Claims:

1. A device (1) for hand rehabilitation, comprising:

a glove (11) to be worn on a user's hand;

a wrist flexion assembly (12) providing a means for passive or assisted ulnar/radial flexion of the user's wrist, the wrist flexion assembly (12) including a first wrist actuator (121) and a second wrist actuator (122), each of the first wrist actuator (121) and the second wrist actuator (122) being attached to the glove (11);

at least one finger actuation assembly (15) attached to the dorsal outer side of the glove (11) and including a linear finger actuation motor (155) for passive or assisted flexion/extension of a corresponding finger of the user; and

a wrist rotation assembly (14) attached to the glove (11), the wrist rotation assembly (14) cooperating with the wrist flexion assembly (12) to provide a means for passive or assisted supination/pronation of the user's wrist.

2. The device (1) according to claim 1, wherein each of the first wrist actuator (121) and the second wrist actuator (122) includes:

a metacarpal cable positioning member (123), the metacarpal cable positioning member (123) of the first wrist actuator (121) being attached to the glove (11) at a position corresponding to the dorsal side of the metacarpal of the index finger, the metacarpal cable positioning member (123) of the second wrist actuator (122) being attached to the glove (11) at a position corresponding to the dorsal side of the metacarpal of the little finger;

a wrist flexion cable (124) attached on one end to the metacarpal cable positioning member (123);

a wrist cable positioning element (125) attached to the glove (11) at a position corresponding to the user's wrist, the wrist flexion cable (124) passing through the wrist cable positioning element (125); and

a linear wrist flexion motor (127) connected to a portion of the wrist flexion cable (124) opposite to the metacarpal cable positioning member (123), the linear wrist flexion motor (127) being operable to adjust the tension of the wrist flexion cable (124).

3. The device (1) according to claim 2, further comprising a support bar (13) attached to the glove (11) and linking the metacarpal cable positioning member (123) of the first wrist actuator (121) and the metacarpal cable positioning member (123) of the second wrist actuator (122).

4. The device (1) according to claim 1, wherein the wrist rotation assembly (14) includes:

a palmar cable positioning member (141) attached to the glove (11) at a position corresponding to the palmar side of the metacarpal of the little finger;

a wrist rotation cable (142) attached on one end to the palmar cable positioning member (141);

a wrist cable positioning member (143) attached to the glove (11) at a position corresponding to the user's wrist, the wrist rotation cable (142) passing through the wrist cable positioning member (143); and

a linear wrist rotation motor (145) connected to a portion of the wrist rotation cable (142) opposite to the palmar cable positioning member (141), the linear wrist rotation motor (145) being operable to adjust the tension of the wrist rotation cable (142).

5. The device (1) according to claim 1, wherein the finger actuation assembly (15) further includes:

a fingertip cable positioning member (151) attached to the glove (11) at a position corresponding to the distal interphalangeal joint of the corresponding finger at the dorsal side of the hand;

a finger actuation cable (152) attached on one end to the fingertip cable positioning member (151);

a metacarpophalangeal cable positioning member (153) attached to the glove (11) at a position corresponding to the metacarpophalangeal joint of the corresponding finger at the dorsal side of the hand, the finger actuation cable (152) passing through the metacarpophalangeal cable positioning member (153); and

a linear finger actuation motor (155) connected to a portion of the finger actuation cable (152) opposite to the fingertip cable positioning member (151), the linear finger actuation motor (155)

being operable to adjust the tension of the finger actuation cable (152).

6. The device (1) according to claim 1, further comprising a spacer (16) attached to the glove (11) at a position corresponding to a region between the thumb and the index finger of the user’s hand.