(No Model.)

R. O. DOBBIN.

BARREL STAVE JOINTER.

No. 250,898. Patented Dec. 13, 1881.

Fig: 1.

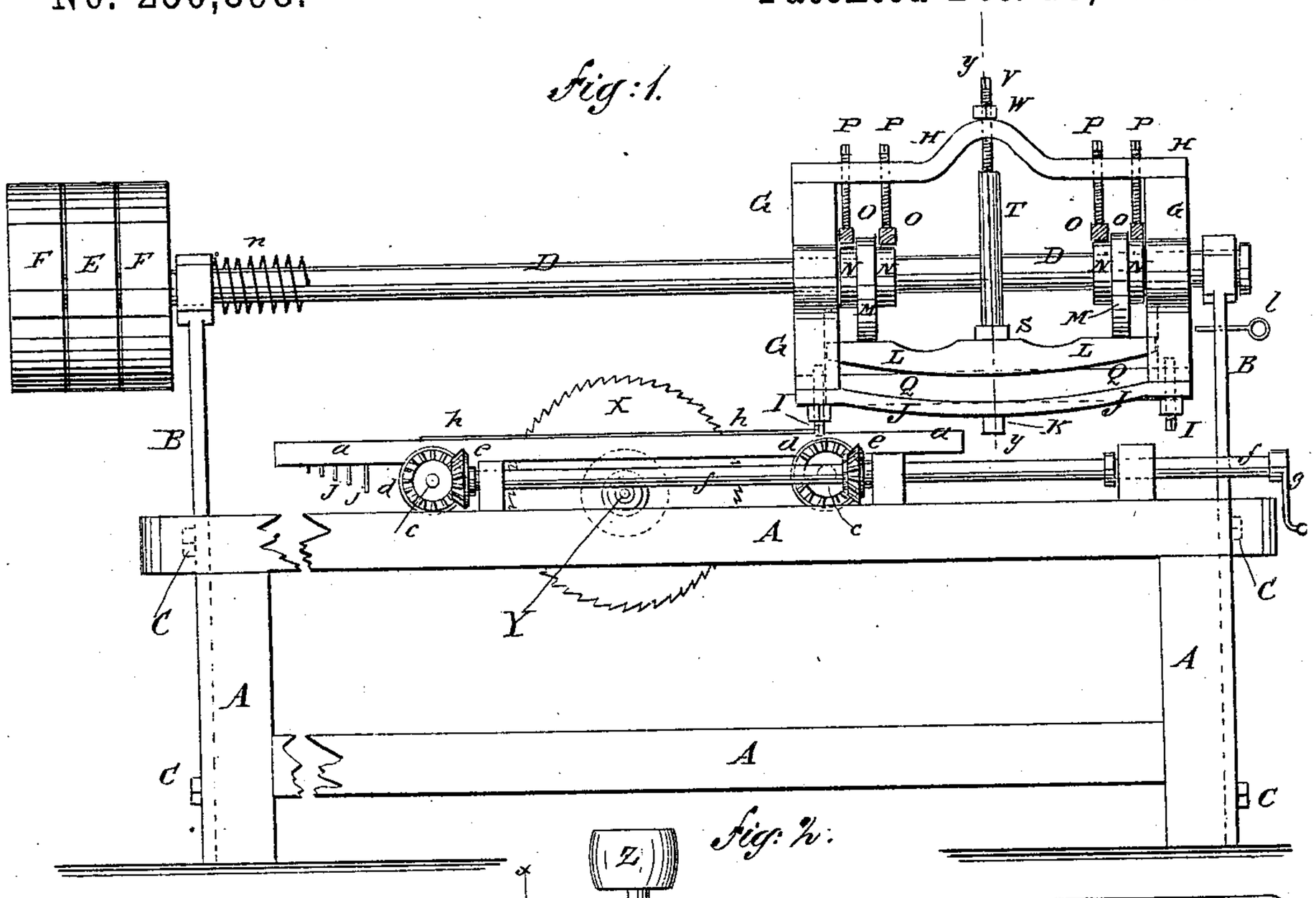

Fig: 2.

