Nov. 17, 1959 R. F. MINER 2,913,241

ADJUSTABLE MOTOR SUPPORTING STAND

Filed Jan. 18, 1957 2 Sheets-Sheet 1

FIG. 1

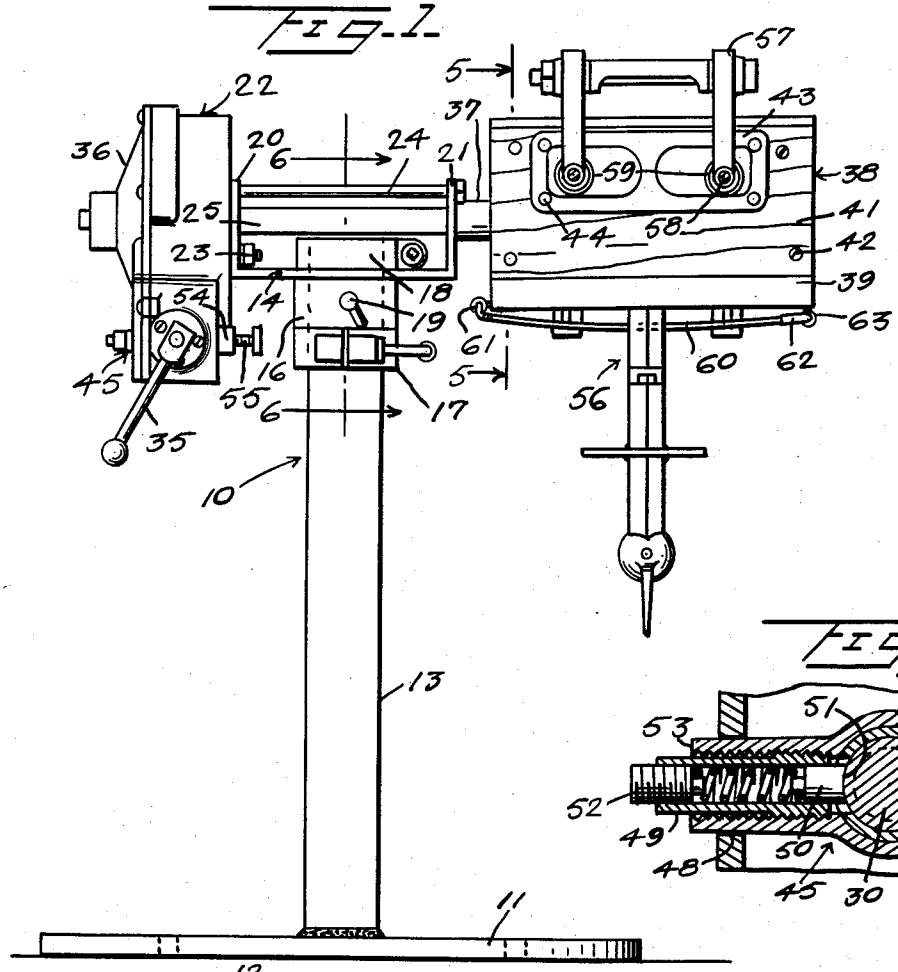
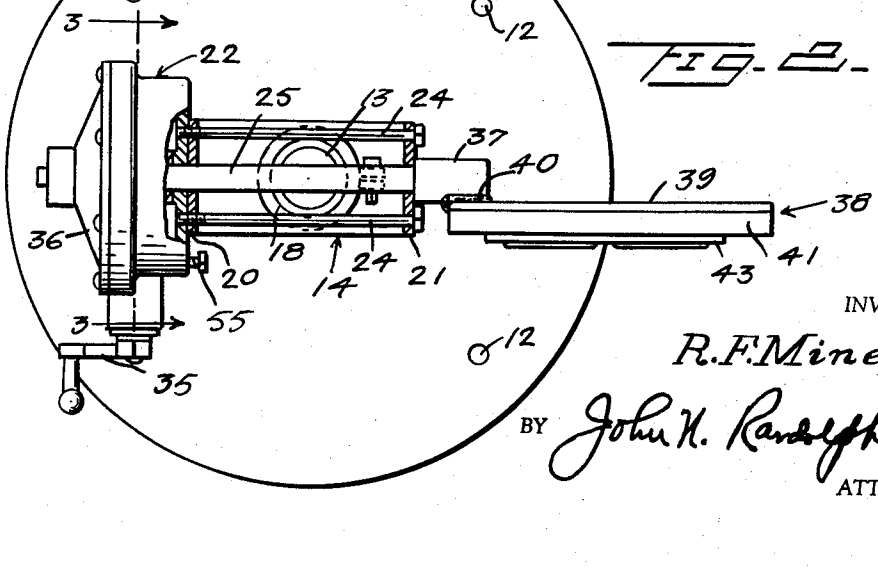


