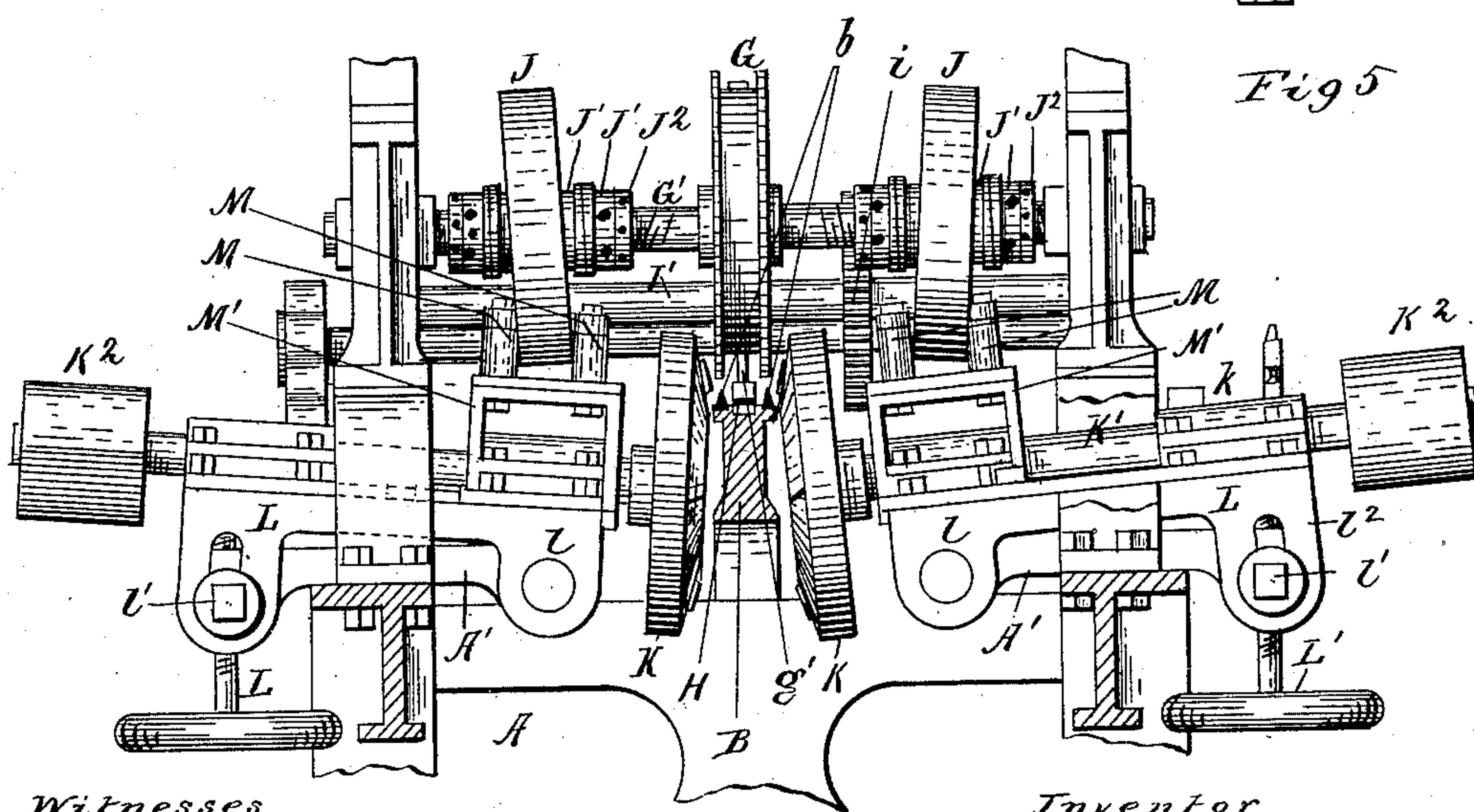
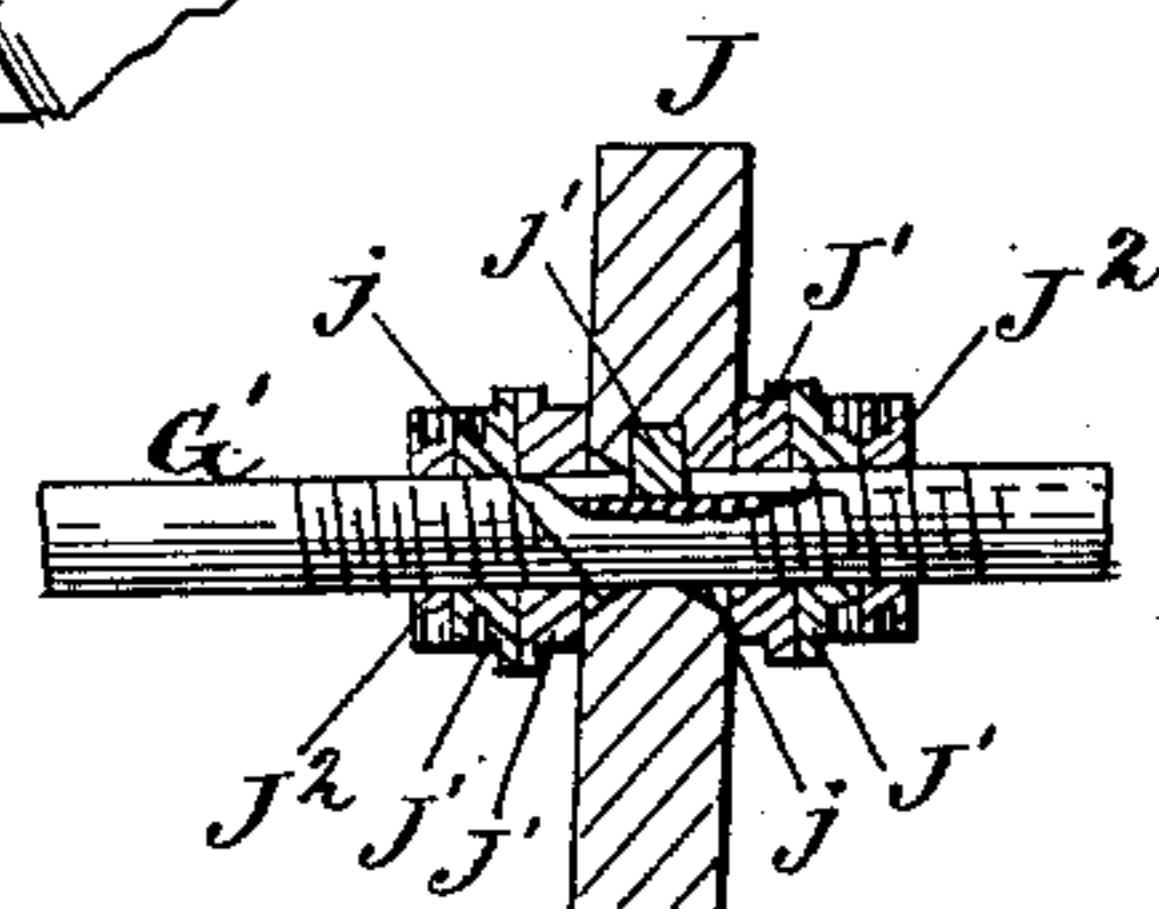