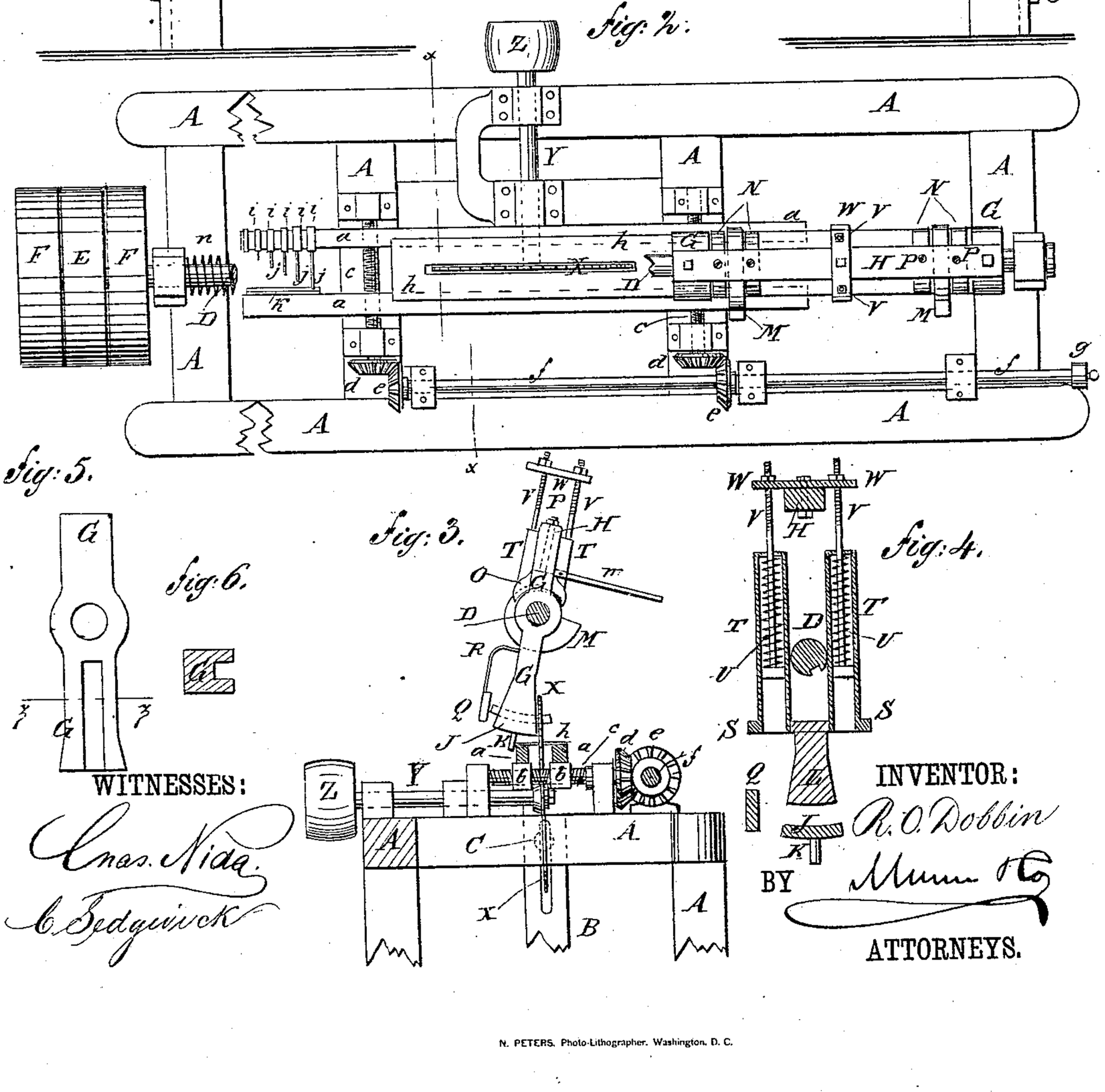

Fig: 5.

Fig: 6.

Fig: 3.

Fig: 4.

WITNESSES:

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ROBERT O. DOBBIN, OF BERLIN, ONTARIO, CANADA.

BARREL-STAVE JOINTER.

SPECIFICATION forming part of Letters Patent No. 250,898, dated December 13, 1881.

Application filed May 7, 1881. (No model.)

To all whom it may concern:

Be it known that I, ROBERT O. DOBBIN, of Berlin, in the county of Waterloo, Province of Ontario, Dominion of Canada, have invented a new and useful Improvement in Barrel-Stave Jointers, of which the following is a full, clear, and exact description.

Figure 1 is a side elevation of my improvement. Fig. 2 is a plan view of the same, part being broken away. Fig. 3 is a sectional end elevation of the same, taken through the line *x x*, Fig. 2. Fig. 4 is a sectional end elevation of the carriage, taken through the line *y y*, Fig. 1. Fig. 5 is an end elevation of an end bar of the carriage-frame, showing its inner side. Fig. 6 is a cross-section of the same, taken through the line *z z*, Fig. 5.

