Sept. 20, 1938. C. T. LEWIS 2,130,724

DERRICKMAN'S SAFETY BELT

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Fig. 2.

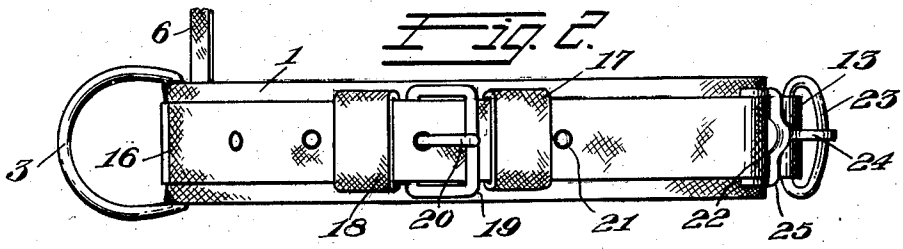
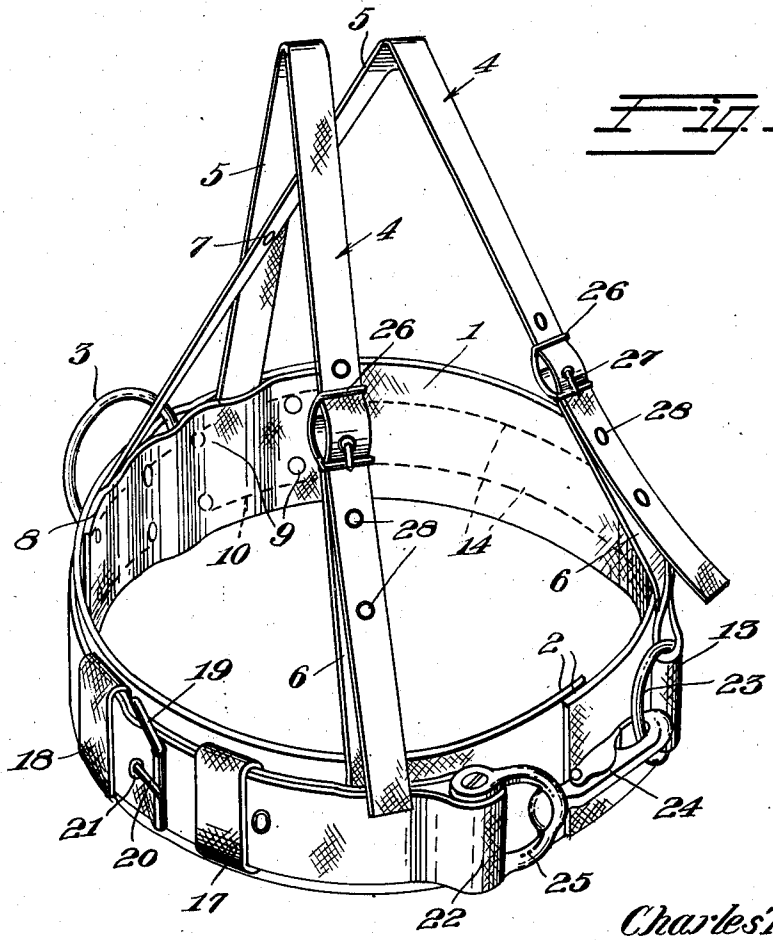


Fig. 1.



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Fig. 3.

