

Sept. 24, 1929.

D. W. DOUGLAS

1,729,477

SWIMMING SHOE

Filed March 20, 1928

3 Sheets-Sheet 1

Fig. 1.

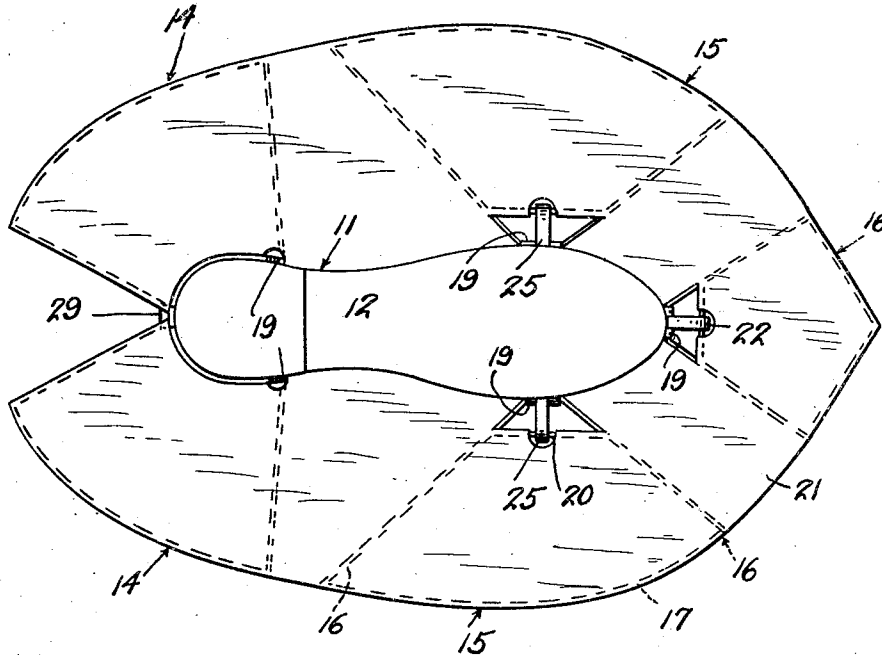


Fig. 2.

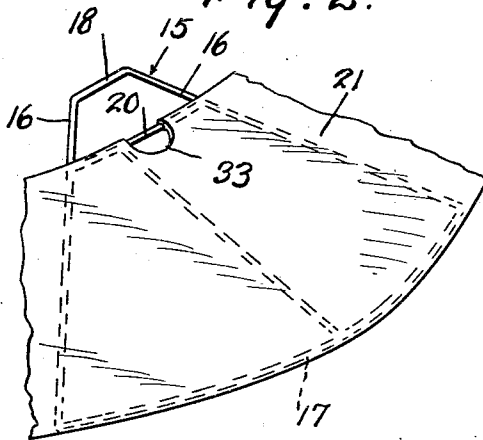
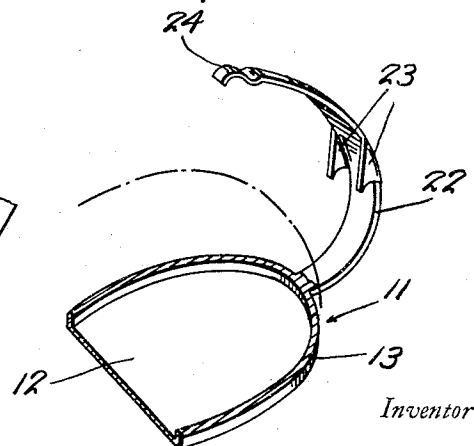


Fig. 3.



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Fig. 7.

