

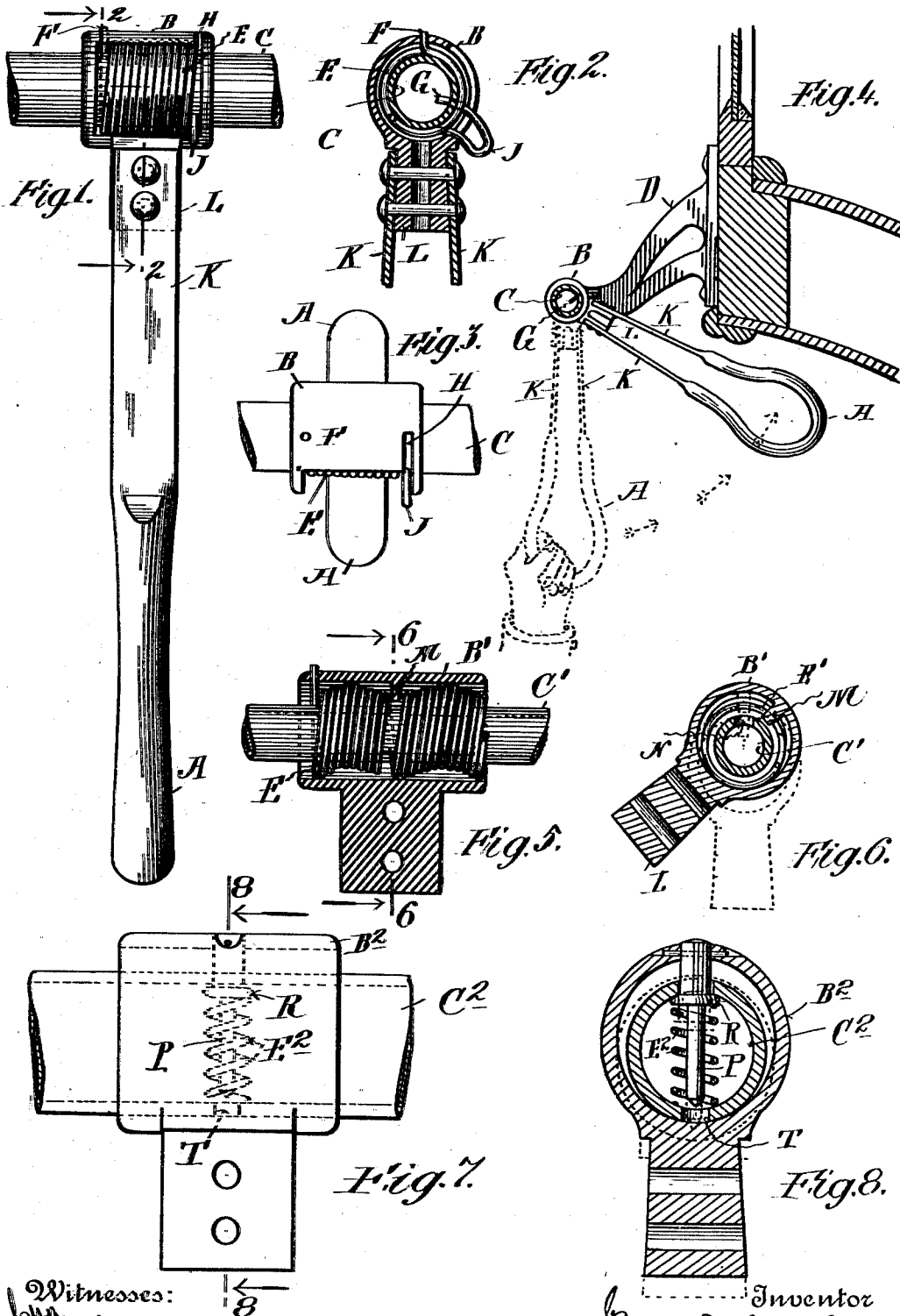
J. S. DOYLE.

HAND STRAP.

APPLICATION FILED MAY 13, 1909.

989,237.

Patented Apr. 11, 1911.



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UNITED STATES PATENT OFFICE.

JAMES S. DOYLE, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO FRANK HEDLEY, OF NEW YORK, N. Y.

HAND-STRAP.

