Oct. 16, 1956 C. S. SMITH 2,767,000

PIVOTAL JOINTS

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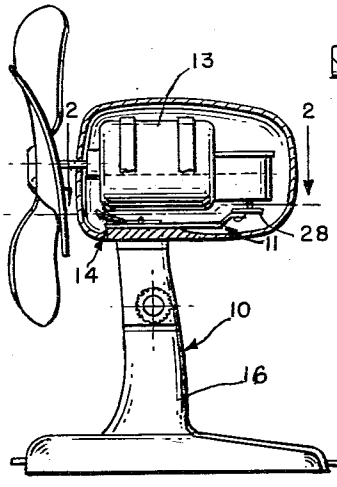


Fig. 1.

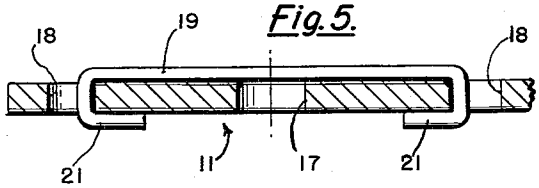


Fig. 5.

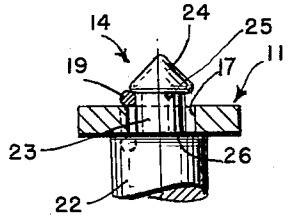


Fig. 4.

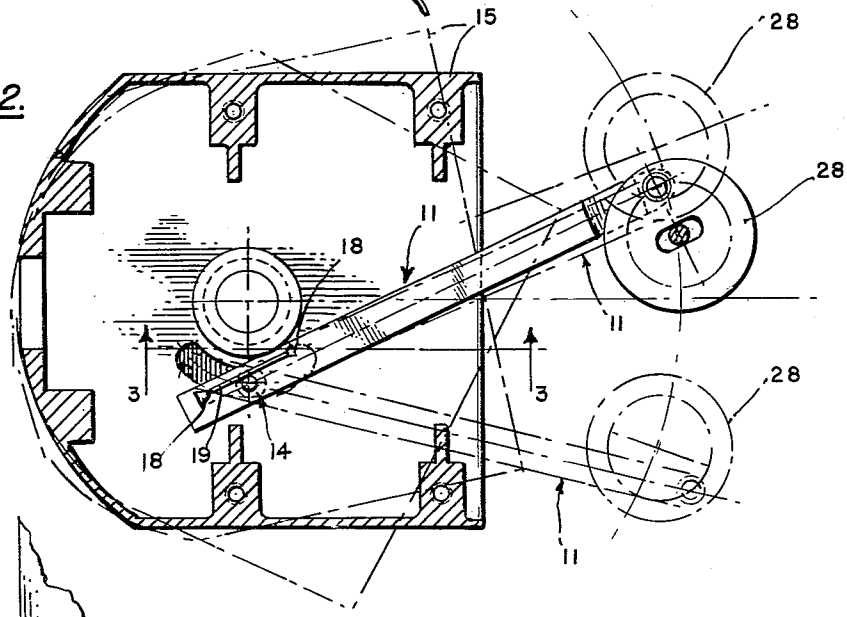


Fig. 2.

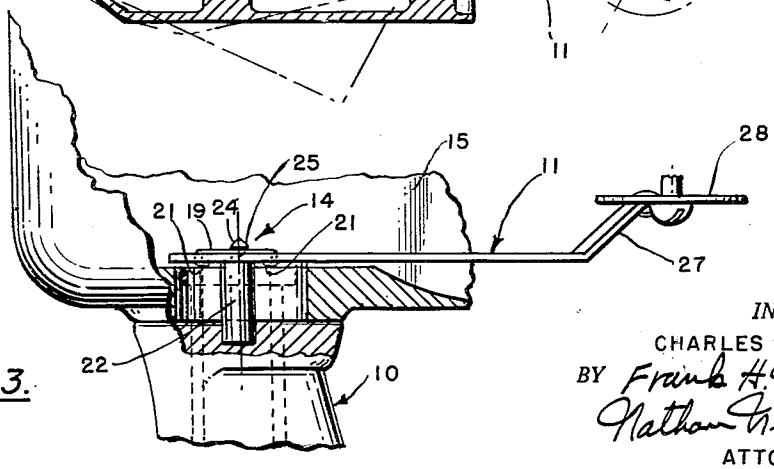


Fig. 3.

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PIVOTAL JOINTS

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1 Claim. (Cl. 287—20)

My invention relates to improvements in pivotal joints.

In numerous applications involving the use of pivotally connected link members, the pivotal connection for the link member frequently is inaccessibly located so that considerable inconvenience attends the assembly of the link member to a pivoting stud or post. For example in the case of an electric fan of the oscillating type the pivoting post for the oscillating link member is normally located at a point between the motor and the supporting standard thereby rendering the post relatively inaccessible and increasing the difficulties of assembly of the oscillating link member to the pivoting post.

