

(No Model.)

3 Sheets—Sheet 1.

W. T. VALE.
BARREL MAKING MACHINE.

No. 497,105.

Patented May 9, 1893.

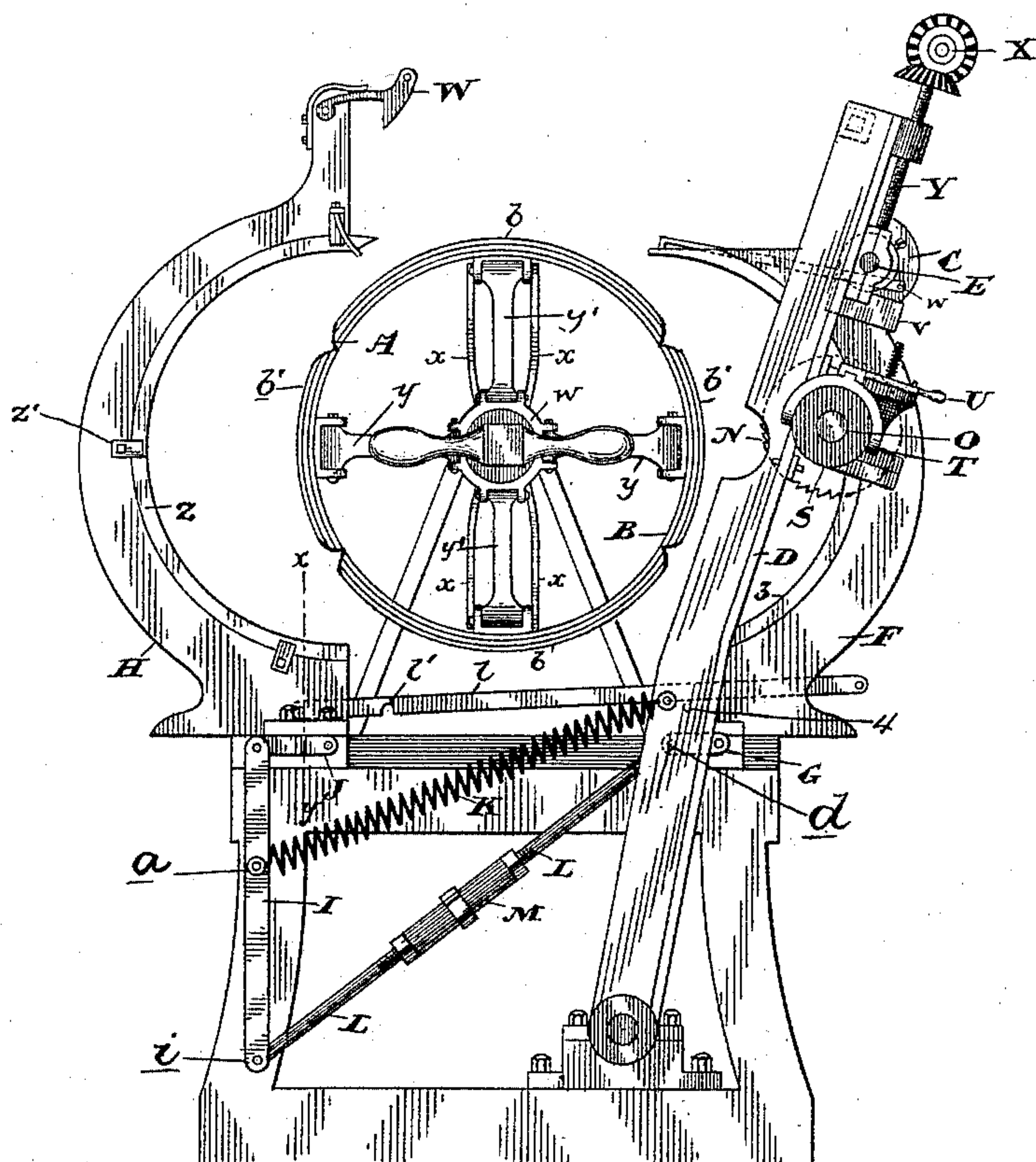


Fig.1

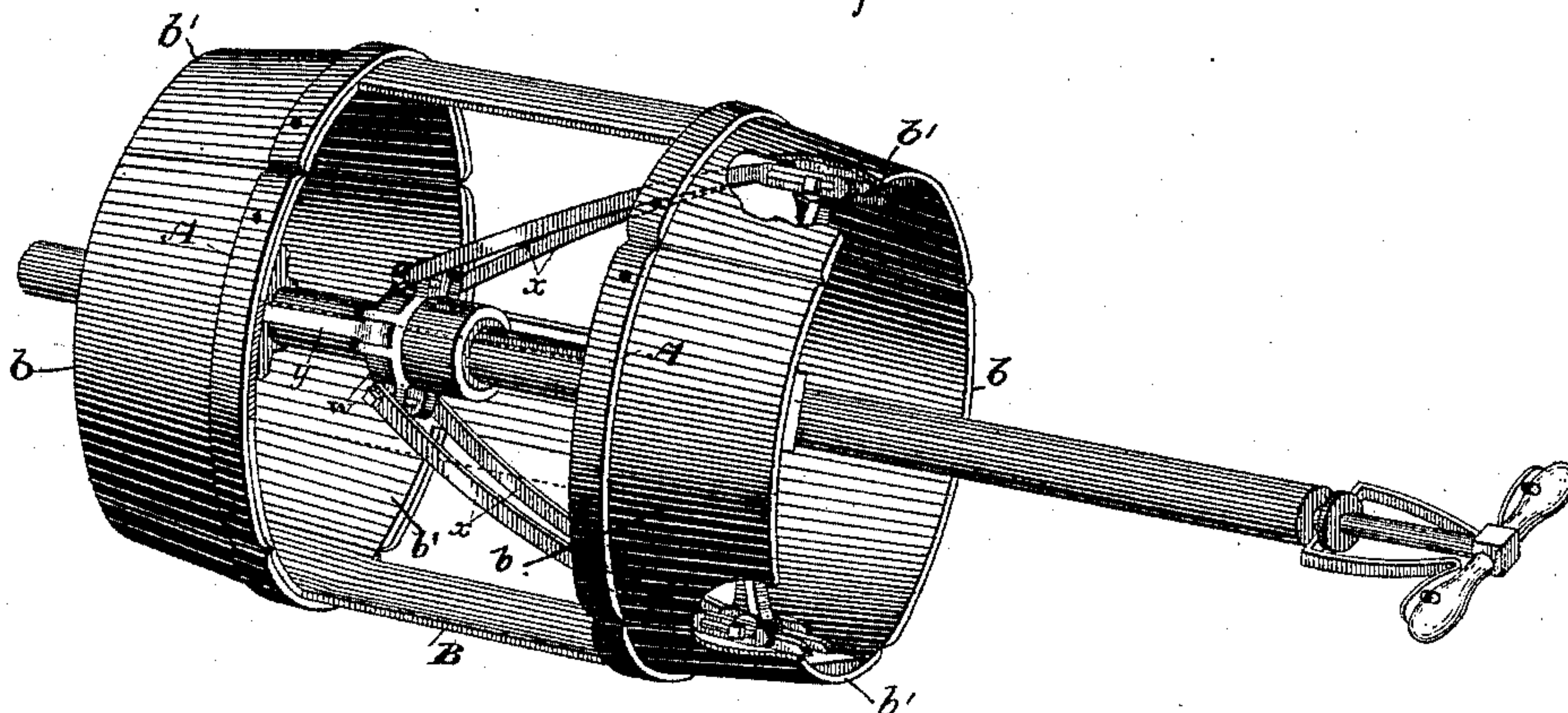


Fig. 2

