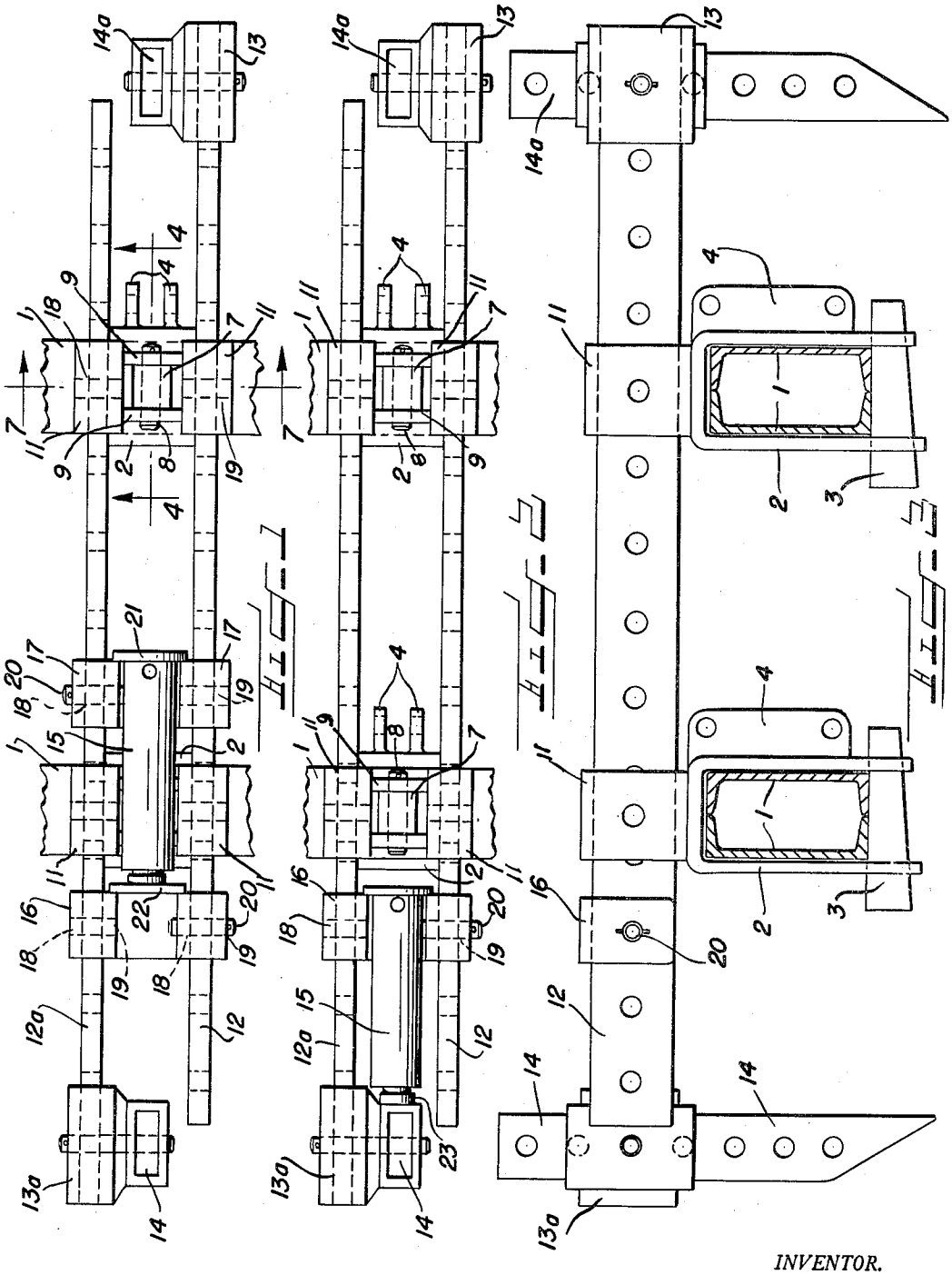
April 24, 1956 LE ROY V. JACOBSEN 2,742,945

