Oct. 12, 1926. 1,602,967

A. ENSSLIN

TUBBING MACHINE

Filed August 25, 1925 4 Sheets-Sheet 1

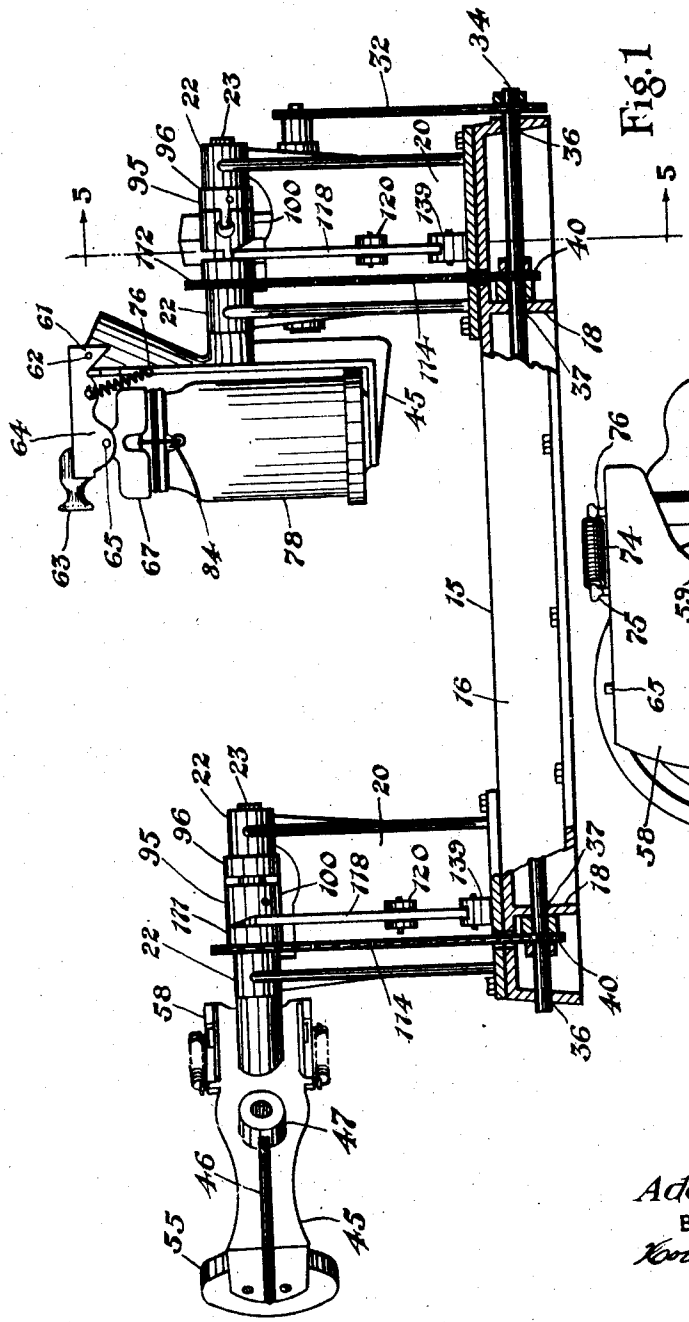


Fig. 1

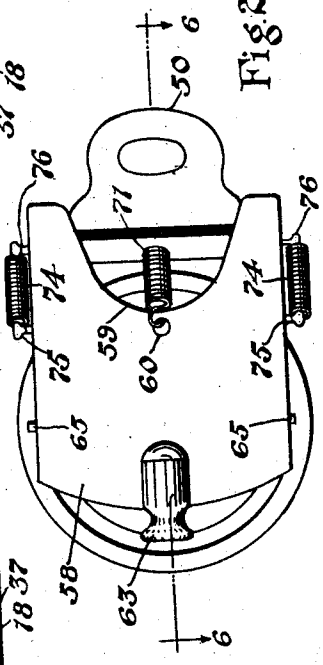


Fig. 2

INVENTOR
Adolf Ensslin
BY
Horatio E. Bellows
ATTORNEY

Oct. 12, 1926. 1,602,967

A. ENSSLIN

TUBBING MACHINE

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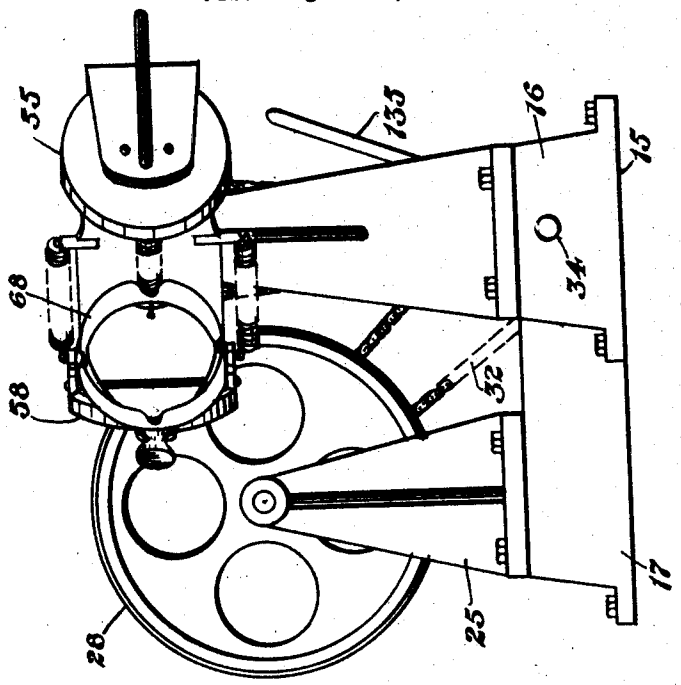