FIG. 7

FIG. 2



INVENTOR

R. F. Miner

BY John K. Randolph

ATTORNEY

Nov. 17, 1959 R. F. MINER 2,913,241

ADJUSTABLE MOTOR SUPPORTING STAND

Filed Jan. 18, 1957 2 Sheets-Sheet 2

FIG. 3.

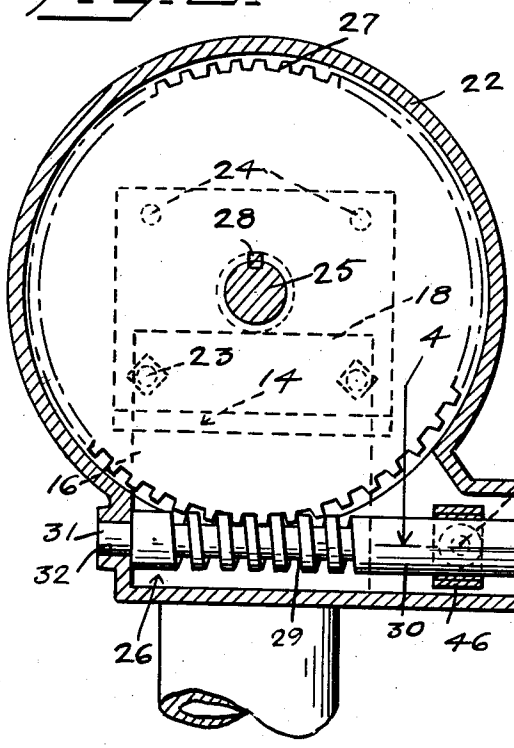


FIG. 6.

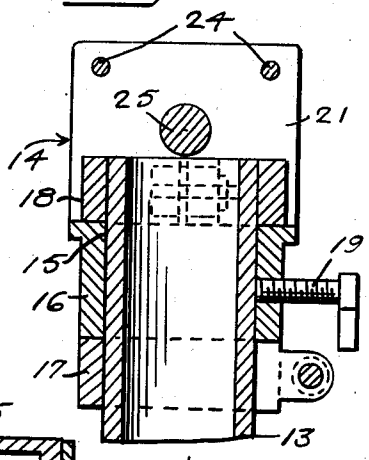


FIG. 4.

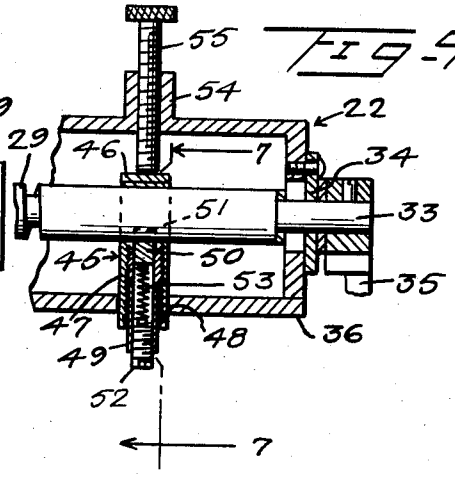
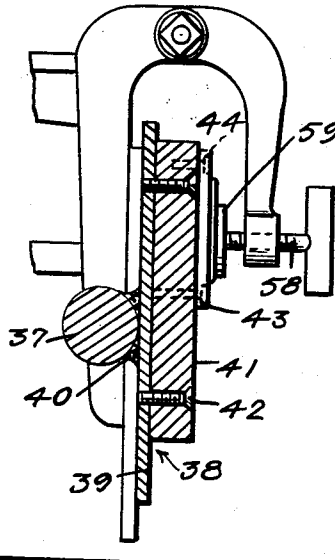


FIG. 5.



