

M. GARLAND.

COUPLER FOR CABLE CONVEYERS, &c.

No. 516,568.

Patented Mar. 13, 1894.

Fig. 1.

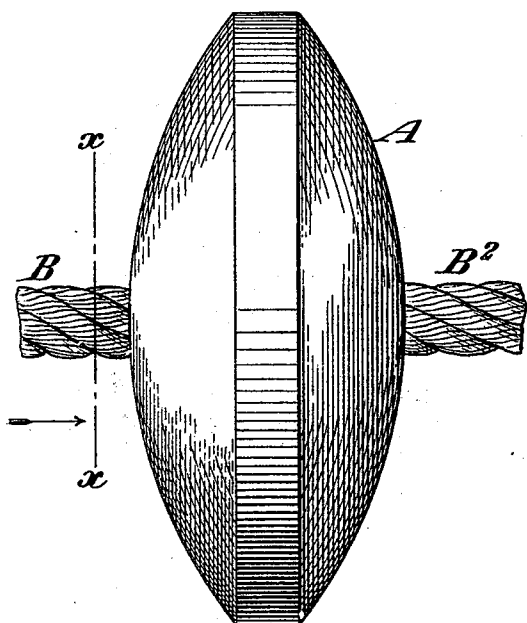


Fig. 3.

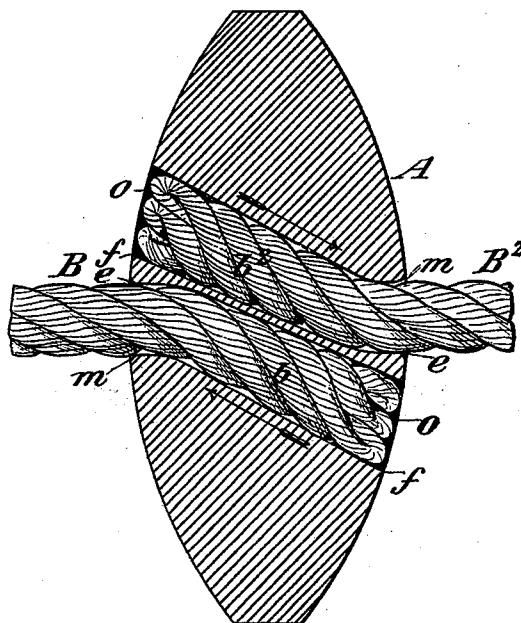
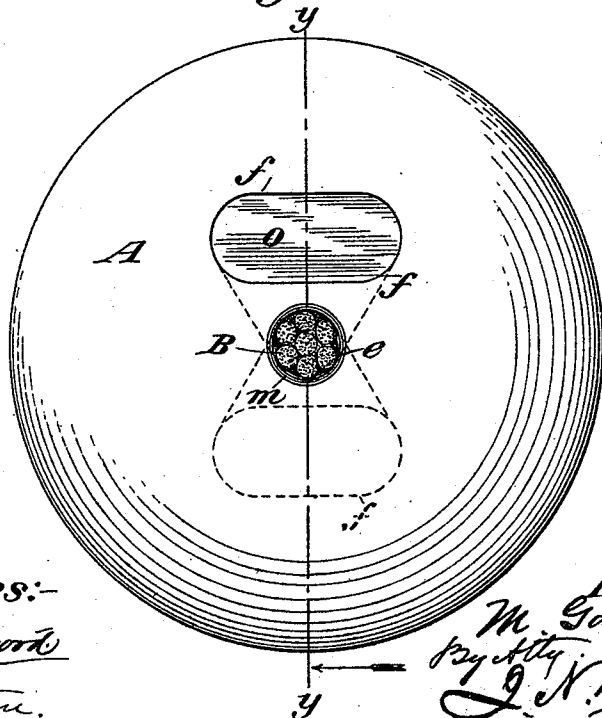


Fig. 2.



Witnesses:-

B. N. Hayward
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Inventor:-

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By Atty.
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Fig. 4.