Fig. 4

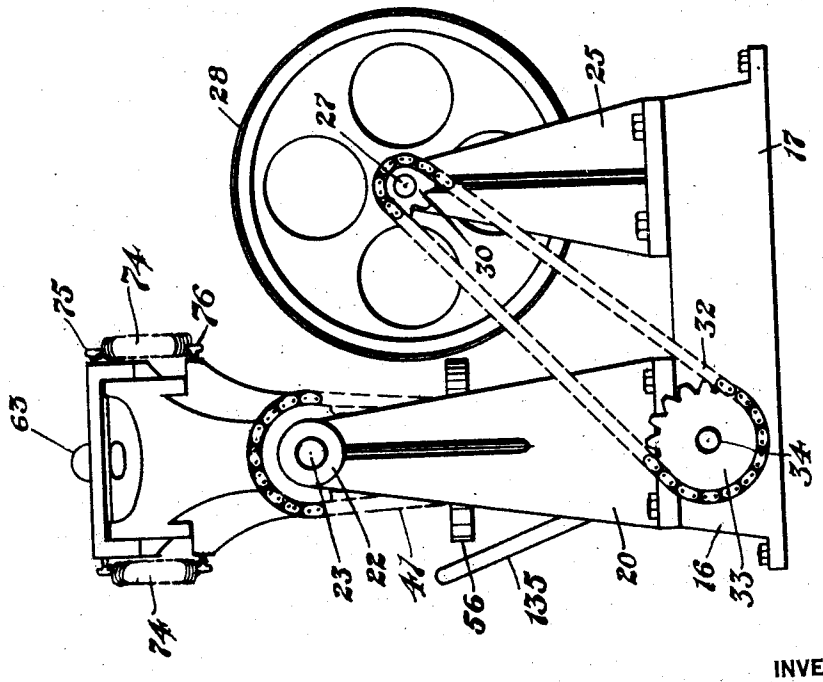


Fig. 3

INVENTOR
Adolf Ensslin
BY
Ignatius E. Bellows
ATTORNEY

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A. ENSSLIN

TUBBING MACHINE

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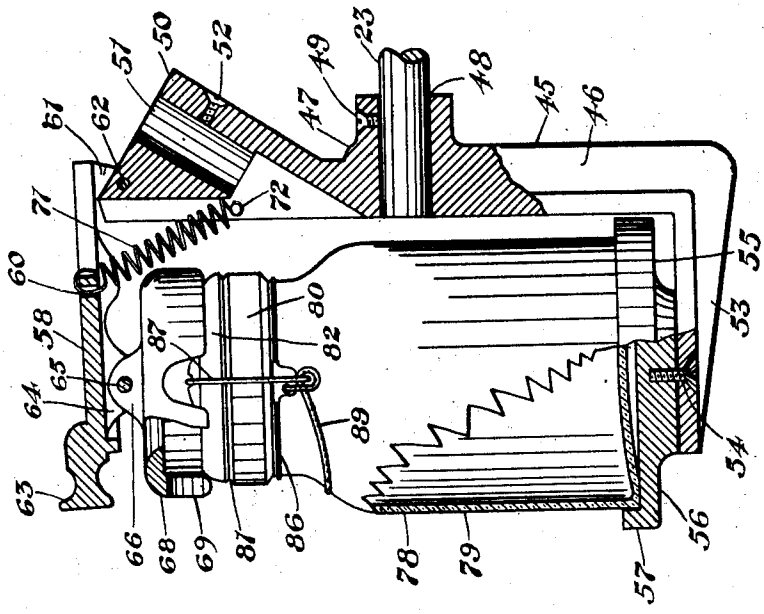


