June 1, 1943. J. FALCON 2,320,919

OUTRIGGER OPERATING MEANS

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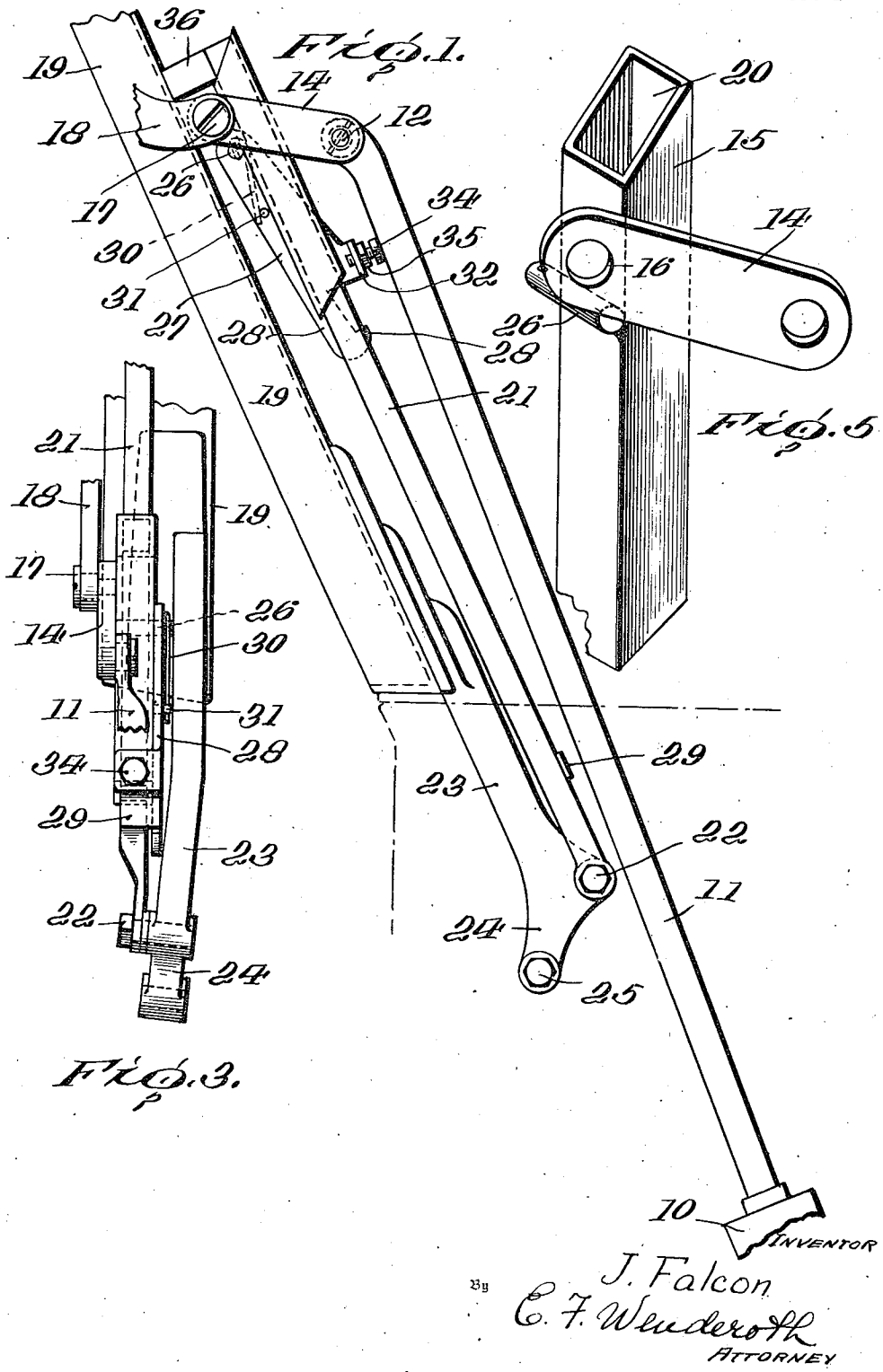


FIG. 1.

