R. C. PATTON.

LIFTING JACK.

APPLICATION FILED MAR. 24, 1913.

1,102,792.

Patented July 7, 1914.

2 SHEETS—SHEET 1.

Fig. 1

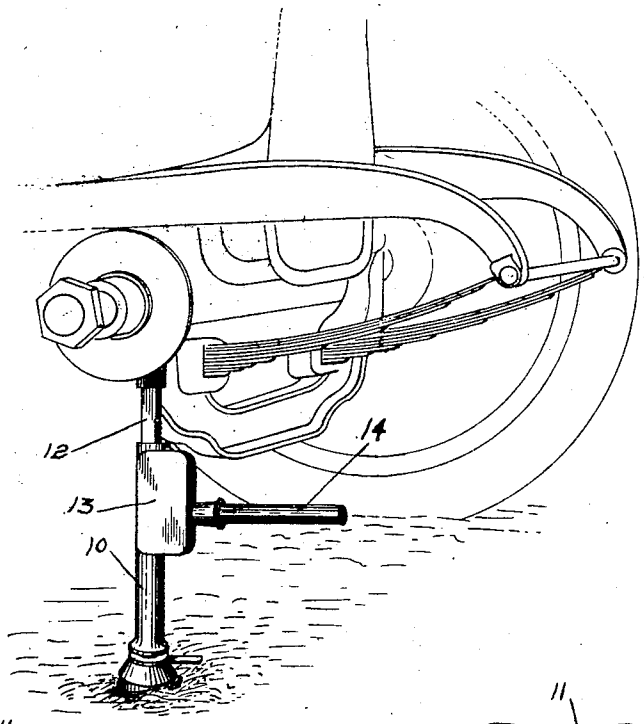


Fig. 3

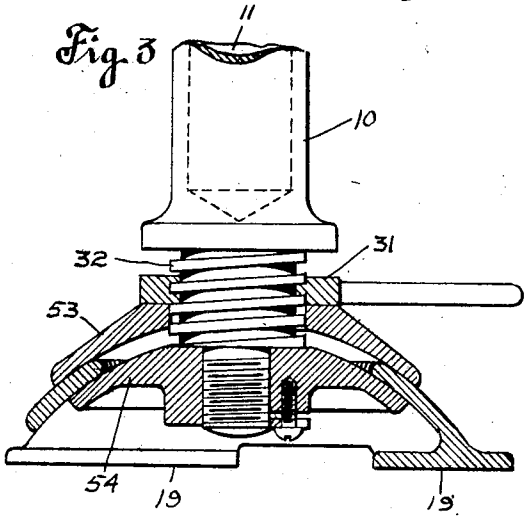
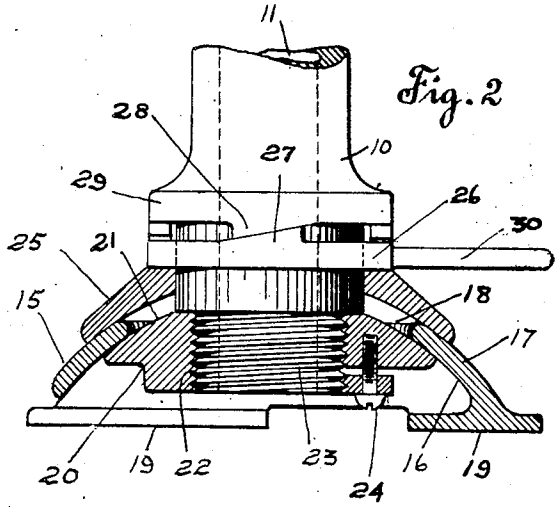


Fig. 2



Witnesses

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2 SHEETS—SHEET 2.

