M. C. SCHWEINERT.

DIVING DRESS.

APPLICATION FILED AUG. 1, 1913. RENEWED FEB. 27, 1922.

1,430,194. Patented Sept. 26, 1922.

Fig. 2.

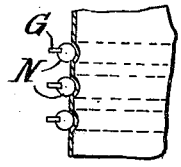


Fig. 1.

Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

MAXIMILIAN CHARLES SCHWEINERT, OF NEW YORK, N. Y.

DIVING DRESS.

Application filed August 1, 1913, Serial No, 782,467. Renewed February 27, 1922. Serial No. 539,773.

To all whom it may concern:

Be it known the I, MAXIMILIAN CHARLES SCHWEINERT, a citizen of the United States, residing in the city of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Diving Dresses of which the following is a specification.

This invention has for its object the provision of a diving dress which will permit the diver to work at depths and under pressures not hitherto attained. The object is to provide a dress which shall sustain wholly or partly the external pressures, so that the diver is not subject to undue pressures, and further, to produce a dress in which there shall be sufficient flexibility to enable the diver to do useful work when submerged. Speaking generally, I accomplish these ends by the use of a fluid or fluids under pressure, so applied as to hold the dress in distended position. The simplest method of accomplishing this result is the provision of a series of ring shaped pneumatic tubes which when inflated to a proper internal pressure will hold their shape against the external pressure of the water, while at the same time permitting sufficient flexure to enable the diver to use his limbs. Such tubes are preferably arranged so that they encircle the body of the diver, the limbs being protected by a series of smaller tubes. The fabric of the diving dress may be any suitable flexible fabric which is waterproof, and which is capable of sustaining the pressure of the water when supported by the series of tubes.

In the drawings, wherein I have shown several forms of the invention,—

Fig. 1 is a view of a substantially complete dress, the parts being shown partly in elevation and partly in section.

Fig. 2 is a sectional view of a modification in which the tubes are arranged at the exterior of the dress.

Fig. 3 is a sectional view of a modification, showing a group of tubes adapted to be inflated with one valve.

Referring to the drawings, let A indicate the suit or dress as a whole, which usually is provided with a helmet B the metal part of which extends to the joint C around the shoulders of the wearer where it is connected with the dress proper D. E indicates a series of tubes around the shoulders of the wearer, and these extend downwardly sufficiently to protect the shoulders. Each of the tubes is preferably endless or of ring form. Below the shoulders and around the arms are a smaller series of tubes encircling the arms. At E^2 is a similar series passing around the waist, and these are continued down to the crotch where the leg protection commences. The tubes arranged around the legs are indicated at E^3. It may be desired to arrange the first few tubes E^3 in the form of a figure 8, the legs passing through the respective loops and the tubes crossing each other at the crotch. At the intersection the tubes may be fixed or joined.

The tubes may be inflated to any desired pressure to hold them in ring form so as to make them radially stable, thereby to resist the external pressure.

These tubes may be arranged within the dress proper D, or they may be arranged at the exterior of the dress, as shown in Fig. 2 at N. They should be fastened to the dress so as to avoid any great displacement, either by tapes F as shown, or by vulcanizing the same to the dress, or in any other way that may be desired. Preferably the tubes are spaced apart from one another a sufficient distance to secure the desired flexibility while yet supporting the dress against external pressure.

The tubes may be inflated through valves G, each tube being provided with a valve, or they may even be connected by passages O so that a group of tubes P may be inflated through one valve as shown in detail in Fig. 3. If desired the tubes can be filled with water under pressure sufficient to provide for the radial stability desired, or they can be partly filled with water and sufficient air pressure then introduced to give the desired firmness to the tubes. At the points where an extreme flexibility is desired, such as the elbow and knee, alternate tubes E^4 may be provided which are of less or greater diameter than the main series, so that as the limb is bent a part of one tube may enter into the space enclosed by the next succeeding tube or tubes.

At the end of each sleeve may be provided a metal or other stiff cup H having a stuffing box I on its lower end through which is extended a hook J by means of which the diver works. The hook J for this purpose is provided with a handle K within the cup adapted to be grasped by the diver and moved outwardly or inwardly

by him, or twisted, as the work may require.

Various changes may be made in the structure shown without departing from the invention. It is not strictly essential that each tube shall be complete and independent and of circular form, although it is very desirable that each tube shall form a complete circle and shall constitute a member which is independently radially stable under compression.

I claim as my invention:—

1. A diving dress having a series of circularly extended tubes connected with the dress proper, said tubes being constructed of flexible material with thick walls capable of withstanding a high internal pressure, and being adapted to be inflated to a high pressure to distend the tubes to ring-shape, the internal pressure holding said tubes in said ring-shaped position as against external pressure of the water, whereby to relieve the diver of pressure, and at the same time permit motion of the diver's limbs.

2. The diving dress of claim 1, further characterized in that the ring-shaped tubes are each formed in complete circles, the circles being of different diameters, whereby the portion of one may pass into the other.

3. The diving dress of claim 2, further characterized in that smaller and larger rings are placed in juxtaposition, whereby to further facilitate flexure of the limbs.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

MAXIMILIAN CHARLES SCHWEINERT.

Witnesses:
THOMAS F. WALLACE,
FRED WHITE.