Jan. 8, 1924. 1,479,883

E. L. WHEELER

FIREPROOF LEGGING

Filed Dec. 27, 1921

Fig. 1

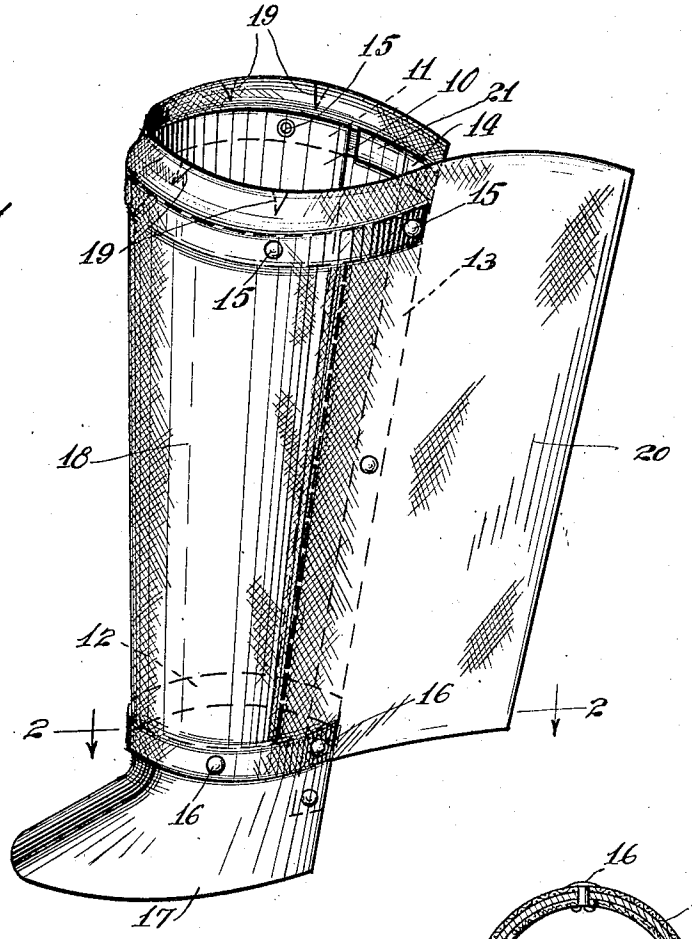
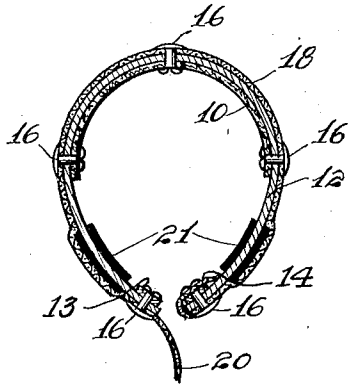


Fig. 2.



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UNITED STATES PATENT OFFICE.

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FIREPROOF LEGGING.

Application filed December 27, 1921. Serial No. 524,867.

To all whom it may concern:

Be it known that I, EDISON L. WHEELER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Fireproof Leggings, of which the following is a specification.

My invention relates to an improved form of fire proof legging for use in foundries, forge shops, blast furnaces, etc., where workmen either handle very hot material or are obliged to work in close vicinity to said material, under which conditions unless protected from the heat they would be in danger of burning their clothing and also themselves. In the past it has been proposed to construct devices of this kind by using a metal frame-work of steel bars and springs covered with a fabric of suitable kind as for example asbestos cloth or chemically treated canvas or duck. While these devices afford a certain degree of protection it has been found however that the metal bars, on account of their relatively high conductivity for heat, become very highly heated and are the direct means of producing burns on the clothing and legs of the wearer. It is an object of my present invention to overcome this difficulty by constructing the body portion of the legging of non-conducting sheet material which is stiff and strong enough to maintain the shape of the legging and to which the other parts of the legging are secured including a covering of fire proof fabric such as asbestos cloth, chemically treated canvas or duck. The material forming the body portion of the legging is preferably shaped so that it naturally will occupy a position fitting the leg of the wearer and this material may be any suitable sheet material which is a non-conductor, such for example, as vulcanized fiber or its equivalent. In my construction I use retaining springs at the upper and lower portion of the legging which springs however are preferably located outside of the non-conducting body of the legging and are provided at their ends, back of the body portion, with insulating material to prevent their coming in contact with the clothing of the wearer. I also preferably provide my legging with a flap of fire proof fabric extending rearwardly from one of the back edges of the legging which may be tucked under the other back edge to completely protect the leg of the wearer without the use of fastening devices of any kind, so that the legging may be quickly removed if melted metal, by any chance, should come in contact with it and adhere to it.