FIG. 5.

FIG. 3.

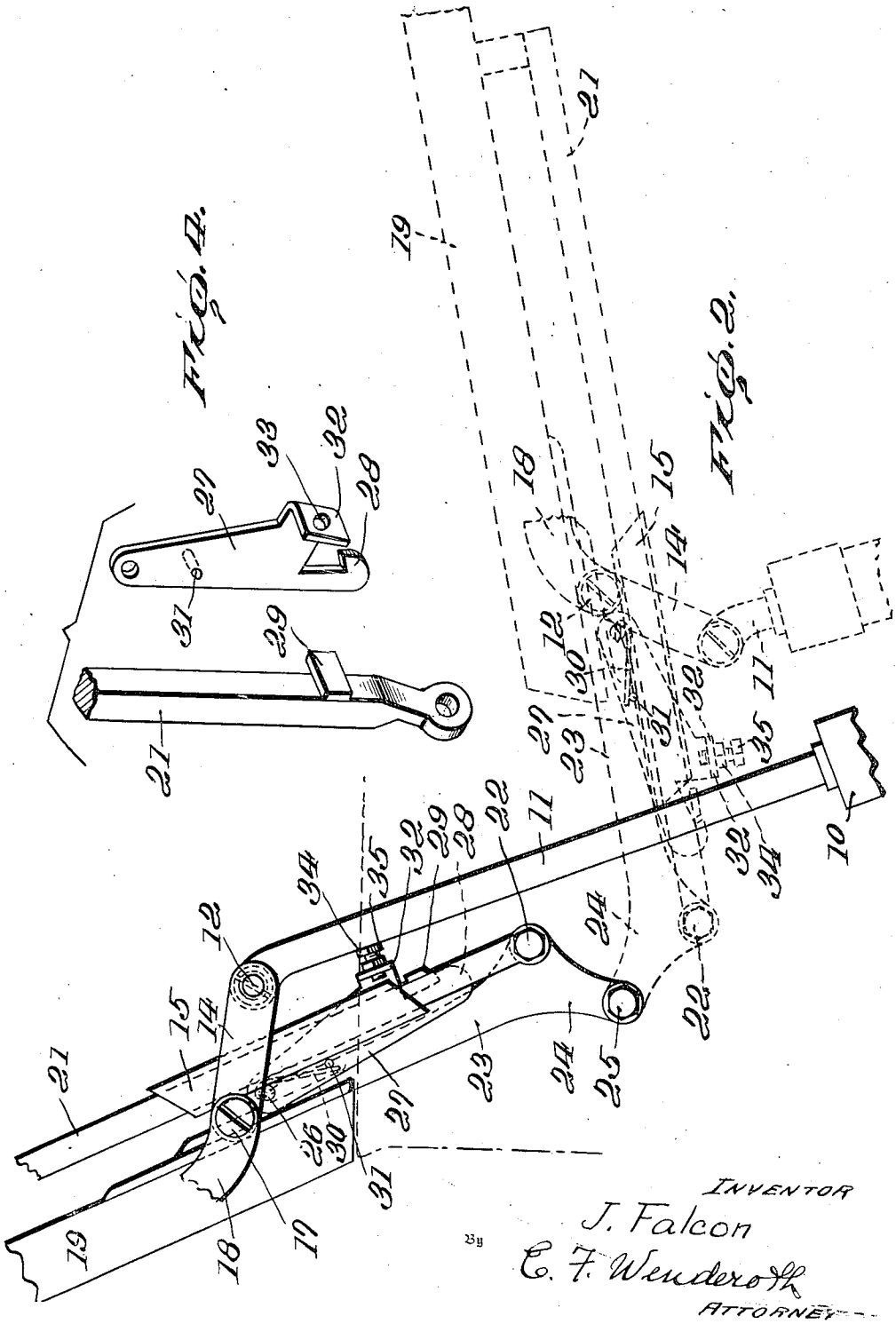
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2,320,919

OUTRIGGER OPERATING MEANS

Jeronimo Falcon, Detroit, Mich.