2 Sheets—Sheet 1.

No. 360,617.

Patented Apr. 5, 1887.



Witnesses

W. C. Collins
P. E. Penner.

Fig 2

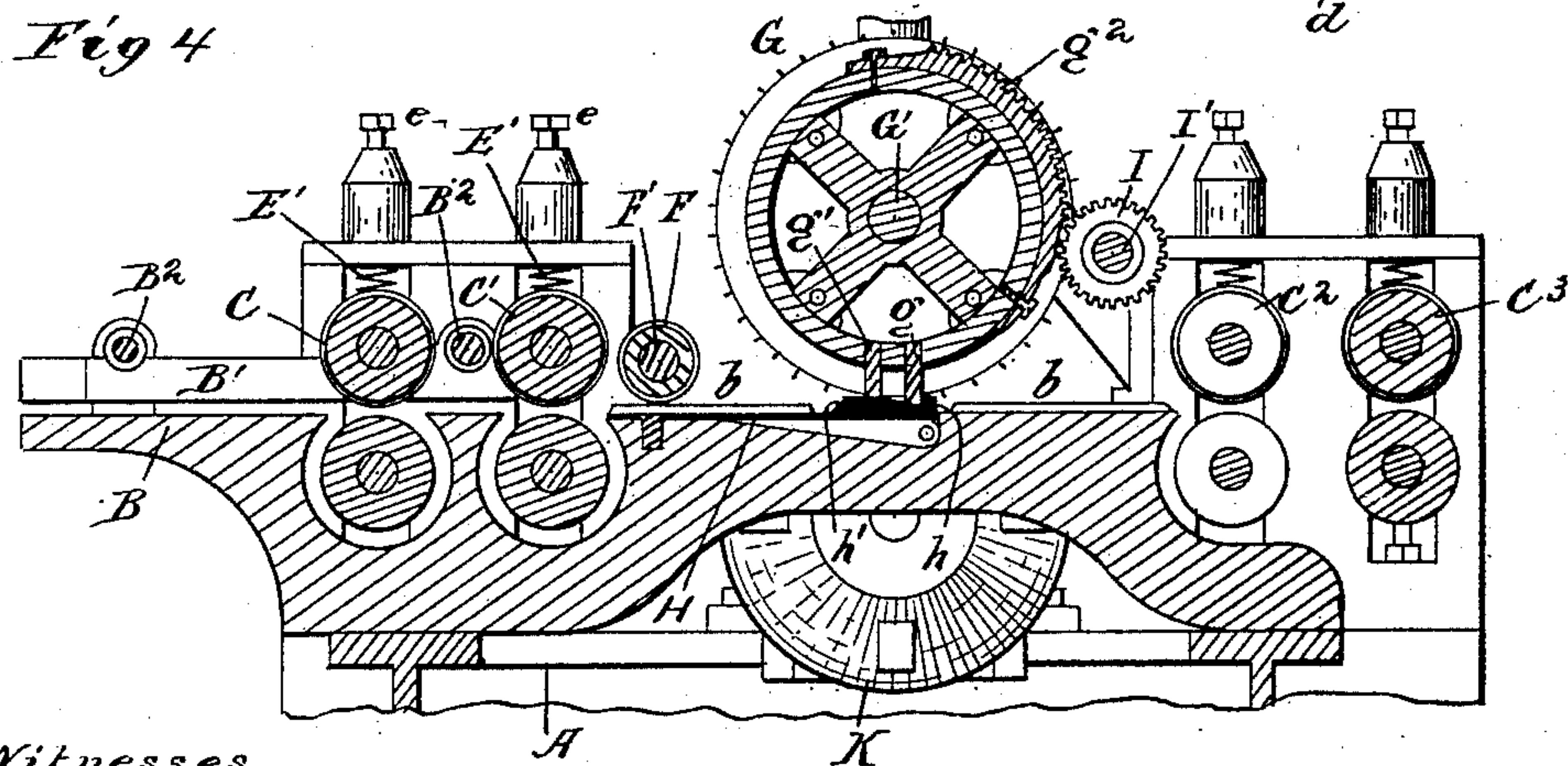
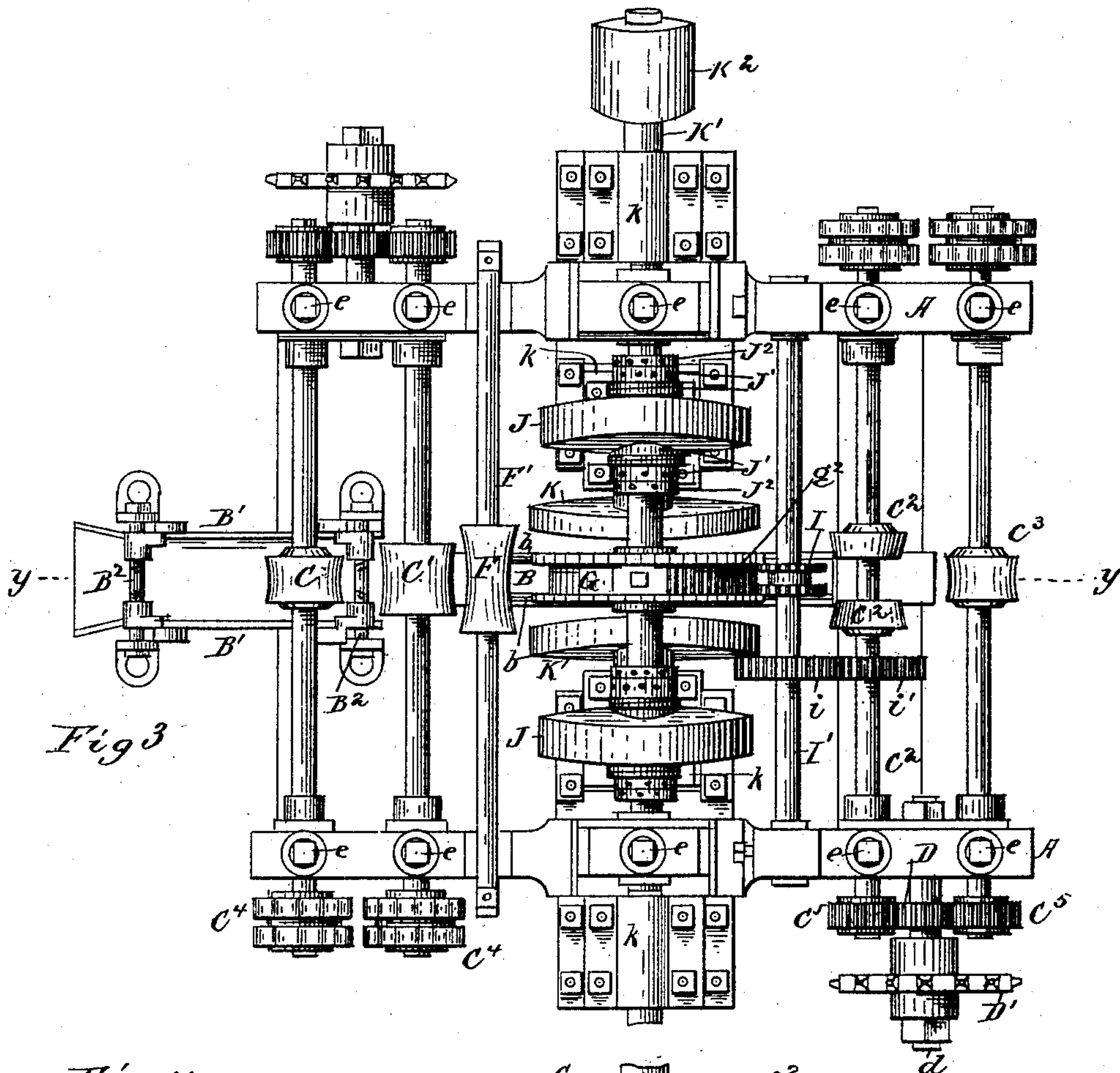
Inventor
Josiah J. Philbrick

