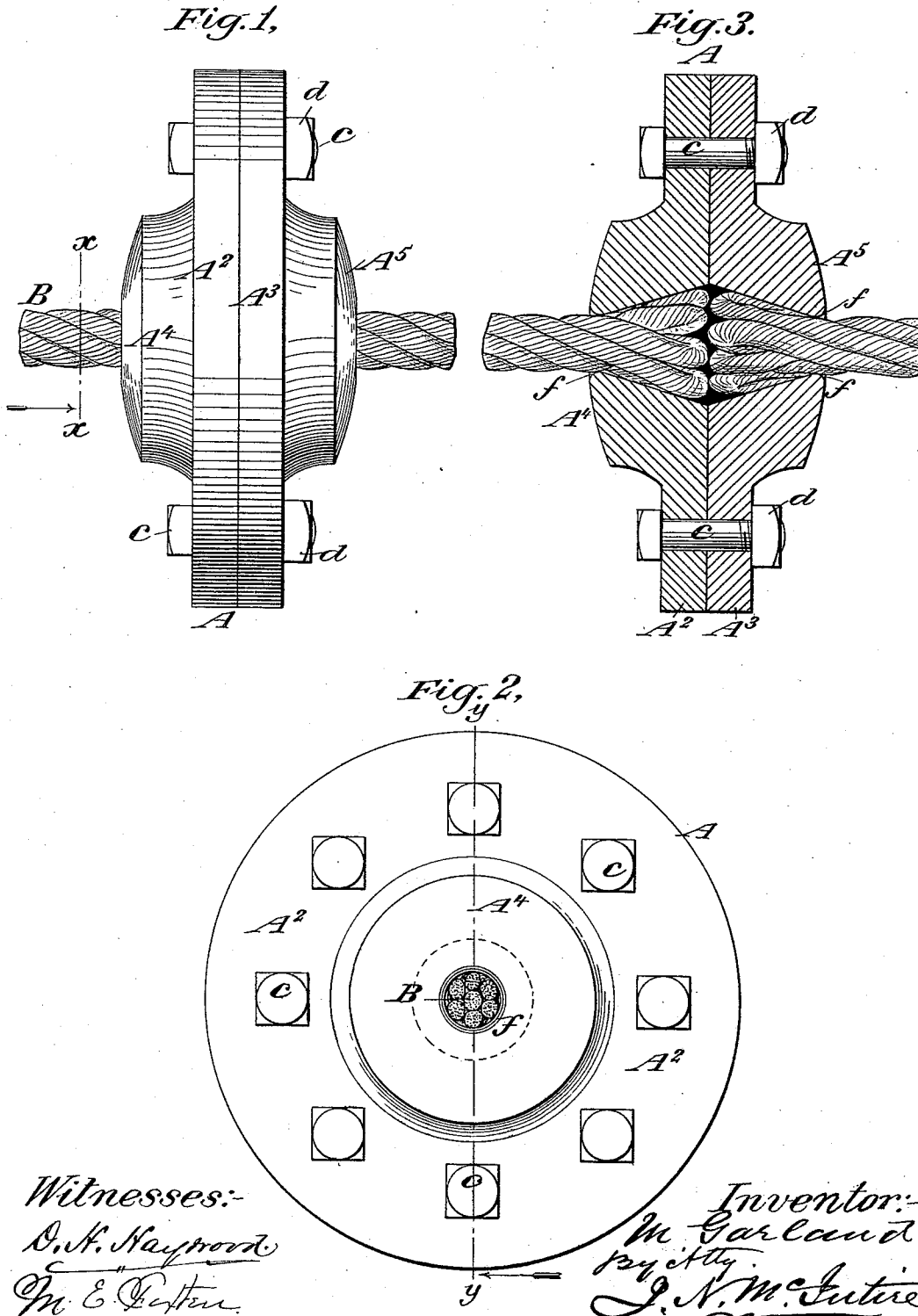


(No Model.)

M. GARLAND.
COUPLING FOR CABLE CONVEYERS, &c.

No. 517,338.

Patented Mar. 27, 1894.



UNITED STATES PATENT OFFICE.

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COUPLING FOR CABLE-CONVEYERS, &c.

SPECIFICATION forming part of Letters Patent No. 517,338, dated March 27, 1894.

Application filed October 17, 1893. Serial No. 488,375. (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 a cable-coupler, for cable conveyers and transmitters, and I have shown it applied to that type of such devices in which are employed flights, adapted for use in some sort of trough, and having the cable of the conveyer arranged about centrally of the working face of the flight.

I propose, by my invention, to provide for use a cable-coupler, which shall be exceedingly simple of construction; very strong and durable, in action; and, at the same time, comparatively economic of manufacture, and easily, accessible for repairs, should any become necessary.

To these main ends and objects my invention consists in the novel combination of devices which will be hereinafter fully described, and that will be found more particularly pointed out and most clearly defined in the claim of this specification.

To enable those skilled in the art to which my invention relates to understand and practice the same, I will now proceed to more fully explain the construction and operation of my improved cable coupler device, referring by letters to the accompanying drawings which form part of this specification, and in which I have shown my invention carried into effect in precisely that form in which I have, so far, successfully practiced it.