My invention will best be understood by reference to the accompanying drawings showing a preferred embodiment thereof in which—

Fig. 1 shows my improved legging in perspective view and

Fig. 2 is a sectional view of the construction shown in Fig. 1 taken along the line 2—2.

Similar numerals refer to similar parts throughout the several views.

As shown in the drawings my legging consists of a sheet of non-conducting material 10, such for example as vulcanized fiber, which preferably is shaped to fit around the front and sides of the lower leg of the wearer and of a length sufficient to extend from the ankle nearly to the knee. The body portion 10 has secured to its upper edge a spring 11 and to its lower edge a spring 12 which are elliptical in shape and have their ends adjacent each other on the back of the leg of the wearer when in use and which together with the spring action of the body portion 10 serve to hold the legging in place on the leg of the wearer. The springs 11 and 12 are preferably of a good quality of spring steel and are of considerable width relatively to their thickness such for example as found in wide clock spring material, to provide that the pressure exerted upon the leg of the wearer may not be excessive and that the springs may yet hold the legging firmly in position. The rear ends of the springs are connected by vertical stay members 13 and 14 by suitable fastening devices such as rivets 15 and 16, these stays being preferably of strip steel extending somewhat below the lower spring 12 for supporting the flare 17 of the legging. The flare 17 is made of heavy canvas or leather and shaped to fit the upper part of the foot to protect it from heat and melted metal. The structure above described is covered with a sheet of fire resistant fabric 18, such as asbestos cloth, leather or chemically treated canvas or duck, and this covering material is held in place on the body portion by the rivets 15 and 16, the latter of which also secure the flare 17 to the lower

spring 12. The covering 18 preferably extends somewhat above the upper spring 11, the projecting upper edge being gathered or otherwise made of somewhat smaller dimension than the spring 11 as for example by forming darts 19 in the said upper edge, to closely fit the trousers leg of the wearer and prevent hot material working down between the legging and the trousers. The covering 18 terminates at one edge at one of the reinforcing bars 13 and at its other edge it is extended to form a flap 20 which is wrapped around the back portion of the leg of the wearer and held in place by being tucked under the opposite edge of the legging in which position it is held by the springs 11 and 12.

Leggings constructed as described have been found to afford a high degree of protection to the wearer not only from heat on account of the body portion of the legging being constructed of non-conducting material, but also from mechanical injury since the body portion is relatively stiff and not readily deformed by blows to which it may be subjected in occupations in connection with which the leggings are serviceable.

In practice it is found that the rear edges of the body portion 10 need not extend to the rear edges of the legging and the portions of the springs between the rear edges of the body portion and the rear edges of the legging are preferably covered with sleeves 21 of non-conducting material such for example as leather or canvas. These sleeves serve to protect the leg of the wearer from the springs when they become highly heated.

From the above it will be observed that I have provided a construction which is substantial and affords a high degree of protection to the leg of the wearer from both heat and mechanical injury and that since there are no fastening devices employed, the legging may be instantly removed if melted metal should be thrown upon the same and adhere thereto thus threatening to injure the wearer.

While I have shown my invention in the particular embodiment above described, it will be understood that I do not limit myself to this exact construction as I may employ equivalents known to the art at the time of the filing of this application without departing from the scope of the appended claims.

What I claim is:

1. In a fire proof legging, the combination of a body portion of stiff non-conducting sheet material to fit the leg of the wearer, springs connected with the upper and lower ends of said body portion for encircling the leg of the wearer, and a covering of fire-resistant fabric covering said body portion.

2. In a fire proof legging, the combination of a body portion of stiff non-conducting sheet material to fit the leg of the wearer, springs connected with the upper and lower ends of said body portion for encircling the leg of the wearer, and a covering of fire resistant fabric covering said body portion, said covering extending above the upper one of said springs and constricted to closely fit the leg of the wearer.