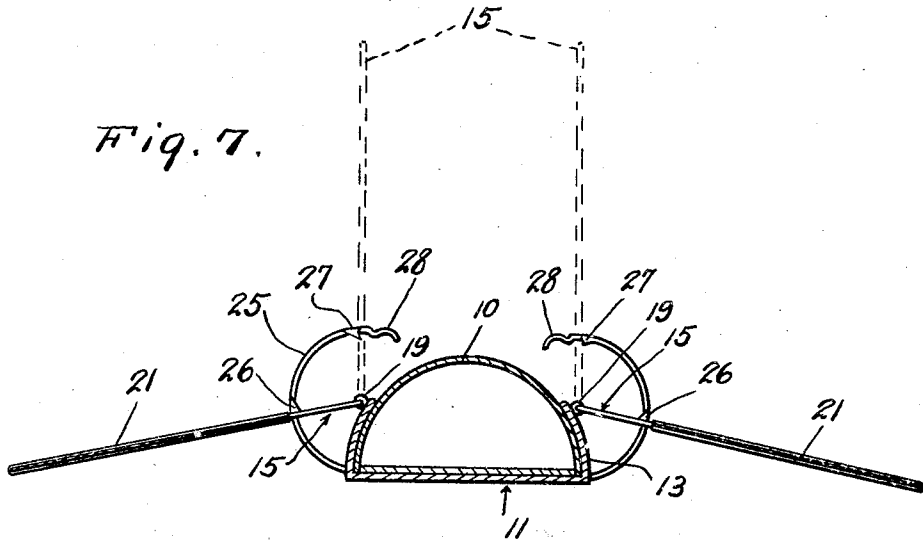


Fig. 8.

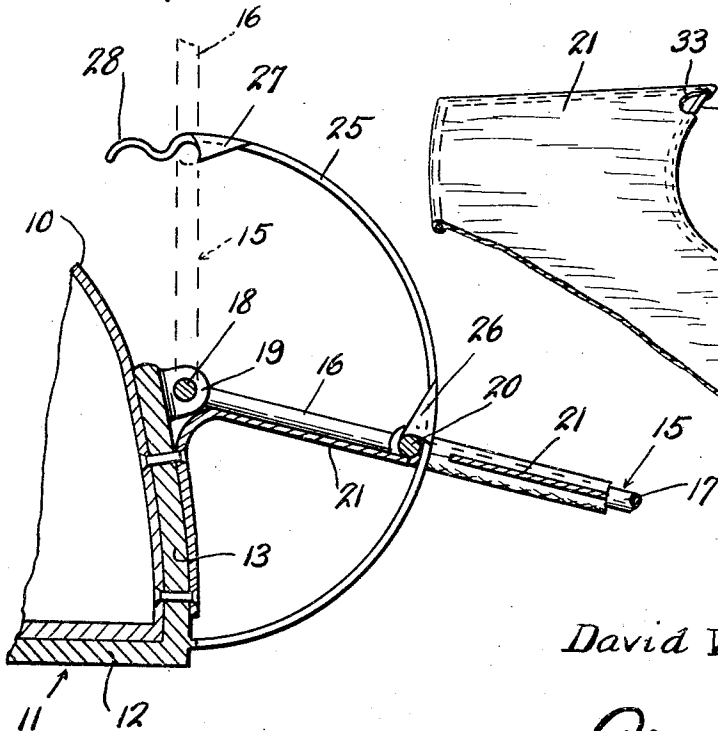
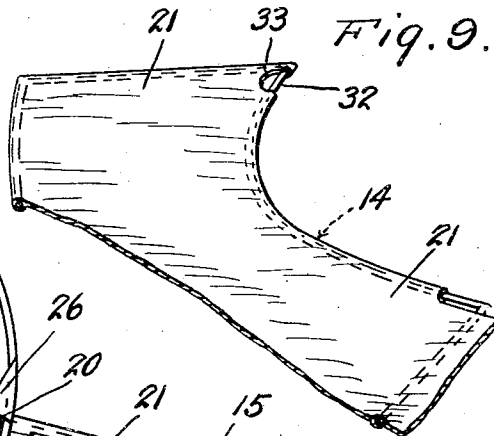


Fig. 9.



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UNITED STATES PATENT OFFICE

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SWIMMING SHOE

Application filed March 20, 1928. Serial No. 263,104.

The present invention relates to an improved swimming shoe especially constructed to aid the wearer in swimming by insuring better propulsion of the body.

Briefly, the structure comprises in combination, a shoe having a light weight metal body attached thereto which carries foldable cloth covered propulsion wings.

In the drawings:

Figure 1 is a bottom plan view of the complete structure showing the wings in operative position.

Figure 2 is a fragmentary perspective view of a portion of the wing structure detailing one of the special carrier frames.

Figure 3 is a fragmentary perspective of the forward portion of a metallic body and a frame retaining arm carried thereby.

Figure 4 is a side elevation showing the wings swung up to facilitate walking.

Figure 5 is a rear view with the wings down to operative position.

Figure 6 is a perspective view of another one of the retaining arms.

Figure 7 is a cross section through the forward portion of the structure.

Figure 8 is an enlarged fragmentary detail and elevational view emphasizing certain of the parts.

Figure 9 is a fragmentary perspective view of one side of the rear portion of the wing structure.