INVENTOR

R. F. Miner

BY John N. Randolph

ATTORNEY

United States Patent Office 2,913,241 Patented Nov. 17, 1959

2,913,241

ADJUSTABLE MOTOR SUPPORTING STAND

Richard F. Miner, Superior, Iowa

Application January 18, 1957, Serial No. 634,863

2 Claims. (Cl. 269—185)

This invention relates to a stand for supporting motors and which is adjustable for positioning the motor in various positions relative to the stand most convenient to a mechanic who is repairing the motor.

More particularly, it is a primary object of the present invention to provide a stand on which a motor can be secured and supported while being worked upon, and which is so constructed that a mechanic without assistance from others can readily adjust parts of the stand to vary the position and angular disposition of the motor for most conveniently situating it for work to be performed thereon.

Still a further object of the invention is to provide a motor supporting stand having manually regulated means for securing the several parts of the stand in desired adjusted positions relative to one another so that the motor supported by the stand will be maintained in a selected position and will be held immovable when pressure or forces are applied thereto in connection with work being performed on the motor or engine.

Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawings, illustrating a presently preferred embodiment thereof, and wherein:

Figure 1 is an elevational view of the stand;

Figure 2 is a fragmentary top plan view thereof, partly broken away and partly in section;

Figure 3 is an enlarged fragmentary vertical sectional view taken substantially along a plane as indicated by the line 3—3 of Figure 2;

Figure 4 is a fragmentary horizontal section view, taken substantially along a plane as indicated by the line 4—4 of Figure 3;

Figure 5 is an enlarged fragmentary vertical sectional view, taken substantially along a plane as indicated by the line 5—5 of Figure 1;

Figure 6 is an enlarged fragmentary detailed vertical sectional view, taken substantially along a plane as indicated by the line 6—6 of Figure 1, and

Figure 7 is an enlarged fragmentary sectional view in detail, taken substantially along a plane as indicated by the line 7—7 of Figure 4.

Referring more specifically to the drawings, the adjustable motor supporting stand in its entirety and comprising the invention is designated generally **10** and includes a large base **11** the flat underside of which is adapted to rest on a suitable supporting surface such as a floor, and which is preferably provided with a number of openings **12** spaced from the center thereof and from one another to receive fastenings, not shown, to enable the base **11** to be anchored to a floor surface, if desired. An upright post or column **13** has a lower end suitably anchored to the central portion of the base **11** and extends upwardly therefrom and is disposed perpendicular thereto.

At least the upper end portion of the post or column **13** is of circular cross section. A yoke **14** has a central opening **15** through which the upper portion of the column or post **13** extends and is provided with a depending boss **16**, which surrounds the opening **15** and which fits rotatably and slidably on the post **13**. An adjustable clamping collar **17** is mounted on and clamped to the post **13** beneath the boss **16** and said boss engages thereon for swivelly mounting the yoke on the post **13**. An adjustable upper clamping collar **18** is adjustably secured to the upper portion of the post and bears upon the yoke **14** around the opening **15** thereof to detachably retain said yoke on the post **13**. A setscrew **19** is threaded radially through a part of the boss **16** and is adapted to be manually tightened against a part of the post **13**, when it is desired to secure the yoke **14** against rotation.

The yoke **14** has upturned ends **20** and **21**. The outer side of the yoke end **20** is disposed against an inner wall of a gear case **22** and is secured thereto by fastenings **23** and **24**. The fastenings **24** comprise tie bolts which extend through the upper portions of both upturned yoke ends **20** and **21** and which are secured to the gear case **22** for securing said gear case to the yoke **14** and to retain the yoke ends **20** and **21** in parallel relation to one another. A shaft **25** extends loosely through the yoke ends **20** and **21** above the collar **18** and the upper end of the post **13**, and has one end thereof extending into the gear case **22**, as best seen in Figure 2. The shaft **25** is journaled in the inner gear case wall and in the yoke ends **20** and **21**.

A worm gear, designated generally **26** and best illustrated in Figure 3, is contained within the gear case **22** and includes a relatively large worm wheel **27** through the center of which extends the end of the shaft **25** which extends into the gear case **22**. The worm wheel **27** is keyed as seen at **28** to said shaft end **25**. The worm gear **26** also includes a worm **29** which meshes with the worm wheel **27** and which constitutes a part of a shaft **30**. Shaft **30** has a restricted end **31** which is journaled in a bearing opening **32** of the gear case **22** and a restricted opposite end **33** which extends through and is journaled in a small detachably mounted closure plate **34** of the gear case **22**. A hand crank **35** is secured to the shaft end **33** outwardly of the plate **34**. The gear case **22** has a detachable outer wall forming a cover plate **36** which is removable to expose the worm gear **26** and to permit the parts thereof to be applied to or removed from the gear case.

