Aug. 12, 1952 E. B. BANKS ET AL 2,606,408

TUMBLING MACHINE

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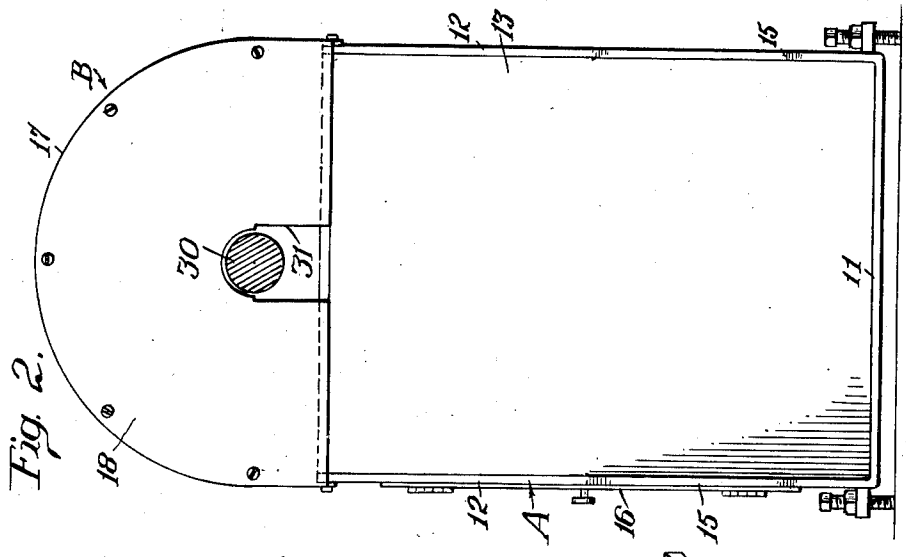


Fig. 2.

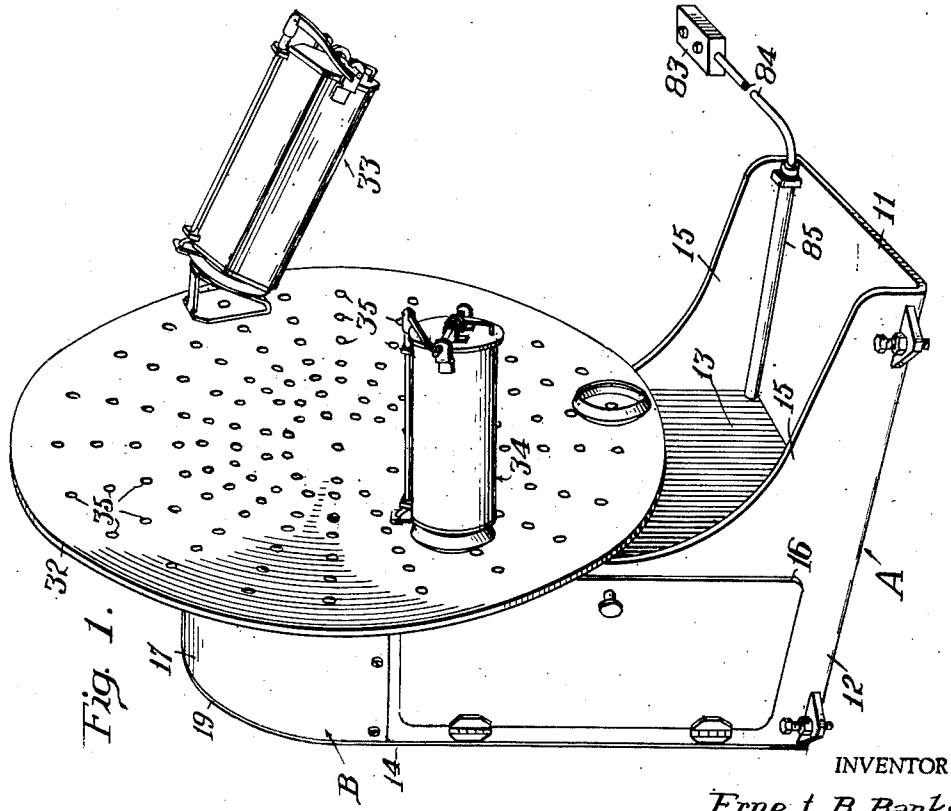


Fig. 1.