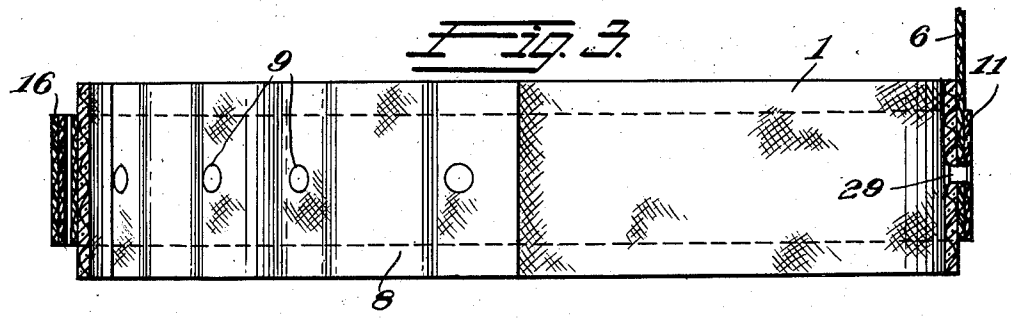
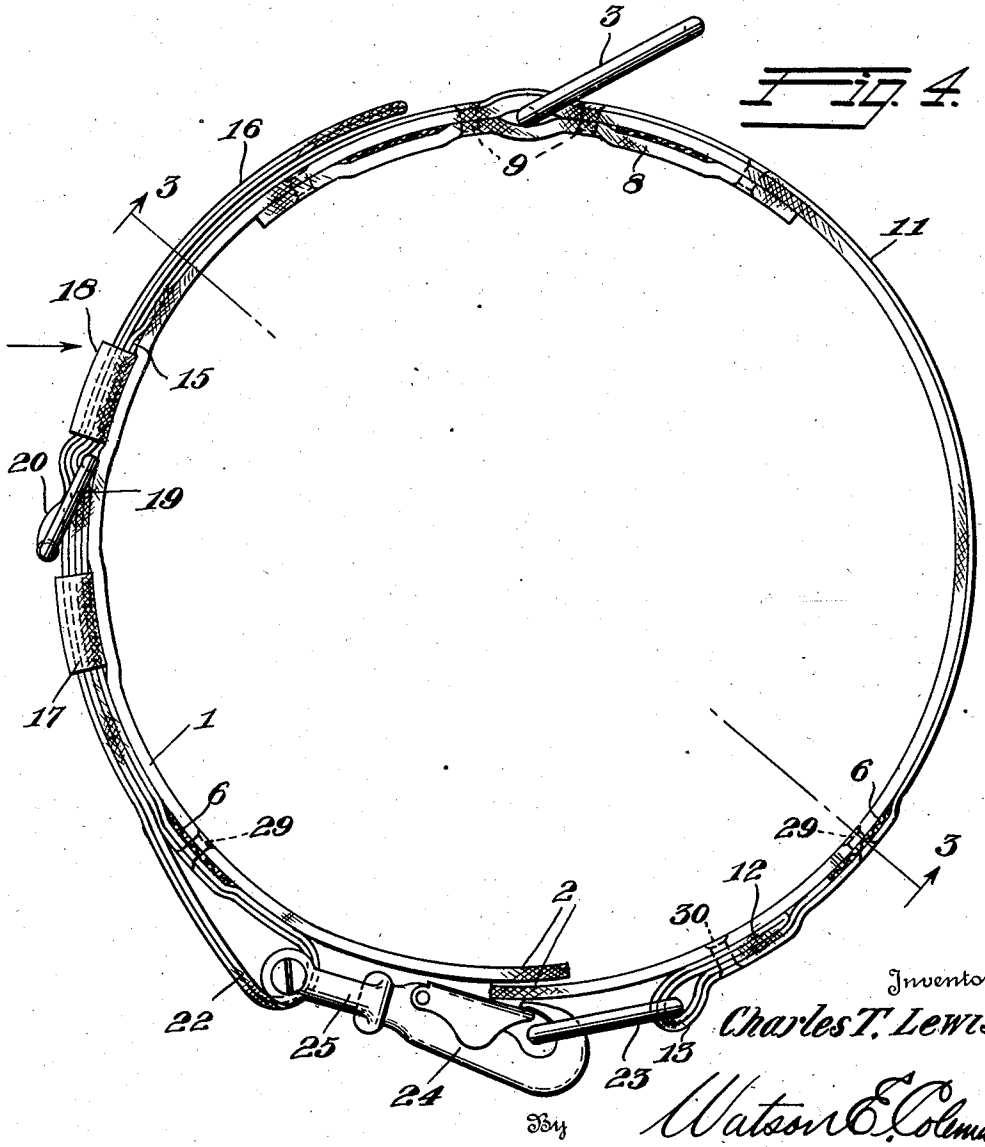


Fig. 4.



