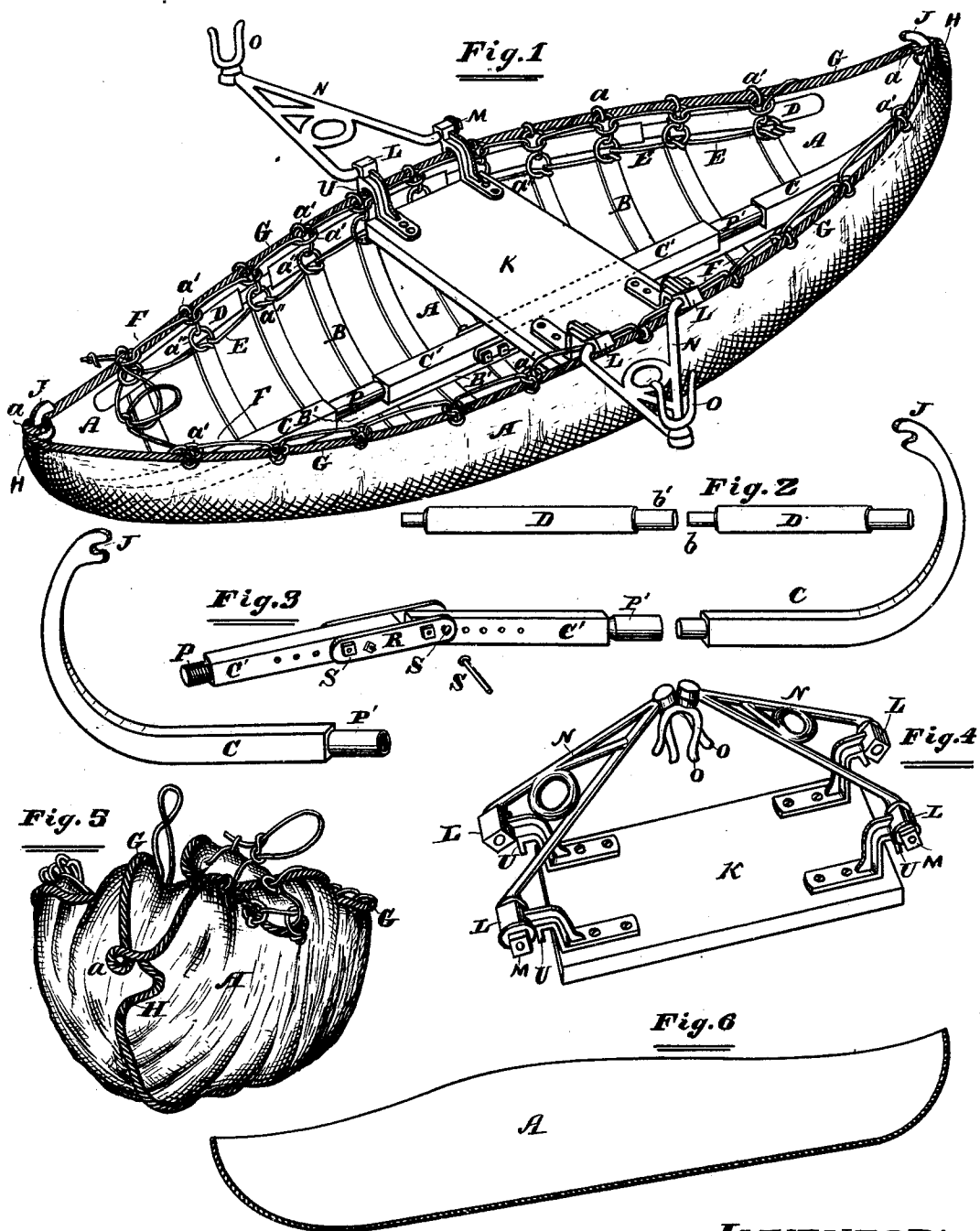


(Model.)

W. ARMSTRONG.
Portable Folding Canoe.

No. 234,164.

Patented Nov. 9, 1880.



Attest:
Charles H. Schoff
S. S. Schoff

INVENTOR:
William Armstrong
By James H. Payne
his Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM ARMSTRONG, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF OF
HIS RIGHT TO WILLIAM W. BARCUS, OF SAME PLACE.

PORTABLE FOLDING CANOE.

SPECIFICATION forming part of Letters Patent No. 234,164, dated November 9, 1880.

Application filed May 17, 1880. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM ARMSTRONG, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful
5 Improvements in Portable Folding Canoes, of which the following, in connection with the accompanying drawings, is a specification.

In the drawings, Figure 1 is a perspective
10 of a canoe embodying my invention; Fig. 2, a like representation of two parts or sections of the gunwale detached; Fig. 3, a like representation of the several parts or sections of the keel detached; Fig. 4, a like representation of the seat detached, and showing the outriggers
15 folded in. Fig. 5 is a like representation of the skin or covering detached and folded or closed, and Fig. 6 is a vertical central longitudinal section of the covering before it is roped.

Like letters of reference indicate like parts.
20 My invention relates to that class of canoes adapted to be portable; and it consists in certain novel features of construction, substantially as hereinafter set forth, whereby I have aimed to render canoes of the class referred to
25 more strong and safe, compact, and readily portable.

