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Gibson

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[45] **Aug. 20, 1974**

[54] **ATTACHMENT FOR JACK**

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[52] **U.S. Cl.** **254/133**

[51] **Int. Cl.** **B66f 11/00**

[58] **Field of Search** ..... 254/133, 134, 2 B

[56] **References Cited**

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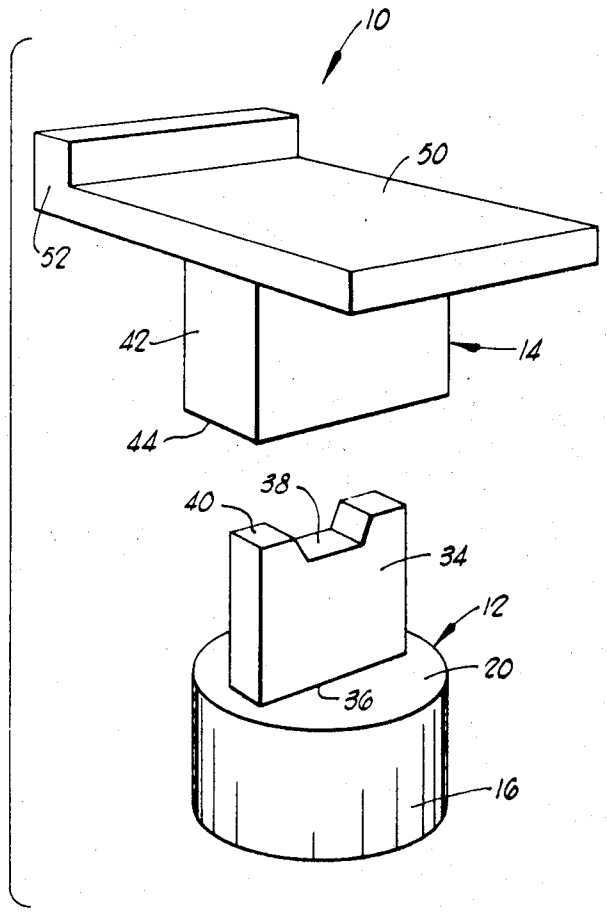
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Assistant Examiner—Robert C. Watson
Attorney, Agent, or Firm—Dunlap, Laney, Hessin, Dougherty & Codding

[57] **ABSTRACT**

An attachment for use with a conventional jack which jack includes a base portion and a ram portion carried therein and adapted to move relative to the base portion along the longitudinal axis thereof. The jack attachment includes a socket member having a cavity formed therein for receiving the ram portion of the jack. An elongated member having opposite end portions is fixedly secured at one end portion to the socket member and extends therefrom in axial alignment with the longitudinal axis of the jack and includes a transverse notch formed in the opposite end thereof. A second elongated member having opposite end portions includes a cavity intersecting one end portion thereof sized and shaped to receive the first elongated member therein and includes a flat plate formed on the opposite end portion thereof lying in a plane substantially normal to the longitudinal axis of the jack. An L-shaped edge portion is formed along one edge of the flat plate. In another form, the present invention includes a socket member for receiving the ram portion of the jack and further includes a second socket member formed thereon extending away from the jack. The second socket member has a cavity formed therein sized and shaped to receive one end portion of a first elongated member with the opposite end portion of the first elongated member having a transverse notch formed therein. An alternate second elongated member has a substantially flat plate formed on the opposite end thereof lying in a plane substantially normal to the longitudinal axis of the jack and having an L-shaped edge portion formed along one edge thereof.