By *Coburn & Thacker*
Attorneys

J. J. PHILBRICK.
STAVE JOINTING MACHINE.

No. 360,617.

Patented Apr. 5, 1887.



Witnesses

M. C. Bailey
P. E. Remond.

Inventor

Josiah J. Philbrick

By Edwin T. Thacher
Attorneys

UNITED STATES PATENT OFFICE.

JOSIAH J. PHILBRICK, OF MOBILE, ALA., ASSIGNOR, BY MESNE ASSIGNMENTS,
TO THE BLOUNT STAVE MACHINE COMPANY, OF CHICAGO, ILL.

STAVE-JOINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 360,617, dated April 5, 1887.

Application filed October 20, 1884. Serial No. 146,135. (No model.)

To all whom it may concern:

Be it known that I, JOSIAH J. PHILBRICK, a citizen of the United States, residing at Mobile city, in the county of Mobile and State of Alabama, have invented a certain new and useful Improvement in Stave-Jointing Machines, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

10 Figure 1 is a side elevation of a machine embodying my invention; Fig. 2, a sectional view of the same on the line *xx* of Fig. 1; Fig. 3, a plan view; Fig. 4, a sectional view on the line *yy* of Fig. 3, and Fig. 5 a detail
15 view.

Like letters refer to like parts in all the figures.

My invention relates to machines for jointing barrel-staves; and it consists in certain
20 novel features which I will now proceed to describe, and then specifically point out in the claims.

My machine is intended for use in connection with a stave-planing machine and a crozing and chamfering machine, for which I have
25 made application for Letters Patent—for the former by an application of even date herewith, and for the latter by application No. 134,869, filed June 14, 1884.