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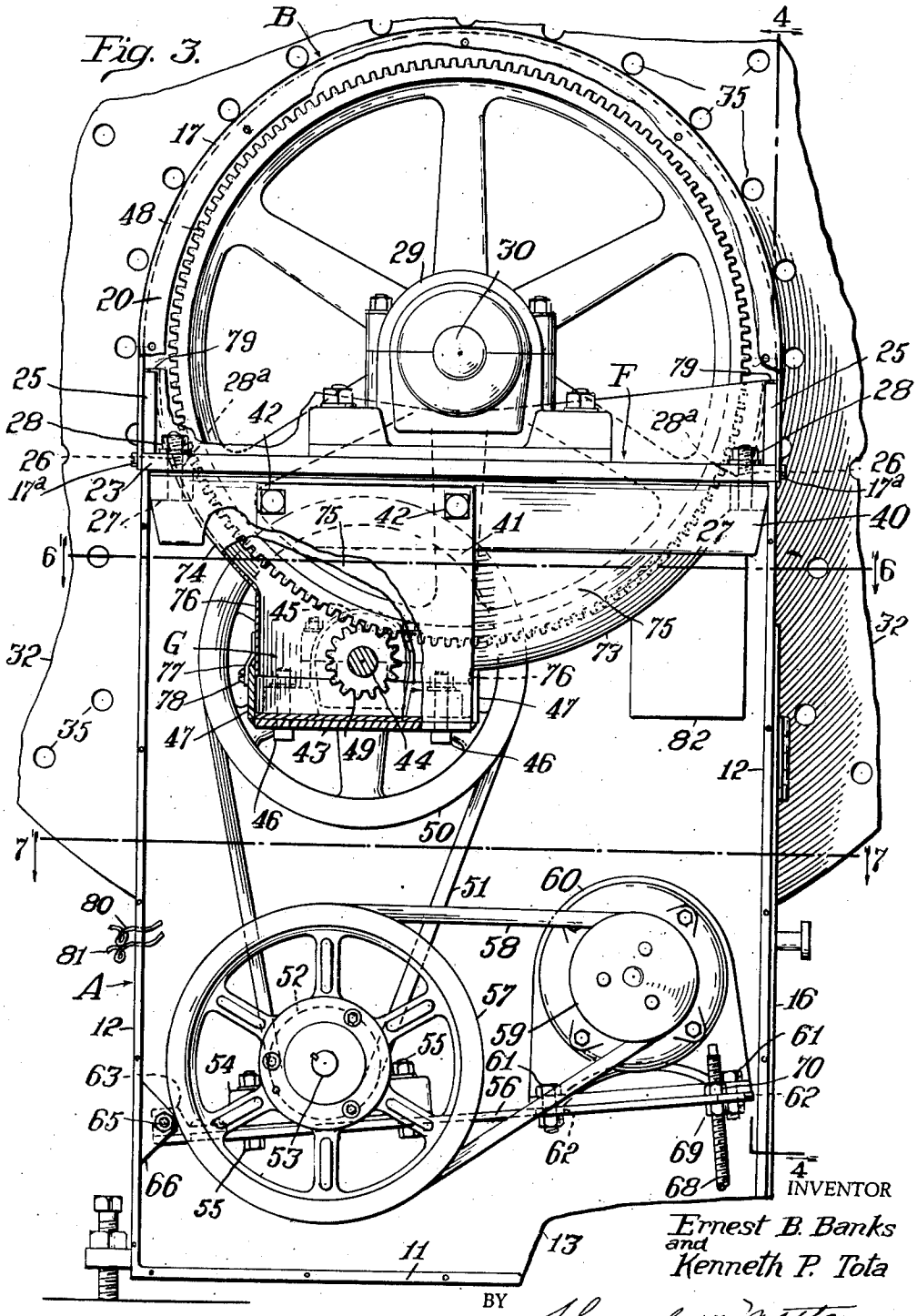
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TUMBLING MACHINE

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Fig. 3.



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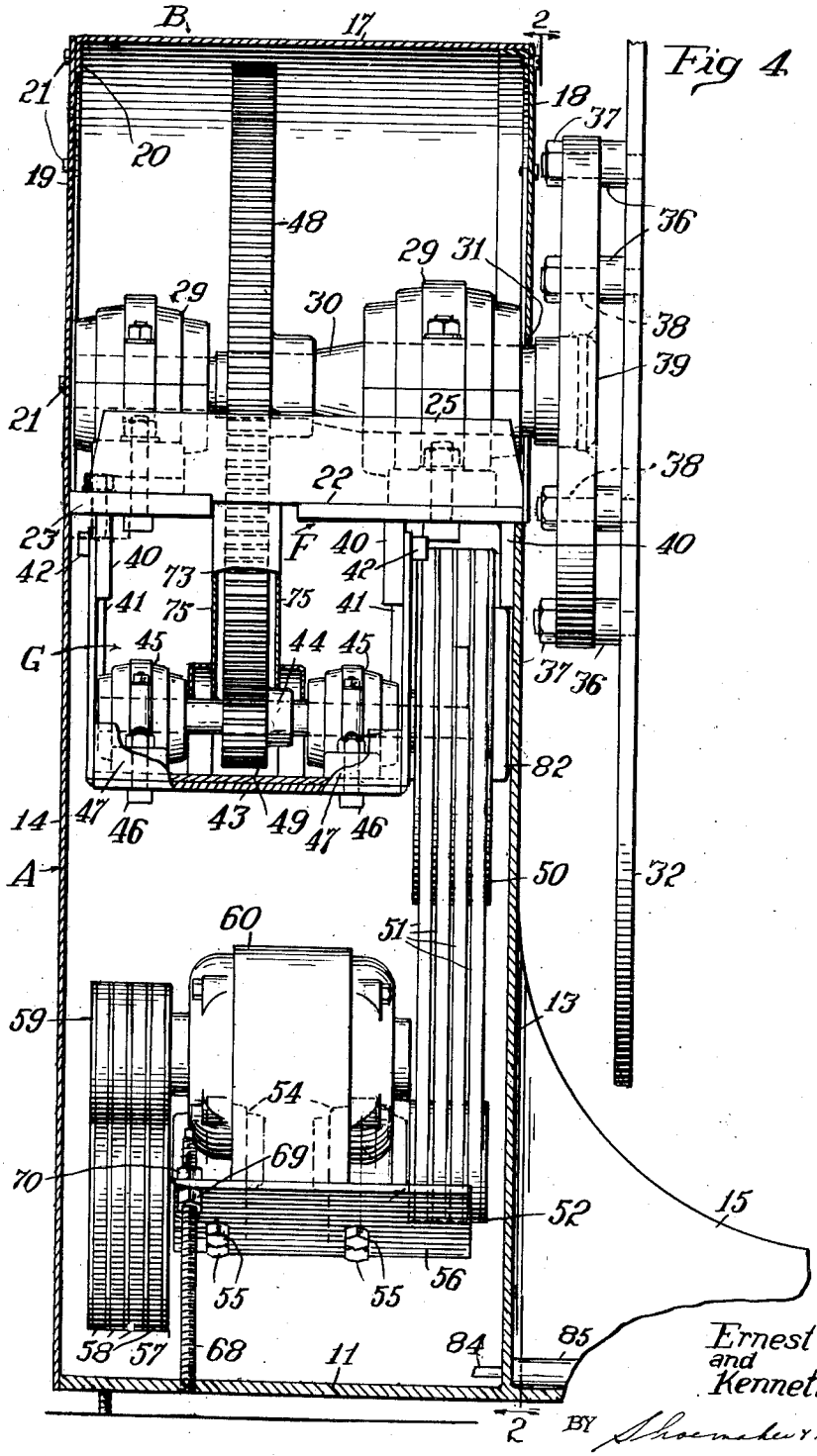
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TUMBLING MACHINE

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Fig 4.



