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A. HULSMANN ET AL

UNIVERSAL WRIST JOINT FOR ARTIFICIAL ARMS

Filed July 26, 1922

Fig. 1.

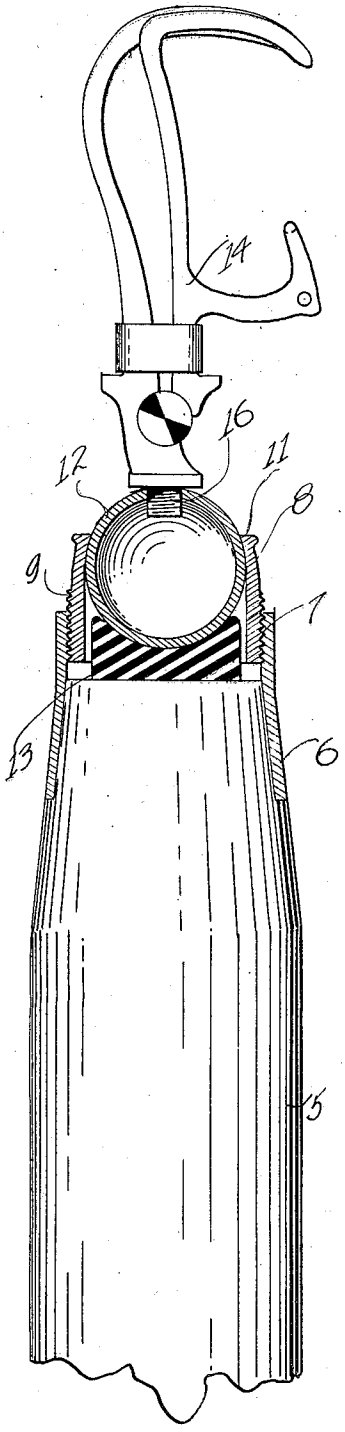


Fig. 2.

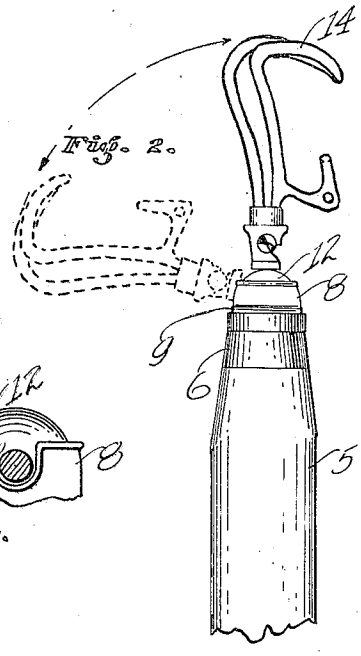
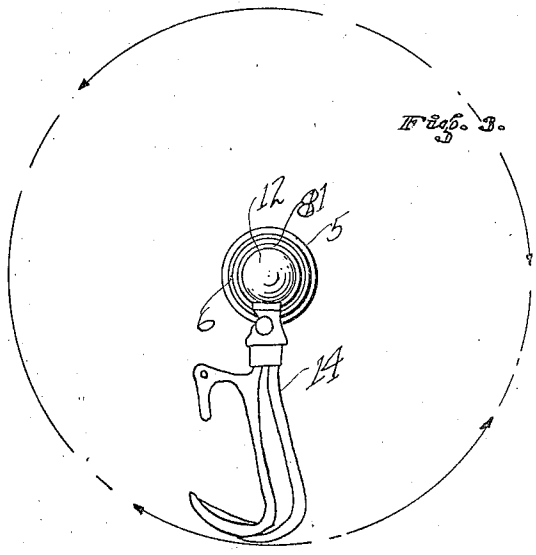


Fig. 4.

Fig. 3.



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UNITED STATES PATENT OFFICE.

ANTON HULSMANN AND JULIUS C. GRIFFIN, OF SAN FRANCISCO, CALIFORNIA.

UNIVERSAL WRIST JOINT FOR ARTIFICIAL ARMS.

