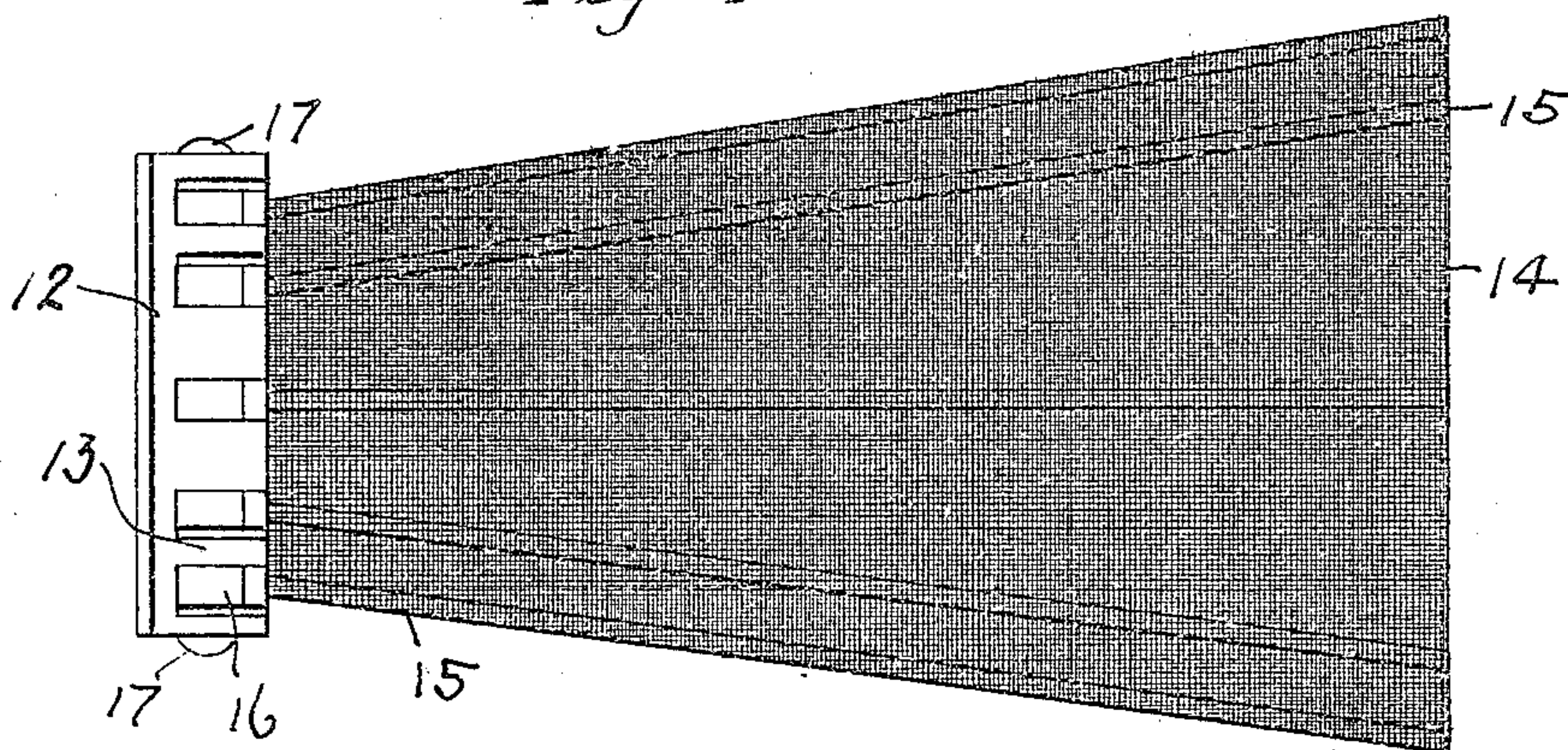
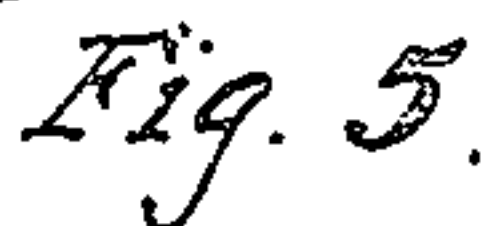
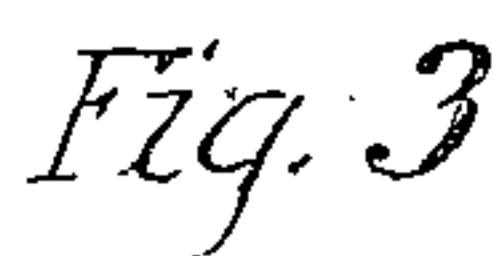
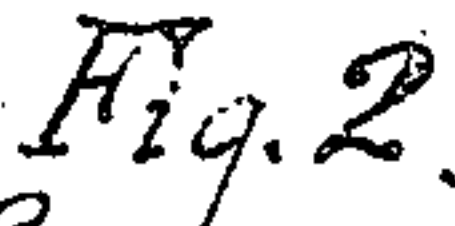
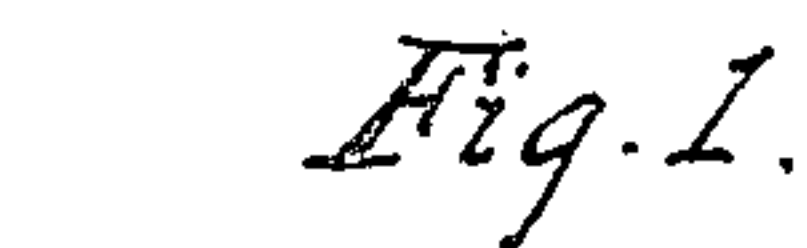