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DERRICKMAN'S SAFETY BELT

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Application February 14, 1938, Serial No. 190,510

6 Claims. (Cl. 227—49)

This invention relates to safety devices and pertains particularly to a safety device for human wear, whereby the wearer will be securely held from falling from a support upon which he may be standing.

The present invention has for its primary object to provide an improved form of safety belt designed to be used by men working upon derricks in the oil fields, otherwise known as "derrick men", and which is designed particularly to overcome the disadvantageous features of the leather belts which are at present in use, by providing a novel means of coupling the ends of the belt together whereby, after a particular adjustment has been made for waist size, the belt may be easily and quickly put on or taken off without the wearer having to bother with the usual buckles.

A further object of the invention is to provide an improved belt for derrick men which is provided with a buckle securing means for changing the waist size of the belt and a snap fastening means for coupling the ends of the belt after the waist size adjustment has been made, the said snap means being combined with the adjusting means so that as the adjusting means is altered an element of the snap connecting means will be shifted in a direction circumferentially of the belt, thus making it possible for the derrick man to join or disconnect the ends of the belt without having to bother with a paraffin coated buckle, such as is the case in the use of the ordinary leather belts where only a single fastener, which is in the form of a buckle, is provided for making the belt adjustments.

The type of belt now used in the oil field by men working on the derricks is merely a plain leather belt having a single plain buckle for joining the ends of the belt together. These belts are hard to clean and to adjust, as well as to put on and take off, for the reason that the oil and salt water with which they come into contact causes them to crack and the paraffin in the oil clogs up the buckle holes so that it is difficult for the derrick man to secure the ends of the belt together and it frequently happens that due to the paraffin coated condition of the belt and the clogging of the buckle by the paraffin, the derrick man fails to get the buckle securely fastened, with the result that the belt comes undone, unnoticed by the derrick man, with fatal consequences. In addition, the belts at present used have shoulder straps attached to the outside so that the straps are easily torn off if the derrick man should fall so that his entire body weight is thrown onto the shoulder strap fasteners.

The present invention aims to overcome the foregoing difficulties by the provision of a belt in which the shoulder straps are secured in a novel manner, by the provision of a novel method of attaching the belt size adjustment buckle and the means for securing the belt ends together after the adjustment has been made and by the provision of a belt formed of tight woven webbing material which, unlike the usual leather belt, is relatively easy to clean and does not become unduly limp in hot weather or too stiff to handle in cold weather, as leather belts will do.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:—

Figure 1 is a view in perspective of the safety belt embodying the present invention.

Figure 2 is a view in elevation of the side of the belt on which the adjusting buckle is placed.

Figure 3 is a sectional view on the line 3—3 of Figure 4.

Figure 4 is a view in plan of the belt with the shoulder straps cut away.

Referring now more particularly to the drawings, the numeral 1 designates a band of hard woven webbing of substantial weight and preferably of a three inch width. This band of webbing is of sufficient length to completely encircle the waist of the largest derrick man who would be likely to wear the safety device and when it is in use, the free ends of the webbing are disposed in overlapping relation at the front of the wearer's waist, as indicated at 2, in Figure 4.

At the center of the back of the webbing band 1 there is placed a ring 3 of the type commonly termed a "D-ring". Such a ring has a straight portion, the ends of which are connected by a rounded portion, as will be readily seen upon reference to Figure 2, so that it simulates the letter D and in attaching such a ring to the present safety belt, the straight portion thereof is disposed across the inner side of the webbing band 1, as shown in Figure 4.

