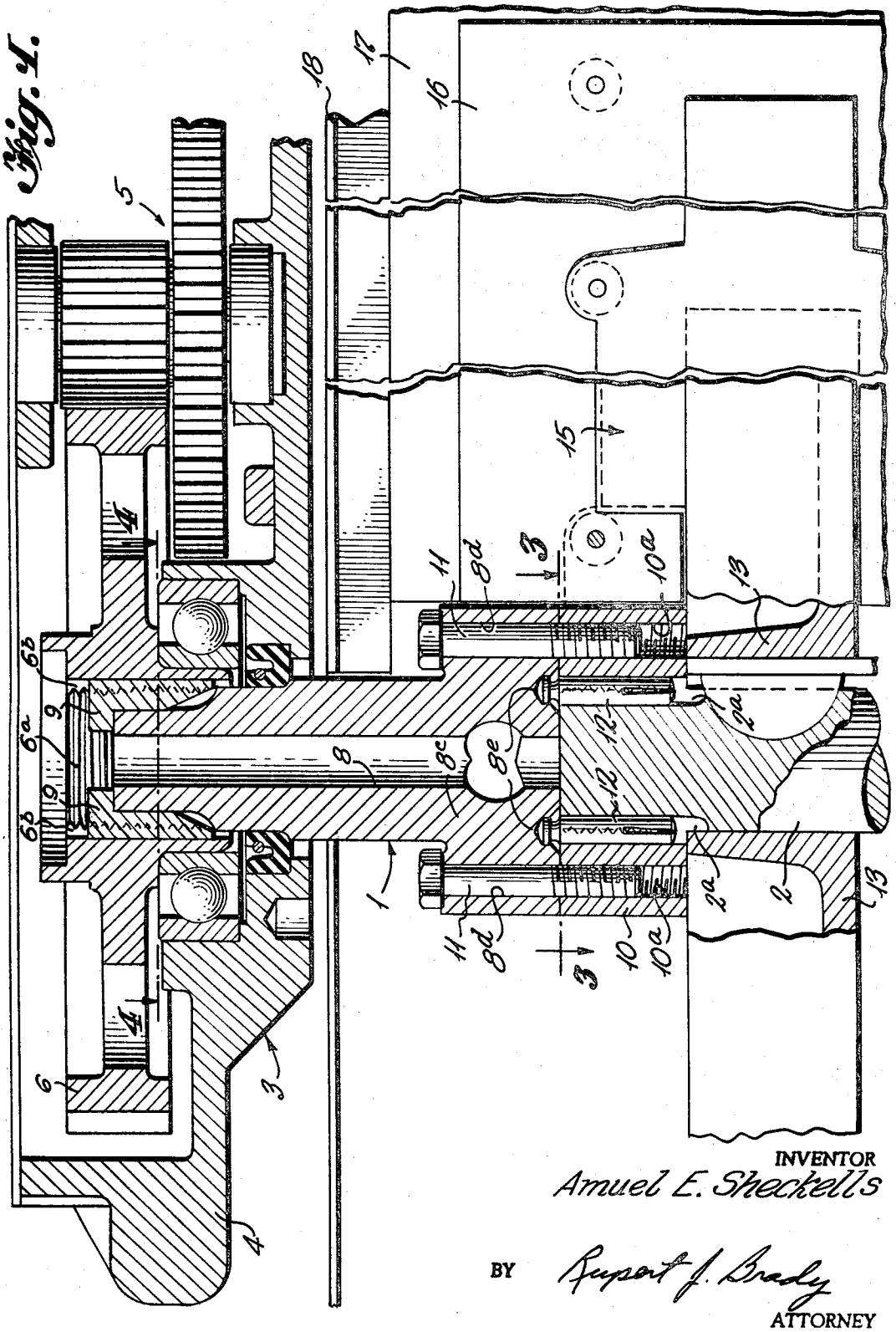
Oct. 1, 1968 A. E. SHECKELLS 3,403,571

STUB SHAFT CONNECTION FOR A REVOLVING DOOR ASSEMBLY

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Fig. 1.



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Fig. 2.

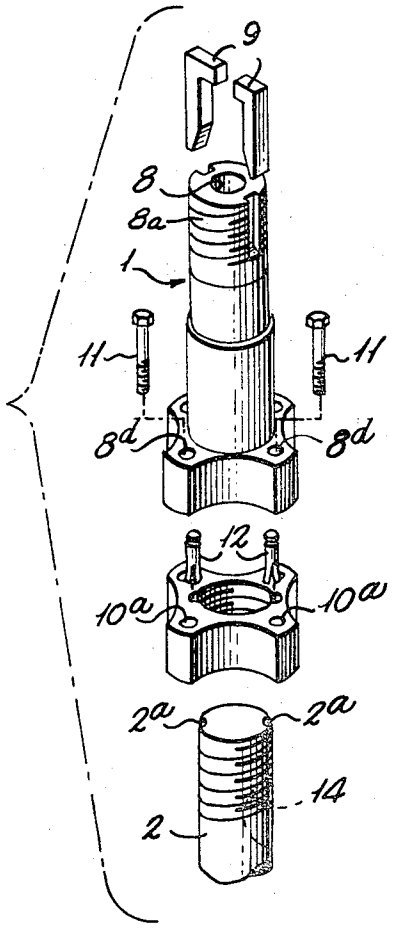


Fig. 3.