The shaft **25** has a somewhat enlarged opposite end portion **37** which extends outwardly from the yoke end **21** and to which is secured a motor or engine mounting bracket, designated generally **38**. In the embodiment as shown, the mounting bracket is adapted for use in mounting an outboard motor but may also be utilized for mounting other types of motors and other forms of mounting brackets may be employed. The mounting bracket **38**, as disclosed, includes a rigid backing plate **39** one end portion of which overlies the shaft end **37** and is secured thereto in any suitable manner, as by welding as seen at **40**, so that the plate **39** is disposed longitudinally of the shaft **25** and the shaft end **37** is spaced equal distances from the longitudinal edges of said plate. The bracket **38** also includes a relatively thick front plate **41** which may be formed of wood or other suitable material. The front plate **41** is secured by fastenings **42** to the front side of the back plate **39**, i.e., the side thereof opposite the side to which the shaft end **37** is connected. A clamp screw engaging wear plate **43**

may be secured by fastenings 44 to the outer or front side of the bracket piece 41.

A friction brake 45 includes a collar 46 which fits loosely around a part of the worm shaft 30 which is disposed between the worm 29 and the shaft end 33. Said collar has an integral outwardly extending hollow neck 47 which opens into the bore thereof and which is internally threaded. The collar 46 and neck 47 form the housing of the brake 45 and said neck 47 extends radially from the shaft 30 and has an outer part extending loosely through an opening 48 in the gear case cover 36 to prevent rotation of the collar 46 with the shaft 30. A sleeve 49 is threadedly mounted in the hollow neck 47. A brake shoe 50 is slidably mounted in the inner end of the sleeve 49 and has an inner end face 51 which is shaped to conformably fit against a portion of the shaft 30, as seen in Figure 7, and due to the shape of the face 51 and its contact with the shaft 30, prevents the slidably mounted brake shoe 50 from turning in the sleeve 49, as clearly illustrated in Figure 7. A plug 52 forming a spring stop is adjustably mounted threadedly in the outer end of the sleeve 49. A compression spring 53 is disposed in the sleeve 49 between the stop 52 and brake shoe 50 for yieldably holding the brake shoe face 51 in contact with the shaft 30. Pressure exerted by the brake shoe against the shaft can be varied by adjustment of the spring stop 52.

The inner wall of the gear casing 22 is provided with an internally threaded boss 54 which is disposed in alignment with the brake 45 to receive a locking screw 55 which is threaded inwardly therethrough. The inner end of the locking screw 55 can be advanced inwardly into engagement with the collar 46 to force said collar tightly against the shaft 30 to positively prevent the shaft from turning relative to the brake 45.

A portion of an outboard motor 56 is shown supported by the mounting bracket 38 and includes a clamp 57 which engages over said mounting bracket 38. The clamp screws 58 of the clamp 57 are advanced inwardly to bring the heads 59 which are swivelly mounted on the inner ends of the screws 58 into tight engagement against the plate 43 for securing the outboard motor clamp 57 immovably to the bracket 38.

As best seen in Figure 1, a flexible element 60 of substantial strength and preferably possessing some elasticity is anchored at one end as seen at 61 to an end of the mounting bracket 38 and has a snap hook 62 at its other free end which detachably engages an eye fastening 63 which is anchored in the mounting bracket 38, near the other end thereof. The flexible element 60 is engaged around the outer side of the drive shaft housing of the outboard motor and functions to prevent said housing from swinging away from the plane of the mounting bracket 38, when said mounting bracket is swung toward a horizontal position with the base plate 39 disposed beneath the bracket piece 41.