The numerals 4 generally designate shoulder

straps for the safety belt, each of which is made up of a back section 5 and a front section 6 and, as shown in Figures 1 and 4, each of the back sections has an end extended across the inner face of the webbing band 1 at one side of the ring 3 and they then extend upwardly in crossed relation, being joined together by a rivet, as indicated at 7. The ends of the portions 5 of the straps, as well as the D-ring 3, are secured in place by the application to the inner face of the webbing band of a short piece of webbing 8 which is of the same weight and width of material as the band 1. This securing strap 8 is attached to the band 1 by rivets 9, as well as by stitching which is placed along the top and bottom edges of the band, as indicated at 10. The rivets 9 serve an additional function in securing to the outer side of the webbing band 1, a narrower band, which is indicated generally by the numeral 11, and which may be referred to as a whole as the belt adjustment and securing band in that it is through the medium of this particular narrower band that adjustments for waist size and the securing together of the ends of the wide band 1, are effected.

The adjustment band 11 is also of hard woven webbing material but is of slightly less width than the main body contacting band 1. In practice, where the band 1 may be of a three inch width, the outer encircling and adjustment band 11 would be of a two inch width. This adjustment band 11 has one end turned under, as indicated at 12 in Figure 4, to form the loop 13 which is located a substantial distance back from the adjacent end edge of the main webbing band 1 and adjacent this turned back end 12, the adjustment band overlies the end of the front portion 6 of one of the shoulder straps 4. Starting just to the rear of the loop 13, the adjustment band 11, with its turned back end 12, is securely stitched along at least two lines, to the wider webbing band 1. This stitching extends entirely around the wider band 1 to a point short of the other end or the end remote from the loop 13, these stitching lines being indicated at 14. The adjusting band 11 is initially of such length that after one end has been looped and secured to the wider band 1, as shown in Figure 4, and carried around the outside of the band 1, there will be sufficient length of material to fold back a long portion so that a part of the folded back end, which is indicated at 15, may be placed against the outer side of the band 1 to be secured thereto by the lines of stitching 14, leaving free the relatively long tongue 16 which is of double thickness, as shown in Figure 4.

The folded under end 15 and the part of the band 11 which is secured with it to the wider band 1, extends across one end of the part 6 of the other shoulder strap 4 and passes through two guide loops 17 and 18 which serve as retaining means for the tongue portion 16 after the latter has been passed through the buckle loop 19, which is secured between the loops 17 and 18 and against the outer side of the band 1 by the adjacent part of the adjustment band 11. This buckle which has its loop indicated by the numeral 19 has the usual tongue 20 for extension through the reinforced eyelets 21 secured in the tongue 16.

It will be seen from the foregoing that when the tongue 16 is folded back against the outer side of the attached part of the band 11 and passed through the buckle 19 and guide loops 17 and 18, there will be formed the adjustable loop 22 at the front of the safety belt and rearwardly of the end of the band 1 which overlaps that end adjacent which the fixed loop 13 is formed.

The fixed loop 13 has passed through it the straight side portion of a D-ring 23 which is, of course, of smaller size than the ring 3. This ring 23 may be termed a "snap ring" as it serves as a means for facilitating the coupling of the ends of the broad band 1 together through the medium of the snap fastener or hook 24 which is of a standard type and which is swivelly coupled with the yoke 25 which is joined with the adjustable loop 22 by passing the tongue 16 through the yoke as will be readily understood.

The portions 5 and 6 of the shoulder straps are joined together in adjusted relation by providing one of the portions of each strap, for example the portion 6, with a buckle 26 which has a short, rigid, forwardly extending pin 27 at its center and by providing the free end of the portion 5 with a series of grommets 28 so that when such free end is passed through the buckle, a selected one of these grommets may have the pin 27 engaged therein.

In addition to providing stitching for securing the webbing bands 1 and 11 together, rivets are secured at the points 29 to pass through both bands and the ends of the portion 6 of the shoulder straps, and at the point 30 to pass through the band 1, and the quadruple thickness of the band 11, where the turned back end portion 12 is located.