3. In a fire proof legging, the combination of a body portion of stiff non-conducting sheet material to fit the leg of the wearer, springs connected with the upper and lower ends of said body portion for encircling the leg of the wearer, a covering of fire resistant fabric covering said body portion, said covering and springs extending rearwardly beyond each edge of said body portion, and reinforcing metal bars connecting the ends of said springs.

4. In a fire proof legging, the combination of a body portion of stiff non-conducting sheet material to fit the leg of the wearer, springs connected with the upper and lower ends of said body portion for encircling the leg of the wearer, a covering of fire resistant fabric covering said body portion, said covering and springs extending rearwardly beyond each edge of said body portion, reinforcing metal bars connecting the ends of said springs, and sleeves of non-conducting material on said springs between said body portion and said bars.

5. In a fire proof legging, the combination of a body portion of stiff non-conducting sheet material to fit the leg of the wearer, springs connected with the upper and lower ends of said body portion for encircling the leg of the wearer, and a covering of fire resistant fabric covering said body portion, said covering extending beyond the ends of said springs on one side of the legging to form a flap to protect the back portion of the leg of the wearer.

6. In a fire proof legging, the combination of a body portion of stiff non-conducting sheet material to fit the leg of the wearer, springs connected with the upper and lower ends of said body portion for encircling the leg of the wearer, a covering of fire resistant fabric covering said body portion, said covering and springs extending rearwardly beyond each edge of said body portion, and reinforcing metal bars connecting the ends of said springs, said covering extending beyond the ends of said springs on one side of the legging to form a flap to protect the back portion of the leg of the wearer.

7. In a fire proof legging, the combination of a body portion of stiff non-conducting sheet material to fit the leg of the wearer, springs connected with the upper and lower ends of said body portion for encircling the leg of the wearer, a covering of fire resistant fabric covering said body portion,

said covering and springs extending rearwardly beyond each edge of said body portion, reinforcing metal bars connecting the ends of said springs, and sleeves of non-conducting material on said springs between said body portion and said bars, said covering extending beyond the ends of said springs on one side of the legging to form a flap to protect the back portion of the leg of the wearer.

8. In a fire proof legging, the combination of fire resistant material for covering the leg of the wearer, springs secured to the upper and lower portions of said material for encircling the leg of the wearer, and sleeves of non-conducting material on said springs.

9. In a fire proof legging, the combination of a body portion of stiff non-conducting sheet material shaped to fit the leg of the wearer, springs for encircling the leg of the wearer, a covering of fire resistant material, and fastening devices extending through said body portion, said covering, and said springs, to secure said springs to the upper and lower ends of said legging and to secure said body portion and said covering together.

10. In a fire proof legging, the combination of a body portion of stiff non-conducting sheet material shaped to fit the leg of the wearer, springs for encircling the leg of the wearer, a covering of fire resistant material, and fastening devices extending through said body portion, said covering, and said springs, to secure said springs to the upper and lower ends of said legging and to secure said body portion and said covering together, said covering and springs extending rearwardly beyond each edge of said body portion, and reinforcing metal bars connecting the ends of said springs.

11. In a fire proof legging, the combination of a body portion of stiff non-conducting sheet material shaped to fit the leg of the wearer, springs for encircling the leg of the wearer, a covering of fire resistant material, and fastening devices extending through said body portion, said covering, and said springs, to secure said springs to the upper and lower ends of said legging and to secure said body portion and said covering together, said covering extending beyond the ends of said springs on one side of the legging to form a flap to protect the back portion of the leg of the wearer.

12. In a fire proof legging, the combination of a body portion of stiff non-conducting sheet material shaped to fit the leg of the wearer, springs for encircling the leg of the wearer, a covering of fire resistant material, fastening devices extending through said body portion, said covering, and said springs, to secure said springs to the upper and lower ends of said legging and to secure said body portion and said covering together, said covering and springs extending rearwardly beyond each edge of said body portion, and reinforcing metal bars connecting the ends of said springs, said covering extending beyond the ends of said springs on one side of the legging to form a flap to protect the back portion of the leg of the wearer.

In witness whereof, I hereunto subscribe my name this 16th day of December, A. D. 1921.

EDISON L. WHEELER.