APPLICATION FILED SEPT. 2, 1909.

2 SHEETS—SHEET 1.



A. E. Schmidt.

ATTORNEY

W. H. BOREGARD.
SWIMMING APPARATUS.
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Patented June 28, 1910.

2 SHEETS—SHEET 2.

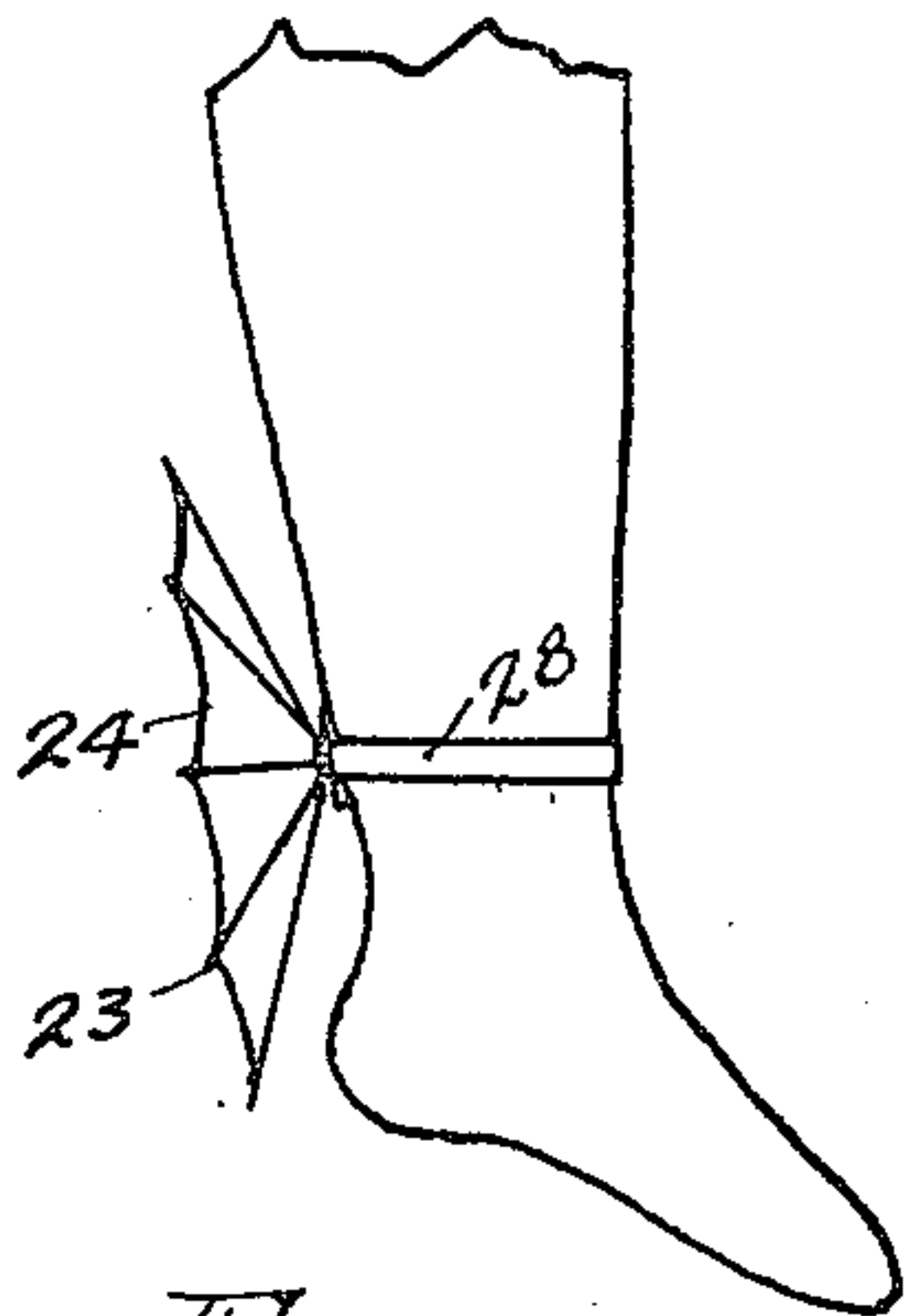


Fig. 6.