3 Claims, 7 Drawing Figures



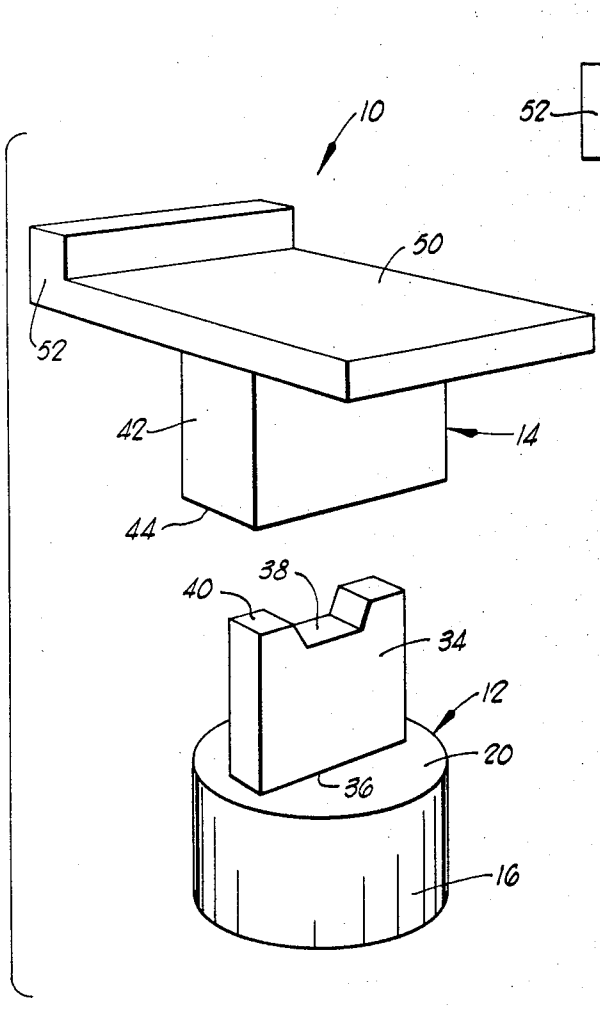


FIG. 3

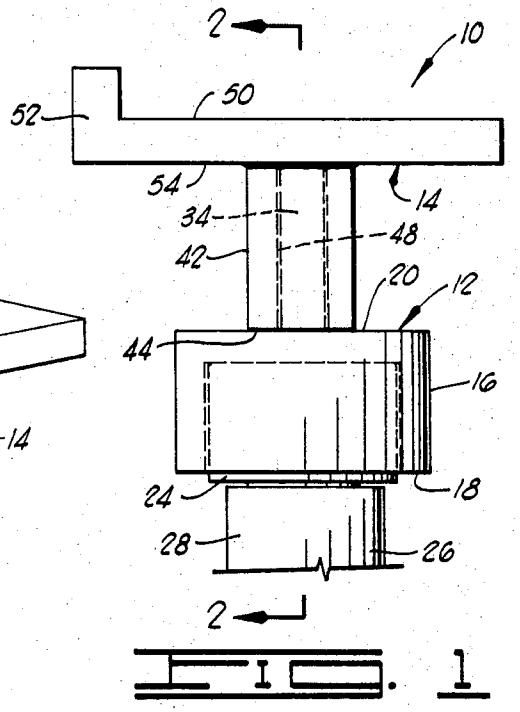


FIG. 1

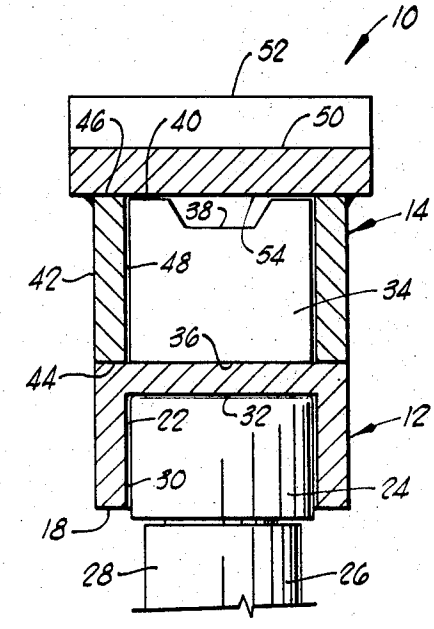


FIG. 2

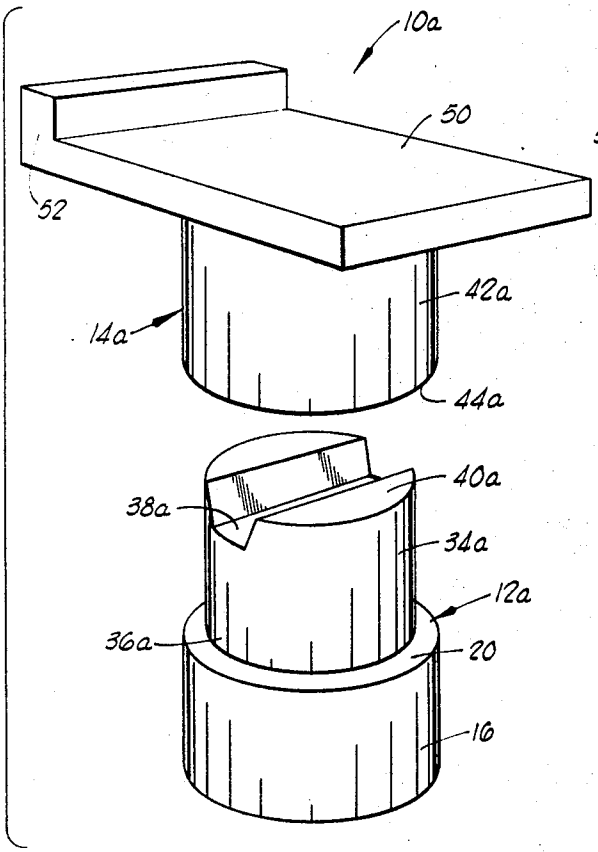


FIG. 5

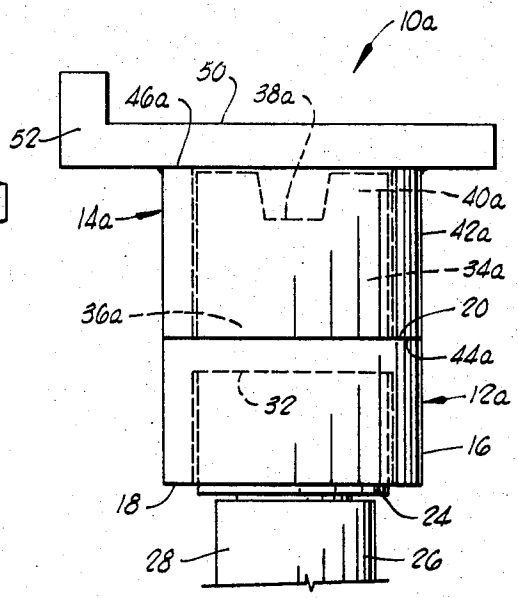


FIG. 4

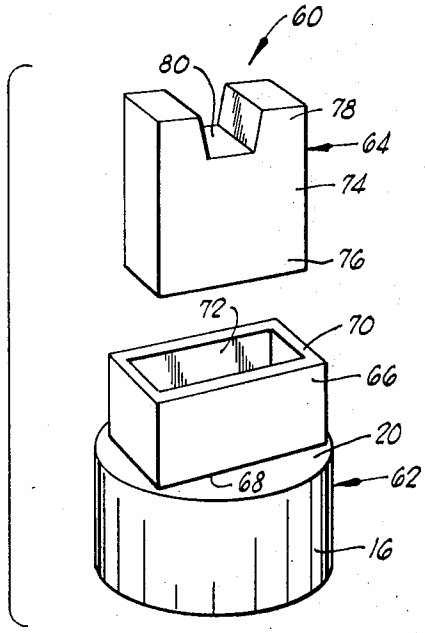


FIG. 6

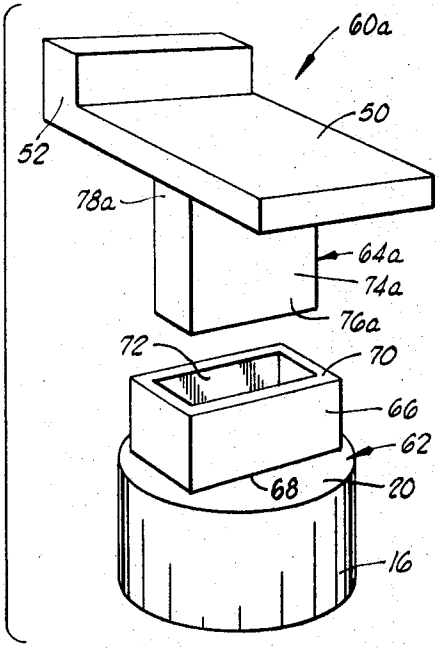


FIG. 7

ATTACHMENT FOR JACK

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to improvements in lifting devices, and more particularly, but not by way of limitation, to improvements in attachments for use with conventional lifting jacks.

