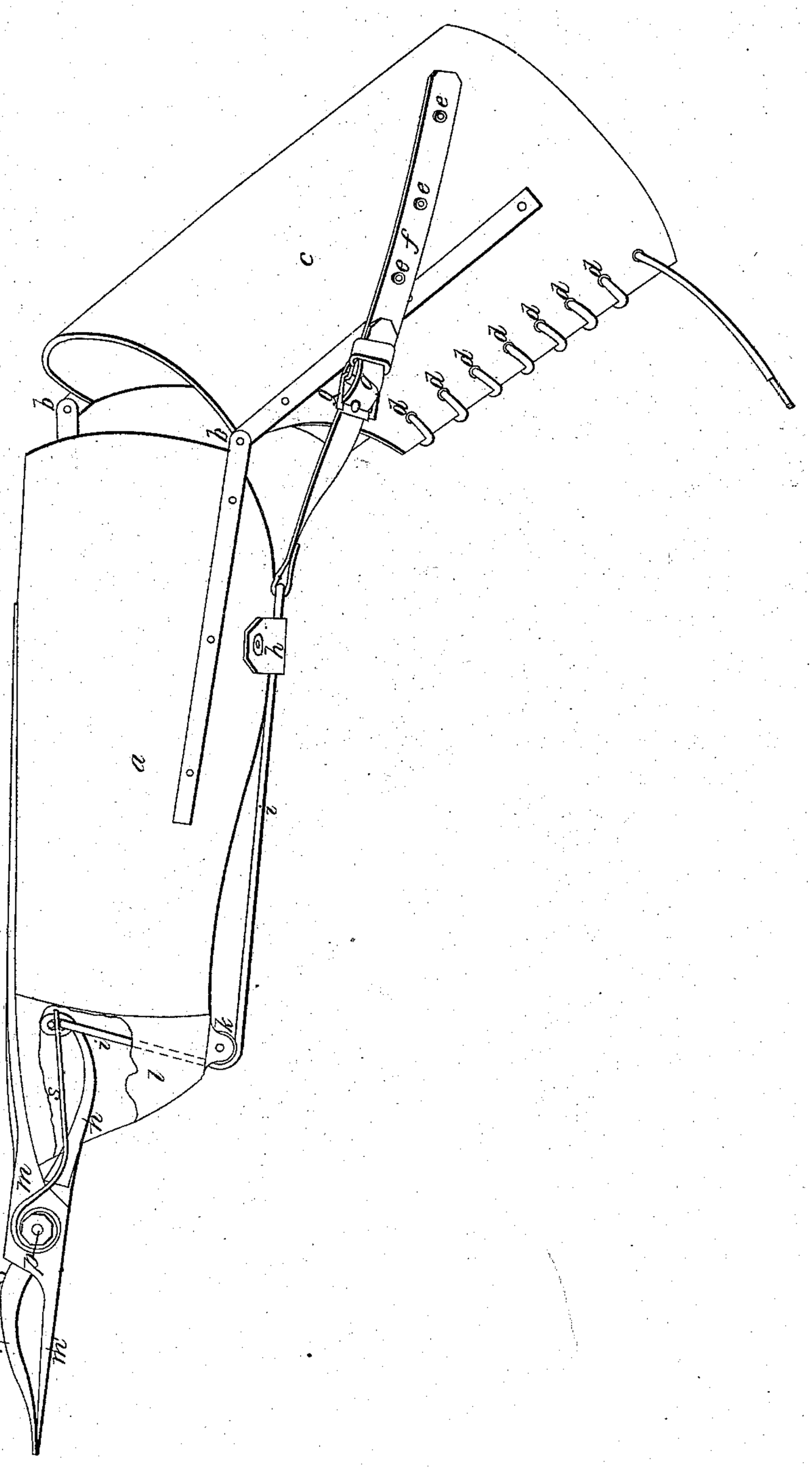
J. REICHENBACH.

SUBSTITUTE FOR ARTIFICIAL HANDS.

No. 48,440. Patented June 27, 1865.



Witnesses:
John M Neal
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UNITED STATES PATENT OFFICE.

JOHN REICHENBACH, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN SUBSTITUTES FOR ARTIFICIAL HANDS.

Specification forming part of Letters Patent No. **48,440,** dated June 27, 1865; antedated June 17, 1865.

To all whom it may concern:

Be it known that I, JOHN REICHENBACH, of the city of Pittsburg, in the county of Allegheny and State Pennsylvania, have invented a new and useful Improvement in Artificial Substitutes for the Natural Hand; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, which is a perspective representation of my invention.

