F. P. STONE.

DEVICE FOR REMOVING VEHICLE BODIES.

APPLICATION FILED MAY 12, 1913.

1,178,829.

Patented Apr. 11, 1916.

2 SHEETS—SHEET 1.

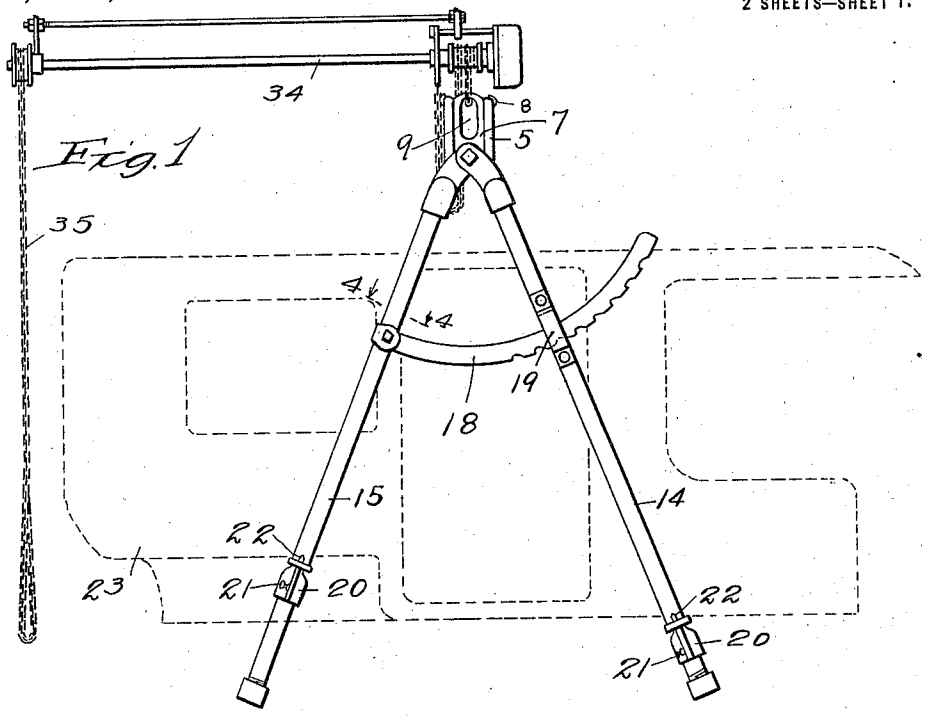
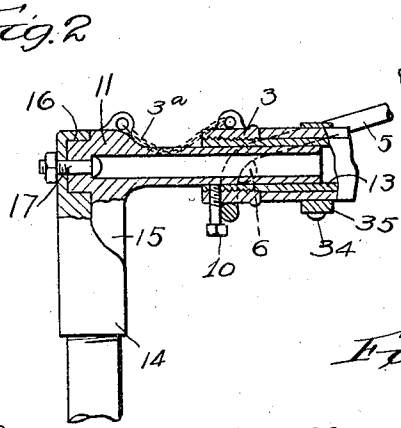


Fig. 1

Fig. 2



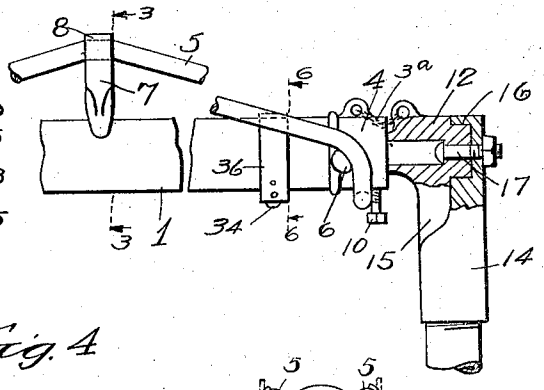
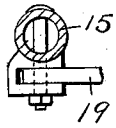


Fig. 4



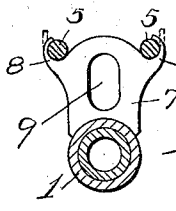


Fig. 3

Witnesses:

C. A. Plumtree

Geneva Hurth

Inventor:

Frank P. Stone

by Parker & Carter

his Att'ys

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 5.