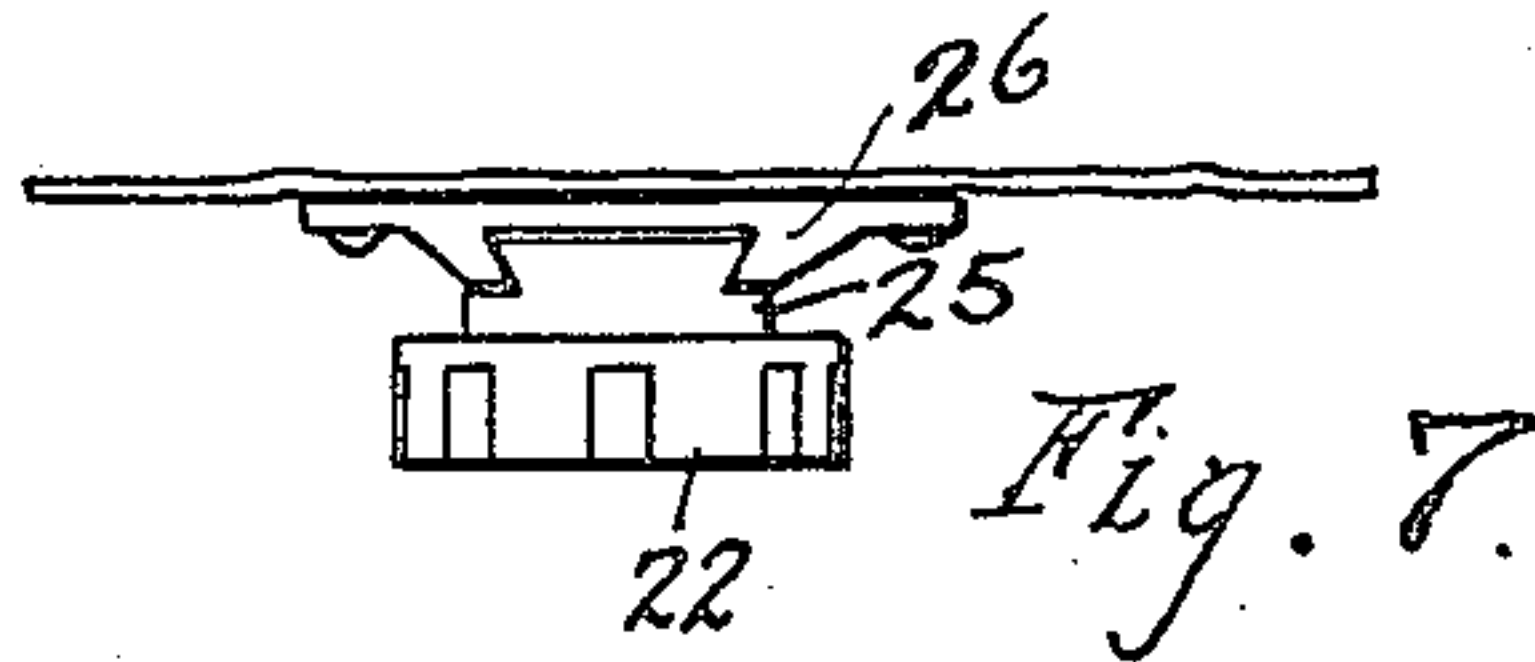


Fig. 7.