2. Description of the Prior Art

In the automobile repair industry it has become commonplace to utilize power jacks of the hydraulic or pneumatic type to lift the front ends of automobiles for servicing. More particularly, such jacks have found wide use in servicing and aligning the front suspension units and steering linkages of automobiles.

The jacks currently available to the automobile service industry generally comprise a base portion having a ram portion slidably disposed therein for movement along a longitudinal axis in response to the application of outside force. The free end of the ram portion is generally cylindrically shaped with the head thereof being planar and lying in a plane substantially normal to the longitudinal axis of the jack.

It has been found that the conventional shape of the end portion of the ram portion of the jack is generally unsuitable for engaging the lower portion of an automobile since the planar surface area readily slips from engagement with the automobile thereby providing a source for serious injury to an automobile serviceman working in the area of such a jack. It has also been found that the conventional jacks are not entirely satisfactory for raising an automobile having coil springs located above the upper A-frame or control arm of the suspension unit for the front wheel. It is necessary on such automobiles to unload the front end suspension parts, such as the upper ball joint or upper control arm, so that such parts can be checked for excessive wear. Again, the end portion of the ram portion of a conventional jack has proved unsuitable for such applications due to the above-noted potential for injury to the serviceman and due to the limited extension capabilities of the conventional jacks.

SUMMARY OF THE INVENTION

The present invention contemplates a jack attachment for use with a conventional jack of the type which includes a base portion and a ram portion adapted to move relative to the base portion along a longitudinal axis. The jack attachment includes first socket means sized and shaped for slidably receiving the end of the ram portion therein into abutting relation, and a first extension fixedly secured at one end thereof to said first socket means and extending therefrom in substantial axial alignment with the longitudinal axis of the jack. A second extension is disposed in substantial axial alignment with the first extension, with the first end portion thereof in slidable relation with the first extension and in abutting relation with the first socket means. Means for engaging the object to be moved by the jack is formed on the opposite end portion of said second extension.

An object of the present invention is to improve the safety characteristics of a conventional lifting jack.

Another object of the present invention is to provide an attachment for a conventional jack which will increase the capability and flexibility thereof.

A further object of the present invention is to provide a versatile attachment for a conventional jack which is economical to construct and simple to use.

Other objects and advantages of the present invention will be evident from the following detailed description when read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an elevation view of one embodiment of the present invention.

FIG. **2** is a cross-sectional view of the present invention taken along line **2—2** of FIG. **1.**

FIG. **3** is an exploded view of the embodiment of FIG. **1.**

FIG. **4** is an elevation view of another embodiment of the present invention.

FIG. **5** is an exploded view of the embodiment of FIG. **4.**

FIG. **6** is an exploded view of yet another embodiment of the present invention.

FIG. **7** is an exploded view of still another embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, and to FIGS. **1, 2** and **3** in particular, the jack attachment of the present invention is generally designated by the reference character **10.** The jack attachment **10** generally comprises a lower element **12** and an upper element **14.**

The lower element **12** includes a generally cylindrically shaped socket member **16** having a lower end face **18** and an upper end face **20.** A cavity **22** is formed in the socket member **16** and intersects the lower end face **18** thereof. The cavity **22** is sized and shaped to slidingly receive the upper end **24** of the ram portion **26** of a conventional lifting jack **28.** The cavity **22** preferably includes a cylindrically shaped inner periphery **30** disposed in axial alignment with the longitudinal axis of the lifting jack **28,** and intersects a radial end wall **32** against which the upper end **24** of the ram portion **26** abuts.