From the foregoing it will be readily apparent that the yoke 14 may be swiveled on the post 13 to position the mounting bracket 38 and the motor 56 supported thereby in any desired position around the post 13, where most accessible to a mechanic, or where the best lighting or illumination is available. If desired, the setscrew 19 can be tightened to secure the yoke immovably to the post 13 to retain the mounting bracket 38 and motor 56 in a desired position relative to the post. The crank 35 may then be manually turned to turn the shaft 25 in a desired direction through the worm gear drive 26 for rotating the mounting bracket 38 in either direction to position the motor 56 at any desired angle most convenient to be worked upon. The worm gear 26 will enable a heavy motor supported on the mounting bracket 38 to be turned with only a slight force required to turn the crank 35, so that one man can easily effect desired angular adjustments of heavy motors or engines which are supported on the mounting bracket 38. The spring stop 52 is adjusted so that the brake shoe 50 will have sufficient frictional engagement with the shaft 30 to normally retain the shaft 25 in any position of rotation to which it is moved, yet will not prevent the crank 35 being readily turned manually. Additionally, if desired and to insure retention of the motor at a selected angle, the locking screw 55 can be advanced inwardly against the brake collar 46 to cause said collar to grip the shaft 30 so that the shaft 25 will be positively retained against rotation.

Various modifications and changes are contemplated and may be resorted to, without departing from the function or scope of the invention as hereinafter defined by the appended claims.

I claim as my invention:

1. A manually operated adjustable motor supporting stand comprising, a base, a post fixed to and rising perpendicularly from said base, a yoke, means swivelly-mounting said yoke on the upper portion of said post, said yoke including upstanding substantially parallel ends extending to above the level of the upper end of said post, a gear case supported by said yoke, said gear case being mounted on and secured to an outer side of one of said yoke ends, a worm gear contained in said gear case including a worm wheel and worm, a shaft extending through and turnably mounted in said yoke ends, above the upper end of said post, and having an end portion disposed turnably in the gear case and fixed to the worm wheel, said shaft having an opposite end projecting outwardly from the other yoke end, a motor mounting bracket secured to said last mentioned shaft end, a crank secured to an extension of said worm and disposed externally of the gear case for rotating the shaft to revolve the motor mounting bracket about the axis of said shaft, said yoke being rotatable about said post for moving said motor mounting bracket to various positions around the post, an adjustable friction brake mounted in the gear case, said brake including a collar fitting around the worm extension, a hollow neck extending from a part of the periphery of the collar and having a portion slidably disposed in a wall of the gear case, a brake shoe slidably mounted in said hollow neck and having an inner end extending into the collar and bearing against the worm extension, adjustable spring means disposed in the hollow neck and urging the brake shoe into engagement with the worm extension for resisting rotation of the worm extension, and a locking screw threadedly mounted in the gear case and disposed opposite to and substantially in alignment with the hollow neck, said locking screw being displaceable into engagement with said collar for moving the collar into tight frictional engagement with the worm extension to lock the worm against rotation.

2. A manually operated adjustable motor supporting stand comprising, a base, a post fixed to and rising perpendicularly from said base, a yoke, means swivelly mounting said yoke on the upper portion of said post, said yoke including upstanding substantially parallel ends extending to above the level of the upper end of said post, a gear case supported by said yoke, said gear case being mounted on and secured to an outer side of one of said yoke ends, a worm gear contained in said gear case including a worm wheel and worm, a shaft extending through and turnably mounted in said yoke ends, above the upper end of said post, and having an end portion disposed turnably in the gear case and fixed to the worm wheel, said shaft having an opposite end projecting outwardly from the other yoke end, a motor mounting bracket secured to said last mentioned shaft end, a crank secured to an extension of said worm and disposed externally of the gear case for rotating the shaft to revolve the motor mounting bracket about the axis of said shaft, said yoke being rotatable about said post for moving said motor mounting bracket to various positions around the post, said motor mounting bracket com-

prising an elongated substantially flat member having its longitudinal axis disposed substantially parallel to the axis of the shaft and adapted to be engaged by an outboard motor mounting clamp for mounting an outboard motor thereon, said motor mounting bracket being secured adjacent one end thereof to the shaft and extending outwardly from said last mentioned shaft end.

References Cited in the file of this patent

UNITED STATES PATENTS

1,344,385	Crays	June 22, 1920
1,777,935	Randall	Oct. 7, 1930
1,826,493	Bahrman	Oct. 6, 1931
2,106,367	Vollmer	Jan. 25, 1938
2,106,525	Henry	Jan. 26, 1938
2,340,707	Staley	Feb. 1, 1944
2,515,428	Scott et al.	July 18, 1950

FOREIGN PATENTS

606,871	France	Nov. 25, 1925
32,070	France (Addition)	Mar. 29, 1927