Fig. 6

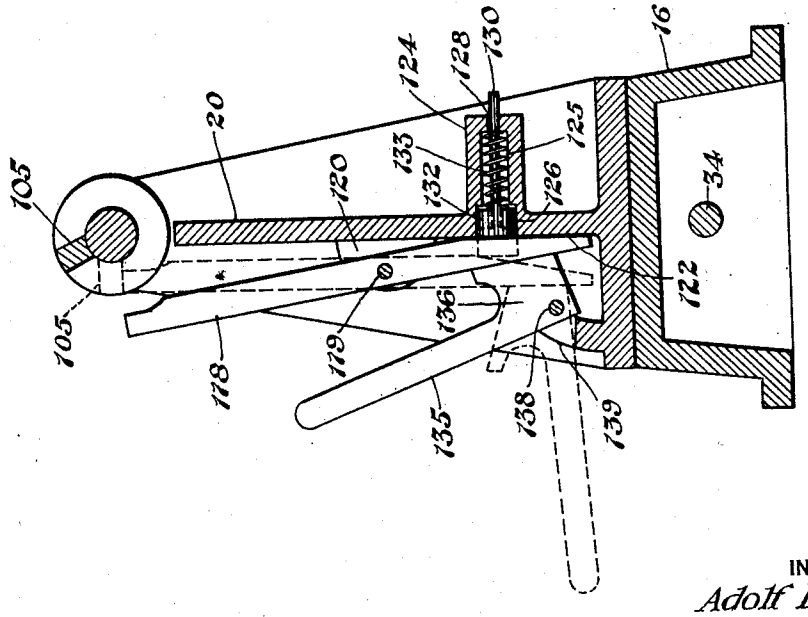


Fig. 5

INVENTOR
Adolf Ensslin
BY
Horatio E. Belcourt
ATTORNEY

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A. ENSSLIN

TUBBING MACHINE

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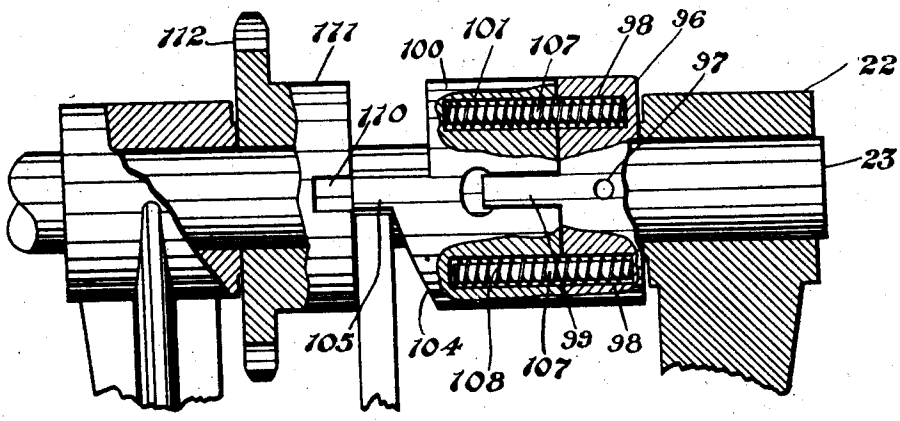