Application July 1, 1939, Serial No. 282,509

5 Claims. (Cl. 296—117)

This invention relates to outrigger operating means.

An object of the invention is to provide a construction in which means are provided for operating an outrigger for convertible cars to extended or collapsed position and at the same time swinging the entire assembly to a substantially horizontal position in the back portion of the car.

A further object of the invention is to provide a construction which is efficient, reliable and which is capable of being operated by a single plunger cylinder disposed at each side of the car.

A still further object of the invention is to provide an outrigger operating construction in which the outrigger is raised in two stages by a single and unitary operating means.

A still further object of the invention is to provide an automatically operating lock for locking the collapsed outrigger to the main bow while the assembly is at the intermediate and completely collapsed positions so that such assembly will act as a unit when being raised from the substantially horizontal position to the substantially vertical position or vice versa.

With these and other objects in view, which will become apparent from the detailed description below, a preferred embodiment of the invention is shown in the drawings in which:

Figure 1 is a partial side elevation showing the parts in the position which they assume when the outrigger is fully extended.

Figure 2 is a similar side elevational view showing the position which the parts assume in the intermediate position in full lines and in the completely collapsed substantially horizontal position in dotted lines.

Figure 3 is a partial back view of the parts taken from the right of Figure 2 with portions broken away for greater clearness when the operating means are in the intermediate position.

Figure 4 is an exploded perspective view of a portion of the guide rod and the pivoted latch cooperating therewith, and

Figure 5 is a partial perspective view of the slide member.

Referring to the drawings in which like parts represent like elements throughout the various figures, the operating cylinder is shown at 10 having an operating plunger 11. Only a single operating plunger and cylinder is illustrated in the drawings and in some instances such may be sufficient for raising the top construction, but as a usual construction, an operating cylinder and cooperating parts are placed upon each side of the automobile.

The plunger 11 is pivotally connected at 12 to an extension or transverse member 14 fixed to a tubular slide 15. The other end of the transverse member is provided with an aperture 16 in which a pivot pin 17 is located and to which the operating link 18 only partially shown, is pivotally connected. The operating link 18 is connected in any desired manner to the outrigger construction of any desired type. The outrigger construction, not shown, is pivotally connected to the main bow 19 as shown, for instance, in my copending application Serial Number 282,508, filed July 1, 1939.

The tubular member 15 is formed in a manner particularly shown in Figure 5 and has a bore 20 of square cross-section preferably through which extends guide rod 21 of corresponding cross-section. The guide rod 21 at its lower end is secured by means of a bolt 22 to a member 23 of the configuration best shown in Figures 1 and 3 to which the main bow 19 is fixedly secured by any desired means, such as screws, rivets and the like.

The member 23 has an extension 24 extending downwardly and forwardly and such extension 24 is pivotally secured by a pivot pin 25 to a fixed portion of the frame work of the automobile so that the entire assembly may be swung about such pivot to completely collapsed position.

The tubular member 15 is also provided with a pivot pin 26 on which is pivotally mounted the hook or latch member 27. The latch member 27 is of the shape shown in Figure 4 particularly, and has a hook end 28 which at certain positions of the construction cooperates with a latching bolt 29 provided on the guide rod 21. A leaf spring 30 is also fixed to the pivot pin 26 as shown more particularly in Figure 3 which cooperates with the pin 31 provided on the latch 27 in order to urge the latch to locking position with the bolt 29.

The latch 27 is also provided with a right angularly extending projection 32 having a threaded aperture 33 therein for receiving a stop bolt 34 secured in adjusted position by the nut 35. The stop bolt 34 is designed to cooperate with the plunger rod 11 for removing the hook portion 28 of the latch 27 from engagement with the locking bolt 29.

The tubular member 15 has a diagonally extending top portion so as to permit the tubular member 15 to extend toward the extreme top

of the guide rod 21 while accommodating the spacing member 36 connecting the upper portion of the guide rod 21 to the main bow 19.