Fig. 4

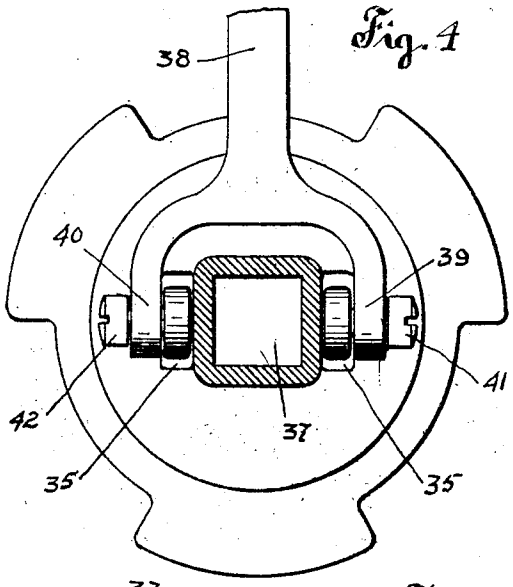


Fig. 7

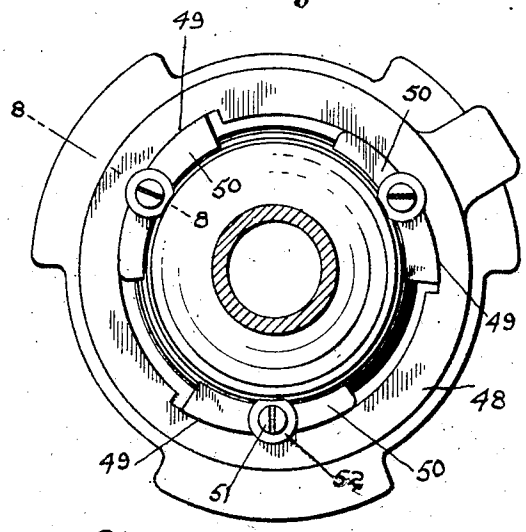


Fig. 5

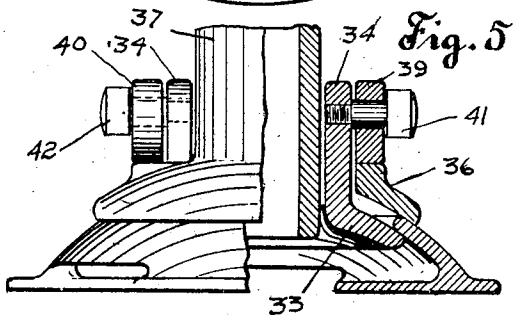


Fig. 8

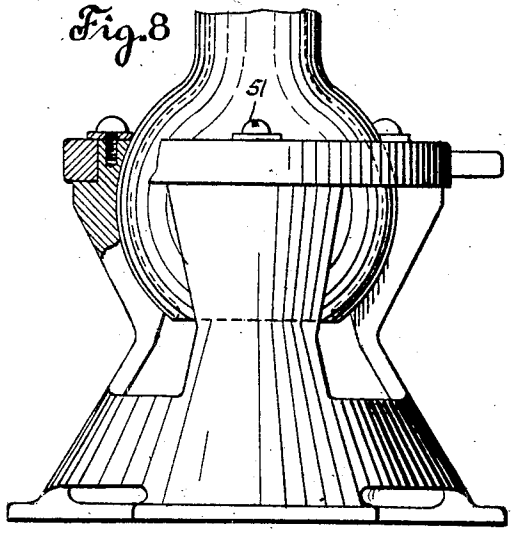


Fig. 9

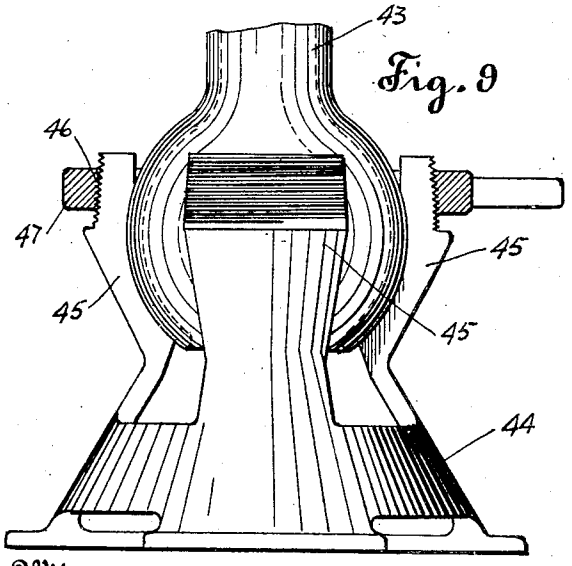
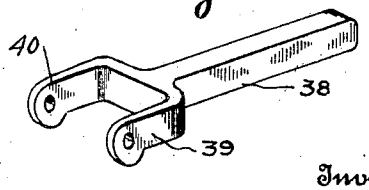


Fig. 6



Witnesses

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UNITED STATES PATENT OFFICE.

RALPH CLIFTON PATTON, OF PROVIDENCE, RHODE ISLAND.

LIFTING-JACK.

1,102,792. Specification of Letters Patent. Patented July 7, 1914.

Application filed March 24, 1913. Serial No. 756,348.

To all whom it may concern:

Be it known that I, RALPH C. PATTON, a citizen of the United States, and resident of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

This invention relates to lifting jacks and has for its object to provide such a jack of simple, durable and practical construction, the same being provided with improved means whereby the base portion is capable of relative universal adjustment.

It is found in the practical use of a jack of this character particularly in automobile work, that when the same is used out on the road, it is often difficult to operate the jack to advantage owing to the unevennesses or inclination of the road surface, therefore to obviate this difficulty I have provided simple and practical means whereby the base portion may receive a universal adjustment and be set on any angle relative to the body of the jack, whereby it will accommodate itself to the angularities of the surface and find a firm footing.

