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AIR BRAKE ADJUSTING TOOL

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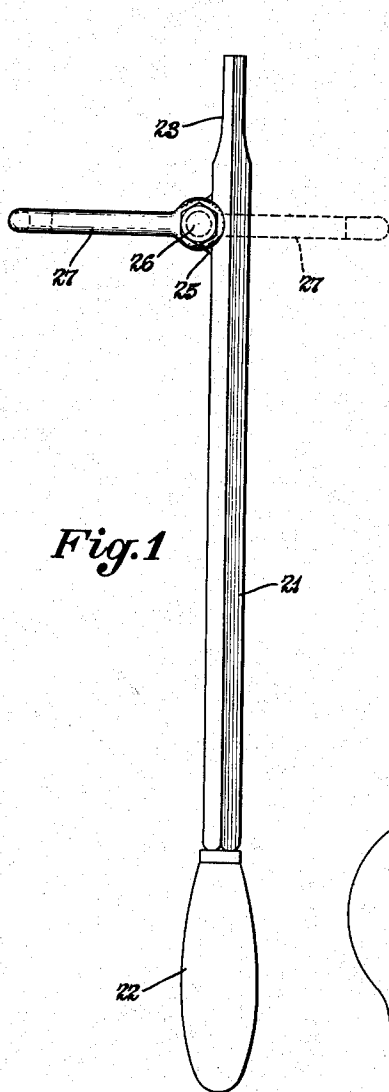


Fig. 1

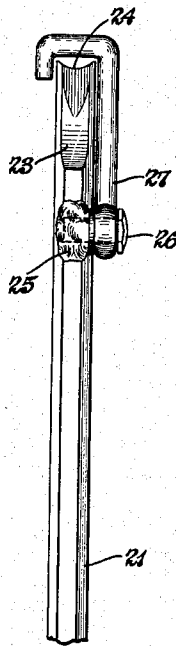


Fig. 2

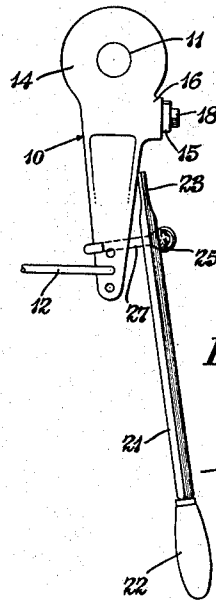


Fig. 3

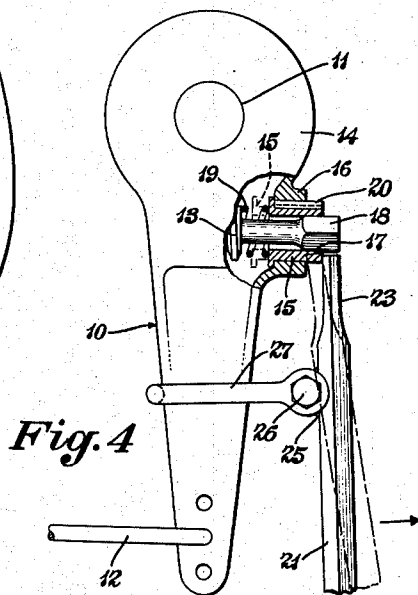


Fig. 4

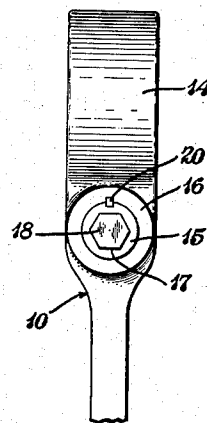


Fig. 5

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AIR BRAKE ADJUSTING TOOL

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2 Claims. (Cl. 254-131)

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The invention relates to a tool for adjusting air brakes on trucks, tractor-trailers and the like, and more particularly to such a tool comprising a metal bar having a hook pivotally connected to one side thereof near one end of the bar.

Air brakes of the type referred to have a lever arm upon each wheel brake, said lever arm being connected by a link to the usual air brake diaphragm by means of which the brakes are operated.