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Aug. 12, 1952 E. B. BANKS ET AL 2,606,408

TUMBLING MACHINE

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Fig. 5

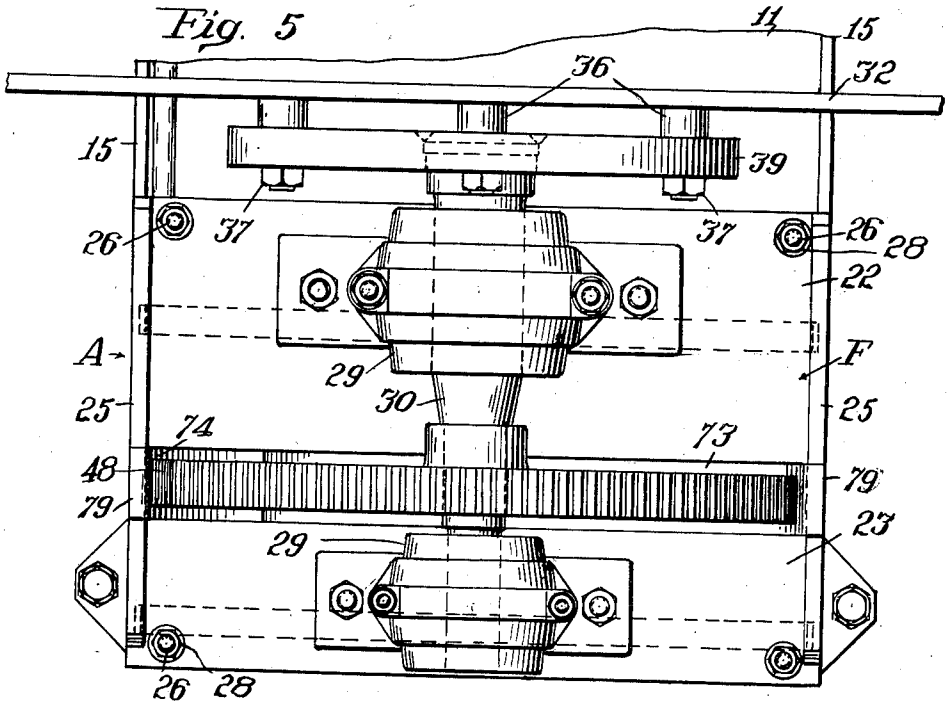
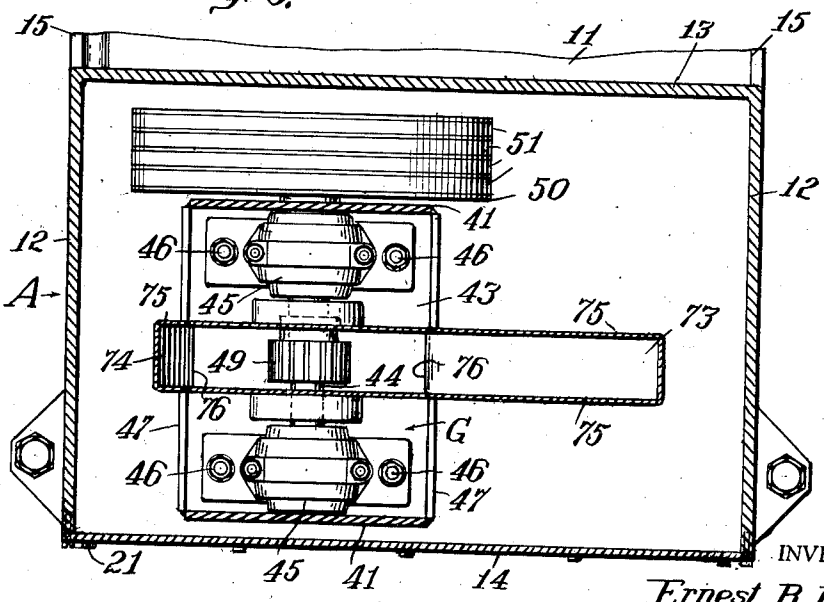


Fig. 6.



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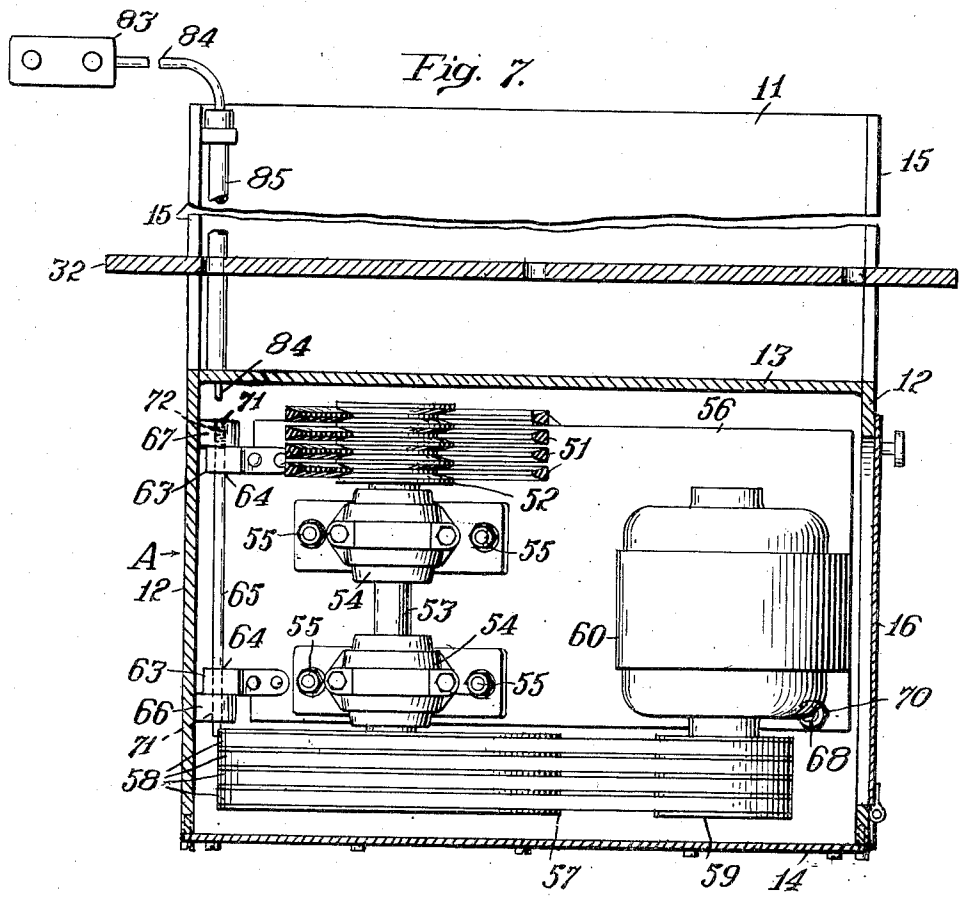
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TUMBLING MACHINE

