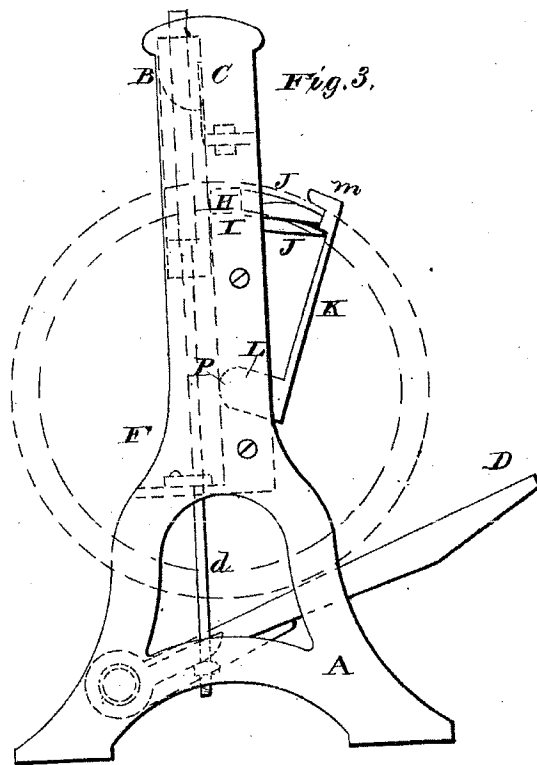
Inventors.

James Naylor Jr. (and)  
Philip Vollmar  
By Hill & Wells  
Their attys.

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Inventors.  
 James Naylor (Jr.)  
 Philip Vollmar.  
 By Will Yellow  
 their atty.

# UNITED STATES PATENT OFFICE.

JAMES NAYLOR, JR., OF ROCHESTER, NEW YORK, AND PHILIP VOLLMAR,  
OF SEAFORTH, ONTARIO, CANADA.

## IMPROVEMENT IN STAVE-JOINTING MACHINES.

Specification forming part of Letters Patent No. 197,394, dated November 20, 1877; application filed  
August 31, 1877:

*To all whom it may concern:*

Be it known that we, JAMES NAYLOR, JR., of the city of Rochester, in the county of Monroe and State of New York, and PHILIP VOLLMAR, of the town of Seaforth, in the county of Huron and Province of Ontario, Canada, have invented a certain new and useful Improvement in Stave-Jointers; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation; Fig. 2, an elevation of the knife-bed and component parts, as taken from Fig. 1 and reversed; Fig. 3, a side elevation; and Fig. 4, an elevation to show more clearly the arrangement of the knife, bed-piece, and form.

We wish it to be understood that we confine ourselves solely to that class of stave-jointers commonly known as "foot-jointers," and disclaiming that any part of our invention has any relation to what is known as the "wheel stave-jointer."

The invention consists in the combination and arrangement of parts in such manner that staves are jointed perfectly according to their width, and also receiving the full inside joint, so essential to the making of good barrels.

The staves are pressed, in the manner hereinafter described, into a peculiar shape, and while so pressed are jointed.

Here it must be borne in mind that, although staves are cut on a certain circle, by piling and drying they get flattened out.

We are aware that experiments have been tried, and doubtless patents granted, for inventions based on this same principle, all of which have proved unsuccessful when brought to actual use.

Before proceeding to describe our invention and its operation, it will be meet here to explain the present almost universal method of jointing, in order to more readily see and comprehend the superiority of our improvement.

The stave is laid flat on a bed-piece, which is curved on its edge to a required bilge. The knife-edge tapers to both ends, and is also curved to coincide with the bed-piece. Every stave is therefore by this means jointed alike, regardless of its width, and great care and

judgment must be exercised in setting up such staves to form barrels; whereas, by the means and in the manner hereinafter described staves are jointed, and barrels formed with such staves have the bilge always uniform, regardless of the number to a barrel, which in the other case must necessarily be a given number to obtain the same bilge.