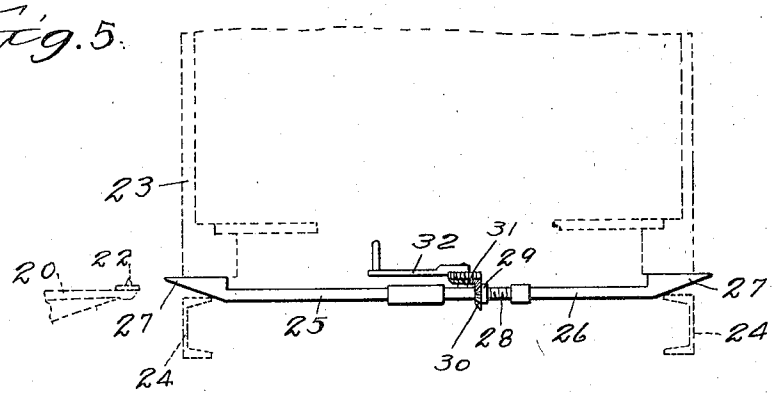


Fig. 9.

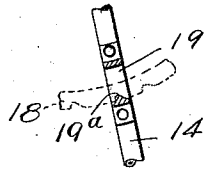


Fig. 6.

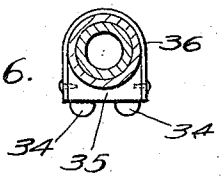
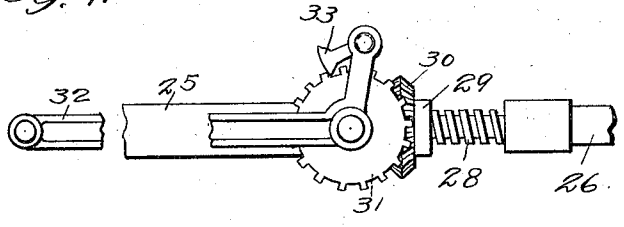


Fig. 7.



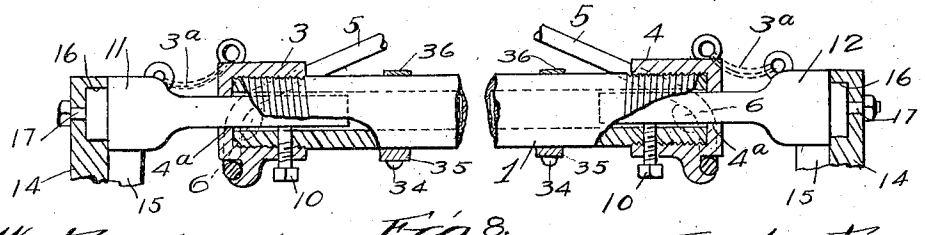


Fig. 8.

Witnesses:

C. H. Runstrom

Emma Firth

Inventor

Frank P. Stone.

by

Parker & Carter

his Attys.

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK P. STONE, OF CHICAGO, ILLINOIS.

DEVICE FOR REMOVING VEHICLE-BODIES.

1,178,829. Specification of Letters Patent. Patented Apr. 11, 1916.

Application filed May 12, 1913. Serial No. 766,922.

To all whom it may concern:

Be it known that I, FRANK P. STONE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Devices for Removing Vehicle-Bodies, of which the following is a specification.

My invention relates to devices for removing vehicle bodies such as bodies of automobiles, and has for its object to provide a new and improved device of this description.

The removal and replacement of the bodies of automobiles is a difficult and delicate task due to the fact that the bodies are usually heavy and are highly finished and must be manipulated carefully to free them from the various levers and projecting parts connected with the motor and brake controlling mechanism. The bodies are also of various shapes and sizes and the points where the lifting device can be attached thereto without marring the bodies vary with these different sizes and shapes. In lifting the body from the chassis, it will be seen that it must be lifted up slowly and gradually and steered to avoid the different projecting levers and parts, and then when entirely clear of these levers and projecting parts, it must be moved away from the chassis or the chassis itself must be moved. In placing the body on the chassis, it must be lifted above these levers and then must be gradually lowered and properly steered so as to be kept out of contact therewith and so as to permit the levers to come to their right positions when the body is seated on the chassis. The ordinary practice in handling the high class bodies of automobiles is by means of poles placed under the bodies and manipulated by six to ten men depending upon the size of the body.