Filed June 27, 1949 6 Sheets-Sheet 5

Fig. 7.



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Aug. 12, 1952 E. B. BANKS ET AL 2,606,408

TUMBLING MACHINE

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Fig. 8.

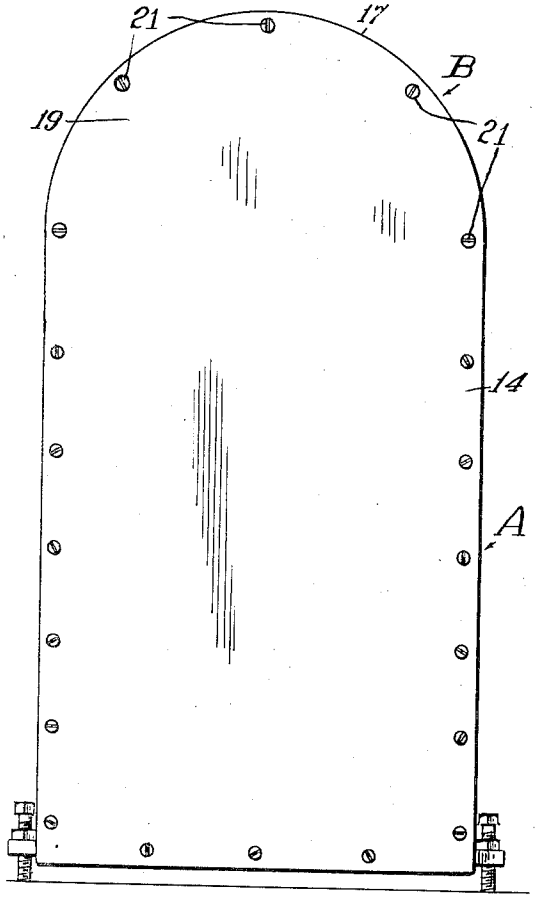


Fig. 9.

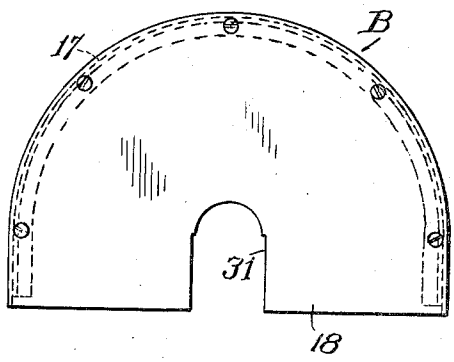
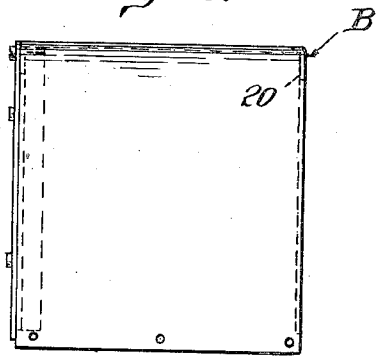


Fig. 10.



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Patented Aug. 12, 1952

2,606,408

UNITED STATES PATENT OFFICE

2,606,408

TUMBLING MACHINE

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Application June 27, 1949, Serial No. 101,623

16 Claims. (Cl. 51—164)

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This invention relates to improvements in tumbling machines particularly adapted for deburring and polishing objects.

The invention comprehends a tumbling machine having a relatively large vessel carrier of disc-like form fixed on the projecting end portion of a rotary shaft and adapted to have mounted thereon at the outer unobstructed side thereof a plurality of tumbling vessels, the rotary shaft or spindle being mounted in bearings located at the rear side of the vessel carrier.

Objects of the invention are to provide an improved machine of the general character referred to; to provide improved means for supporting the shaft for rotation and improved driving means therefor, whereby a highly efficient, smooth-running, serviceable machine is afforded.

Another object of the invention is to provide a tumbling machine including protected operating mechanism for rotating a vessel carrier, and means for individually attaching to and removing a plurality of tumbling vessels from the vessel carrier.

Another object of the invention is to provide a tumbling machine including an enclosed operating mechanism for rotating a vessel carrier, and means for individually attaching to and removing a plurality of tumbling vessels from the vessel carrier.

Another object of the invention is to provide a cabinet for a tumbling machine of the general character referred to that will serve to protect the operating means for the rotary spindle and also as a protection against injury to operators and workmen in the vicinity of the machine.

Another object of the invention is to provide a cabinet adapted to have mounted therein the bearings for the vessel carrier spindle as well as the driving means therefor that will provide for easy assembly of the parts and ready access thereto, and that will also provide a firm support for the machine.

Still another object of the invention is to provide spindle mounting and driving means therefor arranged as separate units convenient for handling and individually removably mounted in the cabinet, thereby facilitating easy assembly of the spindle mounting and spindle driving means in the cabinet, and the removal of the same and the substitution of similar units.