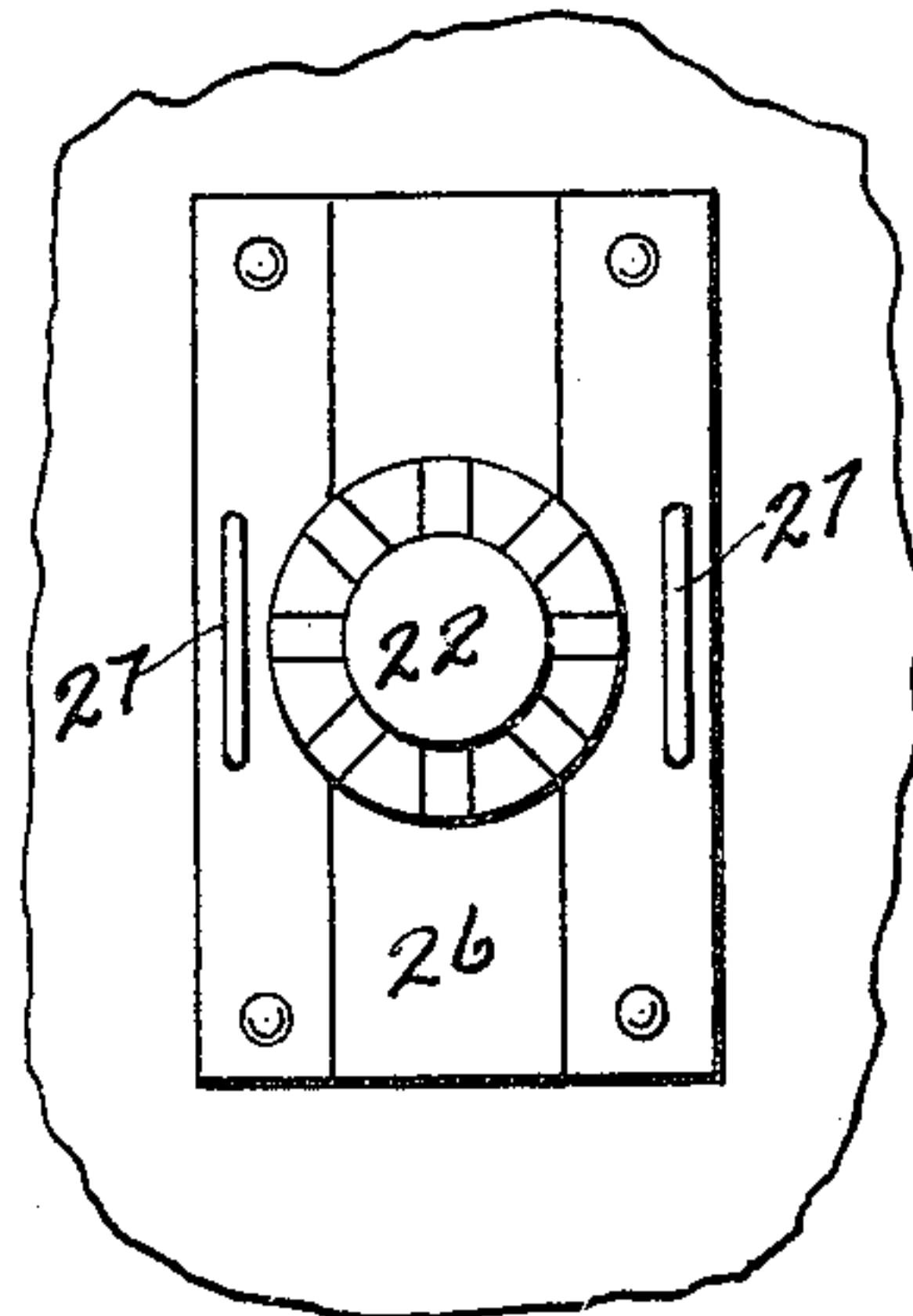


Fig. 8.