An elongated extension member **34,** having a rectangular cross-section, is fixedly secured at its lower end **36** to the upper end face **20** of the socket member **16.** A transverse notch **38** is formed in the upper end **40** of the extension member **34** with the notch **38** being substantially normal to the longitudinal axis of the jack.

The upper element **14** includes an elongated extension member **42** having a lower end face **44** and an upper end face **46** with a passageway **48** extending therethrough and intersecting the upper and lower faces **46** and **44.** The passageway **48** is generally rectangular in cross-section and is sized to slidingly receive the extension member **34** therein as illustrated in FIGS. **1** and **2.**

A substantially flat plate **50** is fixedly secured to the upper end face **46** of the extension member **42** annd lies in a plane substantially normal to the longitudinal axis of the jack **28.** An L-shaped edge portion **52** is formed along one edge of the flat plate **50.**

The jack attachment **10** is preferably constructed of steel and the various elements thereof may be suitably secured to one another by means of welding. As will be noted in FIGS. **1** and **2,** the extension members **34** and **42** are of approximately the same length. It should be

noted, however, that the lengths of the extension members **34** and **42** may be substantially different for certain applications without departing from the spirit and scope of the invention. It will be readily apparent that when the extension member **34** is longer than the extension member **42,** the upper end face **40** of the extension member **34** will abut the lower surface **54** of the plate **50** when the upper and lower elements **14** and **12** are assembled as shown in FIGS. **1** and **2.** Conversely, when the extension member **42** is longer than the extension member **34,** the lower end face **44** of the extension member **42** will abut the upper end face **20** of the socket member **16** when the elements **12** and **14** are assembled as shown in FIGS. **1** and **2.**

OPERATION OF THE PREFERRED EMBODIMENT

The jack attachment **10** provides the user with two-fold flexibility when used in conjunction with the conventional lifting jack **28.** The first application of the jack attachment **10** arises when the operator desires to engage a portion of an automobile, such as one of the suspension elements, which portion does not expose a flat surface to the jack **28.** The second application arises when the operator desires to engage a relatively flat frame element of an automobile.

To utilize the jack attachment **10** in the first application, the operator places the lower element **12** on the upper end portion **24** of the ram portion **26** of a conventional lifting jack **28** with the upper end portion **24** received in the cavity **22** of the lower element **12.** The operator then places the jack **28** in proper position so that the suspension element or the like of the automobile being lifted will be engaged by the notch **38** formed in the extension member **34.** When the jack **28** is in proper position the operator then causes the ram portion **26** to be extended thereby engaging the suspension member of the automobile with the notch **38.** The notch **38** securely engages the suspension element thereby preventing the accidental slippage of the automobile from engagement with the jack **28.**

In the second application the operator places the lower element **12** on the upper end portion **24** of the ram portion **26** of the lifting jack **28** as previously described. The operator then places the upper element **14** on the lower element **12** by slidably receiving the extension number **34** within the passageway **48** of the upper element **14.** When the upper element **14** is securely engaged on the lower element **12,** the jack **28** is placed in position wherein the flat plate **50** can abuttingly engage a mating flat surface on the frame of the automobile to be lifted. The L-shaped edge portion **52** provides a suitable stop for engaging the side of the frame member being engaged to prevent any possible slippage of the jack **28** when the automobile is lifted. When the jack **28** is in the proper position, the operator may then cause the ram portion **26** to be extended thereby lifting the automobile.

While the explanation of the operation of the preferred embodiment is directed toward the lifting of an automobile, it will be readily apparent that the jack attachment **10** is suitable for many other lifting applications where the object to be lifted may be suitably engaged by either a notch or a flat plate.

DESCRIPTION OF THE EMBODIMENT OF FIGS. 4 AND 5

FIGS. **4** and **5** illustrate a slightly modified jack attachment generally designated by the reference character **10***a*. Many of the elements in the jack attachment **10***a* are identical to those previously described for the jack attachment **10** and will, therefore, be assigned identical reference characters.