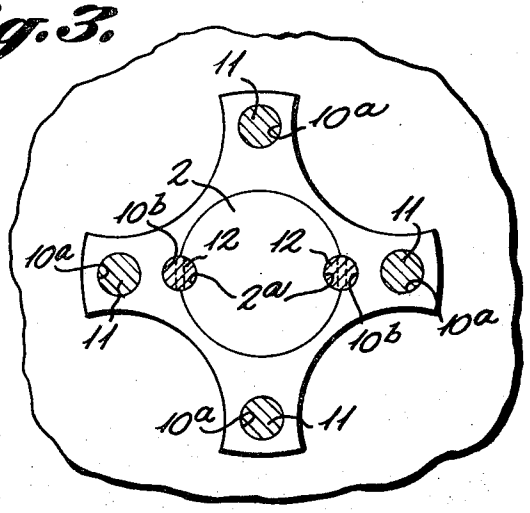
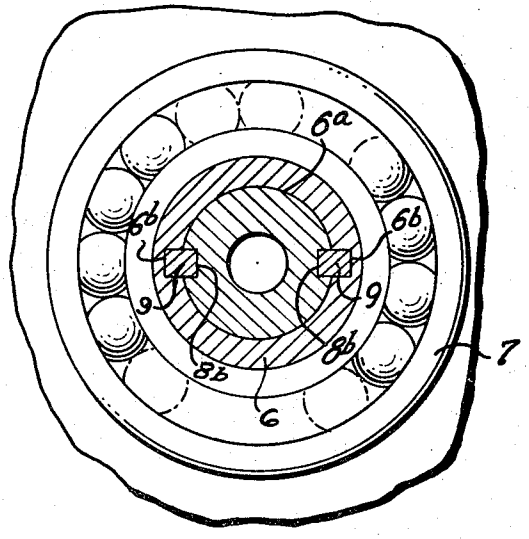


Fig. 4.



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STUB SHAFT CONNECTION FOR A REVOLVING DOOR ASSEMBLY

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ABSTRACT OF THE DISCLOSURE

A quick disconnect stub shaft connection between a revolving door and the revolving door speed control device consisting of a stub shaft threadably secured to the hub of the main gear of the speed control device and further keyed to the hub for transmitting torque from the stub shaft to the main gear. The opposite end of the stub shaft is connected to the terminal end of the revolving door shaft within the extremities of the revolving door wing by a plurality of removable bolts extending between the end of the stub shaft and an enlarged head portion on the end of the revolving door shaft. The connecting bolts support the weight of the revolving door and the torque of the revolving door is transmitted to the stub shaft by means of a pair of lock pins extending axially between the revolving door shaft and the stub shaft.

This invention relates to a stub shaft connection for a revolving door assembly and more particularly to a stub shaft connection between the shaft of a revolving door and the door speed control device, whereby the revolving door may be easily disconnected from the speed control device to thereby facilitate the maintenance and repair of the door or speed control device.

Heretofore, in revolving door installations, it has been customary to connect the revolving door shaft directly to the speed control device which is mounted in either the ceiling or floor of the door entrance. When performing maintenance on these installations, it was necessary to remove the entire revolving door and speed control device from the entrance. Such an operation not only increased the cost of maintenance due to the time required for removing the door and speed control device preparatory to the repair thereof, but also considerable inconvenience was caused to those desiring to use the particular entrance.

To overcome the above-noted disadvantages hitherto experienced in revolving door installations, the stub shaft connection of the present invention has been devised wherein the end of the revolving door is releasably connected to a stub shaft secured to the speed control device. By this construction and arrangement, maintenance and repair of the speed control device may be accomplished without removing the revolving door wings from the entrance, or maintenance and repair can be performed on the revolving door wings without removing the speed control device from its installation, whether it be in the ceiling or the floor of the entrance.