The object of my invention is to provide for those who have lost one or both of their natural hands an implement which shall be more efficient for many purposes than an artificial hand made with fingers, after the fashion of the natural hand. Such an implement, which will enable the person using it to take a firm hold of any article they may desire to carry or work with and release it at pleasure, will, in many cases, enable the user, when deprived of one of his natural hands, to pursue some handicraft, which he would otherwise be unable to do.

To enable others skilled in the art to construct and use my improvement, I will proceed to describe its construction and operation.

In the drawing, *a* is a frame or case, made of stout leather or other suitable material, into which the stump of the wearer's arm is to be inserted. This case is hinged at *b b*, by a strap-hinge of iron or steel, to a sleeve-piece, *c*, which is designed to be wrapped around the upper part of the arm above the elbow, and secured by lacing *d d*, so as to be firmly attached thereto. The elbow of the wearer will project, when the arm is bent, through the space between the sleeve *c* and case *a*.

To the inner side, or side next the body, of the sleeve *c* is riveted at *e e* a leather strap, *f*, with a buckle at *g*, so as to lengthen or shorten it. This strap unites just below the elbow with a strong cord, *i*, of catgut or other suitable material, which passes down the lower side of the case *a*, and is held to it by a loop, *h*, so that when the arm is bent the cord may not hang loose. This cord *i* may, if preferred, pass inside the case *a* in a groove or gutter; but as this might interfere with the stump, I prefer to pass it down outside, as shown in the drawing. The cord *i* passes down to the end of the case *a*, where it passes over a small roller or pulley, *k*, which is fastened to the wrist-piece *l* of the case *a*. The wrist-piece is made of iron, and is attached to the end of the case *a* to give it the strength and firmness necessary to operate the pair of gripers which supply the place of fingers.

The gripers are made like a pair of pinchers, and consist of two parts, *m* and *n*, united at the joint by a bolt, *p*. The jaws *m' n'* of the pair of gripers are made flat, and their inside and opposite faces are slightly roughened, so as to take firm hold of anything placed in their grasp. Around the bolt *p*, on both sides of the gripers, is wound the forward end of a leaf-spring, *s*, made of steel, the other extremity of which rests on the under side of a pin, *t*, which projects horizontally from the inner extremity of the lower griper-arm, *n*, just above the point where the catgut cord *i* is fastened to a loop at the end of the lower griper-arm, *n*.

The spring *s* (shown in the drawing on one side of the gripers) is constructed and attached to the gripers in the same manner as the other spring on the other side, which is not seen in the figure. The effect of these springs *s* is to press up the lower arm, *n*, of the gripers and force their jaws together. The upper arm, *m*, of the gripers is fastened to the upper side of the wrist-piece *l* and extends some distance up the case *a*, to which it is riveted.

In the drawing a portion of the wrist-piece is represented as removed to show the lower arm, *n*, of the gripers and the mode in which the spring *s* is applied to it.

The operation of this substitute for an artificial hand is as follows: When the arm is extended out, by straightening the elbow-joint the strap *f* draws the cord *i* tight and causes the lower arm, *n*, of the gripers to be drawn down which causes the jaws of the gripers to open, and on flexing the elbow-joint again the cord *i* is relaxed and the jaws *m' n'* of the gripers close, by means of the springs *s*, upon any article placed between them. As in using any article or tool—such as a knife, pen, &c.—the arm is slightly bent, this implement will hold it fast without any effort or attention on the part of the wearer, and to release the hold it is only necessary to stretch out the arm and straighten the elbow, when the gripers will at once open for that purpose.

On top of the upper jaw, *n'*, of the gripers I place a hook, *q*, which is screwed into the jaw

n', and which may be removed or inserted at pleasure. This hook will be found very convenient in carrying various articles. When the hook is removed a false hand with fingers and thumbs, and made hollow, may be slipped over the gripers, the wrist of the false hand fitting snugly over the wrist-piece l, so that when the gripers are not in use the implement may wear a more natural appearance.

Having thus described my improved instrument as a substitute for artificial hands, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The use of a pair of pinchers constructed substantially as described, attached to a case to be worn over the stump of the arm which has lost the natural hand, and operated by means of a cord attached to the arm above the elbow, as a substitute for an artificial hand.

2. The combination of the pinchers and hook, constructed substantially as described, for the purposes hereinbefore set forth.

In testimony whereof I, the said JOHN REICHENBACH, have hereunto set my hand.

JOHN REICHENBACH.

Witnesses:

JOHN M. NEAL,

W. BAKEWELL.