The jack attachment **10***a* comprises slightly modified lower and upper elements **12***a* and **14***a*. The lower element **12***a* includes the previously described socket member **16** and a slightly modified elongated extension member **34***a* fixedly secured to the upper end face **20** of the socket member **16** at the lower end **36***a* thereof. The extension member **34**a also includes a transverse notch **38***a* formed in the upper end **40***a* thereof. The extension member **34***a* is circular in cross-section and has a cylindrical outer periphery which is in substantial axial alignment with the longitudinal axis of the conventional lifting jack **28.**

Slightly modified upper element **14***a* includes a slightly modified elongated extension member **42***a* having a lower end face **44***a* and an upper end face **46***a* with a passageway **48***a*, having a cylindrically shaped inner periphery, extending therethrough and intersecting the upper and lower end faces **46***a* and **44***a* thereof. A substantially flat plate **50** having an L-shaped edge portion **52** formed along one edge thereof is fixedly secured to the upper end face **46***a* of the extension member **42***a*. The flat plate **50** lies in a plane substantially normal to the longitudinal axis of the lifting jack **28.** The passageway **48**a has a diameter slightly greater than the outer diameter of the extension member **34***a* for slidably receiving the extension member **34***a* therein.

The remarks set forth above relating to the relative lengths of the extension members **34** and **42** are equally applicable to the extension members **34***a* and **42***a*. The jack attachment **10***a* may be suitably constructed of steel elements suitably secured together such as by welding as similarly noted above for the jack attachment **10.**

OPERATION OF THE EMBODIMENT OF FIGS. 4 AND 5

Operation of the jack attachment **10**a is identical to that previously described for the jack attachment **10** and, therefore, will not be described in detail again.

DESCRIPTION OF THE EMBODIMENT OF FIG. 6

The jack attachment illustrated in FIG. **6** is generally designated by the reference character **60.** The jack attachment **60** generally comprises a lower element **62** and an upper element **64.**

The lower element **62** includes a socket member **16,** identical to that previously described for the jack attachment **10,** and an extension member **66** having a lower end face **68** and an upper end face **70** with a passageway **72** extending therethrough and intersecting the end faces **68** and **70.** The lower end face **68** of the extension **66** is fixedly secured to the upper end face **20** of the socket member **16** and the passageway **72** extends upwardly from the socket member **16** in substantial axial alignment with the longitudinal axis of the jack. The extension **66** is preferably rectangular in cross-section as is the passageway **72** formed therein.

The upper element **64** includes an elongated extension member **74** having a lower end portion **76** and an upper end portion **78.** The extension member **74** is

rectangular in cross-section and is sized and shaped to be slidably inserted into the passageway **72** of the extension member **66** with the lower end portion **76** thereof abutting the upper end face **20** of the socket member **16.** A transverse notch **80** is formed in the upper end portion **78** of the extension member **74** with the notch **80** being substantially normal to the longitudinal axis of the jack.

While the cross-section of the passageway **72** and the cross-section of the extension member **74** are described as being preferably rectangular, it will be readily apparent to those skilled in the art that other cross-sectional configurations of these elements, e.g., circular, may be utilized to practice the present invention as long as the sliding relationship between the extension member **74** and the passageway **72** is retained.

DESCRIPTION OF THE EMBODIMENT OF FIG. 7

The jack attachment illustrated in FIG. 7 differs slightly from the jack attachment illustrated in FIG. **6** and will, therefore, be designated by the reference character **60***a*. The jack attachment **60***a* includes the previously described lower element **62** and a slightly modified upper element **64***a*.

The upper element **64***a* includes an elongated extension member **74***a* having a lower end portion **76***a* and a slightly modified upper end portion **78***a*. A substantially flat plate **50** is fixedly secured to the upper end portion **78***a* of the extension member **74***a* and lies in a plane substantially normal to the longitudinal axis of the jack. An L-shaped edge portion **52** is formed along one edge of the flat plate **50.**

As noted above for the attachment **60,** the cross-section of the extension member **74***a* and the passageway **72** in the lower element **62** may be other than the rectangular cross-section as long as the sliding relationship between the extension member **74***a* and the passageway **72** remains intact.