The stub shaft connection of the present invention comprises, essentially, a stub shaft having one end threadably secured to the hub of the main gear of the speed control device, the torque of the stub shaft being transmitted to the main gear by means of a pair of keys interconnecting the threaded end of the stub shaft and the hub of the main gear. The opposite end of the stub shaft is connected to the end of the revolving door shaft by means of a plurality of machine bolts extending between the end of the stub shaft and a connector threadably secured to the end of the revolving door shaft, the torque of the revolving door shaft being transmitted to the stub shaft by means of a pair of lock pins interconnecting the threaded end of the revolving door shaft, the connector, and the stub shaft.

An object of the present invention is to provide an improved stub shaft connection between a revolving door shaft and a speed control device, whereby the revolving door assembly may be easily disconnected from the speed control device to thereby facilitate maintenance and repair of the revolving door installation.

Another object of the invention is to provide an improved stub shaft connection between a revolving door shaft and a speed control device wherein one end of the stub shaft is threadably secured into the hub of the main gear of the speed control device for supporting the weight of the revolving door, and a pair of keys being provided between the threaded end of the stub shaft and the hub of the main gear for transmitting the torque from the stub shaft to the main gear.

Yet another object of the invention is to provide an improved stub shaft connection between a revolving door shaft and a speed control device wherein one end of the stub shaft is connected to the speed control device and the opposite end of the stub shaft is connected to the end of the revolving door shaft by means of a plurality of bolts extending between the end of the stub shaft and a connector threadably secured to the end of the door shaft to thereby support the weight of the revolving door, and a pair of lock pins interconnecting the end of the revolving door shaft, the connector and stub shaft, whereby the torque of the revolving door shaft is transmitted to the stub shaft.

With these and other objects in view, which may be incident to my improvements, the invention consists in the parts and combinations to be hereinafter set forth and claimed, with the understanding that the several necessary elements, comprising my invention, may be varied in construction, proportions and arrangement, without departing from the spirit and scope of the appended claims.

In order to make my invention more clearly understood, I have shown in the accompanying drawings means for carrying the same into practical effect, without limiting the improvements in their useful applications to be particular constructions which, for the purpose of explanation, have been made the subject of illustration.

In the drawings:

FIGURE 1 is an enlarged side elevational view, in section, showing the details of the stub shaft connection of the present invention;

FIGURE 2 is an exploded view of the stub shaft connection;

FIGURE 3 is a view taken along line 3—3 of FIGURE 1; and

FIGURE 4 is a view taken along line 4—4 of FIGURE 1.

Referring to the drawings and more particularly to FIGURE 1, the stub shaft connection designated generally by reference numeral **1**, is adapted to be connected between the end of a revolving door shaft **2** and a speed control device **3**.

The speed control device **3** may be of the type disclosed in either copending applications Ser. No. 382,791 filed July 15, 1964, now Patent No. 3,307,660, or 523,222 filed Jan. 26, 1966, now Patent No. 3,308,912, said applications being assigned to the same assignee as the instant application. The speed control device includes a housing **4** in which a gear train **5** is rotatably mounted, the gear train including a main gear **6** rotatably mounted within the housing by means of an anti-friction bearing **7**.

As will be seen in FIGURES 1, 2 and 4, the stub shaft

connection 1 comprises, a shaft 8 having a threaded upper end portion 8*a* adapted to be screwed into the threaded hub portion 6*a* of the main gear 6. The threaded portion of the shaft is provided with a pair of longitudinally extending, diametrically opposed slots 8*b* which are adapted to be aligned with a pair of similarly disposed slots 6*b* formed in the main gear hub for accommodating a pair of keys 9 extending longitudinally of the shaft and main gear hub. The lower end of shaft 8 is provided with a head portion 8*c* having a "star-wheel" configuration in cross-section, each arm of the "star-wheel" being provided with a bore 8*d*.

Referring to FIGURES 1 and 3, a connector 10, of similar configuration as the head portion of shaft 8, is threadably secured to the upper end portion of the revolving door shaft 2, each arm of the connector having a threaded bore 10*a* adapted to be aligned with the bores 8*d* in the shaft head portion for accommodating a bolt 11 extending therethrough. The upper end portion of the revolving door shaft 2 is provided with a pair of longitudinally extending, diametrically opposed arcuate slots 2*a* adapted to be aligned with a pair of similarly disposed slots 10*b* formed on the connector 10 for accommodating a pair of lock pins 12 extending longitudinally of the connector and revolving door shaft, each pin having a head portion 12*a* extending upwardly into a respective recess 8*e* formed in the lower face of shaft head portion 8*c*.

The door wing assemblies are secured to the shaft 2 in a conventional manner which includes a disc 13 secured to each end of the shaft 2 by means of a key 14. Four equi-spaced hanger assemblies 15, each having a plate 16 secured to a respective door wing 17, are pivotally connected to the disc, the pivotal connection of the hanger assemblies to the disc being on a vertical axis whereby each door wing may be pivoted to an inoperative position when maintenance is to be performed thereon.