The object of my invention is to provide a device by means of which these automobile bodies regardless of their sizes and shapes can be easily handled by one or two men and can be carefully lifted and manipulated to avoid these levers in removing the body and can be carefully lowered and manipulated to avoid these levers in placing the body on the chassis.

The invention is illustrated in the accompanying drawings wherein—

Figure 1 is a view showing one form of device embodying my invention; Fig. 2 is an enlarged view in part section with parts broken away showing the cross support and the depending arms; Fig. 3 is a sectional view taken on line 3—3 of Fig. 2; Fig. 4 is a sectional view taken on line 4—4 of Fig. 1; Fig. 5 is a view showing one form of apparatus for moving certain forms of bodies so that the device may be attached thereto; Fig. 6 is a sectional view taken on line 6—6 of Fig. 2; Fig. 7 is an enlarged view of a portion of the device shown in Fig. 5; Fig. 8 is a view showing a modified form of cross piece; Fig. 9 is a view of a portion of the device by which the supporting arms are held apart.

Like numerals refer to like parts throughout the several figures.

Referring now to the drawings wherein I have shown a construction embodying my invention, I provide a cross piece which in this instance consists of a tube 1 having at the ends thereof the separate parts 3 and 4 which are preferably arranged so that they are movable with relation to said tube. A looped truss member 5 is connected with said separate end pieces passing underneath them and engaging projections 6 thereon. This looped truss member passes up above the tube 1 and there is inserted between it and said tube a stress transmitting member 7. This member 7 is provided with the engaging parts or projections 8 (see Fig. 3) which engage the two loops of the member 5. This stress transmitting member is provided with an opening 9 by means of which it may be hung from some suitable support. Under ordinary conditions a block and tackle of some description will be connected with the parts 7 by means of the opening 9 so that the cross piece and the parts connected therewith can be easily lifted and lowered. The separate parts 3 and 4 may be moved back and forth by means of screw-threaded engagement and may be held in any desired position by the set screws 10. At the ends of the cross piece are the sliding members 11 and 12 which slide in and out of the cross piece.

In the construction shown in Fig. 2, the tube 1 is provided with an inner tube 13 to which the parts 3 and 4 are attached. In the construction shown in Fig. 8, the parts 3 and 4 are attached directly to the ends of the tube 1 and the tube 13 is omitted. The sliding members 11 and 12 are also held in place by the set screws 10. Connected with

each sliding member are the two projecting downwardly supporting arms 14 and 15. The arm 14, for example, is movably connected with the sliding member while the arm 15 may be fixed thereto, the parts being arranged so that these two supporting arms may be moved toward or from each other. In the construction shown, the supporting arms 14 are provided with a recessed portion 16 which fits over the end of the sliding member 11 or 12 with which it is associated, the arm being held in place by means of the bolt 17. The arms 14 and 15 are held in any desired position by means of a toothed part 18 which is connected to the arm 15 and which passes through a loop 19 on the arm 14, the teeth being adapted to engage a suitable stop device 19^a associated with said loop. Mounted upon each of the members 14 and 15 is a lateral projecting support 20 which projects on opposite sides of the arm and which is connected to the arm so that it may be slid therealong and may be moved laterally by having the hub rotate on the arm, which support is held in place by suitable set screws 21. The ends of the supports are provided with upwardly projecting parts 22 which are brought into contact with the body to be lifted. It will be seen that these lateral projecting supports may be moved up and down and laterally so as to bring them in any desired position to engage any portion of the body accessible thus making the device perfectly adjustable and adaptable to bodies of all kinds.