Similar letters of reference indicate corresponding parts.

The object of this invention is to facilitate the jointing of staves for making tight barrels.

A represents the frame of the machine, to the middle of the end cross-bars of which are attached uprights B. The uprights B are slotted longitudinally to receive the bolts C, that secure them to the said frame A, so that the said uprights can be adjusted higher or lower, as required.

In bearings in the upper ends of the uprights B revolves a shaft, D, to the end of which is attached a fast pulley, E, with a loose pulley, F, upon each side of the said fast pulley E.

Upon one of the loose pulleys F is placed a straight driving-belt, and upon the other loose pulley is placed a crossed driving-belt, so that the shaft D can be driven in either direction by shifting one or the other of the said driving-belts upon the said fast pulley E. The driving-belts are provided with belt-shifting levers, and levers and pulleys for regulating their tension, so that the shaft D can be turned with less or greater force, and stopped and started, as may be desired. The shifting and tension levers are not shown in the drawings, as there is nothing new in their construction. The shaft D passes through bearings in the end bars, G, of the carriage-frame, which are connected at their upper ends by the top bar, H.

To the lower ends of the end bars, G, are rigidly attached bolts I, which pass through holes in the ends of the lower shoe, J, and have nuts screwed upon their lower ends, so that the shoe J can be adjusted closer to or farther from the shaft D, as the diameter of the barrels for which the staves are intended may require. The upper side of the shoe J is concaved upon the curvature to be given to the staves, and upon the lower side of its center is formed a projection, K, to rest against the guides and direct the carriage as it moves along the shaft D.

In the inner sides of the lower arms of the end bars, G, are formed longitudinal grooves to receive the ends of the upper shoe, L, the lower side of which is convexed upon the curvature to be given to the staves. The upper shoe, L, is forced down against the stave to press the said stave against the lower shoe, J, and thus give the stave the required curve by the cams M, placed upon the shaft D and connected with it by a key or tongue attached to or formed upon the said cams, and which enter a groove formed longitudinally in the said shaft, so that the said cams can slide upon the said shaft and will be operated by turning the shaft.

The cams M are kept in place upon the shaft D and close to the end bars of the carriage-frame G H by the collars N, placed upon the said shaft D at the opposite sides of the said cams M. Upon the upper sides of the collars N rest bearing-blocks O, which are held down upon the said collar by screws P. The screws P pass through screw-holes in the top bar, H, of the carriage-frame, and their forward ends are made smooth and work in sockets in the upper sides of the bearing-blocks O. By this construction the reaction of the cams upon the upper shoe, L, is transmitted to the top bar, H, of the carriage-frame, so that the shaft D will be relieved from the strain and the carriage-frame G H and the cams M will slide as freely upon the said shaft as though the said cams were under no pressure.

Directly opposite the space between the shoes J L is placed a gage, Q, which is attached to the lower ends of arms R, the upper ends of which are attached to the end bars, G, of the carriage-frame. The arms R should be attached to the bars G adjustably, so that the gage Q can be adjusted nearer to and farther from the shoes J L, and nearer to and farther from the shaft D, as the width of the staves and the dis-

tance of the shoe J from the shaft D may require.

The gage Q is designed for use in centering the staves when inserting them in the shoes J L. To the center of the upper side of the upper shoe, L, is attached a short cross-bar, S, to the ends of which are secured the lower ends of two tubes, T, the upper ends of which are provided with inwardly-projecting ring flanges or caps with central openings. Within the tubes T are placed spiral springs U, the upper ends of which rest against the flanges or caps of the tubes T. The lower ends of the springs U rest against the heads of the rods V, which pass up through the spiral springs U, through the upper ends of the tubes T, through the ends of the cross-bar W, and have nuts screwed upon their ends, so that the tension of the springs U can be regulated by adjusting the said nuts.

The cross-bar W is attached to the center of the top bar, H, of the carriage-frame. With this construction when the cams M are withdrawn from the upper shoe, L, the springs U raise the said upper shoe, L, and release the stave, allowing it to be removed from the machine and replaced with another. X is the saw, the mandrel Y of which revolves in bearings attached to the frame A, and to the outer end of the said mandrel is attached a pulley, Z, to receive the driving-belt. The saw X is placed in the same vertical plane with the shaft D, so that the staves will be jointed upon the radii of the barrels into which they are to be formed. Upon the opposite side of the saw X, and equally distant from it, are placed two gages or guides, *a*, to the under sides of which are attached nuts *b*, the nuts of the one guide having right screw-threads, and the nuts of the other guide having left screw-threads.