The upper edge of the door wing is provided with a suitable weather stripping 18 which engages the ceiling enclosing the speed control device; additional weather stripping may also be applied to the vertical edges of the door wings.

From the above description, it will be readily apparent that installation of the stub shaft connection is accomplished by screwing the shaft 8 into the hub of the main gear 6 and inserting the keys 9 into place as described hereinabove. Connector 10 is screwed on to the end of the revolving door shaft and the lock pins 12 are inserted into place. With the heads 12*a* of the lock pins protruding therefrom, connector 10 is brought into abutting engagement with the lower face of the head portion of shaft 8 and the heads of the lock pins are inserted into the recesses 8*e* formed in the head portion. The bolts 11 are then inserted into bores 8*d* and 10*a* to hold the assembly in operative position. By this construction and arrangement, the weight of the revolving door is supported by the threaded connection between shaft 8 and connector 10, and the torque is transmitted from the door shaft 2, shaft 8 and main gear 6 by means of lock pins 12 and keys 9.

While, for purposes of illustration, the stub shaft connection has been described for use in revolving door installations wherein the speed control device is mounted within the ceiling of the door frame, it will be readily apparent to those skilled in the art that the stub shaft connection can also be employed in installations wherein the speed control device is mounted in the floor of the door frame. In either case, the revolving door shaft may be quickly disconnected from the speed control device by removing bolts 11, whereby the revolving door shaft 2 and associated wing assemblies may be removed from the door frame while the speed control device is left within the installation, or the door shaft and associated wing assemblies may be left within the installation while the speed control device is removed therefrom.

While I have shown and described the preferred embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construction herein set forth by way of illustration, as it is apparent that many changes and variations may be made therein, by those skilled in the art, without departing from the spirit of the invention or exceeding the scope of the appended claims.

I claim:

1. A stub shaft connection of the character described for use in a revolving door assembly having a revolving door shaft and including a speed control device, said stub shaft connection comprising a stub shaft, means adapted to connect one end of the stub shaft to the speed control device, the opposite end of said stub shaft disposed in axial alignment with the terminal end of the revolving door shaft, and connecting means movable relative to said stub shaft and said revolving door shaft adapted to releasably connect the opposite end of said stub shaft to the revolving door shaft, whereby the revolving door may be easily disconnected from the speed control device without movement of the revolving door to thereby facilitate the maintenance and repair of the revolving door assembly.

2. A stub shaft connection as set forth in claim 1 in which said revolving door assembly includes door wings having a top edge, and in which said stub shaft and revolving door shaft are connected together in axial abutment at a position below the top edge of the door wings.

3. A stub shaft connection as set forth in claim 1 including an enlarged head portion on said opposite end of said stub shaft, a cooperating enlarged head portion on the terminal end of the revolving door shaft, and said connecting means connecting the respective enlarged head portions together and having a body portion extending parallel with said stub shaft and revolving door shaft.

4. A stub shaft connection of the character described for use in a revolving door assembly having a revolving door shaft and including a speed control device having a gear with a hub, said stub shaft connection comprising a stub shaft, a threaded portion on one end of said stub shaft, said one end of the stub shaft adapted to be threadably secured into the hub of a gear in the speed control device to support the weight of the revolving door, a pair of longitudinally extending, diametrically opposed slots formed in the threaded end of said stub shaft, a pair of similarly disposed slots formed in the hub of the gear and aligned with the slots in said stub shaft, a pair of keys inserted in said slots for transmitting the torque between the stub shaft and gear, and means adapted to releasably connect the opposite end of said stub shaft to the revolving door shaft, whereby the revolving door may be easily disconnected from the speed control device to facilitate maintenance and repair of the revolving door assembly.

5. A stub shaft connection of the character described for use in a revolving door assembly having a revolving door shaft and including a speed control device, said stub shaft connection comprising a stub shaft, means adapted to connect one end of the stub shaft to the speed control device, a connector threadably secured to the end of the revolving door shaft, and bolt means releasably interconnecting the opposite end of said stub shaft to said connector for supporting the weight of the revolving door, whereby the revolving door may be easily disconnected from the speed control device to thereby facilitate the maintenance and repair of the revolving door assembly.

6. A stub shaft connection according to claim 5, wherein lock pin means interconnect the revolving door shaft, connector and stub shaft for transmitting the torque between the stub shaft and revolving door shaft.

7. A stub shaft connection according to claim 6, wherein

said lock pin means comprises, a pair of longitudinally extending, diametrically opposed arcuate slots formed on the end portion of the revolving door shaft, a pair of similarly disposed slots formed in said connector and aligned with the slots formed on said revolving door shaft, and a pair of pins inserted in said slots, said pins having a head portion extending into said opposite end of the stub shaft.

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