Referring to the accompanying drawings, A represents the frame-work of the machine; B, the knife-bed, to which, firmly attached, is the straight edged and faced knife C, said knife and bed receiving a vertical movement from the foot-lever D through the medium of the connecting-rods *d d*.

Part of our invention consists in keeping this vertical movement in close working order, notwithstanding the frame-work may be sprung or twisted by its standing on two opposite feet instead of all four, which is too often the case in the using of these machines.

E E are slides working freely in the frame-work, and here can be given much bearing-surface to prevent wear. Said slides are pivoted to the knife-bed B at *e e*, (see Fig. 2,) thus severing the torsional connection and rendering it impossible for the slides E E to bind in the ways one against another.

The knife-bed B has the slide-shaft *b* secured to it, and which is part of it, said slide-shaft working freely through the lower guide F, which is adjustable, thereby allowing the knife C to be easily set to the bed-piece H, the pivots *e e* of the slides E E being placed somewhat above the edge of the knife C. (See Fig. 2.)

There is an open spiral spring around the slide-shaft *b*, which serves to more than counterbalance the knife and component parts. The upper end of this spring presses against the knife-bed B, and the lower against the lower guide F resting on and secured to the frame-work.

H is the bed-piece on which the stave is placed, and consists of a flexible bar having its upper surface coinciding with the inner circular surface of a barrel. This bed-piece is securely bolted over the form I, (see Fig. 4,) which can be replaced or otherwise altered when a different bilge is required.

It will be necessary here to state that the

bed-piece H, being bent over these various forms, always maintains a straight edge to the knife.

In ordinary machines the knife must be altered the same as the bed-piece.

J J J are ribs having their upper surfaces coinciding as the bed-piece to the inner circular surface of a barrel. These ribs are only to facilitate placing the stave.

K K are gages for keeping the stave, by the aid of the spring *k*, parallel to the knife C, and are provided with the offsets *m m* for the purpose of holding the stave down, and at its correct position on its outside edge, while the jointing is being done, said gages and offsets being pivoted at L, (see Fig. 3,) the supposed center of a barrel. The ribs J J J and the bed-piece H are laid out from this same center, so that the gages K K and offsets *m m* move concentric to them.

M M are cams attached and working freely to the frame-work, and are counterbalanced in such manner that said cams are kept up against the projections N N of the knife-bed B, said projections operating on the cams M M in such manner that the stave is first bent over the bed-piece H, and before the knife is through the stave at the center it is securely held by said cams, which retain it during the rest of the operation.

The operation is as follows: The stave to be jointed is placed on the bed-piece H and ribs J J J. The gages K K are brought to bear against the outside edge, the spring *k* pressing against the edge to be cut. The stave is now presented parallel to the knife C, and more or less can be cut off, as is required, the spring *k* yielding sufficiently for this purpose. The offsets *m m* overlap the outside edge, thereby holding it in place. Pressure upon the foot-lever D causes the downward movement of the knife-bed B, which first operates on the cams M M by the projections N N of the knife-bed B, said cams pressing down the stave at each end before the jointing commences, and is so held until completed, after which the stave is gradually released and the operation completed.

It is evident that all joints in a barrel must be parallel to the central axis of said barrel, and also tend to its center. This is a perfect geometrical joint; but in actual working this is not what is wanted, a fullness on the inside being required to give the barrel its rotundity in trussing and hooping. The main part of

our invention consists in accomplishing this result, reference now being had to Fig. 3. The line of the knife, instead of tending to the center of barrel at P, (which would be the case in cutting the perfect geometrical joint,) is off from it, and to maintain the vertical movement of the knife-bed the center is placed at L, which has the effect of raising the ribs J J J on the outside, and somewhat lowers the edge of the bed-piece H to the movement of the knife. Here it may be observed that the width of the bed-piece H is double the distance of the two centers P and L; therefore the bed-piece can be made of a rectangular bar, and will always maintain the correct shape and form on its two edges. When the bilge or curve of the bed-piece is the same as the bilge or curve of a barrel, it will be found to be incorrect; but this is remedied by bending the bed-piece over forms more curved until the desired bilge is obtained, as it is evident that the farther down the ends of staves are forced the farther will the ends protrude over the cutting-edge of the bed-piece.

