

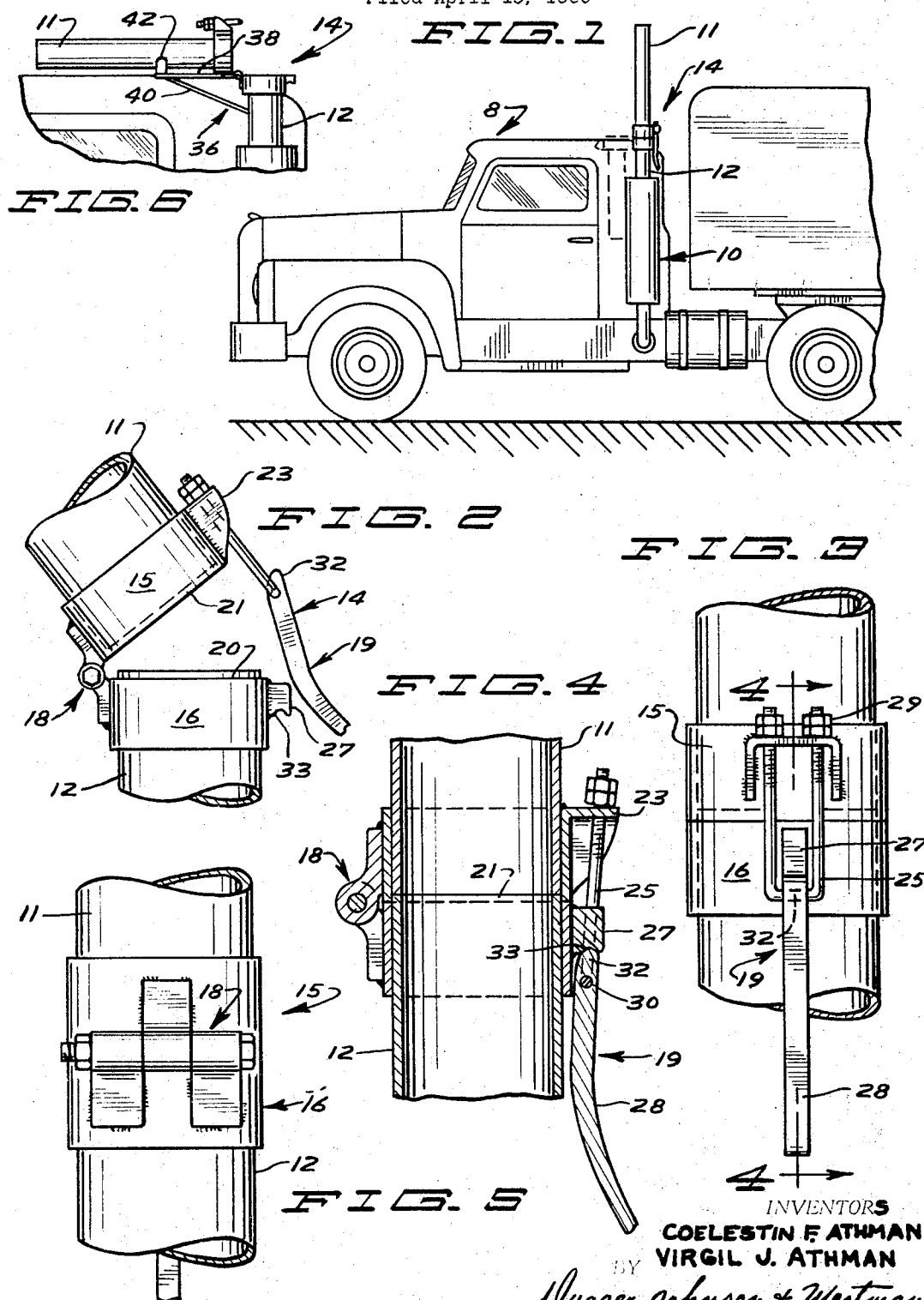
Oct. 3, 1967

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3,345,092

FOLD DOWN EXHAUST STACK FOR ENGINES

Filed April 19, 1965



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FOLD DOWN EXHAUST STACK FOR ENGINES

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Filed Apr. 19, 1965, Ser. No. 449,114

2 Claims. (Cl. 285-283)

ABSTRACT OF THE DISCLOSURE

A foldable exhaust stack on a truck having joint apparatus that includes a bottom sleeve fixedly attached to the lower section of the stack, a top sleeve hingedly connected to the bottom sleeve and fixedly connected to the lower end of the upper stack section, and overcenter lock mechanism that includes a latch having a recessed portion fixedly connected to the lower sleeve. A bracket is provided for supporting the upper section in a fold down condition.

This invention relates to a fold down exhaust stack particularly suited for use in conjunction with a truck and other motor vehicles.

It is the principal object of this invention to provide suitable and convenient means for lowering and raising the upper section of an exhaust stack such as commonly used by diesel trucks, and thereby enable the trucks to pass under the overhead obstructions which frequently span highways. Another object of this invention resides in the provision of a fold down exhaust stack which is composed of a few simple, yet durable parts and is relatively inexpensive to manufacture. Another object of this invention is to provide a latching means for a fold down exhaust stack which can be quickly and conveniently operated.

Other objects of this invention will become apparent as the description proceeds.

In the drawings:

FIG. 1 is a side elevational view showing the invention in conjunction with a conventional truck;

FIG. 2 is an enlarged fragmentary view showing the invention removed from the truck;

FIG. 3 is a side elevation showing the detail of the latching means in a locked position;

FIG. 4 is a sectional view taken on the line 4-4 of of FIG. 3;

FIG. 5 is a side elevational view showing the detail of the hinge; and,

FIG. 6 is a fragmentary side elevational view showing an accessory of the invention.