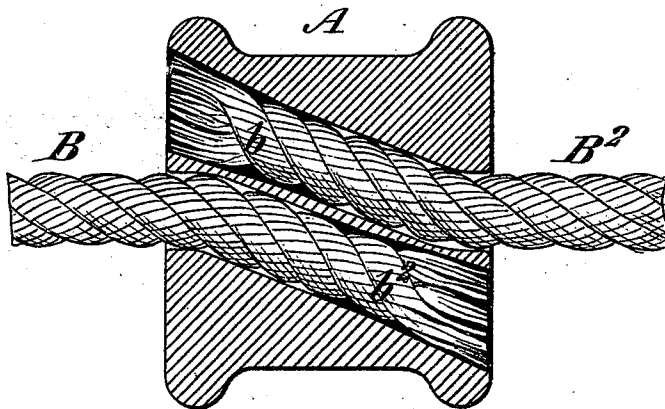
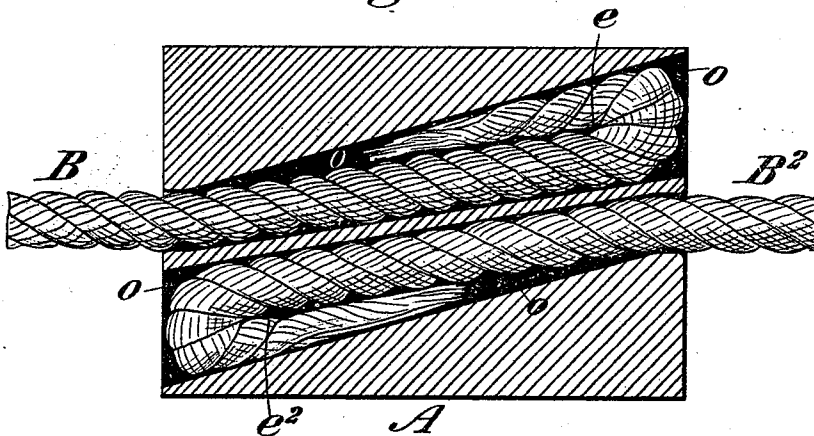


Fig. 5.



Witnesses:-

O. N. Raymond
M. E. Foster.

Inventor:-

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per atty J. N. Webster

UNITED STATES PATENT OFFICE.

MICHAEL GARLAND, OF BAY CITY, MICHIGAN.

COUPLER FOR CABLE CONVEYERS, &c.

SPECIFICATION forming part of Letters Patent No. 516,568, dated March 13, 1894.

Application filed October 17, 1893. Serial No. 488,376. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL GARLAND, of Bay City, in the county of Bay and State of Michigan, have invented a certain new and useful Improvement in Couplers for Cable Conveyers, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to devices for splicing, or coupling the ends of wire cables, employed usually to form the endless cables of conveyers, elevators, power transmitters, &c.

Heretofore, a variety of splicing, or coupling, devices have been known and used, some of that species in which two separate metallic devices, or parts, have been used, having one end of the cable securely fastened to each, and the two then bolted, or otherwise, securely fastened together; and others of that species in which the two ends of the cable have been fastened into a single metallic device, or coupler, composed of a single part, or piece.

My present invention involves an improvement in the last mentioned species of cable coupler, and has for its main objects to provide for use a coupler of this type, which shall not only be exceedingly simple and economic of manufacture; but which will also be very strong and durable, and in every way desirable in practice.

To these main ends and objects my invention may be said to consist in the novel combination of devices hereinafter fully described, and that will be found most particularly pointed out in the claim of this specification.

To enable those skilled in the art to which my improvement relates, to make and use endless cables with my invention applied thereto, I will now proceed to more fully describe the latter, referring by letters to the accompanying drawings which form part of this specification, and in which I have shown my said invention carried into effect, in connection with a flighted endless cable, such as commonly used in conveyers and elevators.

In the drawings, Figure 1 is a side view of part of an endless conveyor cable. Fig. 2, is a vertical cross-sectional view of the same, taken at the line x, x , of Fig. 1, and looking

in the direction there indicated by the arrow. Fig. 3, is a vertical section at the line y, y , of Fig. 2; and in the several figures the same part will be found always designated by the same letter of reference. Fig. 4, is a central longitudinal section, showing a modification in which the casting is a sprocket-like device, and in which the cable ends fastened therein are simply disintegrated and leaded-in, without being doubled on themselves. Fig. 5, is a similar view, showing another modification in which the casting is adapted to serve only as a coupler-device, and in which the leaded-in cable ends are doubled on themselves, without, however, being disintegrated.

Referring now more particularly to Figs. 1, 2 and 3—A represents a metallic, or cast iron, combined-coupler-and-flight, as it is adapted to perform the functions of both a splicer and a flight; while B, B² are the adjacent, or coupled, end portions of the wire rope of a cable-conveyer (the rest of the endless cable with its attached flights being broken off), which is all that it is necessary to show, in order to fully illustrate my invention. As shown, the flight A is circular in contour, though it may be of other shape, and it is made thicker and stronger, especially at its middle portion, than usual with mere conveyer flights, since it has to receive and hold within housings, formed in its said middle portion, the two ends b, b^2 of the spliced, or coupled, cable.