The adjustability of the device is shown, for example, in Fig. 1 where it is applied to a body where the arms which engage the rear of the body are higher than the parts in front of the body, and are also in different vertical planes. The adjustments for points of attachment in different vertical planes are made by moving the support laterally for this movement as it were shortens or lengthens the support without changing the position of the arm to which it is attached. The adjustments for points of support in different horizontal planes are made by moving the support up or down along the arm. It will be seen that when the body is supported on the supports 20 and the cross piece is supported by the parts 7, the ends of the cross piece are pulled down by the weight and the engagement of the cross piece with the truss causes the cross piece to tend to move up toward its middle. This tendency is stopped by the piece 7 inserted between the truss member and the cross piece which transmits the strains between them. It will thus be seen that a structure of great strength with little weight is here provided.

In some constructions, the frame of the machine is so arranged that it is difficult to find a point where the supports 20 can engage the body. In such instances, I prefer to provide some means whereby the body can be lifted from the frame. I have shown such a construction in Figs. 5 and 7. In this construction the body 23 rests upon the frame pieces 24. I provide two members 25 and 26 each arranged with a beveled end 27 adapted to be forced between the frame pieces 24 and the body. Some suitable mechanism is provided for moving said beveled ends between the body and the frame pieces. As herein shown, a threaded part 28 is located between the two members 25 and 26 and works in a threaded sleeve 29 to which is connected a beveled pinion 30. This pinion engages another beveled pinion 31 to which is connected a handle 32. By rotating the handle, the threaded part 28 may be moved so as to separate the members 25 and 26 and force the beveled ends between the body 23 and the frame pieces 24. A suitable holding dog 33 is also provided. The bottom parts of the body may be moved so as to get access to the handle 32. When the body is lifted from the frame pieces, the supports 20 may be placed thereunder so as to lift the body.

In the construction shown in Fig. 8, the separate pieces 3 and 4 are provided at their ends with the guides 4^a which act as guides for the sliding members 11 and 12. In order to prevent the members 11 and 12 from being entirely separated from the tube 1, I prefer to provide flexible fastening pieces 3^a connecting them together. In practice, the cross piece will be connected to a suitable lifting device 34 which is preferably a power multiplying device arranged having an extension to which is connected a flexible actuating part 35 so that a single operator on the ground by means of the flexible actuating part 35 can easily lift the body from the chassis and can either alone or with the assistance of another man so manipulate and control the body as to avoid the different projecting levers and parts, and lift it from the chassis free therefrom and without injury to it or to said levers and parts and this proper manipulation can also be secured in lowering the body on to the chassis.

It will therefore be seen that by means of this device, bodies of any shapes and sizes can be easily and safely handled by one or two men without injury to the complicated mechanism of the automobile or to the fine finish of the body.

I claim:

1. A device for removing vehicle bodies, comprising a cross support, supporting arms connected with said cross support and spaced apart, a laterally projecting support connected with each of said arms and adapted to engage the device to be moved, said arms adjustable longitudinally along said supporting arms and also adjustable around said supporting arms, and means for

holding said supports in their adjusted position.

2. A device of the kind described, comprising a cross support, two supporting arms at each end of said cross support, means for holding said arms in rigid relation with each other, lateral projecting supports connected with said arms and adapted to engage the vehicle body, said supports adjustable both vertically and horizontally, and means for holding said supports in their adjusted positions.

3. A device for removing vehicle bodies, comprising a plurality of downwardly projecting supporting arms, supports connected with said supporting arms for engaging the vehicle body, the arms at each side of the body being relatively movable, means for adjusting said supporting arms for different widths of bodies, means for adjusting said supports which engage the body, with relation to said supporting arms so that they can be moved to vary their position with relation to said supporting arms, and means for fixing said supports to said supporting arms.

4. A device for removing vehicle bodies, comprising four supporting arms, two on each side of the body, an adjustable member at each side of the body to which the supporting arms on each side of the body respectively are movably connected, supports for removably connecting said supporting arms to the body, said supports movably connected with said supporting arms, a cross support with which said adjustable members are connected, and a power multiplying lifting device connected with said cross support, an extension connected with said power multiplying lifting device, and a flexible actuating part projecting therefrom and within the reach of the operator.