Witnesses

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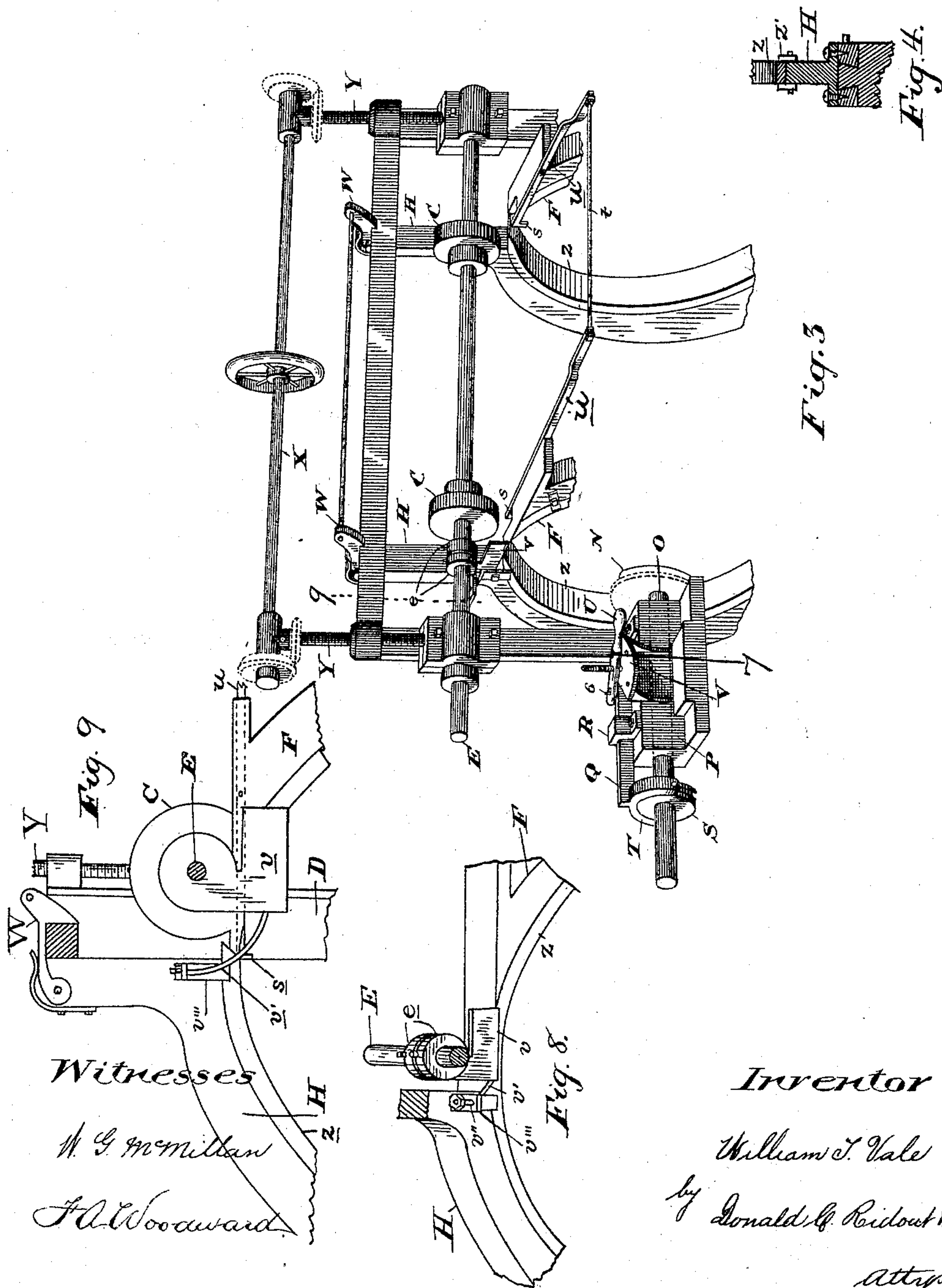