Accordingly, it is an object of my invention to provide an improved means for effecting a pivotal connection between a relatively stationary post and a link member whereby connection and disconnection of the link member to the post may be very readily effected with the link member being effectively secured against inadvertent disconnection from the post.

A further object of my invention is a provision of means of the foregoing character which is simple in construction, efficient in operation and economical to manufacture.

Other and further objects and advantages of my invention will become apparent from the following description when considered in connection with the accompanying drawings in which:

Fig. 1 is an elevational view of an electric fan, with portions of the housing broken away to show my invention applied thereto.

Fig. 2 is a cross sectional view on an enlarged scale taken substantially on line 2—2 of Fig. 1.

Fig. 3 is a cross sectional view taken substantially on line 3—3 of Fig. 2.

Fig. 4 is a fragmentary elevational view partly in cross section and illustrating the pivotal connection between the stud and the link member; and

Fig. 5 is a cross sectional view of the end portion of a link member illustrating my invention.

Referring to the drawings, the numeral 10 indicates generally an electric fan of the oscillating type to which my invention has been applied. It is to be understood, however, that my invention is not to be limited to electric fans, but it is contemplated that the same may be used in a variety of other applications of use involving pivotal connections. As will be seen by reference to Fig. 1, the oscillating link member 11 is located below the fan motor 13 within a housing 15 and, as will be apparent, the location of the pivoting stud 14 on the fan standard 16 is rather inaccessible for assembly of an oscillating link thereon.

In accordance with my invention I provide a link member indicated generally by the numeral 11, the said link member being formed of suitable material and being provided with an aperture 17 near one end thereof. The link member is further provided with two spaced apertures 18, 18 which are preferably triangular in shape and with their apexes directed towards each other as illustrated in Fig. 2. The apexes of the said apertures 18, 18 are so disposed in relation to the circular aperture 17 that if a line were to be drawn connecting the two apexes, the line would be tangent to the circular aperture 17. A section of spring wire 19 is positioned on the top surface of the link member 11 with the ends 21, 21 of the wire bent under to effect securement of the wire on the link member as illustrated in Fig. 5.

The link member 11 is intended to co-operate with a pivoting stud 14 formed as illustrated in Fig. 4. The stud comprises a cylindrical body 22 having a reduced end portion 23 terminating in a conical head 24. As will be apparent upper and lower shoulders 25 and 26, respectively, are thereby provided on the stud as a result of the conical head extending beyond the peripheral edge of the reduced end portion. The distance between the upper and lower shoulders is such as to freely accommodate the link member 11 with the spring wire 19 as illustrated in Fig. 4. The spring wire 19 is normally retained in taut straight line condition, but in order to effect assembly of the link member 11 on the stud 14, the head 24 of the stud is pushed through the circular aperture 17 from under the link member. The head 24 engages the spring wire 19 deflecting the same so that the head can pass entirely through the aperture 17. When the assembled condition as illustrated in Fig. 4 is effected, the spring wire 19 returns to its normal straight line condition and engages under the shoulder 25. Thus, the link member 11 is securely pivotally attached to the stud 14 against inadvertent dislodgment. It will be apparent that if it becomes necessary for reasons of service or otherwise to separate the link member 11 from the stud 14 a sharp upward pull on the link member or the insertion of a suitable tool under the link member to pry the same off of the stud will accomplish separation of the link member from the stud. It will be seen that the same may be accomplished by reason of the provision of a rounded lower edge adjacent the shoulder 25 of the cone shaped head 24, the said shoulder acting as camming means to deflect the spring wire to permit separation of the parts. The link member, of course, may be suitably formed to meet the requirements of the particular use to which it is put. For example, in the embodiment illustrated the link member 11 is provided with an offset portion 27 which is pivotally connected to an eccentric disk 28 driven by the motor.

Various changes coming within the spirit of my invention may suggest themselves to those skilled in the art. Hence I do not wish to be limited to the specific embodiments described or uses mentioned, but intend the same to be merely exemplary, the scope of my invention being limited only by the appended claim.

I claim:

In a pivotal joint between a movable link member and a base, said link member having a main aperture therein and a pair of spaced auxiliary apertures in close proximity to said main aperture, a straight resilient wire element overlying the top surface of said link member and having its ends passed through said auxiliary apertures and reversely bent under so as to secure said wire element in a position with its longitudinal axis substantially tangent to said main aperture, a stationary post fixed in said base and having a substantially cylindrical body and a reduced cylindrical end portion terminating in a substantially conical head having its apex uppermost and with the lower edge of said head slightly rounded and overhanging said end portion and forming an annular shoulder, said post being received in said main aperture with the annular shoulder of the conical head abutting said wire element and being retained thereby against relative inad-

vertent dislodgment, said wire element being deflectable out of engagement with said shoulder to permit separation of said link member from said post.

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