989,237.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed May 13, 1909. Serial No. 495,734.

To all whom it may concern:

Be it known that I, JAMES S. DOYLE, a citizen of the United States, residing in the city, county, and State of New York, have made a certain new and useful Invention in Hand-Straps, of which the following is a specification.

My invention relates to hand straps and particularly to that class of devices employed on street railway or other cars to be grasped or held by standing or other passengers for support.

The object of the invention is to provide a hand strap or grip device of the character referred to which is simple in construction and arrangement and clean and sanitary in use.

A further object is to provide a hand strap or grip device which, in use, affords a support free from swinging movement in the direction of the length of the car.

A further object is to provide a hand strap or grip device which, when not in use is retained in a normally retracted position.

Other objects of the invention will appear more fully hereinafter.

The invention consists substantially in the construction, combination, location and relative arrangement of parts all as will be more fully hereinafter set forth, as shown in the drawing and finally pointed out in the appended claims.

In the drawing Figure 1 is a view in elevation of a hand strap embodying the principles of my invention. Fig. 2 is a broken view in section on the line 2, 2, Fig. 1, looking in the direction of the arrows. Fig. 3 is a top plan view of the construction shown in Figs. 1 and 2; Fig. 4 is a broken view, in transverse section of a portion of a car body showing the hand strap support and the strap itself in its normally retracted position. Fig. 5 is a view in longitudinal section of a modified form of strap support embodying the broad principles of my invention. Fig. 6 is a view in section on the line 6, 6, Fig. 5. Fig. 7 is a view in elevation of another modification embodying the principles of my invention. Fig. 8 is a view in section on the line 8, 8, Fig. 7.

The same part is designated by the same reference sign wherever it occurs throughout the several views.

Reference sign A, designates the hand strap or grip device designed to be grasped

by a passenger on a street or other car, or in any other place where such a device is or may be employed or desired, and by means of which the person grasping the same may be steadied or supported. This hand grip or strap, while it may be of any suitable material, and of any desired shape or form adapting it to its purpose, is shown in the form of a loop with the bight of the loop forming the grip portion to be grasped by the hand, as indicated in dotted lines in Fig. 4. If desired, and preferably, this grip is of metal or covered or coated with an enamel or other suitable material which can be readily and easily cleaned, thereby avoiding the danger of harboring or transmitting disease germs.

The hand strap may be supported in the car or other place where it is to be used, in many different ways. I have shown various arrangements which I will now describe.

Referring to Figs. 1, 2, 3 and 4, the ends of the hand strap are secured to a sleeve portion B, which is mounted on a tubular or other convenient form of support C, which, in this instance, though not necessarily is mounted in or carried by brackets D in the car, and in position for the hand strap to be suspended therefrom and conveniently grasped. In this form of the device the sleeve portion B is of such length as to be afforded sufficient bearing on the support C to prevent rocking or swinging movement of the strap in the direction of the length of the car, or of the support C.

It may sometimes be desirable to permit the hand-strap when in use, to swing in a direction transverse the length of the car, or laterally with reference to the support C. It may also be desirable to retain the hand strap in a normally retracted position out of the way. In the accomplishment of these objects and purposes, I provide a yielding connection between the hand grip device and its support, the action of which is to normally but yieldingly retain the device when not in use in the retracted position shown in full lines in Fig. 4. Many specifically different means may be employed for accomplishing this result. In the form shown a spring E, is coiled upon the support C, and is inclosed within the sleeve B, one end of said spring being secured to the sleeve, as indicated at F, and the other end being secured to the support as indicated at G, the

tension of said spring being normally exerted to retain the hand strap retracted, as shown in Fig. 4. In use, however, the strap is readily swung down into vertical position, as indicated in dotted lines, being free to vibrate laterally or transversely of the car but held against swinging movement longitudinally of the car. If desired, and in order to afford a stop to limit the lateral swing of the strap device, the sleeve B, may be provided with a slot H, to receive the bent portion J, of the spring E, the base of said slot cooperating with the bent portion J to form a limit stop. A simple construction for securing the strap to the sleeve is shown, wherein the ends K, of the strap are bolted, riveted or otherwise fastened to a stem L, formed on or with the sleeve.