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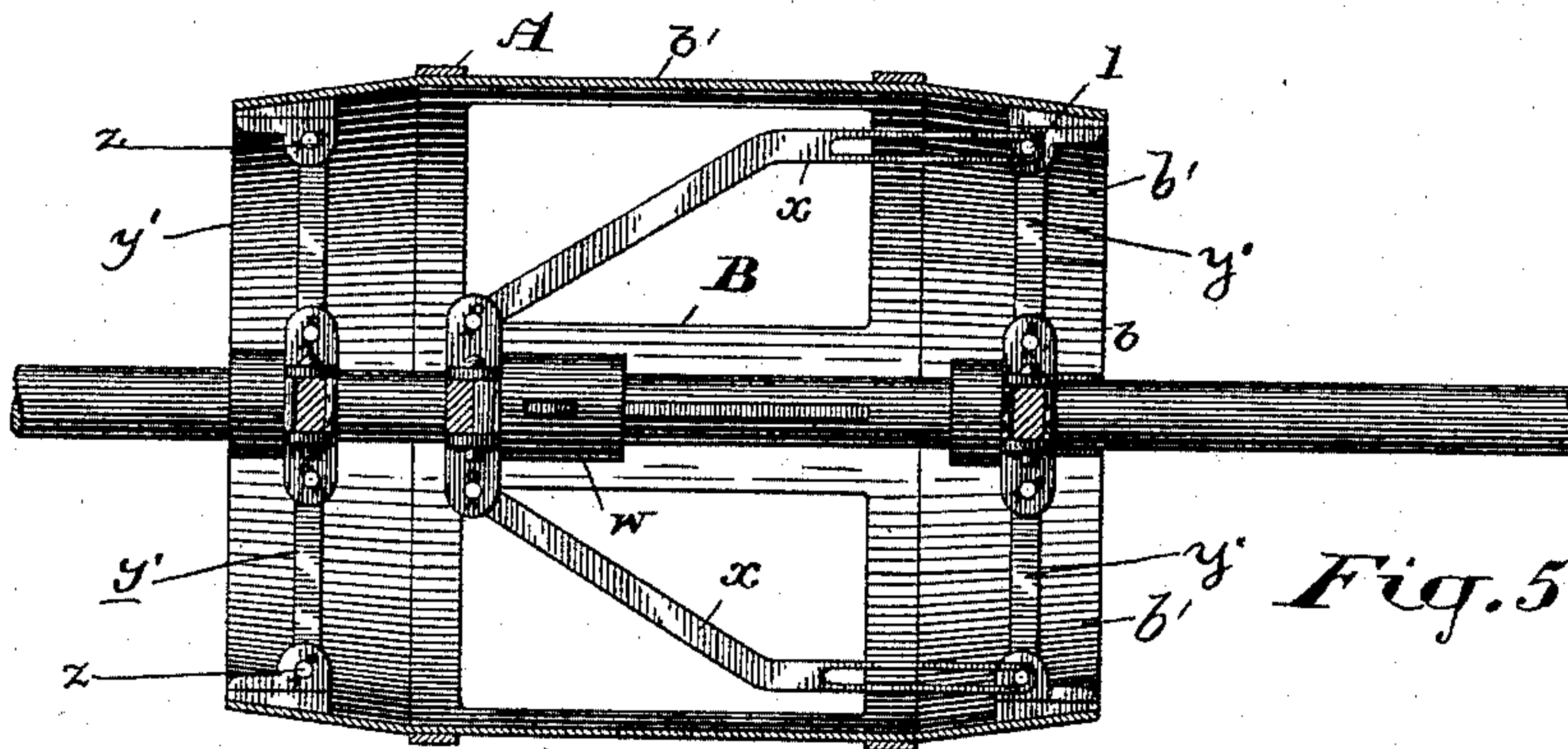