Having thus described our invention, we do not claim jointing according to the geometrical principle, as hereinbefore explained; but we do claim the essential differences which produce such satisfactory results, combined with the improvement in the general working and the economical production of this class of stave-jointer.

We claim as our invention—

1. In a machine for jointing staves, the combination of the flexible bed-piece H with the form I, and the straight edged and faced knife C, arranged and operating in the manner as herein shown and described.
2. The gages K K, oscillating at L, the imaginary center of the barrel, and having the offsets *m m* for holding the stave securely on its bed, substantially as described.
3. The knife-bed B, having projections N N, in combination with the cams M M, constructed in the manner and for the purpose specified.
4. The combination of the knife-bed B, of the pivoted slides E E, of the lower guide F, all arranged substantially in the manner as herein shown and described, and for the purpose specified.

JAS. NAYLOR, JR.  
PHILIP VOLLMAR.

Witnesses:

JOHN GREENWOOD,  
M. F. O'DEA.

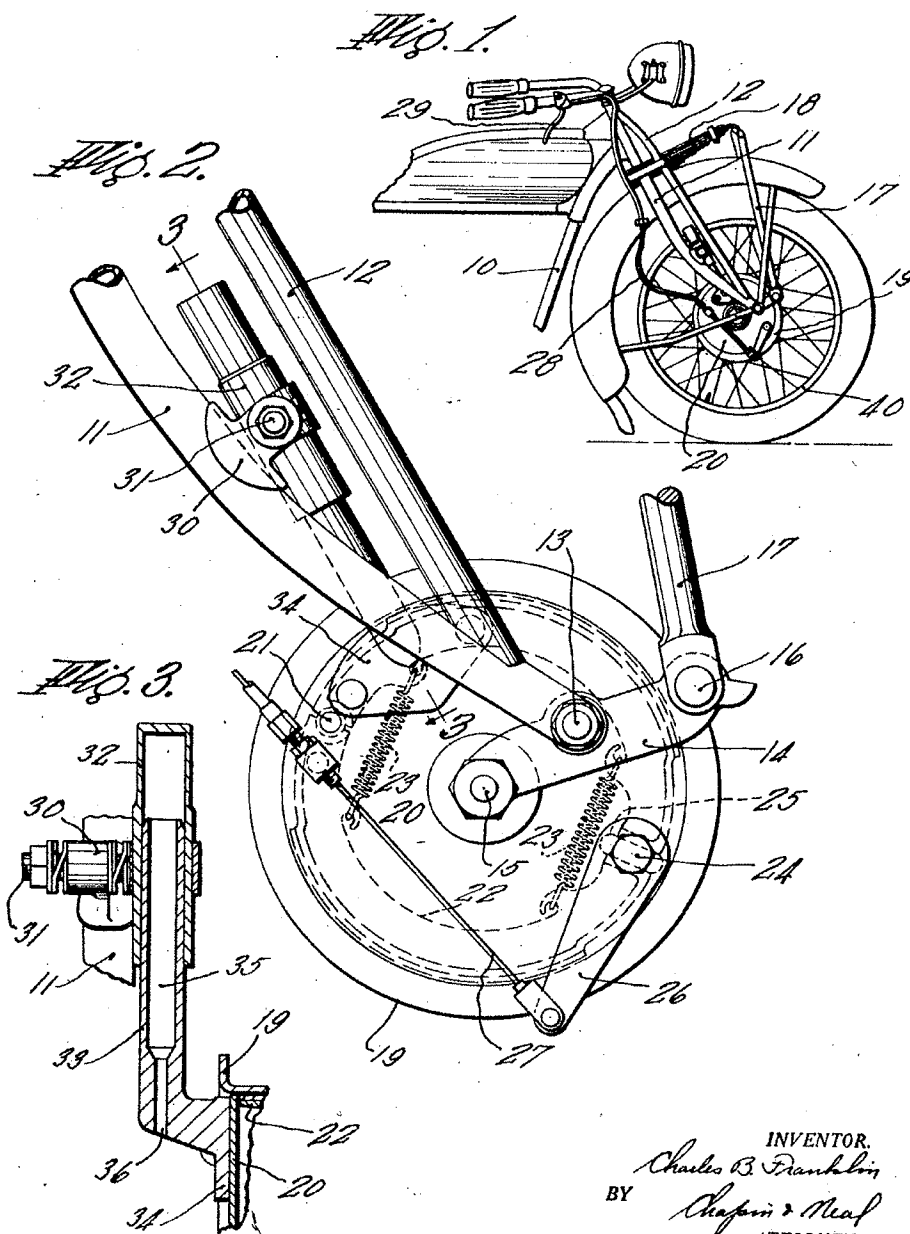
June 10, 1930.