OPERATION OF THE EMBODIMENTS OF FIGS. 6 AND 7

To utilize either the jack attachment **60** or **60***a*, the operator places the lower element **62** on the upper end portion of the ram portion of a conventional lifting jack in a manner similar to that described above for the operation of the jack attachment **10.** The operator then places either the extension member **74** or the extension member **74***a* in the passageway **72** of the lower element **62** so that the lower end portion **76** or **76***a*, respectively, abuts the upper end face **20** of the socket member **16.**

In the case of the jack attachment **60,** the operator places the jack in proper position such that the notch **80** will engage a suitable suspension member or the like of the automobile or other object to be lifted and then causes the jack to be extended thereby lifting the automobile or other object. In the case of the jack attachment **60***a*, the operator places the jack in position such that the flat plate **50** will properly engage a suitable flat portion of the frame of the automobile or other object and then cause the jack to be extended thereby lifting the vehicle or other object.

It is believed apparent that the various embodiments of the present invention obtain the objectives set forth herein. Changes may be made in the arrangement or combination of parts or elements shown in the drawings and described in the specification without departing from the spirit and scope of the invention as defined in the following claims.

What is claimed is:

1. A jack attachment for use with a conventional jack of the type which includes a base portion and a ram portion, having an upper end, adapted to move relative to the base portion along a longitudinal axis comprising:

socket means sized and shaped for longitudinally slidably receiving the end of the ram portion therein into abutting relation;

a first extension fixedly secured at one end thereof to said socket means and extending therefrom in substantial axial alignment with the longitudinal axis of the jack, said first extension comprising:

a socket formed in the opposite end portion thereof;

an elongated member having a first end portion slidably received in said socket and abutting said socket means and having the opposite end portion thereof extending from said socket means in substantial axial alignment with the longitudinal axis of the jack; and

means for engaging the object to be moved formed on the opposite end portion of said elongated member, said means comprising a transverse notch formed in the opposite end portion of said elongated member, said notch being substantially normal to the longitudinal axis of the jack.

2. A jack attachment for use with a conventional jack of the type which includes a base portion and a ram portion, having an upper end, adapted to move relative to the base portion along a longitudinal axis comprising:

socket means sized and shaped for longitudinally slidably receiving the end of the ram portion therein into abutting relation;

a first extension fixedly secured at one end thereof to said socket means and extending therefrom in substantial axial alignment with the longitudinal axis of the jack, said first extension further comprising:

a socket formed in the opposite end portion thereof;

an elongated member having a first end portion slidably received in said socket and abutting said socket means and having the opposite end portion thereof extending from said socket means in substantial axial alignment with the longitudinal axis of the jack; and

means for engaging the object to be moved formed on the opposite end portion of said elongated member, said means further comprising a substantially flat plate fixedly secured to the opposite end portion of said elongated member and lying in a plane substantially normal to the longitudinal axis of the jack, said flat plate including an L-shaped edge portion formed along one edge thereof wherein one leg of said edge portion extends outwardly from said plate away from said jack.

3. A jack attachment for use with a conventional jack of the type which includes a base portion and a ram portion, having an upper end, adapted to move relative to the base portion along a longitudinal axis comprising:

socket means sized and shaped for longitudinally slidably receiving the end of the ram portion therein into abutting relation;

an elongated member having one end portion thereof fixedly secured to said socket means and having the opposite end portion thereof extending therefrom in substantial axial alignment with the longitudinal axis of the jack; and

a transverse notch formed in the opposite end portion of said elongated member, said notch being substantially normal to the longitudinal axis of the jack;

a second elongated member, having a first end portion and a second end portion, disposed in substantial axial alignment with said first extension and having a socket formed therein intersecting the first end portion thereof and sized and shaped to slidingly receive said first elongated member therein with said second elongated member being in abutting relation with said socket means; and

means for engaging the object to be moved by the jack formed on the second end portion of said second elongated member, said means comprising:

a substantially flat plate fixedly secured to the second end portion of said second elongated member and lying in a plane substantially normal to the longitudinal axis of the jack; and

an L-shaped edge portion formed along one edge of said substantially flat plate wherein one leg of said edge portion extends outwardly from said plate away from the jack.

* * * * *