From the foregoing it will be apparent that through the provision of the tongue 16 at the end of the adjustment band 11, and the buckle 19 which is firmly attached between the band 11 and the wide band 1, the length of the loop 22 may be changed as may be desired to adjust the belt to different waist measurements and after an adjustment has been made the derrick man may then put the belt on easily and quickly by merely bringing the ends into overlapping relation after placing the belt around his waist and snapping the snap-hook 24 on to the ring 23.

In addition to providing this means of changing the adjustment of the belt, this construction constitutes a safety feature for the derrick men which is not a part of the belts which are at present in use, for the following reason. The usual derrickman's belt has its ends connected together by a single buckle connection, as previously stated. This is the only connection between the ends of the belt. Since the derrick man works high in the derrick and is constantly leaning forward to clamp on and off drill pipe, sucker rods, tubing, etc., the front part of his body is exposed to contact with huge traveling blocks, sheaves, sheave guards and lines strung to the top of the rig to move these pieces of apparatus and since the derrickman's duty is to snap the elevators on to the drill pipe, tubing, rods, etc., as the blocks are pulled past him, it is necessary that he work close to these objects and it frequently occurs that his belt becomes fouled with some part of the mechanism so that he is dragged off of the platform on which he is standing. Since the connection of the usual safety belt is at the front of the wearer, and since the wearer must face the apparatus with which the belt frequently becomes entangled, it will be seen that when such an entanglement occurs it will involve the very part of the derrickman's belt which must be manipulated before he can free himself from the belt and since such manipulation is impossible it frequently occurs that the derrick man is pulled from the platform to his death. With the present safety belt, should

the snap fastener at the front become entangled with some part of the mechanism, the derrick man may free himself by reaching to his side and disconnecting the tongue 16 from the buckle 20, thereby allowing the loop 22 to fall open and release the snap fastener 25. By this means the belt at once falls open and it is possible for the derrick man to become free.

By the provision of the novel construction of the belt in the application of the narrower webbing to the outer side of the wide webbing and by the novel manner in which the three inch ring 3 at the rear of the belt and the two inch ring 23 at the front of the belt are attached, if the derrick man falls on his belt, the body shock is more evenly distributed through the belt than would be the case if the derrick man were attached by a rope to the derrick through the medium of the two inch ring 23 as he is when wearing the usual leather belt. The rear ring 3 is employed for attaching the life line to the derrick man, the other end of the line being secured to the derrick with from three to eight feet of slack line to allow the derrick man freedom in his work. Thus, if he falls from the derrick platform or board upon which he is working, considerable shock is imparted to the body when the full length of line has been extended and with belts of the usual construction where the front and back are built all in one piece, it frequently occurs that the derrick man has his ribs broken from the force of the shock. With the construction of the present belt the shock to the derrickman's body is so distributed that this cannot occur.

What is claimed is:—

1. A safety belt of the character described, comprising a band of material adapted to encircle the waist of the wearer and having free ends adapted to be brought together at the front of the wearer, the band having a width, and formed of material of sufficient stiffness, to enable said ends to maintain a coacting parallel relation without direct connecting means therebetween, means for coupling together the said ends of the band comprising two units each being attached to the band adjacent one end of the same, and means facilitating the adjustment of one of said units in a direction circumferentially of the waist of the wearer of the belt whereby the waist size of the belt may be changed, and said means being of a construction to permit adjustment of the said one unit without disengaging it from the other unit.

2. A safety belt of the character described, comprising a relatively wide band of material adapted to encircle the waist of a wearer, said band having two ends adapted to be brought into contiguous relation at the front of the wearer, a second band of slightly less width than the first band and extending along the outer face of the latter, said second band having an end turned back to form a fixed non-opening loop inwardly of one end of the first band, said second band being secured to the first band from said fixed loop to a point short of the other end of the first band and from said point being free of the first band to provide a long free tongue, means at a greater distance from the last mentioned end of the first band than said point of attachment of the second band for detachably coupling the tongue to the first band to form a long adjustable loop, a ring member fixed in said first loop, and a snap fastener adapted for detachable engagement with said ring and having a yoke through which said tongue may be freely passed to connect the fastener with said adjustable loop.