C. B. FRANKLIN

1,763,096

FRONT WHEEL BRAKE MOUNTING FOR MOTOR CYCLES

Filed Aug. 10, 1928



INVENTOR.  
Charles B. Franklin  
BY *Chapin & Meaf*  
ATTORNEYS.

## UNITED STATES PATENT OFFICE

CHARLES B. FRANKLIN, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO INDIAN  
MOTORCYCLE CO., OF SPRINGFIELD, MASSACHUSETTS, A CORPORATION OF MASSA-  
CHUSETTS

### FRONT-WHEEL-BRAKE MOUNTING FOR MOTOR CYCLES

Application filed August 10, 1928. Serial No. 298,693.

My invention relates to front wheel brake mountings for motorcycles and has particular reference to a brake mounting adapted for that type of motorcycles in which the front wheel is spring mounted with respect to the frame so that the wheel is free to execute riding vibrations relative to the frame. In motorcycles of this character, the mounting of the stationary or brake-action imparting member of the brake has given rise to difficulties on account of the fact that the wheel both rotates and reciprocates with respect to the frame. It is the object of my invention to provide a brake mounting which will permit the necessary reciprocating motion but will, at the same time, prevent relative rotation of the stationary brake member and the frame. It is a further object of my invention to provide a mounting of this character which will not interfere with the dismounting of the front wheel of the motorcycle when necessary for repairs or for tire replacement.

Referring to the drawings:

Fig. 1 is a partial side elevation of a motorcycle to which my invention has been applied;

Fig. 2 is a side elevation on an enlarged scale of portions of the mechanism shown in Fig. 1; and

Fig. 3 is a section on line 3—3 of Fig. 2.

The motorcycle shown in Fig. 1 is provided with a rigid frame 10, in which is pivoted the front fork, each branch of which is here shown as formed, for reasons of stiffness, by members 11 and 12 joined at their upper and lower ends. At the lower end of each branch of the front fork is a pivot 13 upon which swings freely a double-arm lever 14. Each of the arms of this lever bears pivots 15 and 16. Pivot 15 forms the axle about which the front wheel 40 rotates. The pivot 16 of each lever is joined to a link 17 which at its upper end is pivoted to a leaf spring 18 firmly fastened to the front fork. By means of this mounting the front wheel is permitted to move relatively to the fork as permitted by the spring 18 and still is restricted in its motion in case of breakage of the spring so that the

front fork cannot drop more than a short distance.

Firmly attached to the hub of the front wheel is a brake drum or brake-action receiving member 19. Rotatably mounted on the axle and concentric with the brake drum is a brake-action imparting member 20 having at one side a pivot 21 upon which brake shoes 22 are mounted. In the case shown, the brake is of the internal expanding type and therefore these brake shoes lie within the brake drum 19. Springs 23 normally hold the brake shoes out of contact with the brake drum.

At a point opposite the pivot 21 is a second pivot 24 bearing a cam 25, adapted to engage the free ends of the brake shoes and to force them apart when it is desired to apply the brake. Fast upon the pivot 24 is a lever 26 to the end of which is attached a flexible cable 27 running through a flexible tube 28 and operable by means of a handle 29.