Fig. 7

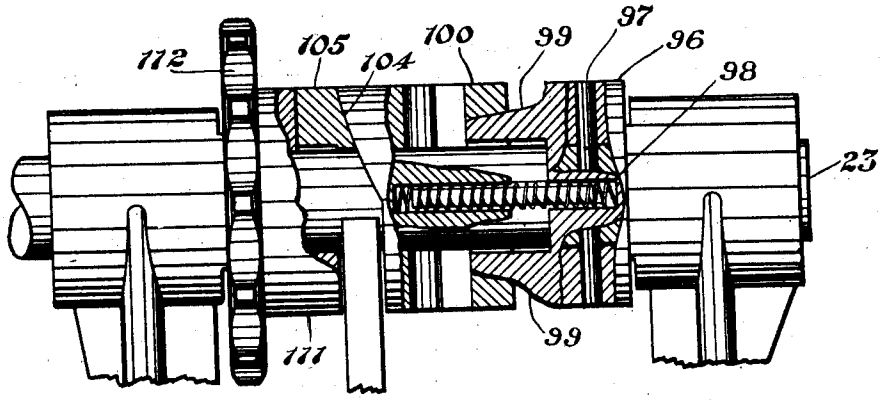


Fig. 8

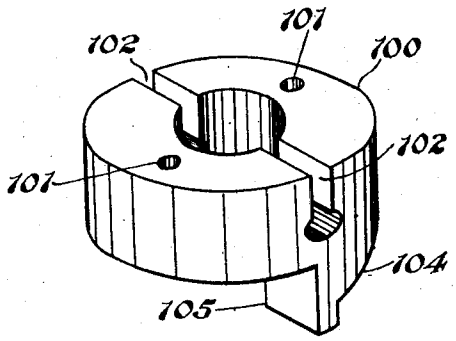


Fig. 9

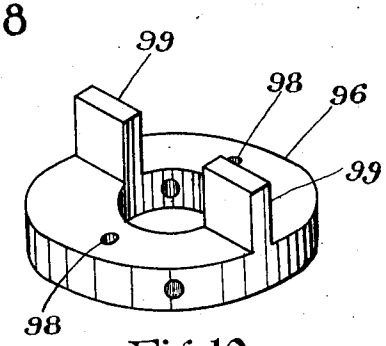


Fig 10.

INVENTOR
Adolf Ensslin
BY
Horatio E. Bellows
ATTORNEY

Patented Oct. 12, 1926. 1,602,967

UNITED STATES PATENT OFFICE.

ADOLF ENSSLIN, OF NORTH ATTLEBORO, MASSACHUSETTS.

TUBBING MACHINE.

Application filed August 25, 1925. Serial No. 52,471.

My invention relates to tumbling or tubbing machines for the purpose of polishing or smoothing articles.

Former machines of this character have consisted of barrels rotatable on trunnions. These were unsuited for operating on small articles, were slow in operation, difficult to recharge, expensive to operate, stained the contents, and were difficult to clean. The essential objects of my invention are to avoid the above disadvantages; to enable the ready substitution of containers; to adapt the carrier to frames or holders of various sizes; to increase the polishing and smoothing efficiency of the device; to insure accessibility of the containers; to enable the simultaneous operation in a single machine of a plurality of containers, and to permit rotation of one container to be discontinued without effecting the operation of the other containers; and to attain these objects in a simple, strong, and compact structure. Other novel features will be hereinafter apparent.