Referring to the drawings, and particularly to FIG. 1, there is shown a truck 8 having a vertical exhaust stack 10 situated at its conventional position near the cab of the truck. Exhaust stack 10 includes the top and bottom cylindrical stack sections 11 and 12, respectively. The present invention is broadly designated by the numeral 14, and serves as an interconnecting joint means for the cylindrical stack sections 11 and 12. This joint means 14 is adapted to securely hold the top section 11 in its vertical raised position, and is manually releasable to enable the section 11 to be folded down into a collapsed (dotted line position of FIG. 1) position relative to the bottom cylindrical section 12 which remains fixed. The invention or joint means 14 comprises in general a top sleeve member 15, a bottom sleeve member 16, an interconnecting hinge assembly 18 and a latching mechanism 19. Each of these essential components will now be described in detail.

The top sleeve 15 is adapted to receive the bottom end of the top stack section 11 and is securely welded thereto. Similarly, the bottom sleeve 16 is adapted to receive the top portion of the bottom stack section 12 and is also welded thereto. As best seen in FIGS. 2 and 4, the bottom

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sleeve 16 is secured to the bottom section 12 at a point slightly below the top edge so as to form a top lip portion 20. The lip 20 is adapted to engage a small annular recess 21 which is formed on the inside of sleeve 15 by mounting the top stack section 11 slightly above the lower edge of the sleeve 15. In this manner, a slight overlap is provided by the sleeve member 15 upon the bottom stack 12 so as to form a seal between the two sections when the joint means is in its closed position.

The cylindrical sleeves 15 and 16 are of the same cross sectional diameter so as to mate with one another when closed.

The latching mechanism 19 includes the top bracket member 23, a U-shaped member 25, a lower latch member 27 and locking handle 28. The bracket 23 is perforated to receive the top threaded ends of the U-member 25. Lock nuts 29 are provided on U-member 25 and normally rest on the top surface of the bracket 23. The lower transverse section of the U-member 25 is pivotally connected at 30 to the handle 28. Handle 28 is provided with a tapered end 32 which is adapted to engage the contoured underside 33 of the latch 27 when the parts are in their locked position.

As will be readily appreciated, the latching mechanism 19 provides an over-the-center lock. This is accomplished by providing some pivotal movement or "play" of the U-member 25 relative to the top bracket 23 sufficient to allow the handle end 32 to pass over the latch 27 and then be locked into engagement therewith by pulling the handle end downwardly so as to effect the locking engagement between the handle end 32 and the latch surface 33.

Lock nuts 29 which are threaded to the ends of the U-member 25 can be adjusted so as to insure a tight locking engagement of the parts of the latching mechanism 19.

FIG. 6 shows a bracket 36 which can be used to advantage in conjunction with the invention. The bracket 36 serves as a rest for the top stack section 11 when the same is folded into its collapsed position. The bracket 36 is preferably fixedly mounted to the bottom stack section 12 and includes the horizontally aligned extension bar 38 and inclined reinforcing strut 40. The bar 38 is provided with a pair of upstanding flanges 42 which receive therebetween the top stack section 11.

The operation of the device is simple and can be achieved with the utmost of convenience. The driver who encounters an overhead obstruction merely swings the handle 28 upwardly to disengage the same from the latch member 27 and then pivots the top section 11 downwardly due to the action of the hinge assembly 18. When the driver is again ready to return the stack section 11 to its raised position, it is merely swung upwardly until the sleeve members 15 and 16 close and the handle end 32 has cleared the bottom portion of latch member 27. The handle member 28 is then swung downwardly into its over-the-center locked position.

Thus, as will be readily appreciated, there is provided an effective joint means for a fold down exhaust stack, particularly suited for convenient operation and installation and which permits construction of simple parts but insures ample strength, and which fulfills the foregoing listed objects of the invention, as well as others.

While there has been shown and described a particular embodiment of the invention, it will be obvious to those skilled in the art that changes and modifications may be made without departing from the invention, and that it is intended by the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. An improved joint means for a vertical exhaust stack having upper and lower cylindrical sections, said improvement comprising a bottom sleeve member having an upper

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edge, said bottom sleeve member being fixedly mounted on the upper end portion of said lower section to have its upper edge at an elevation slightly below the top edge of said lower section, a top sleeve member having a bottom edge, said top sleeve member being fixedly mounted on the lower end portion of the upper section to extend to a slightly lower elevation than the bottom edge of said upper section to form an annular recess within the top sleeve member into which the top edge of said lower section is extendable to form a seal between said upper and lower sections, means for hingedly connecting said upper and lower sections and latching means including a bracket fixedly mounted on one of said sleeve members, a latch fixedly secured to the other of said sleeve members, a U-shaped member having one end secured for limited pivotal movement relative to said bracket, and a locking handle pivotally connected to the opposite end of said U-shaped member, said locking handle being adapted to be pivoted into an over-the-center locking position relative to said latch.

2. The apparatus of claim 1 further characterized in that said one end of the U-shaped member is secured to said bracket by means for adjusting the maximum amount that the U-shaped member extends away from said bracket

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to insure a tight fit between said locking handle and latch in the over-the-center locking position, the last mentioned means being mounted on said U-shaped member and that said sleeve members are mounted on the respective cylinder section in position to mate when said handle is in the over-the-center locking position.

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