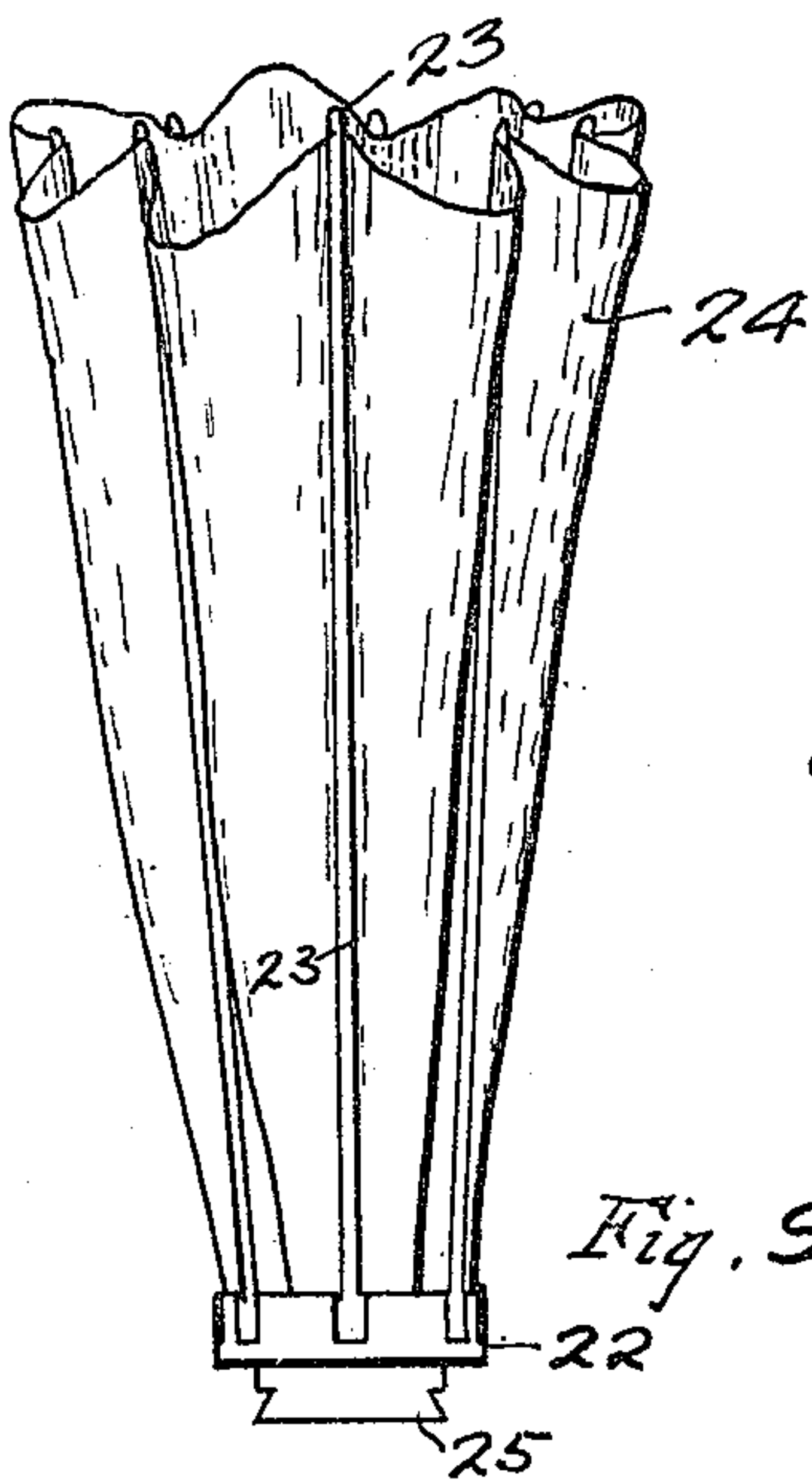


Fig. 9.

