June 30, 1925. 1,544,229

F. M. EDGAR

HANDLE ASSEMBLY

Filed Sept. 28, 1923

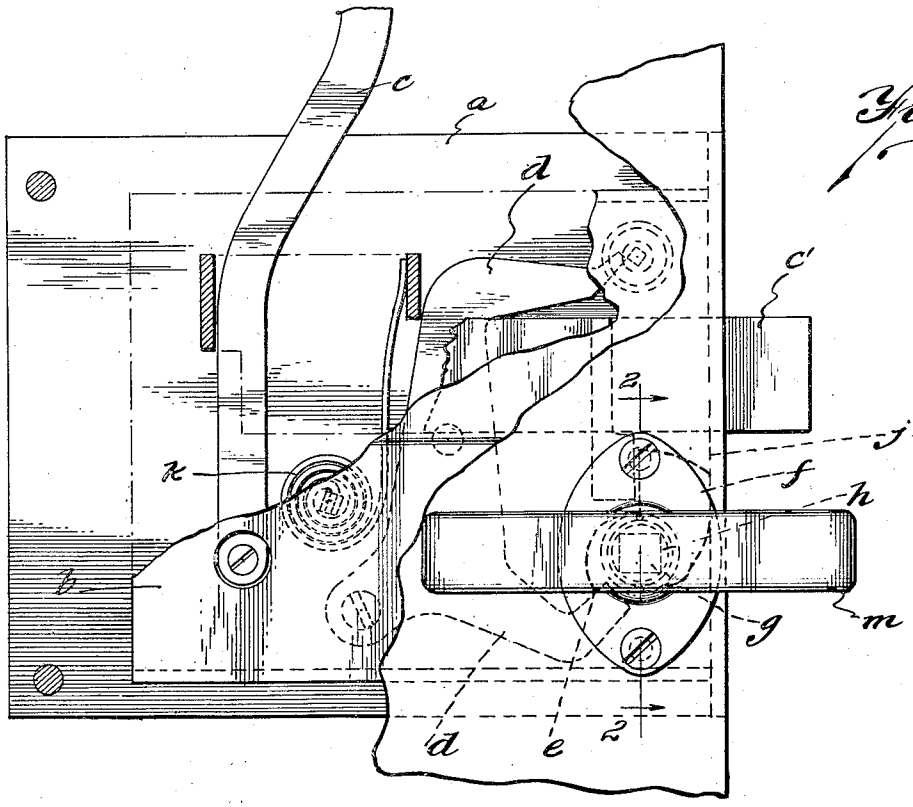

Fig. 1

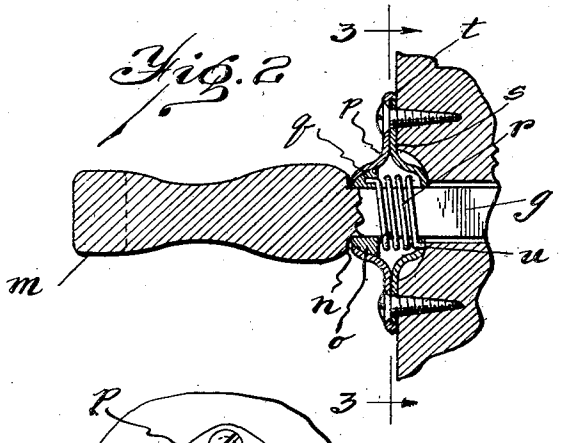

Fig. 2

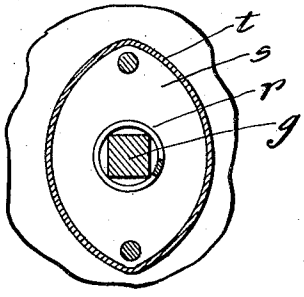

Fig. 3

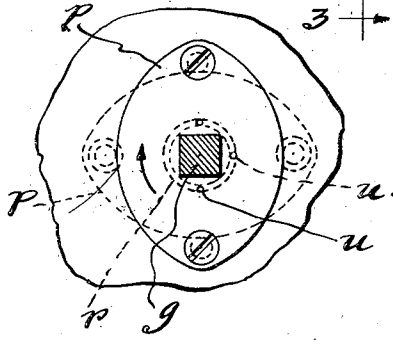

Fig. 4

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UNITED STATES PATENT OFFICE.

FRANK M. EDGAR, OF DETROIT, MICHIGAN, ASSIGNOR TO TERNSTEDT MANUFACTURING COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

HANDLE ASSEMBLY.

Application filed September 28, 1923. Serial No. 665,315.

To all whom it may concern:

Be it known that FRANK M. EDGAR, citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, has invented certain new and useful Improvements in Handle Assemblies, of which the following is a specification.

This invention relates to door handle assemblies and has for its object a door handle assembly which gives a universal mounting for the door handle spindle and at the same time is provided with means for yieldingly taking up the slack or lost motion in the parts of the lock.

In the constructing of door handles for automobile doors it has lately become necessary to take the greatest precautions against rattling. Automobile bodies have been brought to a high point of perfection in the way of eliminating rattles which used to be so common with windows. About the only place left where rattles occur is in the lock. Locks often rattle due to lost motion between the roll-back, the stop and the bolt.

In the better class of automobile body construction it has been found necessary to use a door handle which has a spherical or ball-and-socket seat upon the escutcheon plate. This is necessary in order to make up for variations in the positions of the lock and escutcheon plate on the surfaces of the door. Such ball-and-socket handle assemblies are already to be found in the patented art, but these are open to several objections. Those that are not subjected to spring pressure very often rattle due to the wearing of the parts, or an improper fit; those that are subjected to springs are usually so designed that the one who opens the door can pull the handle out against the resistance of the spring and very often the spring is not strong enough to force the handle back into its proper place. On the other hand, if the spring is made strong enough to move the handle back, then it exerts such a heavy thrust on the ball-and-socket bearing as to make it very difficult to turn the spindle.