When the brake shoes are expanded into contact with the brake drum it is, of course, necessary to prevent their rotation with the wheel in order to produce the desired friction. For this purpose I provide means for preventing all but a slight rotation of the brake-action imparting member 20 while permitting it to vibrate with the wheel on the spring mounting described above. Upon one of the fork members 11 is mounted a bracket 30 bearing a pivot 31. A cylinder 32 is secured to the pivot 31 so that it may swing freely. Sliding within the cylinder 32 is a piston 33 connected rigidly at its lower end to a plate 34 forming part of the brake-action imparting member 20. The piston is preferably made hollow as at 35 and is vented to the atmosphere by means of a hole 36 in order to avoid hindrance of its free vibratory play by air compressed within the cylinder 32. Instead of the described cylinder-piston connection between the frame and the brake action imparting member, any other telescopic or other connection suited for the purpose may be employed, for instance, a stud engaging a slot.

The mounting constructed as described

above will permit the wheel to rotate freely and to reciprocate with respect to the front fork as permitted by its spring mounting. The brake supporting member 20, however, while partaking of the reciprocating movement of the wheel is prevented from rotating by means of the coaction of the piston 33 and the cylinder 32. During the normal operation of the motorcycle there is, of course, no tendency for the brake supporting member to rotate. When the brake is applied, however, this member tends to turn with the wheel and it is at this time that the restricting action of the piston and cylinder comes into play. A further advantageous feature of this construction is that the telescopic connection of the piston and the cylinder offers no impediment to the dismounting of the wheel, since the piston can be drawn freely out of the end of the cylinder. It is therefore not necessary to disassemble any of the parts forming the mounting whenever the front wheel is to be temporarily removed.

What I claim is:

1. In a motorcycle of the type having a frame and a front wheel vertically movable with respect to the frame, a brake drum rotatable with the wheel, a brake supporting member, brake elements supported by the member and coacting with the brake drum, a casing pivoted to the frame, and a plunger fastened to the brake supporting member and reciprocable within the casing.

2. A front wheel brake mounting for motorcycles, a brake drum secured to the wheel, a brake holding member, brake elements supported by said member and coacting with the brake drum, and a sliding coupling between the member and the fork allowing the member and the frame to move rectilinearly but not rotatively with respect to each other.

3. A front wheel brake mounting for motorcycles comprising a wheel hub, a wheel rotatable on the hub, a brake drum secured to the wheel, a brake supporting member, brake elements supported by said member, and a sliding coupling between the member and the rigid frame whereby the member and the frame may move rectilinearly but not rotatively with respect to one another.

4. In a motorcycle of the type having a frame and a front wheel vertically movable with respect to the frame, a brake drum rotatable with the wheel, a brake supporting member, brake elements supported by the member and coacting with the brake drum, and an open ended sliding connection between the member and the frame permitting relative reciprocating of the member and the frame but preventing their relative rotation, and permitting the ready removal of the wheel without dismounting any of the parts

forming the connection between the member and the frame.

5. In a motorcycle of the type having a frame and a front wheel vertically movable with respect to the frame, a brake drum rotatable with the wheel, a brake supporting member, brake elements supported by the member and coacting with the brake drum, a cylindrical casing pivoted to the frame, a piston secured to the brake supporting member and reciprocable within the casing, and a vent connecting the interior of the cylinder to the atmosphere.

6. The combination with a vehicle comprising a wheel free to execute riding vibrations relative to the vehicle frame, a brake-action receiving member fixed to the wheel, and a coacting brake-action imparting member, of connecting means between said brake-action imparting member and the vehicle frame consisting of two respectively attached and telescopically engaging elements for preventing said brake-action imparting member from turning with the wheel without hindering the free vibratory play thereof.

7. The combination with a vehicle comprising a wheel free to execute riding vibrations relative to the vehicle frame, a brake-action receiving member fixed to the wheel, and a coacting brake-action imparting member, of connecting means between said brake-action imparting member and the vehicle frame consisting of two respectively attached and telescopically engaging elements, one element being pivotally mounted for preventing said brake-action imparting member from turning with the wheel without hindering the free vibratory play thereof.

In testimony whereof I have affixed my signature.

CHARLES B. FRANKLIN.

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