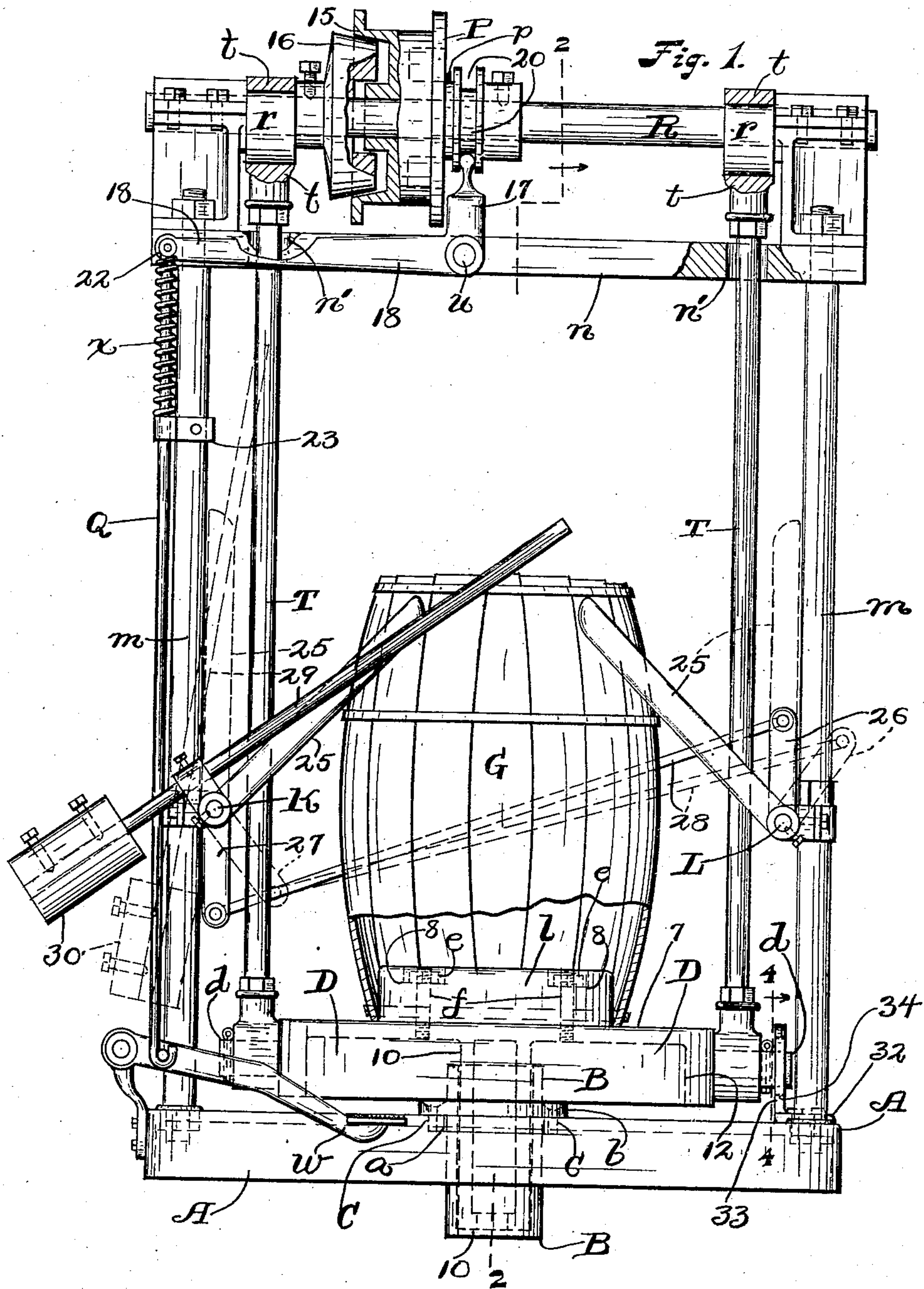


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BARREL LEVELING MACHINE.
APPLICATION FILED APR. 29, 1908.

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Patented Mar. 16, 1909.