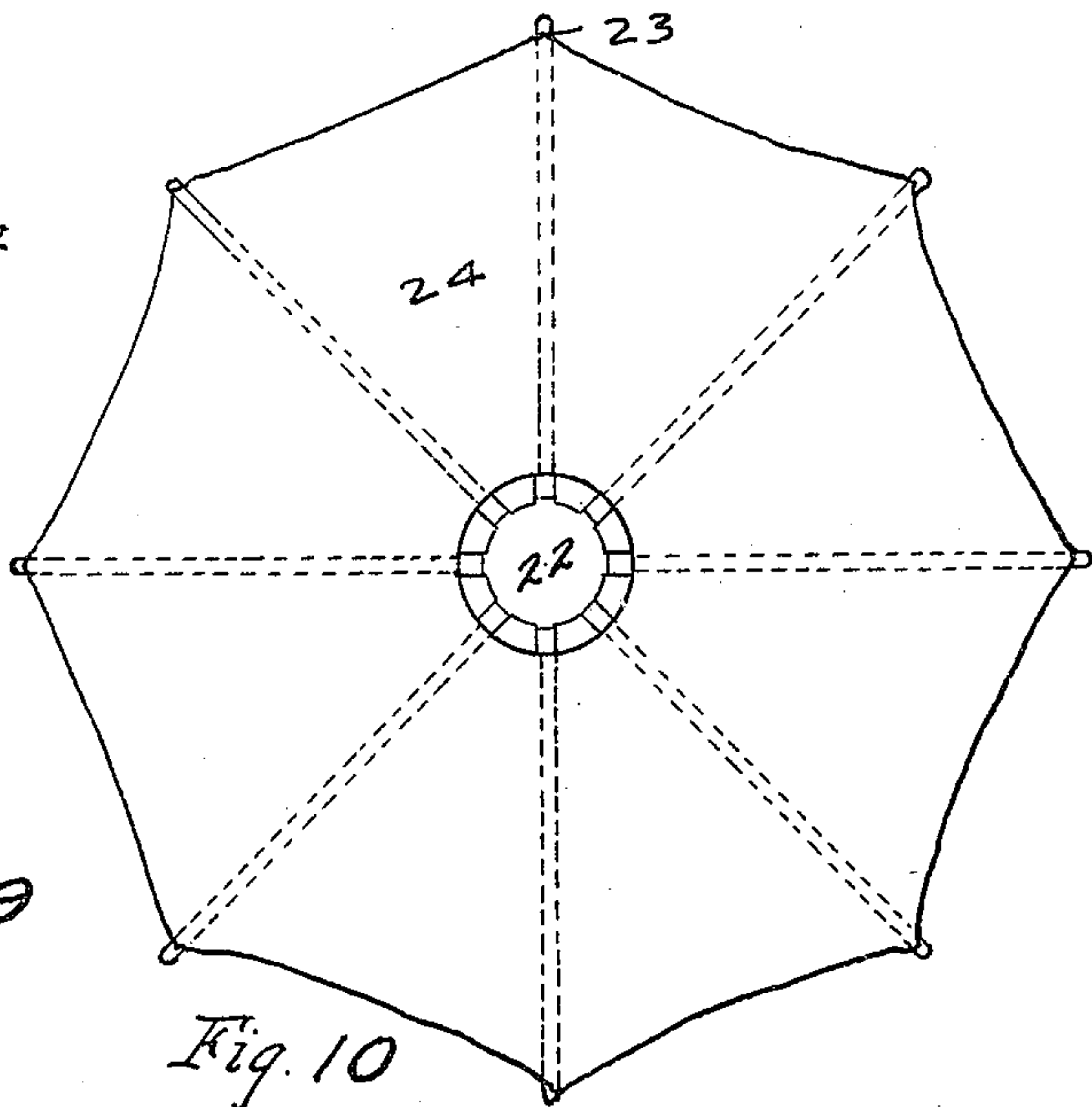


Fig. 10.

WITNESSES
C. S. In. Lead
A. E. Schmidt.

Wm. H. Boregard
INVENTOR
Max A. Schmidt
BY
ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM H. BOREGARD, OF SPOKANE, WASHINGTON.

SWIMMING APPARATUS.

962,415.

Specification of Letters Patent. Patented June 28, 1910.

Application filed September 2, 1909. Serial No. 515,850.

To all whom it may concern:

Be it known that I, WILLIAM H. BOREGARD, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Swimming Apparatus, of which the following is a specification.

This invention relates to swimming apparatus, and it consists in a suit which is fitted with propelling devices arranged to distend automatically during the rearward thrust of the wearer's legs, and to fold during the forward stroke.

It is the object of the invention to provide an apparatus of this kind which is of simple, strong and durable construction, and also reliable and efficient in use.

The invention also has for its object to provide for the ready removal of the device from the suit.

With these objects in view, the invention consists in a novel construction and arrangement of parts to be hereinafter described and claimed, reference being had to the drawings hereto annexed, in which—

Figure 1 is a perspective view of the invention. Fig. 2 is a sectional detail of the hinge joint of the fin. Fig. 3 is a front elevation, and Fig. 4 is a side elevation of the fin. Fig. 5 is a perspective view of one of the fastener members. Fig. 6 is a perspective view of an auxiliary propelling device. Fig. 7 is an end view, and Fig. 8, a face view of the attaching device thereof. Fig. 9 is an elevation of the device removed, and folded. Fig. 10 is a plan view of the same open or distended.

As shown in Fig. 1 of the drawings, the suit or garment comprises a body portion 5, arms 6, a leg portion 7, and feet 8, the whole being arranged to entirely cover the wearer up to the neck. The body portion is divided in front so that the suit may be readily slipped on or off, and it is provided with buttons, whereby it is fastened in place. The suit is also provided with an annular inflated air-tight chamber 9 encircling the body below the arms, and serving to buoy the wearer in the water. The suit will be made of some suitable light, flexible material or fabric, preferably such as is impervious to water. To the ankle of the leg portions of the suit are securely fastened plates 10 having outstanding converging flanges 11 which form undercut grooves, in which the

two propeller fins are mounted. Inasmuch as the two fins are alike, a description of one will suffice for both.