It is the object of the present invention to provide a universal mounting for the handle spindle, and subject the same to spring pressure to eliminate rattling. At the same time the parts are so arranged that it is impossible to pull the handle out. Coupled with these results is the additional feature that the same spring that takes up the slack in the handle assembly exercises a tortional effort on the spindle so as to take up any slack or lost motion about the roll-back in the lock.

Referring to the drawings:

Fig. 1 is a side elevation of an automobile door lock.

Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1.

Fig. 3 is a section taken on the line 3—3 of Fig. 2.

Fig. 4 is a detail of the escutcheon plate showing how the same may be rotated from the dotted line position to the full line position to place the spring under tortional stress for the purpose of taking up the lost motion about the roll-back.

a is the front plate of the lock, *b* the cover plate; *c* the lever handle, which is adapted to engage with the tail *e* of the roll-back *f*. This roll-back *f* is provided with a squared aperture *h* through which engages the spindle *g* of the handle. This roll-back ordinarily abuts up against the inside of the face plate *j* of the lock casing; at least it abuts up against this when the latch bolt *c'* is thrust clear out by the spiral spring *k*. However, when the beveled latch head sinks into the striker plate socket it may be stopped before the latch is projected to the limit of its outward movement. In this event, the roll-back *f* is not jammed up against the inside of the face plate *j* and consequently can chatter back and forth, unless a spring is afforded to drive it back against the stop or inside of the face plate.

In my improved construction, the door handle spindle *g* is a part of the die casting which includes also the grip *m* which will preferably be coated with a vulcanized rubber or some suitable air-drying lacquer such as some of the pyroxylin compounds. The squared spindle and the grip come together to form the shoulder *n*. Secured on the spindle at this point by means of an upset or by the impression of a pointed tool, is a collar *o* which has a spherical outer surface. Before the collar is secured to the handle spindle, the escutcheon plate *p* is threaded over the spindle. Hence, when the collar is tied onto the spindle the escutcheon plate which is provided with a stamped concave, part spherical interior surface *q*, fits over the spherical collar. A combined tortional and compression spring *r* is then

threaded over the spindle g with one end in a depression of the collar. An escutcheon back plate s is then threaded over the spindle and the flange t of the outer escutcheon plate is peened or turned over the rim of the back escutcheon plate to lock the two together. The other end of the spring is anchored in the back escutcheon plate at the point u.

This spring serves to exert pressure on the spherical collar so as to hold the former against the spherical interior surface of the hub of the escutcheon plate. This holds the parts together under sufficient yielding pressure so as to prevent rattling and take up any wear.

Now, in order to cause the spring r to take up the slack in the lock parts which may exist between the latch bolt, the inside of the face plate and the roll-back, it is necessary to put the spindle under a slight tortional stress when the escutcheon is assembled onto the door. This is simple enough. With the assembly referred to, when the front and back escutcheon plates are locked together, the spring, spherical collar and the escutcheon plates all form a complete unit. When the lock setter applies the handle to the door he first inserts the squared spindle g through the drilled opening in the door and into the squared aperture in the hub of the roll-back. He then gives the escutcheon plate a turn of, say a quarter or a half turn; this puts the spring r under a tortional strain and consequently forces the roll-back against its stop or the inside of the face plate.

Still a further advantage in this construction is that it provides an independent means for returning the door handle to its normal position when the grip is released. Very often the door handle will stick on an automobile body, the bolt spring not having sufficient power to shoot both bolt and door handle back to their positions. This very often occurs when the door handle or some of the lock parts need oil or unduly bind. This often requires the occupant of the car to reach outside and turn the door handle before he can get his door to latch. This difficulty is very much less liable to happen with the present construction, for the tortional spring r is in itself ordinarily sufficient to turn the door handle to its initial position.

What I claim is:

1. In a door handle assembly, the combination of an escutcheon provided with a front plate and a back plate, a handle spindle passing through the plates and provided with a collar located between the plates, and a spring bearing against the back plate and thrusting against the collar for the purpose specified.

2. In a door handle assembly, the combination of an escutcheon plate comprising a front and a rear plate spaced apart, a handle spindle passing through the plates and provided with a collar, and a coil spring around the spindle having one end anchored in the collar and the other end anchored in the rear escutcheon plate and thrusting the collar against the inside of the front escutcheon plate.

3. In a door handle assembly, the combination of an escutcheon plate made up of a front and rear plate spaced apart, a handle spindle passing through the plates and provided with a collar which has a surface upon which the front escutcheon plate may rock, and a coil spring abutting against the inside of the rear escutcheon plate and thrusting against the said collar.

4. In a door handle assembly, the combination of an escutcheon plate provided with front and rear plate members spaced apart, a handle spindle passing through the plates, the front plate provided with a hub portion having a spherical interior concaved surface, the handle spindle being provided with a collar having a complementary spherical surface for engaging the concaved interior surface of the hub of the front escutcheon plate, and a spring coiled about the spindle and abutting against the inside of the rear escutcheon plate, and thrusting against the collar.

5. In a door handle assembly, the combination of a composite escutcheon plate provided with front and rear plate members, the front plate provided with a hub portion having a spherical interior surface, a handle spindle passing through the plates and provided with a collar between the plates having a spherical exterior surface complementary to the interior surface of the hub of the front escutcheon plate, and a coil spring having one end abutting and anchored in the rear escutcheon plate and the other end abutting and anchored in the said collar for exerting both a thrust against the collar and capable of being put under tortional strain when the escutcheon plate is mounted on a door.

In testimony whereof he has affixed his signature.

FRANK M. EDGAR.