The invention, with other objects, novel features and advantages thereof, and the particular construction, combinations and arrangements of parts comprising the same will be understood from the hereinafter contained detailed description when considered in connection with the accompanying drawings forming part hereof and illustrating one embodiment of the invention.

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In the drawings:

Fig. 1 is a front perspective view of a tumbling machine constructed in accordance with the present invention;

Fig. 2 is a vertical section on the line 2—2 of Fig. 4, the cabinet being shown in front elevation;

Fig. 3 is a rear elevation, on an enlarged scale, with the back plate of the cabinet removed, the vessel carrier and the lower part of the casing being shown broken away;

Fig. 4 is a vertical section taken substantially on the line 4—4 of Fig. 3 looking in the direction of the arrow, the vessel carrier being shown without the tumbling vessels;

Fig. 5 is a top plan view with the top section of the cabinet removed;

Fig. 6 is a horizontal section on the line 6—6 of Fig. 3, looking in the direction of the arrows;

Fig. 7 is a horizontal section on the line 7—7 of Fig. 3, looking in the direction of the arrows;

Fig. 8 is a rear elevation, on a smaller scale;

Figs. 9 and 10 are respectively a detail front elevation and an end elevation, to a smaller scale, of the cover section of the cabinet.

While a preferred embodiment of the invention is illustrated in the drawings, it will be understood that minor changes and modifications may be made in the particular construction shown, and the invention may be embodied in other forms as will appeal to those skilled in the art and falling within the scope of the appended claims without departing from the spirit of the invention.

Referring to a detailed description of the particular embodiment of the invention illustrated in the drawings, A generally designates the main part of the cabinet. This main part A is rectangular in cross section, the same comprising an elongated rectangular shaped base 11, side walls 12, a front wall 13 and a back plate 14, the front wall 13 being located a substantial distance rearwardly of the front end of the base 11, and the side walls 12 having reduced extensions 15 extending forwardly of the front wall 13 to the front end of the base 11 and forming bracing means, the side walls 12 and front wall 13 being rigidly secured to each other and to the base. One of the side walls 12 is provided with a hinged door 16. The cabinet has a removable top or cover section B comprising a semi-circular shaped top wall 17 and a front wall 18. The back plate 14 is removable and has an upper extension 19 to fit against an inwardly extending rear marginal flange 20 on the top or cover section B and forming a back wall therefor, the back plate 14 being detachably secured by screws 21 to the side walls 12 and the flange 20 on the cover section B.

The cabinet is preferably constructed of sheet steel.

Removably mounted on the side walls 12 of the cabinet, at the upper ends thereof, is a rectangular shaped frame F comprising horizontally disposed longitudinal plates 22 and 23 connected by transverse end bars 25 fitting on top of said plates and suitably secured thereto. As shown in Fig. 3 of the drawings, the end portions of the longitudinal plates 22 and 23 fit upon the upper ends of the side walls 12, and means is provided for detachably securing said plates to the side walls. Any suitable means may be employed for this purpose, that shown in the drawings comprising threaded studs 26 projecting upwardly from lugs 27 on the side walls 12 at the inner side thereof, and nuts 28 on said studs, the studs engaging apertures 28*a* in the plates 22 and 23.

On the plates 22 and 23, are two bearings 29 in which is supported for rotation a shaft or spindle 30. The rotary shaft or spindle 30 projects through a slot 31 in the front wall 18 of the removable cover section B forwardly thereof. On the projecting end portion of the spindle 30 is mounted a relatively large vessel carrier 32 of disc-like form adapted to have mounted thereon a plurality of tumbling vessels of various shapes and sizes. In the drawings, is shown by way of example, two tumbling vessels 33 and 34, the tumbling vessels each being individually detachably secured at one end on the carrier. The carrier is shown provided with a multiplicity of apertures 35 to receive fastening members for securing tumbling vessels thereon.

The vessel carrier 32 is detachably and rigidly connected with the projecting end portion of the spindle 30 so that it is disposed forwardly of the front end of the same with its central part spaced therefrom. The carrier is connected with the projecting end portion of the spindle 30 by studs 36 on the carrier and nuts 37 on the studs, the studs projecting rearwardly from the carrier and extending through apertures 38 in a disc 39 secured to the end of the spindle 30.

Suitably secured to each of the plates 22 and 23 at the under side thereof is a horizontal bar 40. A pair of oppositely disposed vertical plates 41 are secured at their upper ends by bolts 42 to the longitudinal bars 40, said plates supporting at their lower ends a horizontally disposed plate 43 to provide a support for a shaft 44, said shaft being mounted for rotation in bearings 45 secured on the plate 43 by bolts 46. At the sides of the plate 43 are longitudinal vertically disposed plates 47. The ends of the plate 43 are secured by welding to the lower ends of the vertical plates 41, and the longitudinal vertically disposed side plates 47 are suitably joined at their lower marginal portions to the horizontal plate 43, and at their ends to the adjacent lower marginal portions of the vertical plates 41 to provide a reservoir G for lubricant.

Means for driving the spindle 30 is provided comprising a gear wheel 48 fixed on the spindle and meshing with a pinion 49 fixed on the shaft 44. On the forward end of the shaft 44 is a V groove type pulley 50 that is connected by V belts 51 with a smaller V groove type pulley 52 on one end of a shaft 53 that is mounted for rotation in bearings 54 secured by bolts 55 on a platform 56. On the other end of the shaft 53 is a larger similar type pulley 57, which is connected by belts 58 to a smaller drive pulley 59 of an electric motor 60 secured on the platform 56 by bolts 61, the base of the motor having elongated slots 62 therein for engagement by said bolts to provide for longitudinal adjustment of the motor 60 on the platform 56 to tighten the belts 58.