One of the propeller fins is shown in detail in Figs. 2 to 4. Referring to said figures, 12 denotes a base plate which is shaped on one side to enter the groove formed by the flanges 11. This plate is formed with a series of alined perforated ears 13. The fin proper comprises a strip 14 of suitable flexible material or fabric, preferably impervious to water, and mounted on a series of rods 15 arranged in a common plane to give the strip the proper flat shape, the rods on opposite sides of the median line of the strip being divergent so that the fin is widest at its outer end. Each rod is carried by a knuckle 16 from which it extends outwardly, and by means of a pintle 17 passing through the ears and the knuckles, a hinge joint for the fin is had.

It will be noted in Fig. 3 that the knuckles and ears are so arranged that the center rod swings in a plane which is perpendicular to the axis of the pintle, whereas the rods on opposite sides thereof swing in planes which are oblique to said axis, this being effected by arranging the ears and knuckles of the last-mentioned rods obliquely to the pintle. The planes in which the rods on the respective sides of the center rod swing are also divergent in one direction, the arrangement being such that when the fin is making a working stroke, the rods spread, and thus stretch the strip 14 and open the fin to its fullest extent, whereas when the recovery stroke is made, the rods approach each other, and thus partly fold the fin, so that less resistance is offered to the water. The fin swings in a quarter circle, there being stop shoulders 18 on the knuckles to limit the fin to such a swing.

In operation, the fins automatically assume a distended position during the rearward or working thrust of the legs, such distended position being limited by the stop shoulders described. When the legs are retracted for the next thrust, the fins fold, and therefore offer but little resistance to the water. To the plates 10 are secured one end of straps 19, the other ends of which are adapted to be connected to supports comprising angular metal strips 20 located on the inside of the leg portion of the suit, and extending down to the soles where they are fastened, whereby the suit is relieved from

all strain. By reason of the air chamber 9, the suit may also be used as a life preserver, and when the fins are not to be used, they may be removed by slipping them out of the flanges 11 of the plates 10. To the leg portion of the suit are also fastened straps 21 which are adapted to be buckled to the air chamber, said straps serving to hold the leg portion of the suit up.

In Figs. 6 to 10 is illustrated an auxiliary propelling device which may be used in connection with the one already described, or separately, if desired. This auxiliary propelling device is an umbrella-like structure, comprising a head 22, ribs 23 pivoted thereto, and a cover 24 of some suitable fabric, preferably impervious to water, secured to the ribs. On the head is a dovetailed plate 25 engageable with the undercut slot of a plate 26 similar to the plate 10, said plate 26 being secured to the leg portion of the suit, a short distance above the ankle. It will be understood that each leg is equipped with the device. To the plate 26 are secured loops 27 to which are fastened the ends of a strap 28 passing around the leg, whereby the strain is taken off the leg portion of the suit.

In use, the auxiliary device closes or folds on the forward movement of the legs, and opens or spreads during the rearward thrust. The device can also be readily removed if the suit only is to be worn.

I claim:

1. A swimming apparatus comprising a base plate, supporting means therefor, and

a fin consisting of a series of rods hinged at one of their ends to the plate, and extending in a common plane therefrom, the rods on opposite sides of the median line of the fin swinging in planes which are divergent and oblique to the axis of the hinge, and an impervious strip mounted on the rods.

2. The combination with a body garment having a leg portion, of grooved plates secured to the legs, dovetailed plates removably mounted in the grooves of the plates, and foldable propelling devices carried by the dovetailed plates.

3. The combination with a body garment having a leg portion, of grooved metal plates secured to the legs, flexible bands encircling the legs, and connected at their ends to the plates, and foldable propelling devices removably mounted in the grooves of the plates.

4. The combination with a body garment having a leg portion, of grooved plates secured to the legs, propelling devices removably mounted in the grooves of the plates, angular metal strips secured to the legs, one of the branches of said strips extending beneath the soles, and bands fastened at one end to the aforesaid plates, and at their other ends to the strips.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. BOREGARD.

Witnesses:

H. E. SMITH,
NETTIE KING.