Fig. 5

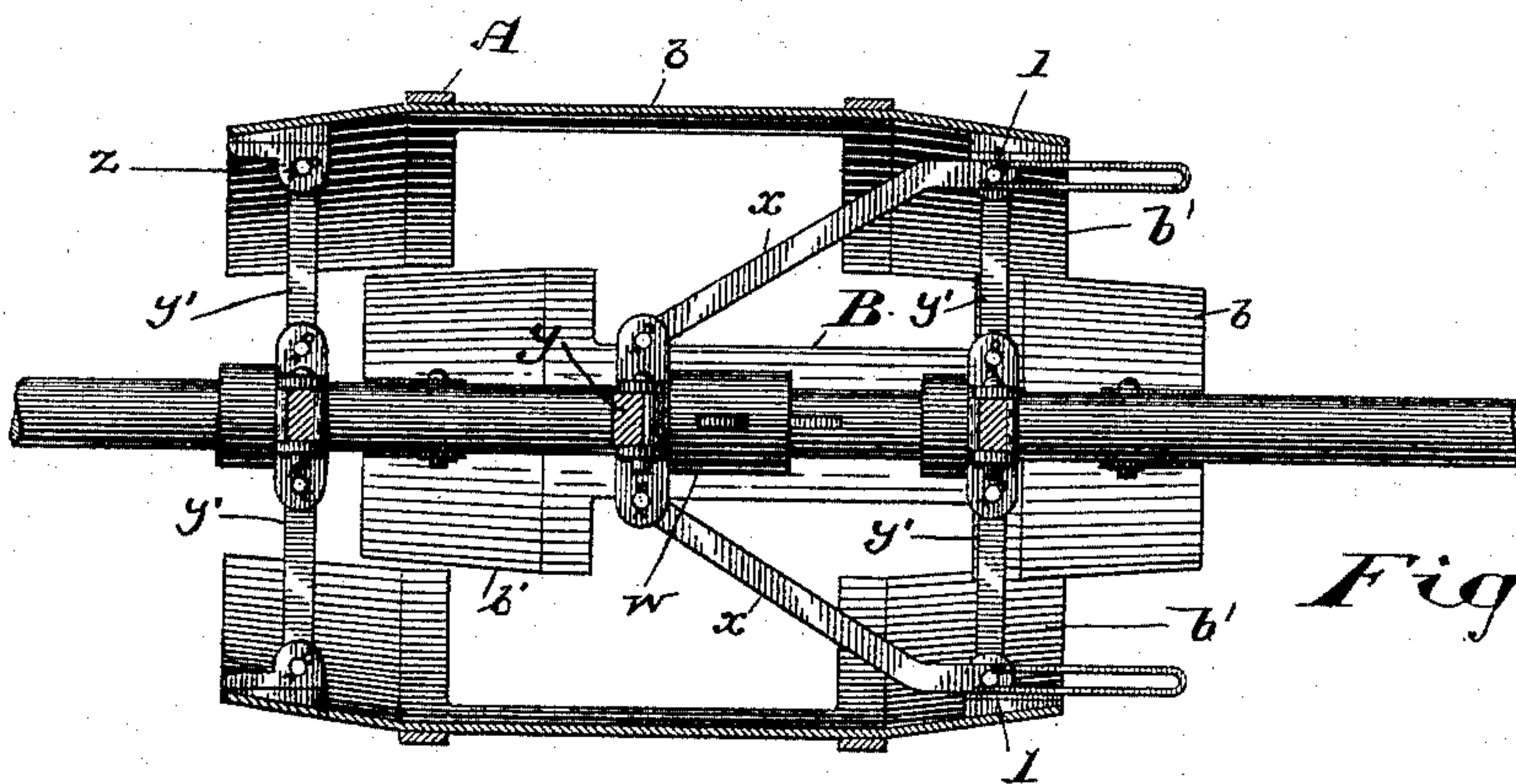


Fig. 6

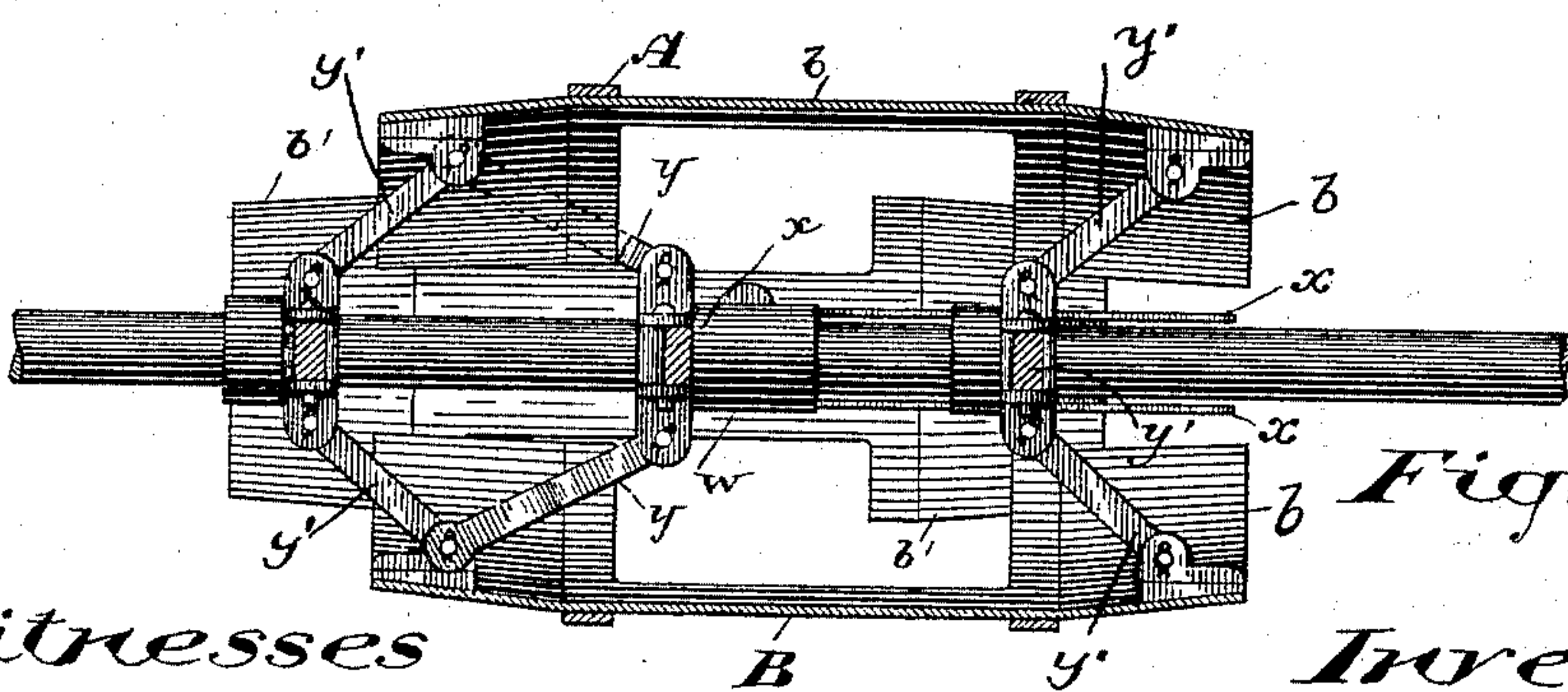


Fig. 7

Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM T. VALE, OF TORONTO, CANADA, ASSIGNOR TO THE NEW YORK
BARREL MACHINE COMPANY, OF NEW YORK.

BARREL-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 497,105, dated May 9, 1893.

Application filed July 11, 1891. Serial No. 399,215. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM THOMAS VALE, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented a certain new and useful Improvement in Barrel-Making Machines, of which the following is a specification.

The invention relates to certain improvements upon a machine fully described in patent granted to me in the United States on the 19th of June, 1888, under No. 384,730.