ATTACHMENT FOR FRAME STRAIGHTENING MACHINES

Filed Jan. 18, 1952 2 Sheets-Sheet 1



INVENTOR.
LEROY V. JACOBSEN
BY
Merrill M. Blackburn.
ATTORNEY

April 24, 1956 LE ROY V. JACOBSEN 2,742,945

ATTACHMENT FOR FRAME STRAIGHTENING MACHINES

Filed Jan. 18, 1952 2 Sheets-Sheet 2

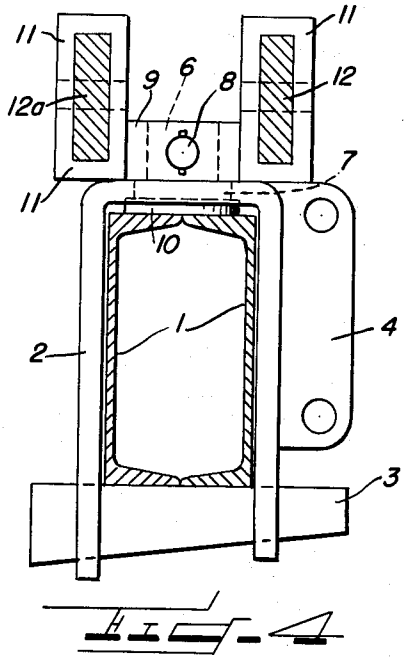


FIG. 4

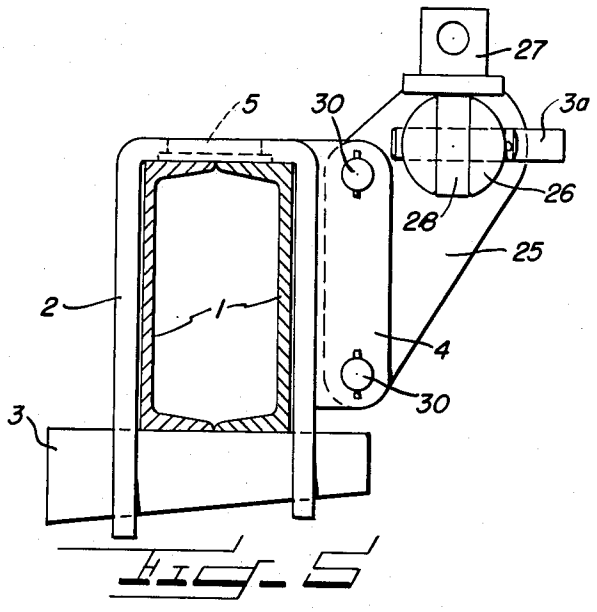


FIG. 5

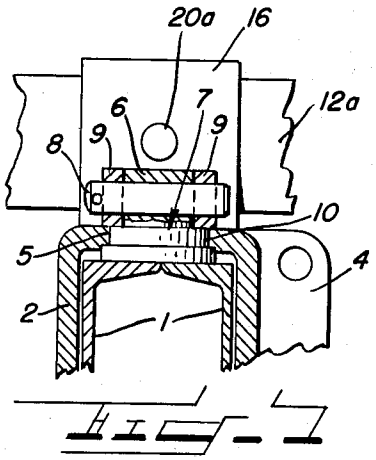


FIG. 7

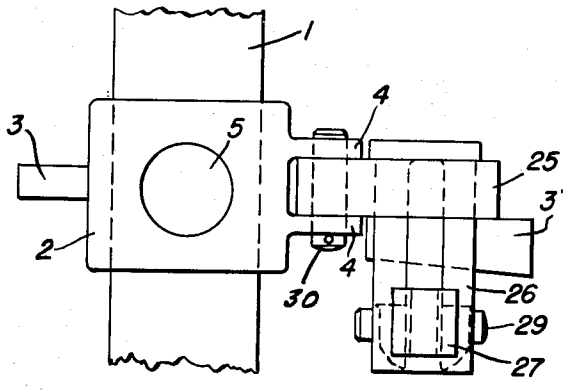


FIG. 6

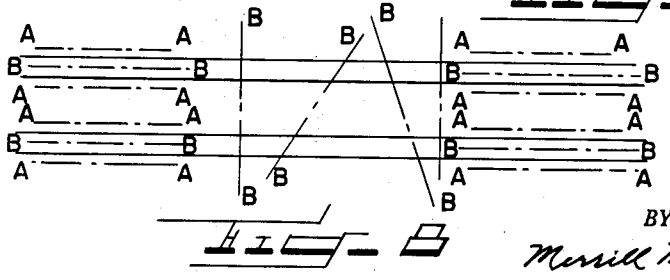


FIG. 8

INVENTOR.
LEROY V. JACOBSEN
BY
Merrill M. Blackburn
ATTORNEY

United States Patent Office 2,742,945 Patented Apr. 24, 1956

2,742,945

ATTACHMENT FOR FRAME STRAIGHTENING MACHINES

Le Roy V. Jacobsen, Durant, Iowa, assignor to Bee-Line Company, Davenport, Iowa, a copartnership

Application January 18, 1952, Serial No. 267,171

5 Claims. (Cl. 153—32)

This invention relates to the motor vehicle art and more particularly to mechanism for straightening motor vehicle frames. It is well known that, for various reasons, the frames of motor vehicles become misshapen and need to be put back into correct form. Preferably this can be done by pulling one part of the frame with relation to another part. It is desirable to be able to pull or push one member of the frame with relation to another, and it is in connection with this problem that I am now dealing.