2 SHEETS—SHEET 1.



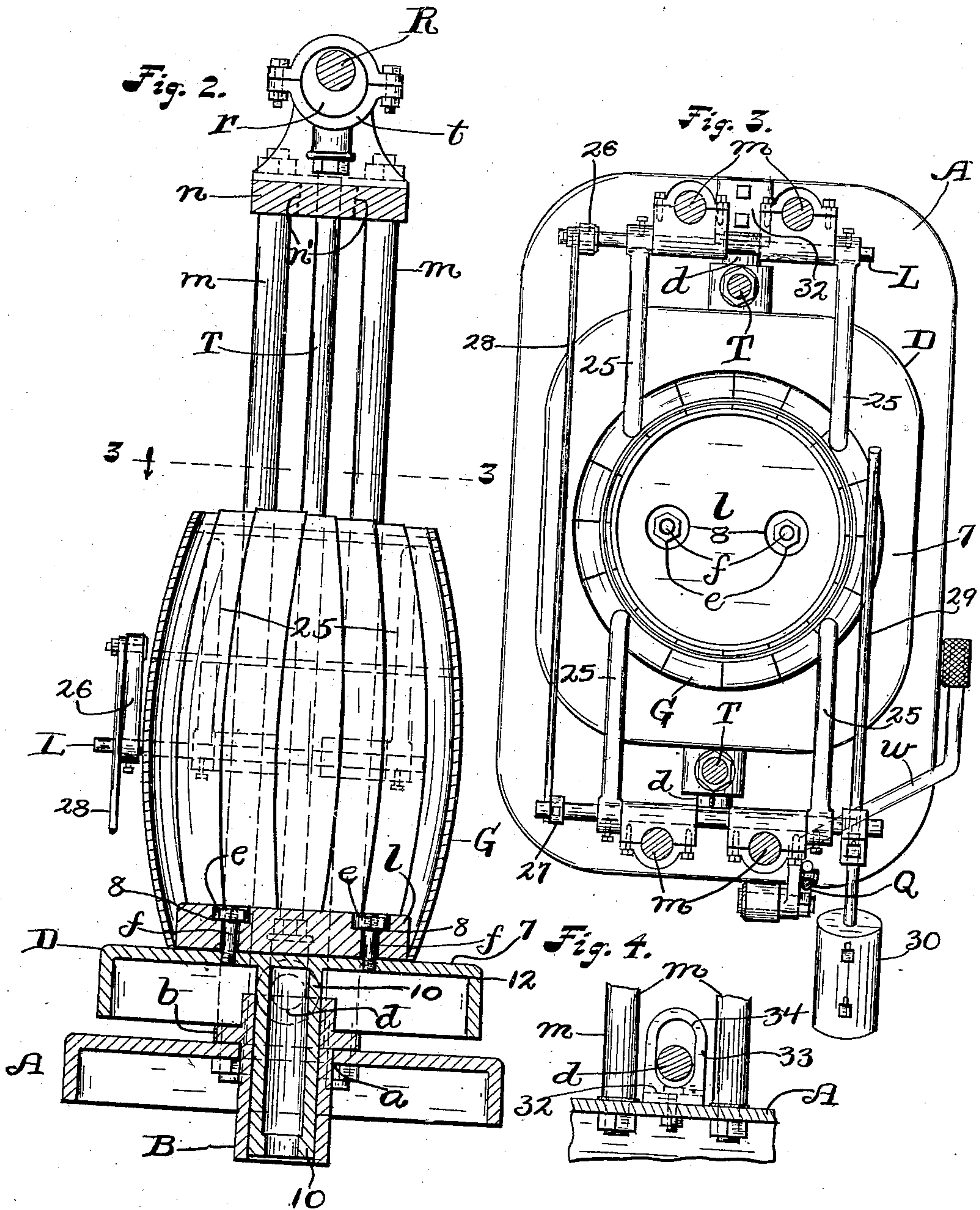
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UNITED STATES PATENT OFFICE.

JOHN S. ORAM, OF CLEVELAND, OHIO.

BARREL-LEVELING MACHINE.

No. 915,106.

Specification of Letters Patent.

Patented March 16, 1909.

Application filed April 29, 1908. Serial No. 429,818.

To all whom it may concern:

Be it known that I, JOHN S. ORAM, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Barrel-Leveling Machines; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in barrel-leveling machines.