As will be readily understood, from the drawings, the casting A is made with two apertures, each extending through it, from side to side, in a direction oblique to the line of the cable B, B² (see Fig. 3), and in substantially parallel lines, while each of said apertures, or housings, is gradually enlarged, widthwise, from a round hole about equal to the size of the cable (see now Fig. 2) as appears at e , to an oblong aperture f , the longer measure of which is a little more than twice the diameter of the round hole e , and the shorter measure, or axis, of which is a little greater than the diameter of said hole e . By this conformation and relative arrangement of these housings of the casting A, a receptacle is formed, it will be seen, for each partially disintegrated and doubled-over, or overlapped, cable end b and b^2 . Preferably, the

smaller end of each hole through the casting, has its edge slightly chamfered off, as shown at *m*, and it will be observed that these smaller ends of the two apertures, or housings, are exactly opposite each other at the opposite sides of the disk-like casting, or flight, A, so that the protruding portions B and B² of the cable, lie in a perfect right line that passes through the middle of said device A.

The solid black spaces in the drawings, marked *o*, represent fillings, or packings, of Babbitt metal, or other suitable material, which fill in all the interstices between the strands and wires of the partially disintegrated cable ends, and also pack, or fill, all the spaces between the doubled-over ends of the cable, and the walls of the housings in which said doubled-over ends are arranged; all as fully shown in the drawings.

It will be understood that in uniting the parts shown in the drawings, each end (*b* and *b*²) of the cable, is, first, slightly untwisted (or has its strands partially disintegrated); it is then doubled-over on to itself; and then forcibly pulled (in the direction indicated by the arrow at Fig. 3) into its tapering housing, in the casting A; and that it is then leaded-in (by pouring in Babbitt metal at the larger end of the housing), as shown at *o*, until the doubled-over wire parts are secured in a perfectly immovable manner in their housings in casting A. And it will be seen that when thus united, the combined cable ends and coupler-flight cannot be separated by any draft strain to which the cable may be subjected; for the greater the draft strain the more securely (if possible) will each enlarged, and leaded-in cable end, *b* and *b*², be wedged fast within its housing, or receptacle, in the casting A. Of course, the sizes and shapes of these receptacles, as well as the manner of enlarging the cable ends, by doubling them on themselves, may be more, or less, varied from what is seen at Figs. 1, 2, and 3, without departing from the pith, or substance, of my invention; so long as the receptacles in the casting A are larger, at one set of their ends, than at the other, and the cable ends are so overturned, or disintegrated (or both), as to fill, or nearly fill the enlarged portions of the receptacles, and a suitably hard or immobile packing is put in to fill up the interstices, and hold the enlarged end portions of the cable ends in a condition such that they cannot be bodily moved

(endwise of the cable) by any draft strain on the endless cable. As seen, for instance, at Fig. 4, the receptacles in the casting A are simply each enlarged sufficiently, at one end, to accommodate the disintegrated and spread apart cable ends, the latter, as shown at *b* and *b*², being simply disintegrated and spread apart slightly, and the interstices between the untwisted strands filled in with the packing material *o*; while at Fig. 5, the extreme end portions *e* and *e*² of the cable parts B and B², are each doubled on themselves, without any disintegration of the strands, and the doubled-over portions leaded-in, with the packing metal *o*, to securely close up all the interstices, between the doubled-over parts of the cable ends, and between such parts of the cable, and the walls of the tapering holes made through the casting A. Neither is it essential to my invention that the part A be of the shape and size shown, and adapted to serve the purposes of a flight, such as seen at Figs. 1, 2, and 3; since in carrying my invention into effect, the metallic device A may be made of such size and shape, as seen at Fig. 4, as is adapted only to the purposes of a sprocket-like device, or said casting may be made as seen at Fig. 5, so as to be suitable only for the purposes of a cable splicing device, or cable-coupler. It is, however, important, that the part A be made of such shape and size (proportionately to the cable) that, with the cable-end receptacles cast therein, as shown, the coupler device will possess the requisite degree of strength and durability.

Having now so fully explained my invention that those skilled in the art can easily understand and practice it in any form under which it may be carried into successful operation, what I claim as new, and desire to secure by Letters Patent, is—

The combination with the part or casting having two tapering holes through it, from side to side, the smaller ends of which are about opposite, of the enlarged and leaded-in cable ends, housed within said tapering holes; all substantially as and for the purposes hereinbefore set forth.

In witness whereof I have hereunto set my hand this 14th day of July, 1893.

MICHAEL GARLAND.

In presence of—

MORRIS L. COURTRIGHT,
HEZEKIAH M. GILLET.