30 In the drawings, A represents the frame of the machine provided with a longitudinal bed or way, B, to support the stave. In suitable journals in the frame are mounted the pairs of feed-rollers *C C' C² C³*, driven by any suitable means. In the present instance the upper and lower rolls are connected at one side
35 by pinions *C⁴*, attached to their shafts, and at the other end the lower feed-roller shafts have pinions *C⁵*, meshing with a gear, D, mounted on the shaft *d* of a sprocket-wheel, D', driven by a suitable belt or chain. The upper feed-rolls are preferably and are shown as mounted in sliding boxes E, held down by springs E', the tension of which may be regulated by
40 screws *e*, so as to give a yielding pressure. At the forward end of the bed B are located the guide-plates B', mounted on screw-rods B², having their ends threaded in opposite directions, so that by turning the said screw-rods

the guide-plates may be simultaneously adjusted toward or from each other.

The central portion of the bed B is provided with knife-edged guides *b*, against which the stave is held by means of a pressure-roller, F, loosely mounted on a shaft, F', resting in
55 notched brackets F², and held down in place by springs *f*, attached to the frame and to the ends of the shaft, whereby a yielding pressure is obtained. The tension of these springs may be regulated by nuts *f'* on the upper end of
60 the bolts *f²*, which connect the springs to the shaft F'.

Above the bed B, and between the front and rear sets of feed-rollers, is arranged a traction-wheel, G, secured to a shaft, G', preferably
65 mounted in the same manner as the upper feed-rollers, as shown. The distance between the bed and the traction-wheel is such that when a stave is fed between them the serrated or toothed periphery of the wheel will engage
70 with and be moved by the stave. In a suitable recess in the bed B is arranged the spring or detent H, provided with a shoulder or stop, *h*, to engage a pin or projection, *g*, on the wheel G, and having an inclined projection, *h'*, arranged in the path of the stave. The
75 traction-wheel is also provided with a pin, *g'*, arranged in the path of the stave immediately in front of the pin *g*; or a single projection of sufficient size to occupy the space of both pins
80 may be used.

The traction-wheel may be provided, for the purpose hereinafter stated, with a gear-segment, *g²*, arranged to mesh with a pinion, I, mounted on a shaft, I', having a pinion, *i*,
85 meshing with a pinion, *i'*, on the shaft of the feed-roller C². In this case the traction-wheel will be grooved, as shown, to receive the segment, and the pinion I will be grooved to allow the pins *g g'* to pass.

90 On the shaft G', and operated thereby, are mounted the adjustable wobble-wheels or cams J, by means of which the cutter-shafts and cutters are reciprocated. These wheels are secured on the shaft, as shown in detail in Fig. 95 5, the shaft being screw-threaded and grooved, as shown, and the wheel fitted loosely thereon, the aperture *j*, through which the shaft passes,

being flaring at each end to admit of tilting the wheel to any desired angle, while the wheel has a projection or spline, j' , which enters the groove in the shaft to cause the wheel to rotate therewith.

J' are washers loosely surrounding the shaft and having their adjacent faces beveled, as shown, and J'' are nuts working on the threaded portions of the shaft. It is obvious from this construction that the wheels J may be adjusted to different points on the shaft and there secured, and also that when the parts are in the position shown by the simultaneous rotation of the washers J' the wheels may be set or adjusted to the desired angle of inclination to the axial line of the shaft.

The cutters K , of suitable construction, are attached to the inner ends of shafts K' , mounted in boxes on slides k . In order to adjust the angle of the cutters and their shafts, each slide is mounted on ways on a bed, L , pivoted at its inner end at l to a cross-piece, A' , forming part of the frame, the outer end resting on an adjusting-screw, L' , working in the cross-piece. To secure the bed after adjustment, clamp-screws l' pass through slots in the dependent arms l'' of the bed and screw into the cross-piece to clamp the two in position.

The cutters are moved automatically to and from the bed B and the stave thereon by means of the wobble-wheels J , as before stated, the wheels J passing between guides or projections on the slides k , these guides being shown in the present instance as anti-friction rollers M , mounted on a yoke or frame M' , attached to the slides at or near their inner ends. The cutter-shafts are provided with suitable pulleys, K^2 , by means of suitable belting applied to which the cutters are rotated.