Secured to one end of the platform 56 are hinge members 63 having bearings 64 pivotally engaging a rod 65 supported in brackets 66 and 67 on a side wall 12 of the cabinet, the platform 56 being thus mounted for arcuate movement about the rod 65 to tighten the belts 51. The platform 56 is adjustably supported at its other end by a rod 68 extending upwardly from the base 11 through an aperture in the platform with nuts 69, 70 on the upper part of the rod disposed respectively at the upper and under sides of the platform 56. The brackets 66 and 67 each have an aperture 71 to receive the rod 65. The wall of the aperture 71 in the bracket 67 is threaded and the rod 65 has a threaded inner end portion 72 to detachably engage said aperture so that by applying a wrench to the outer square end of the rod 65 and turning the same to disengage its threaded end portion 72 from the bracket 67, the rod can be readily withdrawn from engagement with the brackets 66 and 67, and the hinge members 63. Then, by removing the upper nut 70 from the screw rod 68 and disengaging the other end of the platform 56 from the screw rod 68, the pulley 52 can be disengaged from the belts 51, and the platform 56 with the motor 60, and pulleys 52, 57 thereon, can be bodily removed rearwardly from the cabinet, the back plate 14 having been previously removed.

The cover section B, in addition to being secured to the extension 19 of the back plate 14, is detachably secured at side marginal portions of its top wall 17 by screws 17*a* to the outer end faces of the plates 22 and 23. By removing the cover section B and unscrewing the nuts 28 from the studs 26, the frame F with the spindle, spindle bearings and the lower hanger plates 41 with the parts carried thereby, can be lifted bodily upwardly out of the cabinet.

It will be noted that by the particular construction and arrangement of parts hereinbefore described, that the spindle 30, its mounting and the spindle driving means and motor are in the form of two separate easily handled units, each readily removable from and replaceable within the cabinet, and each of said units can be removed and replaced without removing the other.

The electric motor 60 is of the conventional type having a built-in brake but instead of employing a motor with a built-in brake, a motor without a built-in brake may be used together with appropriate automatic mechanical brake mechanism.

Curved troughs 73 and 74 extending laterally from the side plates 47 of the reservoir G along the under side of the gear wheel 48 are provided to catch therein lubricant dropping from said gear wheel and convey it back to the lubricant reservoir. The side walls 75 of said troughs extend inwardly beyond the side plates 47 and join with each other at their inner ends. The bottom wall of each of the troughs 73, 74 has at its inner end a depending portion 76 overlapping and fitting on one of the side plates 47, and the depending portion 76 of one of the troughs is detachably fastened to the adjoining side plate 47 by a clip 77 and a screw 78. Each of the troughs 73, 74 has at its outer end an outwardly extending flange 79 resting upon one of the end bars 25 of the frame F.

80 and 81 designate conductors extending through a side wall 12 of the cabinet for supply-

ing current to the motor 60. For the sake of clearness, the conductors 80, 81 are not shown extending to the motor. 82 is a motor protector overload relay of conventional construction, interposed in the circuit in the usual way. A motor control switch 83 of any suitable construction is located exteriorly of the cabinet and connected to the motor 60 by a length of conductor cord 84 extending through a casing 85 on the base 11 to the interior of the cabinet.

What we claim is:

1. A tumbling machine including a cabinet comprising a main substantially rectangular shaped section having a base and front, back and side walls extending upwardly from the base and said cabinet having a removable cover section, a substantially rectangular shaped frame within the cabinet removably supported on the side walls of said main section at the upper part thereof and removable vertically from said main section when the cover section is removed, a shaft mounted for rotation on said frame intermediate the ends thereof, said shaft extending from front to rear of the cabinet with one end portion thereof projecting forwardly of the front wall of the cabinet, a vessel carrier mounted on the projecting end portion of said shaft forwardly of the front wall of the cabinet, and driving means for said shaft located within the cabinet and including a rotary drive member fixed on said shaft.

2. A tumbling machine including a cabinet comprising a main substantially rectangular shaped section having a base, and front, back and side walls extending upwardly from the base, and said cabinet having a removable cover section, a substantially rectangular shaped frame within the cabinet removably supported on the upper ends of the side walls of the main section of the cabinet and removable vertically from the main section when the cover section is removed, the end portions of said frame resting upon the upper ends of the side walls, a shaft mounted for rotation on said frame intermediate the ends thereof, said shaft extending from front to rear of the cabinet with one end portion thereof projecting forwardly of the front wall of the cabinet, a vessel carrier mounted on the projecting end portion of said shaft forwardly of the front wall of the cabinet, and driving means for said shaft located within the cabinet and including a rotary drive member fixed on said shaft.

3. A tumbling machine including a cabinet comprising a main section having a base, and front, back and side walls extending upwardly from the base, and said cabinet having a removable top, a frame removably supported on said main section at the upper part thereof, a horizontal support located below said frame and carried thereby, a spindle mounted for rotation on said frame extending from front to rear of the cabinet with one end projecting forwardly of the front wall of the cabinet, a vessel carrier mounted on the projecting end portion of the spindle forwardly of the front wall of the cabinet, and driving means for the spindle located within the cabinet and including a countershaft mounted for rotation on said support, a drive connection between the countershaft and the spindle, a pulley fixed on said shaft, a motor mounted within the lower part of the cabinet, and a detachable belt drive connection between the motor and said pulley, said frame and the parts mounted thereon being removable and replaceable as a unit from the upper end of the main cabinet section.

4. A tumbling machine including a cabinet comprising a main section having a base, and front, back and side walls extending upwardly from the base, and said cabinet having a removable top, a frame removably supported on said main section at the upper part thereof, a horizontal support located below said frame and carried thereby, a spindle mounted for rotation on said frame extending from front to rear of the cabinet with one end projecting forwardly of the front wall of the cabinet, a vessel carrier mounted on the projecting end portion of the spindle forwardly of the front wall of the cabinet, and driving means for the spindle located within the cabinet and including a gear wheel fixed on the spindle, a countershaft mounted for rotation on said support, a gear pinion fixed on the countershaft meshing with said gear wheel, and a pulley fixed on the countershaft, said frame and the parts mounted thereon being removable and replaceable as a unit from the upper end of the cabinet.