In the drawings annexed hereto and forming a part hereof,

Fig. 1 shows a broken plan view of one arrangement of my apparatus;

Fig. 2 is a similar view of this apparatus, taken from a different position;

Fig. 3 is a sectional elevation of the apparatus of this invention;

Fig. 4 is a sectional elevation of the apparatus of this invention with the parts arranged for pulling or pushing longitudinally of the frame;

Fig. 5 shows an attachment for adapting this invention to cars having the wider frames;

Fig. 6 shows in plan view the structure shown in Fig. 5;

Fig. 7 shows a sectional elevation similar to Fig. 4 but with a part rotated ninety degrees (90°), this sectional elevation being approximately on the plane indicated by the line 7—7 in Fig. 1; and

Fig. 8 shows various directions in which pushing and pulling may be done with the present apparatus and illustrates the universality thereof.

Reference will now be made in greater detail to the annexed drawings for a more complete description of this invention. This frame straightening mechanism includes a pair of longitudinal beams, after the order of the beams 16 of Smith Patent No. 1,993,387, except that they are rectangular in cross-section, instead of circular as in the above mentioned Smith patent. These frame beams are designated by the reference numeral **1**, and the mechanism of this invention is held to the beams by U-shaped clips **2**. These clips are tightened by wedges **3** and held in place thereby. Some of these clips may be provided with ears **4** and, if desired, the ears may be omitted, although they are preferred.

Each clip **2** has a circular hole **5** in the top thereof for the reception of a rotatable post **6** which is rotatable in the clip **2** by reason of the fact that the post **6** has a circular shoulder **7**, and the square section of the post **6** is provided with a hole for the reception of a pin **8** which holds the post assembled with a box **9**. When the wedge **3** is driven in tightly, the clip **2** is tightened against the head or enlargement **10**, which prevents turning thereof. The box **9** is preferably welded to sliders **11** which slidably receive bars **12** and **12*a***, which may be pulled or pushed in either direction longitudinally. At an end of each bar **12** or **12*a*** there is a box **13** or **13*a*** for reception of an abutment, either **14** or **14*a***, which is to engage automobile frame members.

A jack **15** is placed between the bars **12** and **12*a*** and,

when operated, it pulls or pushes, depending upon the specific arrangement. When the arrangement is as shown in Fig. 1, with blocks **16** and **17** connected, respectively, to the bars **12** and **12*a***, the abutments **14** and **14*a*** will be pulled inwardly, whereas, when the arrangement is as shown in Fig. 2, the abutments will be pushed out. The block **16** is provided with pairs of holes **18** and **19** for the reception of a pin **20** to secure the block **16** to the bar **12** or **12*a*** by a pin **20**.

A bridge **21** connects the sliders **17** to which it is welded. This bridge **21** serves as an abutment for the jack **15**, and the pin **20** connects the sliders **17** to the bar **12*a***. The opposite end of the jack bears against the bridge **22**, which is connected to the sliders **16**, which are connected to the bar **12** by a pin **20**. Consequently, as the jack **15** is extended, the sliders **16** and **17** are separated, with the result that the bars **12** and **12*a*** are moved in opposite directions and the abutments **14** and **14*a*** are pulled toward each other. This is the operation of the apparatus as shown in Fig. 1.

The operation of the apparatus as shown in Fig. 2 will next be described. The slider **17** is omitted and the jack **15** is placed on or in slider **16** with the end **23** of jack **15** against box **13*a***. This results, when the jack **15** is operated, in pushing the bar **12** against box **13** and box **13*a*** in the opposite direction, moving the abutment outwardly so as to spread the side frame members of the motor vehicle sideways. If the bars **12** and **12*a*** are placed lengthwise of the beams **1**, between parts of the motor vehicle needing to be spread or drawn together, the apparatus will be effective to produce the desired result.