My invention consists in such parts and in such combinations of parts as fall within the scope of the appended claims.

In the accompanying drawings which form a part of this specification—

Figure 1 is a front elevation of a machine embodying my invention, showing a portion of the base broken away,

Figure 2, a top plan view of a holder and its container,

Figures 3 and 4, end elevations of my machine,

Figure 5, a section of the same on line 5—5 of Figure 1,

Figure 6, a section partly in side elevation, taken on line 6—6 of Figure 2,

Figure 7, a central longitudinal section, partially in side elevation, and partially broken away, of the clutch mechanism and parts adjacent thereto, the device being shown in position of rest,

Figure 8, a similar showing of the same, the parts being in position of operation, and

Figures 9 and 10, detail views of certain of the clutch members.

Like reference characters indicate like parts throughout the views.

The frame of my machine may be of the form best adapted for carrying the operating mechanism. In the form thereof herein shown a hollow base 15 comprises a front portion 16 and a rearwardly extending portion 17 disposed at right angles to the forward portion. In the portion 16 are webs or walls 18. Bolted to the forward portion of the base are one or more, in this instance two, standards 20 having bearings 22 for driven shafts 23. Bolted to the base portion 17 are supports 25 in which is journaled a driving shaft 27 having thereon a driving wheel or pulley 28 actuated from any convenient source of power. A sprocket wheel 30 on the shaft 27 engages a sprocket chain 32 which drives a sprocket wheel 33 fast to a main shaft 34 rotatably mounted in openings 36 and 37 in the end walls of the base and in the webs 18 respectively. Fast to the main shaft 34 are sprocket wheels 40 which through connections hereinafter detailed operate the driven shafts 23.

Upon one end of each shaft 23 is a carrier or bracket, indicated generally by 45. This comprises a back 46 having a central external elevation 47 provided with a hole or socket 48 to detachably receive the end of shaft 23 engaged by a binding screw 49 or by friction, or otherwise. Near one end of the back is a boss or shoulder 50 provided with a hole or socket 51 inclined with relation to the socket 48, and is adapted to detachably receive the shaft 23 if desired. In this case a set screw 52 is employed for this purpose. Integral with the other end of the back 46 is a flat horizontal supporting arm 53 upon which is fixed by a screw 54 a seat 55 comprising a disk 56 with a peripheral rim 57. A clamping plate 58 is attached to the opposite end of the back. This plate has a recess 59 in its rear portion adjacent which is a perforation 60. At opposite sides of the recess the plate has lateral lugs 61 pivoted to the back 45 by pins 62. Integral with the forward end of the plate is a projecting handle 63. Adjacent this a depending lateral lug 64 pivoted by pins 65 to upwardly directed lateral lugs 66 upon a cap 67 comprising a plate 68 and a depending peripheral flange 69. The member 67 is downwardly pressed by a spring 71 attached at one end through the perforation 60 and fixed at its other end to a pin 72 in the

back 45; also, by springs 74 attached at one end to pins 75 supported by the sides of the plate 58, and attached at their other ends to pins 76 in the back 45.

A container or receptacle 78 for the shot, powder, abrasive or cleansing material, as well as for the articles to be operated upon, comprises a glass jar or body 79 having upon its neck 80 a rubber ring or gasket 81 upon which rests a glass top or cover 82 held in position by an ordinary wire clamp 84 comprising a ring 86, bail 87, and operating loop 89.

When the containers are arranged in series they are preferably disposed at different axial positions relatively to each other on their respective shafts 23; and in some instances the shaft 23 of one container is inserted in the socket 51, as shown at the left in Figure 1, rather than in the socket 48, as shown at the right in said figure. In some instances more thorough results are secured by first mounting the socket 48 on the shaft 23, and next applying the socket 51 to the latter.