The object of the present invention is, first—to arrange the barrel-former so that a properly formed bulge can be made; secondly—to simplify the mechanism by which the movable half rings are operated; thirdly—to simplify the mechanism by which the cutter-heads are adjusted; fourthly—to provide means for making barrels of different sizes upon the same machine; fifthly—to provide means for preventing the former collapsing too quickly and sixthly—to provide means for regulating the position of the staves. And it consists essentially—first, of two detachable rings placed upon the former at about equal distances between the center and each end of the barrel-former; secondly, of simple mechanism arranged to connect the movable half rings to the rocking frame on which the forming-roller shaft is carried, so that the movement of the rocking-frame shall adjust the said half rings; thirdly, of simple mechanism by which the spindle of the cutter-head is longitudinally adjusted by a simple lever; fourthly, of providing detachable packing for the movable half rings; fifthly, of providing arms extending from the movable sleeve to sections of the collapsible former and sixthly, of providing movable stops to regulate the end position of the staves and to hold the first stave stationary while the other staves are being fed into the machine.

Figure 1, is an end view of the machine. Fig. 2, is a perspective view of my improved former. Fig. 3, is a view of a portion of the machine showing the cutter-head and its adjusting mechanism. Fig. 4, is a detail in section through line, *x, y*, Fig. 1. Fig. 5 is a longitudinal vertical section of the barrel former. Fig. 6 is a similar view of the former partly

collapsed. Fig. 7 is a longitudinal horizontal section of the former partly collapsed. Fig. 8 is a perspective detail of an adjustable stop. Fig. 9 is a sectional detail on the line 9 of Fig. 3, on a larger scale.

On reference to Fig. 2, it will be noticed that I place detachable segments, A, on the former B, these segments being located substantially in the center of the space between the center of the former and its end, so that the forming-rollers, C, (see Fig. 3) shall come in contact with the staves immediately outside of the said segments A, by which way a beautifully curved bulge is secured. D, represents a rocking frame on which the shaft, E, carrying the rollers, C, is journaled. This rocking frame is connected to one of the movable half rings, F, by means of the pivoted link, G. The other adjustable ring, H, is connected to a pivoted lever, I, by a pivoted link, J. The spring, K, is connected at one end to the rocking frame, D, and at its other end to the pivot-pin, *a*, of the lever, I, or if preferred to any convenient point in the frame of the machine. This spring is intended to assist in supporting the rocking frame, D, so that it may be easily moved by the operator of the machine. L, represents two rods, one of which is connected to the rocking frame, D, by a pivot *d* which also forms a connection between said frame D and link G and the other by a pivot *i* to the bottom of the lever, I; the two rods being connected together by a right and left hand screwed nut, M. This nut permits the lengthening or shortening of the rods, L, so as to regulate the movement of the adjustable ring, H. It will of course be understood that, although I refer to a single set of the parts specified, the set is duplicated at the opposite end of the machine.

On reference to Fig. 3, it will be observed that the cutter-head, N, is connected to a spindle, O, which is suitably journaled in a journal box, P, connected to the rocking-frame D. Q, is a bar, held by suitable straps, R, on the journal box, P. S, is a grooved pulley fixed to the spindle, O, and connected to the bar, Q, by the half ring, T, which is provided with pins to fit into the groove in the pulley, S, thereby forming a connection between the bar,

Q, and the spindle, O, without interfering with the satisfactory revolving motion of the said spindle. U, is a hand-lever suitably pivoted on the quadrant, V, and connected to the bar, Q, by a pin, 6. The lever, U, is also provided with a pin 7 to fit into one of the holes made in the quadrant, V. Owing to the connection between this lever and the bar, Q, which latter bar is connected to the spindle, O, as described, the said spindles may be longitudinally adjusted by the simple movement of the lever, U, and held in any desired position by locking the lever to the quadrant, as described. W, represents spring catches by which the rocking frame, D, is locked to the ring, H, when the machine is in operation. X, represents a shaft provided with suitable beveled pinions to connect with the vertical screw spindles, Y, which are connected to the boxes to which the spindle, E, is journaled. In consequence of this connection, the revolving of the shaft X, will cause the spindle, E, to be vertically adjusted either up or down as may be required.