To further perfect the operation of this improved jack I have provided a simple and effective locking mechanism to firmly bind and secure the standard to the base at any angle thereto thereby making the jack as stiff and rigid as though the base were permanently fixed to the body portion.

The invention further consists in providing a hollow supporting base having spherically shaped inner and outer surfaces and a pair of clamping members adapted to secure the standard to the base in any desired angle relative thereto.

The invention still further consists in securing the lower clamping member to the standard in such a way that it may be longitudinally adjusted in order to regulate the action of the clamping cam and to also provide the standard and this inner clamping member with a central opening therethrough whereby the extending member may pass therethrough in order to house such a member of maximum length in the standard so as to obtain the greatest extension possible with a jack of a given height.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

Of the accompanying drawings: Figure 1— is a perspective view illustrating my improved jack as applied to the axle of an automobile. Fig. 2— is a side elevation, partly in section, illustrating the lower portion of the hollow standard, the spherically shaped hollow base and the cam actuated clamping means for securing the standard to said base. Fig. 3— is a modification showing the lower end of the standard of a slightly different shape, the same being provided with another form of cam locking means which operates through a coarse threaded screw. Figs. 4 and 5— are plan views and side elevations, respectively, partially in section, showing another modified form of cam actuated clamping members for securing the standard to the base in any desired position relative thereto. Fig. 6— is a detail of the cam lever for operating the mechanism shown in Figs. 4 and 5. Figs. 7 and 8—show a plan view and side elevation, respectively, of another form of cam member for binding the standard to the base at any desired degree of adjustment, Fig. 8 being partially in section on line 8—8 of Fig. 7. Fig. 9— is another modification illustrating another arrangement whereby the standard may be secured to the base.

Referring to the drawings, 10 designates the standard of the lifting jack which may be made in any desired form, but which is preferably provided with a hollow center portion 11 in which the extending member 12 is housed. Any desired mechanism, not shown, may be mounted in the casing 13 to be operated by the handle 14 for forcing outward and withdrawing the extending member, but I do not claim any particular mechanism for performing this function as any now on the market may be employed in the operation of my improved jack, the essential feature of which is the adjustability of the base and the means for locking the same in adjusted position as presently described.

The base member 15 is preferably constructed hollow having spherically shaped inner and outer surfaces 16 and 17, respec-

tively, forming a comparatively thin wall or shell with its upper center portion at 18 removed. The lower portion of the shell is provided with feet 19 preferably three in number, so arranged that the space between them is sufficient to admit the inner clamping member 20. The outer surface 21 of this inner clamping member is also made in a spherical shape to correspond with the inner face of the base, and its center portion is hollow and threaded as at 22 for the reception of the lower threaded end 23 of the standard 10. A locking screw 24 is inserted into this inner clamping member to spring the threaded portion and bind the member in position on the threaded standard.

The outer clamping member or shoe 25 has an inner concaved surface corresponding to the outer convex surface of the base and a locking collar 26 rests upon and is rotatably mounted on the upper face of said shoe 25. The upper face of this collar is provided with a plurality of cam surfaces 27 to correspond with and engage oppositely formed cam surfaces 28 on the underside of the flange 29 of the standard 10. This cam collar is also provided with an actuating handle 30 whereby it may be readily rotated about the end of the standard to cause said inner and outer clamping members to clamp and bind the shell of the base between them and retain the standard at any desired relative angle to the base.

In operation when my improved jack is positioned beneath the axle of an automobile, or other work, where the surface of the ground is sloping, in order to obtain a firm footing upon such ground or road bed, it is only necessary to move the handle 30 of the cam collar to the right thereby releasing the base and permitting it to move in any direction relative to the standard and adjust itself to find a secure footing. The handle 30 is then moved back or to the left forcing the cam surfaces 27 against those 28 of the standard, thereby binding the inner and outer clamping members against the opposite faces of the base wall securely locking the two together.

A further advantage of the construction shown in Fig. 2 is that the center portion of the standard 10 is hollow completely through its lower end, thereby permitting an extending member of maximum length to be housed in the standard.

The construction shown in Fig. 3 is somewhat similar to that illustrated in Fig. 2 with the exception that the lower end of the standard 10 is smaller or not large enough to have a hole through it of a size sufficient to receive the lower end of the extending member, and instead of a plurality of independent cam surfaces as illustrated in Fig. 2, this portion of the standard is provided with what is considered the equivalent of said cams, which is that of a square threaded screw 32 which has substantially the same effect upon the binding collar 31 as the cams 27 and 28, viz., to bind the clamping members 53 and 54 to the curved wall of the base.