Attention is first invited to Figure 8 wherein it will be observed that the reference character 10 designates generally the shoe and the reference character 11 the metallic body which is fastened thereto. This body comprises a flat bottom 12 and an upstanding marginal rim or flange 13. The flange as well as the bottom conforms to the shape of the shoe and suitably fastened thereto. The body constitutes the mounting for the wing structure.

The wing structure may be said to be composed of a plurality of wings or one complete wing, see Figure 1 for instance. This structure embodies a pair of duplicate rear frames 14, a pair of fore frames 15, and a front frame 16, all of these frames are constructed of wire of appropriate strength, and

each frame is substantially triangular in general configuration. Moreover each frame is substantially the same in construction and by referring to Figure 2 wherein one of the fore or side frames 15 is shown it will be seen that it comprises a pair of outwardly diverging side bars 16 connected by an arcuate end bar 17 at the outer ends and a short pin at the inner ends. The connection 18 constitutes a fulcrum which is rockably mounted in complementary bearings 19 (see Figure 8). In addition there is a cross bar 20 that operates in a manner to be hereinafter specified.

As shown in dotted lines in Figure 1 the rear frames 14 are pivotally or swingably mounted to the rear portion of the mounting 11. The frames 15 are pivotally mounted on the forward portion of the mounting, while the frame 16 is likewise mounted on the toe portion of the mounting. Then, appropriate fabric covering 21 is stretched over the frame to provide the wings.

On the toe portion of the mounting, as shown in Figure 3 we find a curved spring arm 22 having intermediate retaining shoulders 23 and a finger piece 24 at its free end. The cross bar on the frame 16 is engageable with the shoulder 23 whereby it is held down in operative position.

On opposite sides as shown in Figure 7 we find a pair of similar retaining arms 25. Each arm is of the construction shown in Figure 8 wherein it will be observed that the arm is of curved form, provided with a pair of intermediate shoulders 26 and a pair of end shoulders 27 and a finger piece 28. Then there is a rear arm 29 provided for the heel portion, this being formed with retaining shoulders 30 and the finger piece 31 at its upper end.

It will thus be seen that I provide individual retaining devices for the individual frame. In the case of the rear frame however, a single retaining arm is sufficient for both of these, and owing to the slight difference of connection with this arm I invite attention to Figure 9 wherein it will be observed that the rear frames do not have a crosspiece such as is shown at 20 in Figure 2 but the curved inner bar 32, or at least a

portion thereof, constitutes the retaining means. In all instances the covering is cut away as at 33 to facilitate operation.

5 With the mounting in place on a shoe and the several frames swingably connected thereto and the covering in place on the frame it is obvious that the structure may be positioned as shown in Figure 1, for use, or swung up in an out of the way position as shown in Figure 4 while walking. When the wings are 10 in operative position and the device is in place on the wearer's foot, it is evident that it will provide a web which will undoubtedly aid in efficient and more dependable propulsion. 15 In fact, it is thought that the device will fulfill the requirements of a device of this character in an efficient manner, and inasmuch as the construction is clear it is believed that a more detailed description is unnecessary. 20 Minor changes in shape, size, and rearrangement of parts coming within the field of invention claimed may be resorted to if desired.

Having thus described the invention, what 25 I claim is:—

1. In a swimming appliance of the class described, in combination, a shoe, a metallic body carried by the shoe and extending for the full length of the shoe, said metallic body 30 being of a shape conforming to the shape of the shoe and including a flat bottom, and an upstanding marginal rim fitting about the outer edge of the sole of said shoe, a plurality of bearings carried by the rim, a plurality of individual frames swingably mounted 35 in said bearings, shoulder retaining arms carried by the rim and extending upwardly through each of said frames, said frames being engageable with the retaining arms, and 40 a flexible covering for the frame whereby to provide a foldable wing structure.

2. In a swimming appliance of the class described, in combination, a shoe, a metallic body carried by the sole of the shoe, said 45 metallic body including a flat bottom of a shape corresponding to the sole of said shoe and provided with an upstanding marginal rim fitting about said shoe, a plurality of bearings carried by the rim, a plurality of frames 50 swingably connected with the bearings and arranged around the rim in a symmetrical manner, a covering for said frame, retaining arms projecting from said rim, said arms being of curved form and adapted to extend 55 through each of said frames, shoulders on said arms, and means carried by the respective frames to abut said shoulders by holding each of said frames in an operative or inoperative position.

60 In testimony whereof I affix my signature.

DAVID WALTER DOUGLAS.