The primary object of this invention is to construct a barrel-leveling machine comprising a positively actuated vertically reciprocating stave-leveling member whose top surface forms a seat for the barrel to be operated upon during the stave-leveling operation.

Another object is not only to prevent displacement of the stave-leveling member laterally during the reciprocation or vibration of the stave-leveling member, but to prevent circumferential displacement or play of the said stave-leveling member during the said reciprocation or vibration.

Another object is to accurately center the barrel to be operated upon relative to the stave-leveling member by simple and efficient means.

Another object is to produce a barrel-leveling machine by which there is no liability of breaking any stave even if the barrel has no two staves corresponding in length.

Another object is to produce a barrel-leveling machine which is simple, inexpensive and durable in construction, not liable to get out of order and easily taken care of.

With these objects in view, and to the end of realizing other advantages hereinafter appearing, this invention consists in certain features of construction, and combinations of parts, hereinafter described, pointed out in the claims and illustrated in the accompanying drawings.

In the said drawings, Figure 1 is a front view of a barrel-leveling machine embodying my invention, and portions are broken away and in section in this figure to more clearly show the construction. Fig. 2 is a vertical section on line 2—2, Fig. 1, looking in the direction indicated by the arrow. Fig. 3 is a horizontal section on line 3—3, Fig. 2, looking downwardly. Fig. 4 is a vertical section in detail on line 4—4, Fig. 1, looking outwardly.

Referring to the drawings, A represents the base of the stationary frame-work of the machine. The base A is provided centrally with a hole *a*. A vertically arranged cylindrical box B extends through the hole *a*. The box B extends a suitable distance below and above the base A and is provided externally and next above the said base with a horizontally arranged laterally and outwardly projecting annular flange *b* which rests upon the base around the hole *a*. The box B is suitably secured to the base A, as, for instance by screws C which are shown only in dotted lines, Fig. 1, and extend through the flange *b* and are screwed into the base and suitably spaced circumferentially of the box.

A vertically reciprocating head or vibrator D is arranged centrally relative to the box B and is composed preferably of a horizontally arranged metal casting which is provided at its under side and centrally with a tubular or hollow cylindrical stem 10 which depends into the box B. The box B and stem 10 are instrumental in guiding the head D during its reciprocation and prevent lateral displacement of the said head. The head D constitutes the stave-leveling member of my improved machine as will hereinafter appear, and is provided in its under side with an annular recess or chamber 12 which surrounds the upper or inner end of the stem 10 and accommodates the location of the box B during the operation of the said head. The arrangement of the parts is such that the stave-leveling member D in its lower position is a short distance above the base A.

A circular block or barrel-centering member *l* is mounted on and arranged centrally of the stave-leveling member D. The member *l* is removably secured to the stave-leveling member D in any approved manner, as, for instance, by nuts *e* which are mounted within recesses 8 formed in the upper side of the member D on correspondingly threaded studs *f* with which the said member D is provided, which studs project vertically upwardly into the said recesses.

G indicates a barrel to be operated on, which barrel is arranged in an upright position and loosely embraces the barrel-centering member *l*. The barrel G rests at the lower ends of the staves thereof on the horizontally arranged top surface 7 of the stave-leveling member D, which surface extends around the barrel-centering member *l* and forms a seat for the lower end of the barrel

which is in the process of construction and has staves which require to be leveled. The stave-leveling member D is large enough in dimensions transversely to accommodate the replacement of the barrel-centering member *l*, with which the said head is provided, by a larger barrel-centering member as required for a larger barrel than that shown. To change from one size barrel to another size all that is necessary is to remove the nuts *e* to render the centering member *l* free to be removed and then to replace the said centering member by a transversely larger or smaller centering member according as a larger or smaller size of barrel is to be operated on. It will be observed therefore that the barrel G to be leveled is adapted to be placed on end upon the stave-leveling seat or surface 7 of the member D and that the said member D upon being reciprocated rapidly alternately lifts and recedes from the barrel. The stave-leveling member D is, however, positively operated as will hereinafter appear, whereas the barrel descends by gravity during each descent of the said stave-leveling member. The stave-leveling member D is reciprocated or vibrated with such speed that the descent of the said member D upon each upward movement of the same is more rapid than the lowering of the lifted barrel by gravity, so that during the operation of the stave-leveling member blows are intermittently delivered upwardly against the lower ends of the staves required to be leveled.