If the wedges **3** are not forced in tightly, the U-shaped clip will not be drawn down against the head **10**, and the post **6** can therefore be turned to any position desired. Since the post **6** is square, the box **9** can be turned in any direction, and the pushing and pulling can be in any direction, as shown by the lines A—A and B—B in Fig. 8, which shows that the apparatus is universal.

If it is desired to use this apparatus on a motor vehicle having a wider frame than usual, an attachment **25** may be secured to a pair of ears **4**, or, if the frame is unusually wide, the clips **2** may be turned so that the ears **4** are directed in the opposite direction and the attachment **25** will extend in opposite directions. A post **26** extends through the attachment **25**, and a post **27** provided with a wing **28** rises from the post **26**. The post **27**, as shown in Fig. 6, is square for the attachment of the box **9**. The wing **28** is secured to the post **26** by a pin **29**. Pins **30** are used to secure the attachment **25** to the ears **4**.

It is of course understood that the specific description of structure set forth above may be departed from without departing from the spirit of this invention as disclosed in this specification and as defined by the appended claims.

Having now described my invention, I claim:

1. An attachment for a frame straightening machine for acting upon a motor vehicle, said frame straightening machine **22** having a plurality of beams, clips for securing said attachment to the beams of said machine, said clips having circular holes, rectangular posts with circular enlargements received in said holes and turnable to various positions of adjustment when the clips are loosely held, boxes held by said posts, sliders secured to said boxes, a bar slidable through each of said sliders, other boxes on the bars, secured to said bars, abutments in said other boxes for acting upon parts of a motor vehicle, other sliders on said bars, bridges on said other sliders, one bridge being secured to one slider, another bridge being secured to the other slider, and a jack reacting between the bridges.

2. An attachment for a frame straightening machine for acting upon the frame of a motor vehicle, a clip for

attachment to the frame of the machine to fasten said attachment thereto, said clip having a pair of ears, an attachment connected to said ears, a circular hole in a side of the clip at a right angle to the side carrying the ears, a post of angular cross-section provided with a circular shoulder fitting within the circular hole, a box fitting around the post, a pair of bars, sliders fixed to the box and each slidable on one of the bars, and a jack reacting with the other bar in causing relative longitudinal motion of one of the bars, said ears having a bracket supported thereby, and thereby being capable of adding to the width of the frame straightening machine.

3. An attachment for a frame straightening machine for acting upon the frame of a motor vehicle, said machine having a frame, a clip for attachment to the frame of the machine to secure said attachment to said frame, said clip having a pair of ears, a bracket receivable between said ears and pinned thereto at the side of the frame of said machine, said bracket having a circular hole therethrough, a first post of circular cross-section secured in said bracket, a second post of angular cross-section having an ear receivable in the first post and adapted to receive a box of angular form, and sliders secured to the second post, whereby the width of said machine may be increased to accommodate a motor vehicle of wider width.

4. An attachment for a frame straightening machine, for correcting the form of a motor vehicle, said machine having a frame, a clip for securing the attachment to the frame of the machine, a post having a square body and a circular enlargement projecting through a circular hole in the clip, a circular enlargement below the first enlargement forming a shoulder which is engaged between the clip and frame, means clamping the clip to the frame with said shoulder therebetween to hold the post against turning, a box surrounding the square body of the post

and fitting the same closely, other boxes secured to an end of each bar, an abutment in each of said last named boxes, sliders secured to the first named box, and bars slidable in said sliders to vary the distance between said other boxes.

5. An attachment for a frame straightening machine for acting upon the frame of a motor vehicle, comprising first and second bars arranged in side-by-side relation and closely spaced apart and each having an outer end remote from the outer end of the other, a first box secured to the first bar adjacent to the outer end thereof and carrying first abutment means for engaging a vehicle frame, a second box secured to the second bar adjacent to the outer end thereof and carrying second abutment means for engaging a vehicle frame in spaced relation to the first abutment means, means interconnecting the bars for lengthwise sliding of one bar relative to the other and including a slider slidably engaging the second bar and pinned to the first bar, and means for moving the bars relative to each other and including a jack acting against the second box and reacting against the slider whereby extension of the jack causes the second box, second abutment means and second bar to move in one direction and the slider and the first bar, together with the first box and first abutment means to move in the opposite direction.

References Cited in the file of this patent

UNITED STATES PATENTS

1,326,953	Morano	Jan. 6, 1920
1,993,387	Smith	Mar. 5, 1935
2,013,785	Merrill	Sept. 10, 1935
2,422,030	Merrill	June 10, 1947
2,547,757	Le Roy	Apr. 3, 1950