Another form of cam action for binding the standard to the base is illustrated in Figs. 4 and 5 in which the inner clamping member 33 is provided with upwardly extending ears 34 which project through apertures 35 in the outer clamping member 36 which latter is cast with or otherwise permanently connected to the standard 37 and a cam lever 38, see Figs. 4, 5 and 6 is made in the form of a yoke with its ends 39 and 40 made in the shape of a cam and is connected to the lower clamping member through pins 41 and 42 whereby when this lever is pressed downward said cams serve to draw the lower clamping member upward and binds the standard to the base.

It will be noted that in Figs. 4 and 5, the outer clamping member is fixed to the standard and the inner clamping member is raised to engage and bite the inner face of the base, while in Figs. 2 and 3 the reverse is the case, that is, the upper member is loose and is pressed downward to grip the wall of the base.

In the construction shown in Fig. 9 the lower end of the standard 43 is made in a spherical shape and is retained in a base 44 having a plurality of upwardly extending fingers 45 which are provided with a corresponding spherical surface on their inner faces to receive the ball or spherical end of the standard whereby relative universal movement may be had.

The upper ends of these fingers are threaded as at 46 on a taper and a nut 47 is adapted to be screwed onto this tapered portion for the purpose of springing inward these fingers causing them to grip and bind the ball end of the standard 43 to retain it at any desired relative degree of adjustment therein.

The structure illustrated in Figs. 7 and 8 is similar to that of Fig. 9 with the exception that the ring 48 is provided with a plurality of cam surfaces 49 which engage the ends of the fingers 50 whereby a rotating movement of said ring in one direction springs the fingers inward to bind the spherical end of the standard therein and a movement in the other direction releases the same. Screws 51 are inserted into the ends of each finger and a collar 52 is secured beneath the head overlapping the ring for the purpose of preventing the ring from working from the ends of the fingers.

I have shown and described a number of different forms of adjustable bases and means for locking the same to the standard,

but any means for accomplishing this purpose will fall within the spirit and scope of this invention.

I claim:

1. A lifting jack comprising a standard, an extending member therein, a supporting base, a clamping member within said base, and means exterior of said base for operating said clamping member for locking said base and standard together at any desired angle.

2. A lifting jack comprising a standard, an extending member therein, a supporting base, a clamping member within said base, a clamping member exterior of said base and coöperating with said first mentioned member to lock said standard and base together at any desired angle.

3. A lifting jack comprising a standard, an extending member therein, a supporting base, a clamping member within said base, a clamping member exterior of said base and coöperating with said first mentioned member, and a lever for operating said exterior member to lock said base and standard together at any desired angle.

4. A lifting jack comprising a standard, an extending member in said standard, a supporting base member, means whereby said standard may receive a universal movement relative to said base, and a cam for locking said base and standard together in any desired relative position.

5. A lifting jack comprising a standard, an extending member in said standard, a base member, means whereby said standard may receive a universal movement relative to said base, and a readily adjustable cam collar for locking said base and standard together in any desired relative position.

6. A lifting jack comprising a standard, an extending member in said standard, a supporting base formed of a shell curved on both its inner and outer surfaces, a pair of clamping members engaging said inner and outer curved surfaces of said shell, one of said members being connected to said standard and the other free to be moved, and means for clamping said members to said base for retaining the standard and base in any desired relative position.

7. A lifting jack comprising a standard, an extending member in said standard, a supporting base formed of a shell curved on both its inner and outer surfaces, a pair of clamping shoes engaging said inner and outer curved surfaces of said shell, one of said shoes being connected to said standard and the other free to be moved, and cam mechanism for clamping said members to said base for retaining the standard and base in any desired relative position.

8. A lifting jack comprising a standard, an extending member in said standard, a hollow supporting base having spherically shaped inner and outer surfaces, a clamping member engaging the inner face of said base, said standard being connected to said inner clamp, and a second clamping member engaging the outer surface of said base and a cam collar for readily binding said clamps to said base whereby relative universal movement of said base and standard may be obtained.

9. A lifting jack comprising a standard, an extending member in said standard, a hollow supporting base having spherically shaped inner and outer surfaces, a clamping member engaging the inner face of said base, said standard being connected to said inner clamp, and a second clamping member engaging the outer surface of said base and a cam collar for readily binding said clamps to said base whereby relative universal movement of said base and standard may be obtained, and means whereby said inner clamping member may be adjusted on said standard to control the biting action of the locking cam.

10. A lifting jack comprising a standard, an extending member in said standard, a hollow supporting base having spherically shaped inner and outer surfaces, a clamping member engaging the inner surface of said base said standard being adjustably connected to said inner clamping member both said standard and said clamp having a hollow center portion to permit said extending member to pass therethrough, and a second clamping member engaging the outer surface of said base and a cam collar for readily binding said clamps to said base whereby relative universal movement of said base and standard may be obtained.

In testimony whereof I affix my signature in presence of two witnesses.

RALPH CLIFTON PATTON.

Witnesses:

HOWARD E. BARLOW,

E. I. OGDEN.