The stationary frame-work of my improved machine comprises also columns or standards *m* arranged externally of the space to be occupied by the barrel to be leveled and secured to the base A. The standards *m* are tied together and braced apart at their upper ends by a cross-bar *n*. The stationary frame-work supports the machinery employed in transmitting power to the stave-leveling member D, which machinery preferably comprises a suitably supported horizontally arranged shaft R located above the cross-bar *n* and operatively connected with the said stave-leveling member which preferably is provided with two laterally and outwardly projecting cylindrical lugs *d* arranged at opposite sides respectively of the said stave-leveling member and in line endwise, and upright connecting rods T are journaled at their lower ends upon the lugs *d* and terminate at their upper ends in straps *t* which are mounted on or embrace corresponding eccentrics *r* formed on the shaft. The rods T extend through the cross-bar *n* which is suitably slotted as at *n'* to accommodate the location and operation of the said rods.

The shaft R (see Fig. 1) is provided with a suitably driven pulley P which is loosely mounted on the shaft, and a friction-clutch for establishing operative connection between the pulley and the shaft is provided

and comprises two companion members 15 and 16. The clutch-member 15 is rigid with the pulley and consequently movable longitudinally of the shaft toward and from the companion and relative stationary clutch member 16 which is suitably fixed to the shaft. The pulley P is provided with a hub *p* which has an external annular groove 20 engaged by the arm 17 of a bell-crank-lever which is fulcrumed, as at *u*, to the cross-bar *n* and is operatively connected at the outer end of its other arm 18 by an upright rod Q with a suitably supported foot-lever *w*. The rod Q is arranged alongside of one of the standards *m*, and a spiral spring *x* is mounted and confined on the said rod between a shoulder 22 formed on the upper end of the rod and a bracket 23 attached to the respective standard, which bracket is arranged a suitable distance below the said shoulder. The spring *x* acts to retain the rod Q and the connected bell-crank lever in position holding the connected clutch-member 15 out of operative engagement with the companion-clutch-member 16, as shown in Fig. 1.

The stave-leveling member D is shown arranged in its lower position, with the eccentrics *r* at the under side of the shaft. Upon the actuation of the foot-lever *w* against the action of the spring *x* the shiftable clutch-member 15 is shifted toward and into operative engagement with the companion clutch-member 16 to transmit motion from the pulley P to the shaft so as to result in the reciprocation of the stave-leveling member, but of course the arrangement of the parts is furthermore such that the barrel being operated on shall not be lifted off the barrel-centering member *l* during the stave-leveling operation.

By the construction hereinbefore described it will be observed that the rods T are correspondingly shifted in unison during the operation of the shaft R; that the stave-leveling member D is positively and rapidly operated, being positively actuated in opposite directions alternately, lifting the barrel during each upward movement of the said stave-leveling member, and intermittently delivering blows upwardly against the lower ends of the staves required to be leveled. The means employed for centering the barrel relative to the stave-leveling member D comprises also two forwardly and rearwardly extending parallel shafts K and L which are arranged horizontally a suitable distance above the barrel-centering member *l* and externally of the space to be occupied by a barrel which is to be operated on. The two shafts K and L are arranged at opposite sides respectively of the said space and preferably centrally between the upper and lower ends of the said space and suitably supported from the columns or standards *m*. Each of the said shafts K and L has two

arms 25 which in their barrel-centering position, as shown in solid lines, project upwardly and laterally inwardly from the shafts and engage the outer side of the barrel.

5 The barrel to be operated on is therefore engaged at suitable intervals circumferentially of the barrel by the shaft-arms 25. The arms 25 of both shafts K and L are simultaneously thrown inwardly into an
10 operative position or outwardly and thereby rendered inoperative according as the shafts are simultaneously oscillated in the required direction. Preferably the shaft L is provided at its rear end with an upwardly projecting arm 26, and the shaft K is provided
15 at its rear end with a downwardly projecting arm 27, and the two shaft-arms 26 and 27 are operatively connected together by a rod 28. The shaft K is operatively provided at
20 its forward end with a lever 29 for turning the shaft, which lever is provided with a poise or weight 30 employed in counterbalancing the barrel-centering shaft-arms 25. It will be observed therefore that all the
25 barrel-centering arms 25 are simultaneously actuated and are thrown into their barrel-engaging and operative position, as shown in Fig. 3 and in solid lines Fig. 1, or rendered inoperative, as shown in dotted lines, Fig. 1
30 according as the lever 29 is actuated in the one or the other direction.