Due to wear upon the brake shoes, caused by operation of the brakes, a certain amount of lost motion, or play, develops in these lever arms, necessitating frequent adjustment of the brakes to take out unnecessary lost motion.

Under present practice this requires the services of two men, one seated in the cab of the vehicle to operate the brakes, and the other located beneath the vehicle so that he can see the amount of play, or lost motion, in each lever arm and then make the required adjustment to remove any unnecessary lost motion from each lever arm.

It is an object of the present invention to provide a tool by means of which one mechanic may independently move each lever arm, to determine the amount of lost motion therein and then make the required adjustment to remove unnecessary lost motion therefrom.

Another object is to provide such a tool which may be used in adjusting the brake after the amount of lost motion has been determined.

A further object is to provide a tool of the character referred to comprising a metal bar having a hook pivotally connected to one side of the bar, near one end thereof, the hook being of such length that it may be swung over the adjacent end of the bar, so as to be disposed upon either side of the bar to provide either a long or a short hook as may be required.

A still further object of the invention is to provide such a tool in which the end portion of the bar, adjacent to the hook, is tapered and provided with a slightly concave terminal end, for engaging and forcing inwardly the usual sleeve which normally prevents rotation of the worm screw in the lever arm.

The above objects together with others which will be apparent from the drawing and following description, or which may be later referred to, may be attained by constructing the improved tool in the manner hereinafter described in detail and illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation of the tool, showing

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the hook extended at one side of the bar, and showing the hook disposed across the other side of the bar, in broken lines;

Fig. 2 an edge elevation of the upper portion of the tool, showing the hook swung over the upper end of the bar;

Fig. 3 an elevation, on a smaller scale, showing the manner in which the tool is used to swing the lever arm of the brake to determine the amount of play therein;

Fig. 4 an elevation of the lever arm, with parts broken away, showing the manner in which the tool is used to push inwardly, to released position, the sleeve which normally prevents rotation of the worm screw; and,

Fig. 5 an edge view of a portion of the lever arm showing the end of the worm screw and the sleeve which prevents rotation thereof.

In the ordinary construction of air brakes for vehicles, a lever arm, indicated generally at 10, is associated with each wheel brake, this lever arm being fulcrumed as at 11, and adapted to be oscillated around the fulcrum by means of a link 12 which connects the lever arm to the diaphragm of the air brake operating mechanism.

Each lever arm has a worm screw 13 journaled therein, which engages a worm wheel (not shown) within the enlarged head 14, which is provided, as in common practice in such brakes, for adjusting the brake shoe upon the corresponding wheel.

For the purpose of normally preventing the worm screw 13 from rotating, a sleeve 15 is slidably located within the transversely disposed boss 16 upon one side of the lever arm, this sleeve having a hexagonal interior, as indicated at 17, for normally engaging the hexagonal head 18 upon the outer end of the worm screw.

A coil spring 19 is usually provided for urging the sleeve 15 outward, as shown in full lines in Fig. 4, so that the hexagonal interior thereof engages the hexagonal head 18 of the worm screw. A key 20 is provided to prevent rotation of the sleeve 15.

The improved tool to which the invention pertains comprises a straight bar 21, preferably formed of steel, having a handle or hand grip 22 at its lower end, the upper end portion being preferably tapered or reduced in thickness, as indicated at 23, and terminating in the concave, arcuate end 24, for a purpose to be later explained.

A lug 25 is formed at one side of the bar 21, at a point spaced from the upper end thereof, to provide a support for the pivot pin 26 upon which the hook 27 is mounted. This hook is of such

length that it will just clear the end of the bar 21, as indicated in Fig. 2, so that the hook may be swung over the end of the bar to be disposed at either side of the bar as occasion may require.

As shown in Fig. 1, the hook 27 is shown in full lines at the left side of the bar 21, this being the side upon which the hook is pivoted. Thus a relatively long hook is provided. In cases where a shorter hook is desirable the hook may be swung over the end of the bar and disposed on the right side of the bar 21, as indicated in broken lines in Fig. 1.