Through each pair of nuts *b* passes a right-and-left screw, *c*, which is swiveled to bearings attached to the frame A. To one end of each of the screws *c* is attached a beveled-gear wheel, *d*, the teeth of which mesh into the teeth of a beveled-gear wheel, *e*, attached to the shaft *f*. The shaft *f* revolves in bearings attached to the frame A, and to its end, at the forward end of the frame A, is attached a crank, *g*. By this construction, by turning the crank *g* the guides will be moved toward or from each other to adjust them to the width of the staves being jointed, and will be kept parallel with each other, and equally distant from the saw X. The upper part of the saw passes through a slot in a plate, *h*, placed above the guides *a*, and secured to supports attached to the frame A, to prevent splinters from being torn off by the saw. The end of one of the guides *a* is rounded, and upon it are placed a number of rings, *i*, to each of which is attached a pin, *j*. The pins *j* are graduated in length, and are designed to serve as gage-stops, for convenience in setting the guides *a* at such a distance apart as will give the stave the desired width. When the pins *j* are not in use they are allowed to hang below the guide *a*. When the guides *a* are to be adjusted the pin *j* of the required length is swung up so that its free end will rest upon a shoulder, *k*, formed upon, or a cleat attached to, the other guide *a*, so as to stop the guides *a* when they are at the desired distance apart.

In using the machine the stave is inserted between the shoes J L, in the manner hereinbefore described, the carriage-frame G H being kept from swinging back by a stop-pin, *l*, pushed in through one of the uprights B. The proper driving-belt is then shifted to the fast pulley E and tightened to turn the shaft D and force the cams M and shoe L down with the requisite pressure to bring the stave to the required shape and hold it while being jointed. The stop-pin *l* is then drawn back and the carriage G H is swung to one side sufficiently to bring the projection K to the outer side of one of the guides *a*. The carriage G H is then moved along the shaft D, the projection K being held all the time against the said guide *a*. When the stave has passed the saw and one edge is jointed the carriage is drawn back along the shaft D, is swung to the other side to bring the projection K against the outer side of the other guide *a*, and is then moved forward along the shaft D till the stave has again passed the saw and its other edge is jointed. The carriage G H is then moved back along the shaft D, the driving-belts are adjusted and tightened to turn the shaft D in the other direction and withdraw the cams M from the shoe L, the jointed stave is then removed and replaced with another, and so on. The carriage G H is moved upon the shaft D by means of a handle, *m*, attached to it. As the carriage G H reaches the end of its forward movement it strikes and compresses the spiral spring *n*, placed upon the shaft D, so that the elasticity or recoil of the spring *n* will assist in changing the direction of movement of the said carriage.

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

1. In a barrel-stave jointer, the carriage, constructed substantially as herein shown and described, consisting of the frame G H, the stationary shoe J, the movable shoe L, the cams M, the collars N, bearing-blocks O, and screws P, and the tubes T, springs U, and screws V, whereby the staves are bent into shape and held while being jointed, as set forth.

2. In a barrel-stave jointer, the combination, with the shaft D, the carriage-frame G H, the stationary shoe J, and the movable shoe L, of the cams M, connected with the said shaft by keys and groove, substantially as herein shown and described, whereby the said shoe is forced down to bend and hold the stave by the revolution of the said shaft, as set forth.

3. In a barrel-stave jointer, the combination, with the carriage-frame G H, the shaft D, the stationary shoe J, the movable shoe L, and the cams M, of the collars N, the bearing-blocks O, and the screws P, substantially as herein

shown and described, whereby the reaction of the cams is transmitted to the carriage-frame to relieve the shaft from pressure, as set forth.

4. In a barrel-stave jointer, the combination, with the carriage-frame G H, the stationary shoe J, and the movable shoe L, of the tubes T, the springs U, and the screws V, substantially as herein shown and described, whereby the movable shoe is raised when the cams are withdrawn, as set forth.

5. In a barrel-stave jointer, the combination, with the shoe J, attached to the carriage-frame G H, and the frame A, of the projection K and the two parallel guides *a*, placed upon the opposite side of and equally distant from the saw, substantially as herein shown and described, whereby the proper bevel will be given to the edges of the staves, as set forth.

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Witnesses:

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