Means for positively preventing circumferential displacement or play of the stave-leveling member D are provided and preferably comprise a plate 32 which is suitably
35 secured to the base A adjacent the outer end of one of the lugs *d* of the said stave-leveling member and provided with an upwardly projecting arm 33 which has a vertically arranged slot 34 into which the said lug projects, and the width of the said slot is such
40 relative to the width of the lug that the lug snugly but slidably fits between the side walls of the said slot so as to positively prevent displacement or play of the said
45 stave-leveling member circumferentially during the positive and rapid reciprocation or vibration of the said stave-leveling member, but the said slot is of course long enough to
50 accommodate the reciprocatory movement of the stave-leveling member.

What I claim is:—

1. In a barrel-leveling machine, a positively actuated vertically reciprocating
55 stave-leveling member provided at the top with a circular barrel-centering member and having a horizontally arranged top surface extending around the said barrel-centering member and forming a seat for the lower
60 ends of the staves to be leveled, said seat being rigid with the stave-leveling member which carries the barrel-centering member.

2. In a barrel-leveling machine, a vertically movable stave-leveling member pro-

vided at the top with barrel-centering means 65 and having a top surface arranged externally of the said barrel-centering means and forming a seat for the lower ends of the staves to be leveled, said seat being rigid with the
70 stave-leveling member which carries the barrel-centering member, and means whereby the said stave-leveling member may be raised and lowered alternately and rapidly and positively operated.

3. In a barrel-leveling machine, the combination, with a vertically movable stave-leveling member having a top surface forming a seat for the lower ends of the staves to be leveled and rigid with the said stave-leveling member, said stave-leveling member being
75 provided with two laterally and outwardly projecting lugs arranged at opposite sides respectively of the stave-leveling member; endwise reciprocatory upright rods operatively connected with the stave-leveling
80 member; endwise reciprocatory upright rods operatively connected with the stave-leveling member at the said lugs, and means for operating the said rods, of a stationary member having a vertical slot which is engaged by
85 one of the said lugs and has such width relative to the width of the engaging lug that the latter fits snugly between the side walls of but is slidable endwise of the slot during the reciprocation of the stave-leveling member. 95

4. In a barrel-leveling member, the combination, with a vertically movable stave-leveling member having a top surface forming a seat for the lower ends of the staves to be leveled and rigid with the said stave-leveling
100 member, said stave-leveling member being provided with two laterally and outwardly projecting lugs arranged at opposite sides respectively of the stave-leveling member, endwise reciprocatory upright rods operatively
105 connected with the stave-leveling member at the said lugs, and means for operating the said rods, of a base arranged under the stave-leveling member, and a stationary plate secured to the said base and provided with an
110 upright arm which has a vertical slot which is engaged by one of the aforesaid lugs and has such width relative to the width of the engaging lug that the latter fits snugly between the side walls of but is slidable endwise
115 of the slot during the reciprocation of the stave-leveling member.

5. In a barrel-leveling machine, the combination, with a suitably operated vertically movable stave-leveling member having a top
120 surface forming a seat for the lower ends of the staves to be leveled, of two suitably supported and forwardly and rearwardly extending parallel shafts arranged horizontally at opposite sides respectively of the space to
125 be occupied by a barrel placed upon the stave-leveling member, which shafts are provided with barrel-centering members which

in their operative position project upwardly
and laterally inwardly and are spaced cir-
cumferentially of and adapted to engage the
barrel to be operated on, said shafts being
5 provided at their rear ends the one with an
upwardly projecting arm and the other with
a downwardly projecting arm, and a rod con-
necting the said arms together, and one of
the said shafts being provided at its forward

end with means for operating the respective 10
shaft.

In testimony whereof, I sign the foregoing
specification, in the presence of two witnesses.

JOHN S. ORAM.

Witnesses:

C. H. DORER,

VICTOR C. LYNCH.