(No Model.)

O. PELKEY.

DIVING APPARATUS.

No. 418,053. Patented Dec. 24, 1889.

Fig. 1.

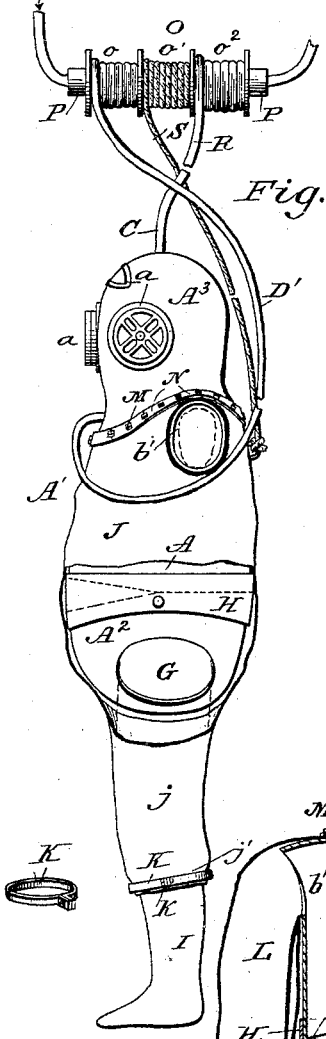


Fig. 2.

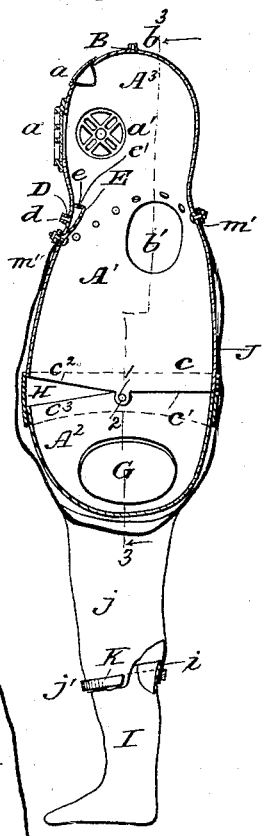


Fig. 3.

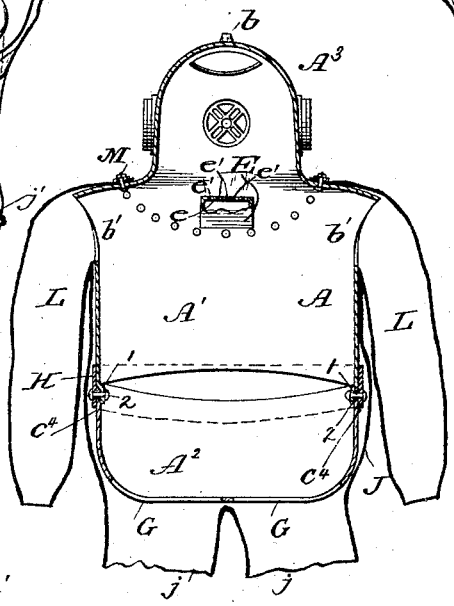


Fig. 5.

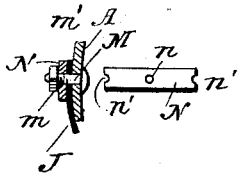
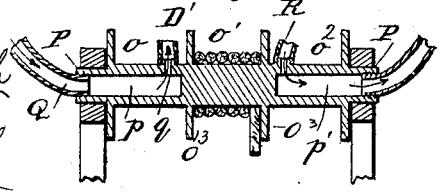


Fig. 4.



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DIVING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 418,053, dated December 24, 1889.

Application filed October 17, 1889. Serial No. 327,376. (No model.)

To all whom it may concern:

Be it known that I, OLIVER PELKEY, residing at West Duluth, in the county of St. Louis and State of Minnesota, have invented a new and Improved Diving Apparatus, of which the following is a specification.

My invention has for its object to provide a diving apparatus which will have sufficient strength to resist external pressure, and at the same time be of sufficient flexibility to permit the requisite movements of the diver.

It has also for its object to provide a diving-armor which will be light and durable.

To this end my invention consists in certain novel features of construction and peculiar combination of parts, all of which will be hereinafter fully described in the annexed specification and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of my improved diving apparatus. Fig. 2 is a central vertical section of the armor. Fig. 3 is a detail vertical section taken on the line 3 3, Fig. 2. Fig. 4 is a longitudinal section of the lifting-reel, and Fig. 5 is a detail view illustrating the connection of the plates N to the armor-section A.

A indicates the metallic body-armor, formed of two sections A' A^2, the upper section A' having formed integral therewith the helmet portion A^3, which is provided with sight-openings a a', of the usual construction, the upper portion of said helmet being provided with the foul-air outlet B, which extends through the screw-threaded boss b, to which the foul-air pipe C may be conveniently attached. The upper armor-section is provided with the arm-holes b b and a fresh-air inlet D, arranged in the front wall of the reef at a point slightly below the chin of the wearer.

The opening D, which is provided with a screw-tap d, has formed over its inner face a deflector or housing E, which flares inward and has a horizontal top piece e, provided with a series of jet-openings e' e', which lead the fresh air direct to the face of the diver.

The lower section A^2 of the armor is made to fit the lower portion of the body, being provided with the leg-openings G G, as shown.