5. A tumbling machine including a cabinet comprising a main section having a base, and front, back and side walls extending upwardly from the base, and said cabinet having a removable top, a frame removably supported on said main section at the upper part thereof, a horizontally disposed plate located below said frame and carried thereby, a spindle mounted for rotation on said frame extending from front to rear of the cabinet with one end projecting forwardly of the front wall of the cabinet, a vessel carrier mounted on the projecting end portion of the spindle forwardly of the front wall of the cabinet, and driving means for the spindle located within the cabinet and including a gear wheel fixed on the spindle, a countershaft mounted for rotation on said plate, a gear pinion fixed on the countershaft meshing with said gear wheel, said plate having marginal side walls forming therewith a lubricant reservoir, and a pulley fixed on the countershaft, said frame and the parts mounted thereon being removable and replaceable as a unit from the upper end of the cabinet.

6. A tumbling machine including a cabinet comprising a main section having a base, and front, back and side walls extending upwardly from the base, and said cabinet having a removable top, a frame removably supported on said main section at the upper part thereof, a horizontally displosed plate located below said frame and carried thereby, a spindle mounted for rotation on said frame extending from front to rear of the cabinet with one end projecting forwardly of the front wall of the cabinet, a vessel carrier mounted on the projecting end portion of the spindle forwardly of the front wall of the cabinet, and driving means for the spindle located within the cabinet and including a gear wheel fixed on the spindle, a countershaft mounted for rotation on said plate, a gear pinion fixed on the countershaft meshing with said gear wheel, said plate having marginal side walls forming therewith a lubricant reservoir, curved troughs extending from opposite sides of the reservoir at the underside of said gear wheel to return lubricant dripping from said gear wheel back to the reservoir, and a pulley fixed on the countershaft, said frame and the parts mounted thereon being removable and replaceable as a unit from the upper end of the cabinet.

7. A tumbling machine including a cabinet comprising a main section having a base, and front, back and side walls extending upwardly

from the base, and said cabinet having a removable top, a frame removably supported on said main section at the upper part thereof, a horizontal support located below said frame and carried thereby, a spindle mounted for rotation on said frame extending from front to rear of the cabinet with one end projecting forwardly of the front wall of the cabinet, a vessel carrier mounted on the projecting end portion of the spindle forwardly of the front wall of the cabinet, and driving means for the spindle located within the cabinet and including a gear wheel fixed on the spindle, a countershaft mounted for rotation on said support, a gear pinion fixed on the countershaft meshing with said gear wheel, a pulley fixed on the countershaft, a motor mounted within the lower part of the cabinet, a shaft mounted for rotation in the lower part of the cabinet, two pulleys fixed on said shaft, a belt connecting one of said pulleys with the drive pulley of the motor, and a belt connecting the other pulley with the pulley on the countershaft, said frame and the parts mounted thereon being removable and replaceable as a unit from the upper end of the cabinet.

8. A tumbling machine including a cabinet comprising a main section having a base, and front, back and side walls extending upwardly from the base, one of said walls being removable, and said cabinet having a removable top part, a frame removably supported on said main section at the upper part thereof, a horizontal support located below said frame and carried thereby, a spindle mounted for rotation on said frame extending from front to rear of the cabinet, one end thereof projecting forwardly of the front wall of the cabinet, a vessel carrier mounted on the projecting end of the spindle forwardly of the front wall of the cabinet, and driving means for the spindle located within the cabinet and including a countershaft mounted for rotation on said support, a drive connection between the countershaft and the spindle, a pulley fixed on said shaft, a platform removably mounted in the lower part of the cabinet adapted to be moved laterally into and out of the same when said removable wall of the cabinet has been removed, an electric motor mounted on said platform, a shaft mounted for rotation on the platform, two pulleys fixed on said shaft, a belt connecting one of said pulleys and the drive pulley of the motor, and a belt connecting the other of said pulleys and the pulley on said countershaft.

9. A tumbling machine including a cabinet comprising a main section having a base, and front, back and side walls extending upwardly from the base, the back wall being removable, and said cabinet having a removable top part, a frame removably supported on said main section at the upper part thereof, a horizontal support located below said frame and carried thereby, a spindle mounted for rotation on said frame extending from front to rear of the cabinet with one end thereof projecting forwardly of the front wall of the cabinet, a vessel carrier mounted on the projecting end portion of the spindle forwardly of the front wall of the cabinet, and driving means for the spindle located within the cabinet and including a countershaft mounted for rotation on said support, a drive connection between said shaft and the spindle, a pulley fixed on said shaft, an elongated platform having a detachable hinge connection at one end with a side wall of the casing, means detachably connected with the other end of the platform and supporting the same for vertical adjustment, an electric motor mounted on the platform at one end thereof, a shaft mounted for rotation on the platform at the other end thereof, two pulleys fixed on said shaft, a belt connecting one of the pulleys and the drive pulley of the motor, and a belt connecting the other of said pulleys and the pulley on said countershaft, said platform with the parts mounted thereon being movable as a unit into and out of said cabinet from the back thereof when the back plate is removed.

10. A tumbling machine including a cabinet comprising a main section having a base, and front, back and side walls extending upwardly from the base, the back wall being removable, and said cabinet having a removable top part, a frame removably supported on said main section at the upper part thereof, a horizontal support located below said frame and carried thereby, a spindle mounted for rotation on said frame extending from front to rear of the cabinet with one end thereof projecting forwardly of the front wall of the cabinet, a vessel carrier mounted on the projecting end portion of the spindle forwardly of the front wall of the cabinet, and driving means for the spindle located within the cabinet and including a countershaft mounted for rotation on said support, a drive connection between said shaft and the spindle, a pulley fixed on said shaft, an elongated platform having a detachable hinge connection at one end with a side wall of the casing, said platform having an aperture in the other end portion thereof, means detachably connected with the other end of the platform and supporting the same for vertical adjustment, said means including a threaded rod connected at one end to the base of the cabinet, the rod extending through the aperture in the platform, and nuts on said rod at the upper and under side of the platform, an electric motor mounted on the platform at one end thereof, a shaft mounted for rotation on the platform at the other end thereof, two pulleys fixed on said shaft, a belt connecting one of the pulleys and the drive pulley of the motor, and a belt connecting the other of said pulleys and the pulley on said countershaft, said platform with the parts mounted thereon being movable as a unit into and out of said cabinet from the back thereof when the back plate is removed.