It may sometimes be desirable to prevent any swinging movement of the hand strap when in use, while, at the same time, when not in use it is held in retracted position. In Figs. 5 and 6, I have shown an arrangement embodying this idea, the strap itself being omitted. In this case the sleeve portion B', is mounted upon the support C', as before, but is of sufficient internal diameter to permit a relative movement laterally with respect to said support. A spring E', is mounted on the support and connected at the ends thereof respectively to the sleeve and support. This spring is somewhat peculiarly coiled upon the support, that is, the coils thereof are displaced out of cylindrical form, as shown, to enable the spring to perform two functions, namely, to normally rock or swing the sleeve and with it, the hand strap, not shown, into a retracted position, and also, to bear the sleeve laterally away from the support, so as to carry the lug or projection M, out of engaging relation with respect to a seat or opening N, in the support C'. With this construction and arrangement it will be readily seen that in the normal retracted position, as shown in full lines in Fig. 6, the lug or projection M, is withdrawn from the seat or recess N, and the sleeve B', is rotatively displaced on its support. When, however, the hand strap is grasped for use, the sleeve is rocked axially by the downward swing of the strap against the torsion tension of the spring, the lug M riding over the exterior surface of the support C', until it is brought into register with the seat or recess N, in the support and then a slight downward pull on the strap against the tension of the displaced coils of the spring causes the lug M, to enter the recess or seat N, thereby locking strap device against swinging movement in either a longitudinal or a lateral direction. By releasing the strap the lug M is raised out of the recess N, and the sleeve is again axially moved to retract the strap.

In some cases it may be desirable to dis-

pense with the feature of normally holding the strap device in retracted position when not required for use, but to hold the same rigid against rocking or swinging movement in any direction when in use. In Figs. 7 and 8, I have shown a construction embodying this idea, wherein the sleeve B² is of larger interior diameter than the exterior diameter of the support C². A stud or pin P, is secured to the sleeve and works loosely through an opening in the support C². A spring E², is interposed between the support C² and a shoulder R, on the pin and normally exerts its tension on said pin or stud and, through it, on the sleeve B², to move the latter laterally with respect to the support C², and to hold the lower end of the pin or stud out of engagement with a seat or opening T, in the support. When the strap, not shown, is in use, a slight downward pull thereon will cause the spring E² to be compressed and the end of the pin or stud P, to enter the seat or opening T, thereby locking the hand strap against swinging movement in any direction.

From the foregoing description it will be seen that I provide an exceedingly simple and efficient hand strap, which, if desired, can be made of metal, which is hygienic, strong, durable and economical to manufacture, and which affords an efficient support, and, if desired, may be normally retracted when not required for use.

Having now set forth the object and nature of my invention, and various constructions embodying the principles thereof, what I claim as new and useful and of my own invention and desire to secure by Letters Patent is:

1. The combination with a hand strap, of a sleeve to which the ends of the strap are connected, and a support on which the sleeve is mounted.

2. The combination with a hand strap, of a sleeve having a stem, the ends of the strap being secured to said stem, and a support on which said sleeve is mounted.

3. The combination with a hand strap, a sleeve to which the ends of the strap are connected, and a support on which the sleeve is mounted, of means for normally maintaining the sleeve rocked to hold the strap in retracted position.

4. The combination with a hand strap, a sleeve to which the ends of the strap are connected, a support for the sleeve, and a spring connecting said sleeve and support and operating to normally retain the strap in retracted position.

5. The combination with a hand strap, a sleeve to which the ends of the strap are connected, a support for the sleeve, a spring respectively connecting the sleeve and support, and a limit stop to limit the swing of the sleeve on the support.

6. The combination of a support, a spring
coiled thereon, a sleeve mounted on said sup-
port, the ends of said spring being connected
to said support and sleeve respectively, and
5 a rigid hand strap connected to said sleeve.

7. The combination of a support, a spring
coiled thereon, a sleeve mounted on said sup-
port and inclosing said spring, the ends of
said spring being connected respectively to

said support and sleeve, and a hand strap 10
having its ends connected to said sleeve.

In testimony whereof I have hereunto set
my hand in the presence of the subscribing
witnesses, on this 8th day of May A. D., 1909.

JAMES S. DOYLE.

Witnesses:

J. E. KLEIN,

CLARENCE HUNICKE.