The operation of the above-described construction is as follows: When the top is folded down completely as shown in dotted lines in Figure 2, the latch member 27 engages with the locking bolt 29 since the stop bolt 34 is entirely clear of the operating plunger 11. In such position, the tubular slide 15 is locked to the guide rod 21 and since the tubular slide 15 by means of the transverse member 14 is connected to the outrigger construction, such outrigger construction is held in completely collapsed condition on the main bow 19. Therefore, the outrigger construction, the guide rod 21, the slide member 15 and the main bow act as a single unitary construction and upon a movement upwardly of the plunger 11, the entire assembly will be swung about the pivot point 25 to the intermediate position shown in full lines in Figure 2. However, as the entire assembly swings to the substantially vertical position, then the stop bolt 34 approaches the plunger 11 and when the intermediate position is reached, contact is made between the stop bolt 34 and the side of the plunger 11, which forces the latch member 27 in a clockwise rotation against the action of the spring 30 so as to release the hook 28 from the locking bolt 29 and thereby leave the tubular slide 15 free to slide along the guide rod 21 and thereby extend the extensible members or outrigger pivoted to the main bow 19 by the action of the link 18 thereon. When in fully extended position, the various members will occupy the positions shown in Figure 1.

When the top is to be lowered a reverse movement takes place. The plunger 11 descends and as it descends the slide 15 is at first guided from its upper position on the guide rod 21 to its lower position thereon. This causes a collapsing of the outrigger elements. When the latch member 27 reaches the locking bolt 29, the hook 28 will cooperate therewith since at such time the plunger 11 will begin to move away from the stop bolt 34. This locks the various elements together and they are then swung by the plunger 11 from the intermediate to the fully collapsed substantially horizontal position.

It will be noted that only a single operating member is required at each side of the car and also that the operating parts are reduced to relatively few in number.

I claim:

1. In combination with a convertible top comprising a plurality of members at least two of which are pivotally attached to the body of a vehicle at each side thereof and others of which directly support a top covering, latch means preventing rotation of all of said members until the other members which support the covering are first collapsed, and power means adapted to retract said other members and thereafter rotate all of said members about the point of pivotal attachment to final collapsed position.

2. In combination with a convertible top comprising a main bow pivotally mounted to the body of a vehicle and top extension members collapsible on said bow, a guide rod adjacent said bow and having a sleeve slidable thereon, power means constructed and arranged to exert thrust substantially normal to the direction of sliding of said sleeve to elevate said bow, said power means upon further actuation after elevation of said bow causing said sleeve to slide along said guide rod whereby said extension members traverse the leading edge of the top substantially horizontally, and latch means connecting said sleeve and said extension members, said latch means locking said sleeve and said extension means when in collapsed position and being automatically released when said bow approaches fully elevated position.

3. In combination with a convertible top comprising a main bow pivotally mounted to the body of a vehicle and top extension members collapsible on said bow, a guide rod adjacent said bow and having a sleeve slidable thereon, power means constructed and arranged to exert thrust substantially normal to the side walls of said sleeve to elevate said bow, latch elements one of which is carried by said guide rod and another of which is carried by one of said extension members, said power means comprising a push rod pivotally secured to said sleeve and adapted to cause disengagement of said latch elements and actuation of said extension members upon further movement after elevation of said bow.

4. In combination with a convertible top comprising a plurality of members at least two of which are pivotally attached to the body of a vehicle at each side thereof and others of which directly support a top covering, latch means preventing rotation of all of said members until the other members which support the covering are first collapsed, power means adapted to retract said other members and thereafter rotate all of said members about the point of pivotal attachment to final collapsed position, and additional latch means carried by said members and operative during final collapsing movement of all members to lock all of said members in fully collapsed position.

5. In combination with a convertible top comprising a plurality of members at least two of which are pivotally attached to the body of a vehicle at each side thereof and others of which directly support a top covering, latch means preventing rotation of all of said members until the other members which support the covering are first collapsed, power means adapted to retract said other members and thereafter rotate all of said members about the point of pivotal attachment to final collapsed position, and mating latch elements carried by two of said members, said power means being adapted to condition said latch elements for engagement with each other as said members approach their fully collapsed positions whereby latching occurs during final collapsing movements of said members.

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