3. A safety belt comprising a band of material adapted to encircle the waist of a wearer, said belt having two ends to be brought into contiguous relation at the front of the wearer, a second band secured to the first band along the outer side thereof and formed at one end to provide a fixed loop and having its other end free to provide a tongue, said tongue being provided with a plurality of grommets, a buckle secured between the bands at a substantial distance from the end of the first band which is remote from that end of the first band adjacent which said fixed loop is formed, the engagement of said tongue with said buckle forming an adjustable loop, said fixed and adjustable loops being spaced from the adjacent ends of the first band, a ring secured to said fixed loop, a snap fastener engageable with said ring and having a yoke through which said tongue is freely extended, and a pair of shoulder straps each having an end secured to the first band at the rear of the belt and an end secured at the front of the belt between the said first and second bands and inwardly from the free ends of the first band beyond said loops.

4. A safety belt of the character described, comprising a relatively wide band of material adapted to encircle the waist of a wearer, said band having two ends adapted to be brought into contiguous relation at the front of the wearer, a second band of slightly less width than the first band and extending along the outer face of the latter, said second band having an end turned back to form a fixed loop inwardly of one end of the first band, said second band being secured to the first band from said fixed loop to a point short of the other end of the first band and from said point being free of the first band to provide a tongue, means at a greater distance from the last mentioned end of the first band than said point of attachment of the second band for detachably coupling the tongue to the first band to form a long adjustable loop, a ring member fixed in said first loop, a snap fastener adapted for detachable engagement with said ring and having a yoke through which said tongue may be freely passed to connect the fastener with said adjustable loop, a short reinforcing strip of material disposed against the inner side of the first band at the back of the belt, a life line attachment ring encircling the first and second bands and having said reinforcing strip disposed thereover, means securing the strip and bands together at the sides of said ring, and a pair of shoulder straps each having an end secured between said strip and the first band at one side of the ring and another end secured between the first and second mentioned bands at the front of the belt and inwardly from the free ends of the first band beyond the said loops.

5. A safety harness comprising a broad band of tightly woven material adapted to encircle the waist with the ends of the band in overlapping relation, a second band of greater length than the first band and encircling the same and secured throughout the major portion of its length to the outer side of the first band, the second band being of less width than the first band and having its ends terminating short of the ends of the first band, one end of the second band forming a long free tongue to be folded back against the outer side of the second band to form an adjustable loop, a pair of detachable

coupling elements between said loop and the other end of the second band, one of the elements of said pair having said tongue slidably connected thereto for quick detachment therefrom, means for connecting the tongue with the second band whereby quick complete disengagement of the tongue from the second band may be effected, a pair of shoulder straps each having one end secured to the front of the harness between the first and second mentioned bands, the other ends of the straps being disposed at the back of the harness against the inner side of the first band, a short reinforcement strap of the same width as the first band secured against the inner side of the first band in covering relation with the said other ends of the shoulder straps, and a safety ring encircling the two bands between the said other ends of the shoulder straps and covered on the inner side of the harness by said short strap.

6. A safety harness comprising a broad band of tightly woven material adapted to encircle the waist with the ends of the band in overlapping relation, a second band of greater length than the first band and encircling the same and secured throughout the major portion of its length to the outer side of the first band, the second band being of less width than the first band and having its ends terminating short of the ends of the first band, one end of the second band forming a long free tongue to be folded back against the outer side of the second band to form an adjustable loop, a pair of detachable coupling elements between said loop and the other end of the second band, one of the elements of said pair having said tongue slidably connected thereto for quick detachment therefrom, means for connecting the tongue with the second band whereby quick complete disengagement of the tongue from the second band may be effected, a reinforcing strap disposed against the inner side of the first band opposite from the overlapping ends thereof, said strap being of the same width as the first band and formed of tightly woven material, a safety ring encircling the first and second bands opposite from said overlapping ends and passing between said bands and the strap, and securing rivets extending through said bands and strap at opposite sides of said ring to maintain the latter in place.

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