A represents the covering of the canoe. This covering I make in a form approximating the form of light portable Indian canoes, and for
30 material I use canvas or other suitable flexible stuff, and on its exterior surface I apply a water-proof coating. This cover I make in two parts or halves, meeting centrally along the bottom in a longitudinal direction, and I sew these
35 meeting edges together stoutly. H is a small rope or cord sewed along the seam thus formed, to strengthen and relieve the strain when the cover is applied. G is a rope fastened to the upper edges of the cover A to strengthen the
40 gunwales. In each end or corner of the cover are loops *a a* in the rope applied to the cover, and *a' a'* are rings applied to the rope G at short intervals from each other.

B B are the ribs, made of wood or other suitable material. I pass these ribs through a
45 false keel, B', made of canvas, and sewed or otherwise securely applied to the cover A, and *a'' a''* are rings in the ends or upper parts of the said ribs.

50 D is the gunwale, which is made in sections,

jointed at the ends by means of dowels *b b* and sockets *b' b'*, as indicated in Fig. 2. To apply the gunwale I fasten the sections together and arrange them along the upper ends of the ribs B B. I then secure the gunwale in its place
55 by means of cords E and F, passed or laced through the rings *a'* and *a''*, respectively, and as indicated in Fig. 1, thereby, also, securing the cover to the ribs.

C C are the end pieces of the keel. These
60 parts are bent to give proper form to the ends of the canoe, and are notched or forked, as shown at J J, to receive the loops *a a*.

C' C' are the center-pieces of the keel, and
65 *c c* are holes therein. R R are bars or straps bolted to the inner ends of the parts C' C' to hinge them together in such a manner that they may be folded when not in use; and S S are pins or bolts and nuts passing through the said bars or straps and through the holes *c c*.
70 to admit of the central part of the keel being made rigid when in use. The parts C and C' are coupled to each other at their meeting ends by means of a screw-coupling, P; but a dowel and socket or ferrule coupling may be employed
75 at one of these joints, as indicated at P'.

K is the seat, and L L are supports attached to the ends thereof, and having downwardly-projecting lips U U, forming a recess, as shown,
80 to receive the upper edges of the body of the canoe when the seat is applied thereto.

N N are outriggers, provided on their outer ends with rowlocks O O, and turning in sockets in the outer ends of the supports L L, being clamped therein removably by means of
85 the nuts M M, the ends of the arms entering the sockets being screw-threaded for that purpose.

The manner of putting together and taking apart the parts now described will, to a great
90 extent, now be apparent; but a brief description of the mode of proceeding may be added.

After making the case or cover in the manner described, I extend it or so arrange it as to receive the ribs, and these are placed as
95 shown, being passed through the false keel B', which may be stitched to the cover A between the ribs. The cords E and F should then be arranged loosely through the rings *a'* and *a''*, substantially as shown, and the gunwales are
100

then to be arranged in their places between the cover A and the said cords and rings, where they will be supported. I then apply the keel by arranging the sections thereof together, and then placing the whole in its proper place in the bottom of the body of the canoe, arranging the hooks J J in the loops *a a*. This I accomplish with facility by leaving loose the joint formed by the bars R R, so that it may be bent up to shorten the keel until after it is arranged in the loops *a a*. I then push down the bars R R flatly upon the ribs, and make the joint rigid by inserting the locking-pins S S. By this means the cover A is extended sufficiently to be tightly stretched and held in its proper form, and all the parts are tightened. If it be necessary to produce greater tightness I rotate the central sections of the keel in such a direction as to partly unscrew the coupling P, thus making the keel longer, and consequently further extending the cover A and tightening the parts. The cords E and F are then to be tightened and the seat applied, when the canoe is ready for use. The gunwales may be applied after the keel is arranged in its place, instead of before, if that method be deemed best.

In order to take apart or fold the canoe the cords E and F should be loosened without being removed from the rings *a' a''*. The seat, gunwales, and keel should then be removed, and the sections of the gunwales and keel separated. The outriggers N N may be folded toward each other, as indicated in Fig. 4, or they may be detached from the seat. The cover A, having the ribs connected thereto, may be folded compactly, as indicated in Fig. 5.

It will be perceived from the foregoing description that all the parts may be arranged compactly for transportation, and that when arranged together in the manner described they constitute a strong, light, and safe canoe, which may be constructed or put together and taken apart with facility.

I am aware that portable folding canoes or

boats having flexible or extensible covers and transverse bars or ribs have heretofore been made; but I do not here intend to claim such, broadly.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A flexible cover for portable folding canoes, consisting of canvas or other light material, and made in twin parts or halves together approximating the form of a canoe, and united by a seam extending along the line of the keel, in combination with a rope or cord fastened there to along the said seam and terminating in loops at the bow and stern, to receive the corresponding ends of the keel, and provided along its upper edge with a rope or cord, all substantially as and for the purposes specified.

2. In a portable folding canoe or boat having a flexible cover, the detachable keel made in sections C C', and having hooked or forked outer ends, in combination with a joint connecting two of the said sections, and consisting of the bars R R, applied as described, and with an extensible screw-joint, also uniting the ends of two of the said sections, substantially as and for the purposes specified.

3. In a portable folding canoe or boat, the combination of a flexible cover provided with the rings *a' a'*, the removable gunwales made in sections, the ribs B B, provided with the rings *a'' a''*, the cords E and F, and a removable keel, substantially as and for the purposes specified.

4. In combination with a portable folding boat or canoe, the seat K, having thereon the supports L L, with downwardly-extending lips U U, and carrying the folding outriggers N N, with their rowlocks, substantially as and for the purposes specified.

WILLIAM ARMSTRONG.

Witnesses:

BENJAMIN CHURCH,
C. E. KREMER.