For the purpose of stopping any mechanical unit quickly, or for the purpose of stopping one only of a series of cooperating units a clutch device 95 is provided for each unit. In this case the clutch device is thus constructed. A collar 96 is fixed by a pin 97 or otherwise to the shaft 23 adjacent one of the bearings 22 and is provided with longitudinal cavities 98, and with lugs 99 upon its inner end face. The slidable member 100 of the clutch is in the form of a cylindrical sleeve or body upon the shaft 23 provided in one end face with cavities 101 adapted to register with the cavities 98, and with slots 102 adapted to slidably receive the lugs 99. The opposite end face of the member 100 is provided with a cam shoulder 104 and with a lug 105. Guide pins 107 loose in the cavities 98 and 101 are surrounded with helical or expansion springs 108. These springs whose ends engage the end walls of the cavities tend to force the lug 105 of the member 100 into a slot 110 in the end face of a hub 111 of a sprocket wheel 112 upon which a sprocket chain 114 is engaged and driven by one of the sprocket wheels 40, driven from the shaft 34.

The above described position of the clutch members, shown in Figure 8, is the normal, interengaged, or driving position enabling continuous rotation of the shaft 23. Means, however, are provided for throwing out or disengaging the clutch to enable the shaft 23 to come to rest at any desired instant. These consist, as shown in Figure 5, of the following means. An upright lever 118 is pivoted intermediate its length upon a pin 119 in ears 120 upon the front face of each standard 20, the lower portion of which is preferably beveled as at 122. A hollow horizontal cylindrical projection 124 integral with the rear face of the standard has a bore 125 with a portion 126 of increased diameter extending to the front face of the standard. The extension 124 has a hole 128 in its end. A plunger 130 in the bore of the extension has its end projecting through the hole and includes a head 132 in the enlarged portion of the bore against which abuts one end of a helical spring 133 surrounding the plunger shank, and whose opposite end presses against the end wall of the bore. The lower portion of the lever 118 is in contact with the head portion 132 of the plunger. A hand lever for controlling the lever 118 consists of a handle arm 135 with an angular cam 136 upon its end. The latter is pivotally mounted on a pin 138 in ears 139 upon the standard. The cam 136 has one face in engagement with the lever 118 to hold the beveled portion of the same against the face of the standard against the pressure of the spring 133. In this position the upper end of the lever 118 is held away from engagement with the clutch mechanism. To throw out the clutch the lever arm 135 is manually depressed to the position shown in broken lines permitting the plunger 130 to force the upper portion of the lever 118 into the path of the cam end 104 and thus force the clutch member 100 towards the member 96 and withdraw the lug 105 from its seat 110 free of the member 111, in the position shown in Figure 7.

I claim:—

1. In a tubbing machine, a driving shaft, a driven shaft, a bracket provided with a socket intermediate its length and with a socket inclined with relation to the first socket, both of said sockets being adapted to receive the end of the driven shaft, and a container mounted in the bracket.

2. In a tubbing machine, a driving shaft, a driven shaft, a bracket comprising a back provided with a socket in which the shaft is seated, a supporting arm upon one end of the back, a seat upon the arm, and a clamping plate yieldingly attached to the other end of the back, a cap pivotally mounted upon the clamping plate, and a container resting upon the seat and engaged by the cap.

3. In a tubbing machine, a driving shaft, a driven shaft, a bracket comprising a back fast to the driven shaft, a seat supported by the back, a plate yieldingly mounted upon the back spaced from the seat, a container comprising a body resting upon the seat, a cover on the body retained by the plate, and a clamp upon the body engaging the cover.

4. In a tubbing machine, a driving shaft, a driven shaft, and containers arranged in series, a carrier member, and angularly dis-

posed shaft sockets for the disposition of said containers at different axial positions relatively to each other on their respective shafts.

5. In a tubbing machine, a driving shaft, a driven shaft, independently rotatable containers arranged in series, a carrier member and angularly disposed shaft sockets for the disposition of said containers at different axial positions relatively to each other on their respective shafts.

In testimony whereof I have affixed signature.

ADOLF ENSSLIN.