In the drawings, Figure 1 is a side view of portion of a flighted conveyer cable, with my improved flight-coupler applied thereto. Fig. 2, is a cross-section of the same, taken at the line *x, x*, of Fig. 1, 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 said figures, the same part will be found always designated by the same letter of reference.

A is the flight, which is composed of two similar disks, or face-plate-like parts, A² and

A³, each of which is thickened-up so to speak, at the middle; or at the portions marked, respectively, A⁴ and A⁵. These thicker portions of the two plates render the middle, or central part, of the duplex flight, sufficiently large and strong, where the plates are centrally perforated with frustum shaped apertures, for the reception of the spread-apart and doubled-over cable ends (as will be presently explained); and the two plates, or parts, A² and A³ of the flight, are securely fastened together, in the relationship shown, by means of eight (more or less) bolts *c*, each of which passes through holes bored, in line, through the two plates, and is provided, at its threaded end with a nut *d*; all as clearly shown. Preferably, these bolts are arranged in a circle, and equidistant, as shown; though the precise means for, and manner of fastening together, securely, the parts, or castings, A² and A³, may be varied to suit the judgment of the skilled mechanic.

As above remarked, each plate is centrally perforated with a frustum shaped, or tapering, hole, and, by preference, the smaller ends of these holes, which lie at the outer, or exposed, surfaces of the castings, are slightly chamfered, or rounded off, as seen at *f* (Figs. 2 and 3,) so that during any bending of the cable, during the run of the latter over pulleys, it will not be cut, or ground, exteriorly, by the edges of the castings, at the vicinities of the said holes.

B is a portion of an ordinary wire cable, such as commonly used in cable conveyers, and the diameter of said cable is the same as that of the smaller end of the tapering hole in each plate, or casting. The meeting, adjacent, ends of the cable B are, however, slightly untwisted; spread apart; and doubled over on themselves, so as to fill the larger portions of the said tapering, central, apertures in the flight castings, and these partially disintegrated and spread apart ends of the cable, after having been drawn, or pulled snugly into their tapering seats, or housings, in the middle portions A⁴ and A⁵ of the two castings composing the duplex flight, are leaded-in; or have all the interstices between the spread-out wire strands, and between the parts of the cable, and the largest parts of the tapering walls of the apertures in the castings, thor-

oughly packed, with Babbitt metal, about flush with the meeting faces of the two plates A^2 and A^3 , so that, when said plates, with one end of the cable B thus securely fastened in each one of them, are bolted together, the untwisted and leaded-in ends of the cable will form a butt joint, and be immovably and reliably united, within the two castings, or parts of the flight A, and will withstand any degree of draft strain which the cable and united castings will stand, without parting, or yielding to any extent.

It will be understood that by partially disintegrating the cable end, and then spreading apart the untwisted strands and filling-in the spaces; especially with the ends of the strands slightly doubled on themselves, a comparatively solid mass of metal, composed jointly of the wire of the rope and the Babbitt metal, or other filling, is formed, of a frustum shape, that corresponds to the form of, and completely fills the tapering aperture in, the flight casting, within which the thus prepared cable end is seated; and that this mass of metal cannot then be moved within the casting, in that direction in which a draft strain on the cable would tend to move it. And it will be understood that when the two plates, with the two inserted and packed cable ends, shall have been brought together, and securely fastened in the relative positions shown (see Fig. 3), no amount of draft-strain on the cable B, tending to force out, or squeeze out, the metallic packing, backwardly by a straining together of the separated strand ends, can produce any such effect; since the packings of the two cable ends are butted together, and confined, as one solid mass, by the united castings A^2 and A^3 .

It may be found expedient and sufficient to simply untwist the strands, at each end of the cable B, within the tapering housing of the casting; then spread them apart into a flared, or frustum shape; and then fill in the tapering aperture, in the casting, with Babbitt, or other metal, to form a metallic (though not

homogeneous) mass, that perfectly fills the said tapering aperture; for, after the two castings with their connected cable ends thus prepared, shall have been securely bolted together, it would seem to be impractical to pull the spread-apart strand ends through the surrounding metallic packing, and thence through the smaller part of the tapering aperture in either casting, by such a forcible re-twisting together of the separated strands, as would be necessary, in order to have the cable ends pass through the small end of the tapering aperture.

Of course, the size and shape of the coupling-castings A^2 and A^3 might be varied, so that instead of constituting a duplex flight adapted for use in the trough, or tube, of some sort of conveyer, or elevator, the coupler device would be adapted to perform only the function of a device for the transmission of power and motion. Or the coupler-castings might be adapted to perform the function only of a cable-coupling, or splicing device.

What I claim, broadly, as of my invention, and desire to secure by Letters Patent, is—

In a cable-splice, or coupling, the combination of the following named instrumentalities, arranged and operating together in the manner shown and described;—the two castings, formed, or provided, with tapering apertures through them; means for securely fastening said castings together, as specified; the partially disintegrated and spread-apart cable ends, arranged within said tapering apertures; and the metallic fillings, or packings, operating to fill in the interstices between the spread-apart cable end strands, and between them and the walls of the tapering apertures.

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.