Application filed July 26, 1922. Serial No. 577,602.

To all whom it may concern:

Be it known that we, ANTON HULSMANN and JULIUS C. GRIFFIN, citizens of Germany and the United States, respectively, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Universal Wrist Joints for Artificial Arms, of which the following is a specification.

This invention relates to improvements in universal joints for artificial arms, the principal object of which is to produce a wrist joint capable of universal movement, and one which will allow the wearer to move the tool or other attachment into any desired position.

Another object is to provide a wrist joint which is exceedingly simple and consequently fool proof.

A still further object is to produce a wrist joint which will maintain itself in fixed position after being adjusted and one wherein the tool or other attachment secured thereto may be adjusted by a slight tapping on some object, which is to obviate the necessity of the operator stopping to make the adjustment with the remaining arm, as is now necessary.

An additional object is to produce a joint of this nature which is exceedingly cheap to manufacture and consequently within the means of the average user.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation of our device as applied to the end of an artificial arm and shown partly in cross-section,

Figure 2 is a side elevation similar to Figure 1 showing the manner in which the device operates,

Figure 3 is a top plan view showing the range of movement of the wrist, and

Figure 4 is a fragmentary detail view showing the position of the ball when the tool is at right angles to the arm.

Heretofore, as far as applicants are aware, artificial arms have been limited in their use owing to the fact that the wrist motion could not be easily performed, and we have therefore provided a universal wrist movement which is extremely simple and one which will allow the wearer to move the same in practically any direction he may desire.

In the accompanying drawings wherein for the purpose of illustration is shown a preferred embodiment of our invention, the numeral 5 designates the lower extremity of an artificial arm of standard make. It is obvious that if the arm is severed at a point adjacent the wrist, a leather cup might take the place of the portion 5. Positioned upon the end of the arm 5 is a ferrule 6, which ferrule is internally threaded as shown at 7 throughout a portion of its length. A ring 8 is provided which is externally threaded as shown at 9, which thread is adapted to engage the thread 7 on the ferrule 6. This ring is contracted as shown at 11 so as to engage the outer surface of a ball 12 at a point beyond its largest diameter, thereby retaining the ball within the ring 8. A block 13 is provided, which block preferably rests upon the end of the arm 5. It is obvious that this block might rest upon a shelf formed upon the ferrule 6, if the leather cup were being used.

This ball 12 is provided with a suitable opening therein, into which a tool may be inserted which tool is designated by the numeral 14, and in this instance is held as by a screw thread 16. It is obvious that the tool 14 may be fastened to the ball in any convenient manner.

By referring to Figure 4, it will be noted that a portion of the ring 8 is cut away as shown at 18 which allows the tool 14 to be moved to the position shown in Figure 2. By this construction it will be noted that as the ring 8 is screwed within the ferrule 6, the result will be that the ball 12 will be forced against the block 13. This block is preferably made of a frictional material, such as rubber, fiber and the like so that as the ball is forced thereagainst, it will tend to hold the ball in any fixed position and consequently, the tool will likewise be held in an adjusted angle.

It will be evident from the construction described that a hand or working tool attached to our device can be readily adjusted to any desired angle. When once adjusted, said adjustment will be held under ordinary conditions. By turning the ring in the ferrule, the frictional grip provided by the

block, can be proportionately increased or decreased because the end of the arm serves as a resistance base for the block.

It is to be understood that the form of our invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described our invention, we claim:—

In a device of the character described, the combination with an artificial arm, a ferrule secured to said arm and internally threaded, a ring externally threaded and adapted to be threadedly engaged with said ferrule, said ring being tapered toward its free end, a ball positioned in said ring and capable of rotation with respect to the end of said arm, means for securing a tool to said ball and a block of friction material mounted between said arm and said ball at a point within said ferrule and said ring, for the purpose of preventing free movement of said ball when said ring is in intimate engagement with said ball.

In testimony whereof we affix our signatures.

ANTON HULSMANN.
JULIUS C. GRIFFIN.