11. A tumbling machine including a cabinet comprising a main section having a base, and front, back and side walls extending upwardly from the base, the back wall being removable, and said cabinet having a removable top part, a frame removably supported on said main section at the upper part thereof, a horizontal support located before said frame and carried thereby, a spindle mounted for rotation on said frame extending from front to rear of the cabinet with one end thereof projecting forwardly of the front wall of the cabinet, a vessel carrier mounted on the projecting end portion of the spindle forwardly of the front wall of the cabinet, and driving means for the spindle located within the cabinet and including a countershaft mounted for rotation on said support, a drive connection between said shaft and the spindle, a pulley fixed on said shaft, an elongated platform having a hinge connection at one end with a side wall of the casing, said hinge connection comprising a pair of hinge members on said end of the platform, a pair of brackets on the side wall arranged in transverse alignment and provided with aligned bearings, and a pintle rod detachably

engaging said hinge members and bracket bearings, an electric motor mounted on the platform at one end thereof, a shaft mounted for rotation on the platform at the other end thereof, two pulleys fixed on said shaft, a belt connecting one of the pulleys and the drive pulley of the motor, and a belt connecting the other of said pulleys and the pulley on said countershaft, said platform with the parts mounted thereon being movable as a unit into and out of said cabinet from the back thereof when the back plate is removed.

12. A tumbling machine including a cabinet comprising a main section having a base, and front, back and side walls extending upwardly from the base, and said cabinet having a removable top, a frame removably supported on said main section at the upper part thereof, vertical plates extending downwardly from said frame at opposite sides thereof, a horizontally disposed plate secured to the lower ends of said vertical plates, a spindle mounted for rotation on said frame extending from front to rear of the cabinet with one end projecting forwardly of the front wall of the cabinet, a vessel carrier mounted on the projecting end portion of the spindle forwardly of the front wall of the cabinet, and driving means for the spindle located within the cabinet and including a countershaft mounted for rotation on said support, a drive connection between the countershaft and the spindle, and a pulley fixed on said shaft, said frame and the parts mounted thereon being removable and replaceable as a unit from the upper end of the main cabinet section.

13. A tumbling machine including a cabinet comprising a main elongated vertically extending section having a supporting base and front, back and side walls extending upwardly from the base, said main section being rectangular shape in cross section of substantially greater height than width, and of substantially less depth than width, and said cabinet having a top section extending upwardly from the upper end of said main section, a horizontal rotary shaft, means within the cabinet supporting said shaft extending from front to rear of the cabinet at the upper part thereof with the main portion of the shaft within the cabinet and with one end portion of the shaft projecting a short distance forwardly of the front of the cabinet, an electric motor within the main section of the cabinet, a drive connection within the cabinet between the motor and said shaft, a vessel carrier mounted on said end portion of the shaft exteriorly of the cabinet, a plurality of tumbling vessels, and means providing for individually detachably securing the tumbling vessels on the carrier.

14. A tumbling machine including a cabinet comprising a main elongated vertically extending section having a supporting base and front, back and side walls extending upwardly from the base, said main section being rectangular shape in cross-section of substantially greater height than width, and of substantially less depth than width, and said cabinet having a top section extending upwardly from the upper end of said main section, a horizontal rotary shaft, means within the cabinet supporting said shaft extending from front to rear of the cabinet at the upper part thereof with the main portion of the shaft within the cabinet and with one end portion of the shaft projecting a short distance forwardly of the front of the cabinet, an electric motor within the main section of the cabinet, a drive connection within the cabinet between the motor and said shaft, a vessel carrier of disc-like form mounted on said end portion of the shaft exteriorly of the cabinet, the base of the elongated upright main section of the cabinet being of elongated rectangular shape and extending a substantial distance forwardly of the front wall of said main section and forwardly of said vessel carrier, a plurality of tumbling vessels, and means providing for individually detachably securing the tumbling vessels on the carrier.

15. A tumbling machine including a cabinet comprising a main elongated vertically extending section having a supporting base and front, back and side walls extending upwardly from the base, said main section being rectangular shape in cross-section of substantially greater height than width, and of substantially less depth than width, and said cabinet having a top section extending upwardly from the upper end of said main section, a horizontal rotary shaft, means within the cabinet supporting said shaft extending from front to rear of the cabinet at the upper part thereof with the main portion of the shaft within the cabinet and with one end portion of the shaft projecting a short distance forwardly of the front of the cabinet, an electric motor within the main section of the cabinet, a drive connection within the cabinet between the motor and said shaft, a vessel carrier of disc-like form mounted on said end portion of the shaft exteriorly of the cabinet, the base of the elongated upright main section of the cabinet being of elongated rectangular shape and extending a substantial distance forwardly of the front wall of said main section and forwardly of said vessel carrier, and the side walls of said main section of the cabinet having reduced lower portions extending forwardly of the front wall of the main section along the side marginal portions of the base to the forward end thereof and being joined thereto, a plurality of tumbling vessels, and means providing for individually detachably securing the tumbling vessels on the carrier.

16. A tumbling machine including a cabinet of rectangular shape in cross section, a horizontal rotary shaft, means within the cabinet for supporting said shaft extending from front to rear of the cabinet at the upper part thereof with the main portion of the shaft within the cabinet and with one end portion thereof projecting a short distance forwardly of a side wall of the cabinet, an electric motor within the cabinet at the lower part thereof, a drive connection within the cabinet between the motor and said shaft, a vessel carrier of disc-like form mounted on said end portion of the shaft exteriorly of the cabinet, and a plurality of tumbling vessels, the vessel carrier having apertures therein for individually detachably securing the tumbling vessels on the vessel carrier.

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