When the tool is used in adjusting a brake, in order to first determine the amount of lost motion or play in the lever arm 10, the hook 27 is engaged over one side of the lever arm 10 and the upper end portion 23 of the bar 21 is engaged against the opposite side of the lever arm, as shown in Fig. 3, and the handle portion of the tool is then pulled to the right, as indicated by the arrow in Fig. 3.

This provides sufficient leverage to swing the lever arm 10 upon its fulcrum, and the mechanic may thus determine the amount of unnecessary lost motion which must be compensated for. In order to adjust the brake to take up the lost motion, the sleeve 15 must be pushed inward, against the pressure of the spring 19, until it is disengaged from the hexagonal head 18 of the worm screw 13, in order that the worm screw may be rotated to make the adjustment.

This sleeve is frequently very hard to push inward as the same often becomes corroded from salt and other chemicals which may be placed upon streets and highways to melt snow and ice.

The tool to which the invention pertains is adapted for quickly and easily pushing this sleeve inward, out of engagement with the hexagonal head of the worm screw, as shown in Fig. 4. The hook 27 is engaged over the opposite side of the lever arm 10 and the upper end portion of the bar 21 is engaged against the outer end of the sleeve 15, the concaved end 24 of the bar accommodating the hexagonal head 18 of the worm screw.

The bar 21 is then pulled to the right, as indicated by the arrow in Fig. 4, providing considerable leverage which will easily loosen the sleeve 15 and force it inwardly to the broken line position, out of engagement with the hexagonal head 18.

A socket wrench or the like may be applied to the hexagonal head of the worm screw to adjust the same to take up the unnecessary lost motion. It will thus be seen that with the tool one man can quickly and easily determine the amount of lost motion to be compensated for in the lever arm of each wheel brake and then quickly and easily make the desired adjustment.

In the foregoing description, certain terms have been used for brevity, clearness and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such words are used for descriptive purposes herein and are intended to be broadly construed.

Moreover, the embodiments of the improved

construction illustrated and described herein are by way of example, and the scope of the present invention is not limited to the exact details of construction.

Having now described the invention or discovery, the construction, the operation, and use of preferred embodiments thereof, and the advantageous new and useful results obtained thereby; the new and useful constructions, and reasonable mechanical equivalents thereof obvious to those skilled in the art, are set forth in the appended claims.

I claim:

1. A brake adjusting tool comprising a substantially straight bar having one end portion thereof flattened on two opposite sides, a lug disposed outwardly from the bar on one of said two sides at a point spaced from said one end thereof, a pivot pin carried by said lug and extending from one side of the lug at right angles thereto, and a hook lever pivoted upon said pivot pin and movable around said pivot pin only in a plane parallel with the bar, said hook lever being of a length slightly greater than the distance from the pivot pin to said one end of the bar and having an angular hooked end extending to a point on the opposite side of said bar from the pivot pin and terminating in a backwardly disposed end, whereby the hook lever may be swung over said one end of the bar so that it may be disposed upon either of said first mentioned two sides of the bar with the hooked end thereof located closer to the axis of the bar in one position than in the other position.

2. A brake adjusting tool comprising a substantially straight bar having one end portion thereof flattened on two opposite sides and terminating in transversely concaved arcuate end, a lug disposed outwardly from the bar on one of said sides at a point spaced from said one end thereof, a pivot pin carried by said lug and extending from one side of the lug at right angles thereto, and a hook lever pivoted upon said pivot pin and movable around said pivot pin only in a plane parallel with the bar, said hook lever being of a length slightly greater than the distance from the pivot pin to said one end of the bar and having an angular hooked end extending to a point on the opposite side of said bar from the pivot pin and terminating in a backwardly disposed end, whereby the hook lever may be swung over said one end of the bar so that it may be disposed upon either of said first mentioned two sides of the bar with the hooked end thereof located closer to the axis of the bar in one position than in the other position.

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