5. A device for removing vehicle bodies, comprising a series of independently movable supporting arms, each adapted to be connected with the body, a cross piece with which said supporting arms are movably connected, a lifting device connected with said cross piece, supports movably connected with said supporting arms, and means for adjusting said supports with relation to said supporting arms and adapting the device to different sized bodies.

6. A device for removing vehicle bodies, comprising a series of supporting arms, a cross piece with which said arms are connected, said supporting arms adapted to pass on opposite sides of the body, supports movably connected with said supporting arms for engaging said body, said supports adapted to be moved out of the way when the supporting arms are being placed in position, and then adapted to be moved inwardly into engagement with the body, and means for rigidly holding said supports against movement when they are in their operative engaging positions.

7. A device for removing vehicle bodies comprising a cross support, a sliding member at each end of said cross support adapted to be moved with relation to said cross support and two supporting arms connected with each of said sliding members and means for connecting said supporting arms with the body of the vehicle.

8. A device for removing vehicle bodies comprising a cross support, a sliding member at each end of said cross support adapted to be moved with relation to said cross support and two supporting arms connected with each of said sliding members, and means for fastening said sliding members in various positions to hold said arms in proper spaced relation.

9. A device for removing vehicle bodies comprising a cross support, a sliding member at each end of said cross support, two supporting arms connected with each of said sliding members, a laterally projecting support connected with each of said arms and adapted to engage the body of the vehicle, said supports adjustable about said arms and longitudinally along said arms so as to be brought into proper position to engage bodies of different sizes and shapes.

10. A device for removing vehicle bodies, comprising a plurality of supporting arms which project down along the sides of the body, said supporting arms being relatively movable, supports movably connected with said supporting arms and projecting laterally therefrom when in their operative positions, said supports adapted to engage said body, and means for locking said supports in rigid relation with said supporting arms when the supports are in their operative positions.

11. A device for removing vehicle bodies, comprising a cross support, supporting arms connected with said cross support, a laterally projecting support connected with each of said arms, each support having two projecting parts projecting laterally from the arm with which it is associated, the two parts differing in length, said laterally projecting supports adjustable vertically and horizontally with relation to said arms so that either end may be brought into proper relation to the body and the vehicle, and means for holding said laterally projecting supports in their adjusted positions.

12. A device for removing vehicle bodies comprising a cross support, two supporting arms connected with said cross support at each end thereof and adapted to be moved relatively, a support adjustably connected with each arm and adapted to be brought into engagement with the vehicle body, each support adjustable lengthwise of the arm and adjustable around the arm so that the

device can be adjusted to bodies of various shapes and sizes.

13. A device for removing vehicle bodies comprising a cross support, two supporting arms connected with said cross support at each end thereof and adapted to be moved relatively, a device for holding said arms in various separated positions, a support adjustably connected with each arm and adapted to be brought into engagement with the vehicle body, each support adjustable lengthwise of the arm and adjustable around the arm so that the device can be adjusted to bodies of various shapes and sizes.

14. A device for removing vehicle bodies comprising a cross support, two supporting arms connected with said cross support at each end thereof and adapted to be moved relatively, a toothed part associated with the arms at each end of the cross piece, said toothed part connected to one arm and adjustably engaging the other arm so as to hold said arms in any desired separated position, a support adjustably connected with each arm and adapted to be brought into engagement with the vehicle body, each support adjustable lengthwise of the arm and adjustable around the arm so that the device can be adjusted to bodies of various shapes and sizes.

15. A device for removing vehicle bodies comprising a cross support, sliding telescoping members slidably engaging the cross support, downwardly projecting supporting arms connected with said sliding members, lateral projecting supports connected with said downwardly projecting supporting arms and adapted to engage the vehicle body, said sliding members adapted to be slid in and out to vary the distance between the downwardly projecting supporting arms without interfering with the transmission of the weight therethrough to the said cross support.

In testimony whereof, I affix my signature in the presence of two witnesses this 7th day of May, 1913.

FRANK P. STONE.

Witnesses:
MINNIE M. LINDENAU,
GENEVA HIRTH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."