On reference to Fig. 1, it will be seen that each of the removable half rings H and F have internal half rings or "liners" z detachably connected to them by clamps z' . A series of these liners of different thicknesses may be provided, to suit barrels of different sizes, which may be changed at any time according to the diameter of the barrels to be made on the machine at that time.

On reference to Figs. 2, 5, 6 and 7, it will be seen that I employ two sets of supporting arms y' arranged as in my aforesaid patent, and besides the arms y' , I employ operating arms x and y . The arms x are pivoted on the movable sleeve, w , at one end and at its other end, each is connected to one of the collapsible sections of the former, B. The end of each arm, x , which is connected to the section of the collapsible former, is set substantially parallel with the shaft of the said former and an elongated slot is made in the said end to fit onto a pin or bolt connected to the particular section of the said former. When these sections are collapsed, as described in the patent hereinbefore referred to, the motion of the sleeve, w , will cause the slotted end of each of the arms, x , to move on the pin connecting it to the section being collapsed, thereby preventing the said section collapsing too quickly as the arms x necessarily travel endwise before the sections collapse.

I may mention here that in the collapsible former, described in the patent hereinbefore referred to, the collapsible sections sometimes fell away so quickly as to leave the staves unsupported before they had been all compressed together. In consequence of this the staves would all fall apart and they would have to be re-arranged before the barrel could be produced. By providing means for preventing this sudden collapse, sufficient time is given to permit all the staves to be com-

pressed together before their support is entirely removed.

On reference to Figs. 3, 8 and 9, an end stop v will be seen which is loosely pivoted on the shaft E between adjustable collars e so that they and the stop v can be adjusted longitudinally on said shaft E to suit different lengths of staves. To hold this stop v from sagging down, the back stop v' is provided, against which the back of said stop v butts as shown clearly in Fig. 9. This stop v' is secured to a bracket v''' having a slot v'' (see Fig. 8) which allows of the stop v' being adjusted longitudinally to correspond with the stop v . Before the machine is put in operation, this stop is set so that the staves, butted against it, will be in their proper position. In Fig. 3 the pivoted arms, u , will be observed. These arms are connected together by a rod, t , and are pivoted on one of the half rings F. The inner end of each arm has a hook end, s . When the machine is put in operation, the arms, u , are tilted on their pivot, so as to bring the ends, s , close to the former, B. These hook ends form stops which arrest the motion of the first stave put in the machine, after it has made the circuit of the frame holding the said stave stationary while the other staves are fed in and forced against it. In this way all the staves are forced in close contact with each other.

In order to securely lock the movable half rings, H and F, I pivot a notched bar, l , on one half ring and attach a pin 4 to the other. When the half rings are brought together the pin, 2, enters the notch l' in the bar, l , and securely locks the half rings (see Fig. 1). When it is desired to release the half rings, the end of the bar, l , is raised and the said half rings are then free to be moved. Only one bar, l , is shown, but if desired one may be placed at each end of the forming apparatus and their outer ends connected by a rod so that they may be operated together.

What I claim as my invention is—

1. A barrel former, tapering at each end and provided with detachable segments arranged on each side of its center and between said center and the ends of the former and projecting above the surface of the former, substantially as shown and described.

2. In a barrel-machine, an adjustable end stop, v , pivoted on the shaft, E, in combination with the adjustable stop, v' , adapted to hold the said stop, v , in position, substantially as and for the purpose specified.

3. In a barrel-machine the combination of the arms, u , pivoted on the frame of the machine and connected together by the rod, t , each arm having a hooked end, s , substantially as and for the purpose specified.

Toronto, June 12, 1891.

WILLIAM T. VALE.

In presence of—

I. EDW. MAYBEE,
W. G. MCMILLAN.