The operation of the machine is as follows: The guide-plates B' are adjusted to suit the width of the stave, the tension on the feed-rollers and pressure-roller and traction-wheel adjusted to the proper point, the beds L adjusted to so incline the cutters as to give the proper bevel to the edges of the stave, if any be desired, and the wheels J adjusted in their position and inclination to correspond to the width and shape of stave desired. The stave is then fed into the machine between the guide-plates B' , either by hand or, if the machine be used in conjunction with my other machines above specified, by the last feed-rollers of the crozing and chamfering machine, and, being seized by the feed-rollers C C' , is forced onto the knife-guides b and held thereon by the pressure-roller F , and afterward by the traction-wheel G , to prevent any wobbling or deviation from the proper line. The stave then strikes the inclined projection h' , thereby lowering the spring H and its stop h , thus freeing the traction-wheel G . At the same time the stave strikes the pin g' of the wheel and causes the latter to revolve. The roughened periphery of the wheel engages with the stave, and the continuous advance of the latter, caused by the feed-rolls, creates a continuous

rotation of the traction-wheel and shaft G , thereby causing the wobble-wheels J to actuate the slides k and cutters K , so that the latter first recede and then advance, thereby giving the desired outline and bevel to the edge of the stave. The stave is then seized by the rear feed-rollers and carried out of the machine, while the pin g on the traction-wheel engages with the now freed stop h and stops the wheel and the mechanism operated thereby.

When the traction-wheel has been carried around the length of the stave, it may not have reached its normal position, as shown in the drawings; but the pinion I , being in constant rotation, will be in mesh with the segment g^2 , and will bring the wheel to its proper position.

It is obvious that, although I have described my machine as intended for use with my other machines above specified, yet it may be used alone or in conjunction with other machines of the same general character. It is also obvious that various mechanical modifications of the construction shown and described may be made without departing from the spirit of my invention, and I therefore do not wish to be understood as limiting myself to the precise details of construction shown and described.

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

1. In a stave-jointer, the combination, with the traction-wheel and its shaft, of wobble-wheels mounted thereon and adjustable to different angles of inclination, and slides provided with guides to embrace the said wheels and having cutters and cutter-shafts mounted on them, substantially as and for the purposes specified.

2. In a stave-jointer, the combination, with the traction-wheel and its shaft, of inclined or wobble wheels mounted thereon, and slides having guides to embrace the said wheels and carrying the cutters and cutter-shafts, the said slides being mounted on adjustable beds, substantially as and for the purposes specified.

3. In a stave-jointer, the combination, with the traction-wheel and its shaft, of adjustable inclined or wobble wheels mounted thereon, and slides having guides to embrace the said wheels and carrying the cutters and cutter-shafts, the said slides being mounted on adjustable beds, substantially as and for the purposes specified.

4. In a stave-jointer, the combination, with the traction-wheel and its shaft and the adjustable wobble-wheels mounted thereon, of the slides having guides or projections embracing the said wheels and mounted on beds pivoted at one end and having their other end resting on a suitable adjusting-screw, and the cutters and cutter-shafts mounted on said slides, substantially as and for the purposes specified.

5. In a stave-jointer, the combination, with the traction-wheel having pins or projections g g' on its periphery and the mechanism op-

erated thereby, of the spring H, having a stop, h , arranged in the path of the pins, and an inclined projection, h' , arranged in the path of the stave, substantially as and for the purposes specified.

5 6. In a stave-jointer, the combination, with the traction-wheel G, having upon its periphery a pin or projection, g , and a gear-segment, g^2 , of the spring H, having a stop, h , arranged
10 in the path of the pin, and the pinion I, arranged to mesh with the gear-segment and connected by suitable gearing with one of the feed-roller shafts, substantially as and for the purposes specified.

7. In a stave-jointer, the combination, with 15 the front and rear feed-rollers, of the spring H, having stop h and inclined projection h' , the traction-wheel having pins g and g' , the inclined wheels mounted on the traction-wheel shaft and operated thereby, and the cutters 20 having their shafts mounted on slides provided with guides or projections to embrace the said inclined wheels, substantially as and for the purposes set forth.

JOSIAH J. PHILBRICK.

Witnesses:

E. L. CLARKSON,

H. P. BURRUSS.