The lower rear edge c of the upper section and the upper rear edge c' of the lower section are formed with horizontal meeting faces, which come close together when the diver stands in a vertical position. To secure the upper and lower sections together in such a manner as to allow the diver to have free movement of the body, I form the forward meeting edges c^2 c^3 with cut-away portions, as clearly shown in Fig. 2, and join the two sections at a point just above the hips by providing the upper section with depending ears 1 1, which extend over the edge of the lower section and which are held together by the bolts 2.

To form a complete protection to the body, I provide a metallic band H, which snugly encircles the meeting ends of the sections A' A^2, being held in place by the bolts 2 2, which pass through the band H, the ears 1 1, and apertures c^4 in the lower section A^2, as shown.

I I denote the metallic boots, which reach to a point below the knees, the upper ends of which are formed with outwardly-flared edges i i, as shown.

J indicates the rubber cover, which is formed with the leg portions j j, which are connected with the boots by stretching the lower ends j' j' over the flared edges i i, and securing the same by the split spring-collars K, the ends of which are adjustably connected by means of screws k k, as shown. The upper portion of the rubber suit is provided with sleeves L L, the lower ends of which are tightly fitted about the arms of the wearer, so as to prevent ingress of air or water.

M denotes a series of bolts riveted to the upper section A' on a line extending from the rear neck portion down over the shoulders and over the chest portion below the fresh-air inlet. The ends m of the bolts are screw-threaded, as shown.

The upper edge of the rubber suit is provided with a series of apertures m' m', which fit over the projecting bolts m. To secure said suit to the armor and keep an air-tight joint, I provide a series of plates N, having each a central aperture n, and half-apertures n' n' in their ends. In adjusting the plates they are placed over the outer face of the upper edge of the rubber suit, the ends fitting around each alternate bolt M, on which the

securing-nuts are screwed. By this construction I am enabled to make an air and water tight connection between the rubber suit and the armor.

O indicates the winding-reel, which is formed into three sections o o' o^2, said sections being divided by the disks o^3. The core of the winding-reel has its ends extended, as at P, forming journals for the same, said core being hollowed at each end, as at p p'.

Q denotes a pipe, which is connected with the hollowed portion p of the core and through which the fresh air is fed. The upper end of the fresh-air pipe D', which is wound around the section o of the reel, is connected to an opening q, which communicates with the hollow end p of the core, the upper end of the foul-air pipe being similarly connected with the portion p' of the core, said end being provided with a foul-air-discharge pipe R, as shown. The central solid portion of the reel has the upper end of the elevating-rope S connected thereto, the lower end being connected to the armor in any suitable manner.

From the foregoing description, taken in connection with the drawings, the advantages of my improved diving apparatus will be readily understood. It will be seen that the same is very simple in construction, and by making the armor of any kind of metal the essential characteristic of which is rigidity and stiffness, the contour of its various sections will be retained against such collapsing pressures as are found to exist under water.

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

1. In a diving apparatus, the combination, with the upper armor-section A', provided with a helmet portion formed integral therewith, and the lower section A^2, adapted to inclose the lower portion of the body, the meeting ends of said sections formed with straight rear portions and diverging front portions, said sections having a pivotal connection, as shown, of an encircling band or plate, pivotally supported on said armor over the meeting ends of said sections, substantially as described.

2. In a diving apparatus, the armor A, formed of two sections A' A^2, the upper section A' formed with a helmet provided with a foul-air outlet in its upper end, a fresh-air inlet in the front portion of the upper section, an air-deflector arranged on the inner armor side of the section A' to receive the air from the inlet, said deflector consisting of a housing having air-jets in its upper end, an air-tight covering for said armor-sections, and means for supplying the fresh air to the armor, substantially as and for the purpose described.

3. The combination, with the metallic body-section A', provided with a series of projecting bolts and the metallic boot-sections, of a water-proof suit detachably connected to the boot-sections and having an air and water tight connection at its upper end with the said body-section A', such connection consisting of a series of plates, as N, provided with one or more apertures adapted to fit over one or more of said bolts, said water-proof suit provided with a series of apertures fitting over said projecting bolts, said plates also provided with semicircular recesses adapted to fit the bolts and to rest on the outside of the rubber suit, and the securing-nuts, all arranged substantially as and for the purpose described.

4. In a diving apparatus, substantially as shown, the combination, with the metallic boots having outwardly-flared upper ends, of a rubber suit having leg portions adapted to fit over the flared ends of the boot-sections, and spring-rings for making an air and water tight connection between said boot and leg portions, all arranged as and for the purpose described.

5. In a diving apparatus, the combination, with a diving-armor, substantially as shown, provided with a fresh-air inlet at a point below the face of the wearer, and a foul-air outlet arranged in the top of the helmet portion, the air-pipes C D', and the hoisting-rope S, of the hoisting-reel O, provided with sections o o' o^2, to receive the air-pipes C D' and hoisting-rope S, said reel provided with hollow cores at the ends, the fresh-air pipe communicating with the core, as at p, and the foul-air pipe, as at p', a fresh-air inlet connected with the core portion p, and a foul-air-discharge pipe connected with the core at p' substantially as and for the purpose described.

6. In a diving apparatus, substantially as described, the reel O, consisting of three sections o o' o^2, the sections o o' having hollow cores or hubs, apertures formed in the sections o o' communicating with the hollow-core sections, said hub or core sections o o' provided with fresh-air inlet and foul-air outlet, respectively, substantially as and for the purpose described.

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