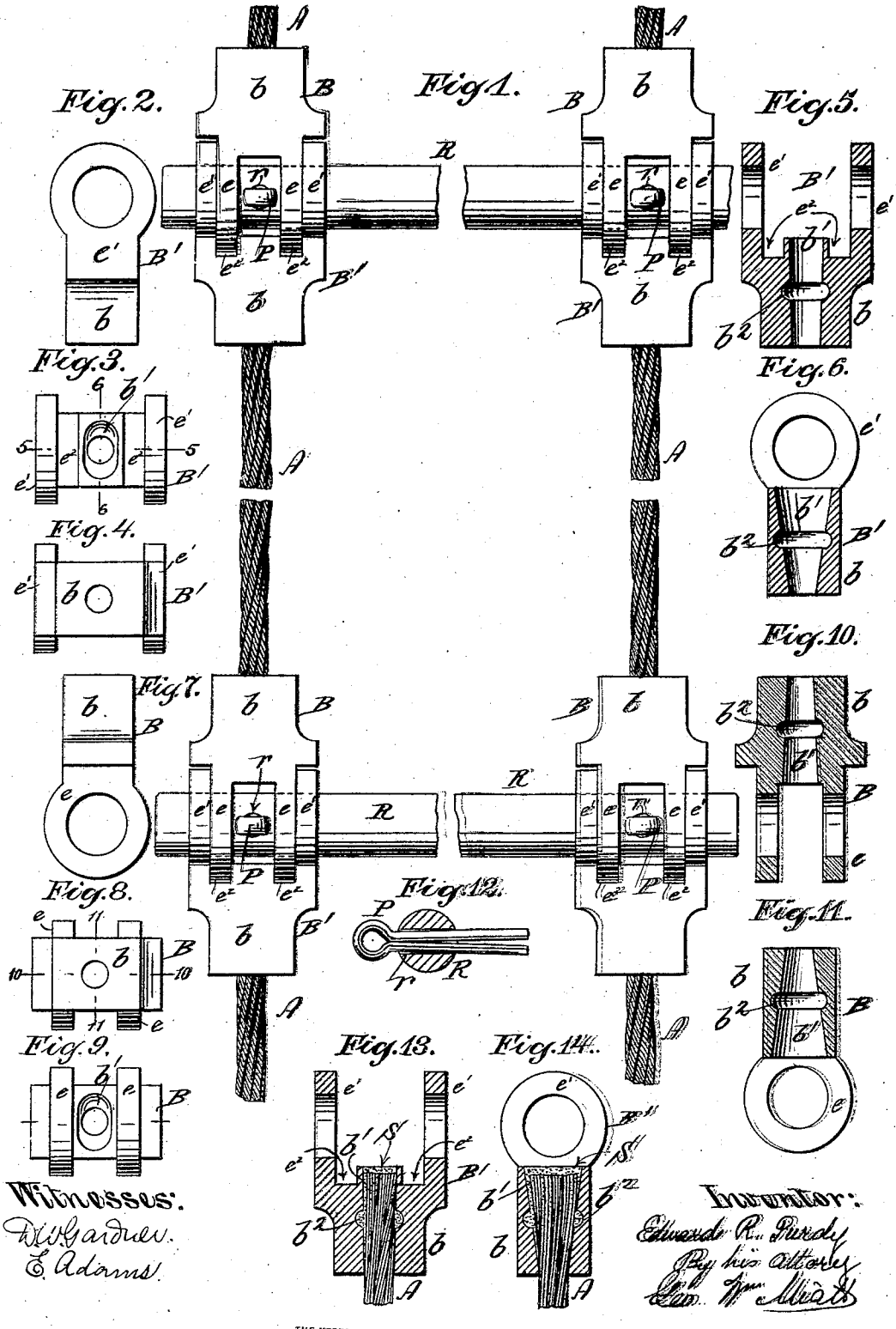
No. 844,288. PATENTED FEB. 12, 1907.

E. R. PURDY.

ELEVATOR CHAIN.

APPLICATION FILED AUG. 17, 1906.



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ELEVATOR-CHAIN.

No. 844,288. Specification of Letters Patent. Patented Feb. 12, 1907.

Application filed August 17, 1906. Serial No. 330,952.

To all whom it may concern:

Be it known that I, EDWARD R. PURDY, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Elevator-Chains, of which the following is a specification.

My improved chain, although applicable to various other purposes, is designed more especially for the endless traveling chains used in hod elevators and the like.

The main object is to attain a lighter and cheaper construction for a given strength of chain as compared with the old sprocket-chain heretofore used for the purpose.

The invention consists in the construction and arrangement of parts herein shown and described and claimed specifically.

In the accompanying drawings, Figure 1 is an elevation of a portion of the chain, the central portions of the rungs and the flexible links being broken away, so as to show the parts full size. Fig. 2 is an elevation of one of the male eye-heads. Fig. 3 is a view of the outer end of the same; Fig. 4, a view of the inner end of the same. Fig. 5 is a section upon plane of line 5 5, Fig. 3. Fig. 6 is a section upon plane of line 6 6, Fig. 3. Fig. 7 is a side elevation of the female eye-head before attachment to the flexible link. Fig. 8 is a view of the outer end of the same. Fig. 9 is a view of the inner end of the same. Fig. 10 is a section upon plane of line 10 10, Fig. 8. Fig. 11 is a section upon plane of line 11 11, Fig. 8. Fig. 12 is a view of the spring-pin; Figs. 13 and 14, views similar to Figs. 5 and 6, showing a method of securing the rope with a setting of alloy.

A is a section of suitable length of flexible metallic wire, preferably, though not necessarily, of wire rope, as indicated in the drawings. To one end of each section A is secured a male eye-head B; to the other extremity a female eye-head B′. These eye-heads are rigidly secured to the ends of the wire sections. The adjoining links of the chain are coupled together by passing the ends of the cross-bar or rung R through the eyes of the interlocking male and female heads, as will be seen by reference to Fig. 1 of the drawings, the ends of the rung being secured against displacement by means of spring key-pins P, inserted in transverse holes b, being formed in the portions of the rungs which occupy the space between the eye-flanges of the eye-heads. The ends of the rungs R preferably extend beyond the eye-heads, so as to afford a bearing on either side thereof for engagement with suitable shoulders on the forwarding-wheels. (Not shown.)

In the preferred construction shown in the drawings the shanks b of each eye-head B B′ is formed with a recess b', having converging side walls which flare inward, the openings at the outer ends of the shanks being only slightly greater in area than the cross-section of the wire rope A. After an end of the wire rope is inserted in one of these flaring recesses b' the wire ends are separated and spread or splayed out within said recess and secured therein by a setting S, of Babbitt metal or other suitable alloy, as illustrated in Figs. 13 and 14, in a manner well understood, the alloy filling in the spaces in the recess b' between the ends of the wire and effectually preventing the withdrawing of the end of the rope. In order to more effectually reinforce and lock the setting S against displacement in either direction, I prefer to form the recess with a lateral groove b^2, into which the alloy enters.

By reference to the drawings it will be seen that the male eye-head B and the female eye-head B′ are formed with two eye-knuckles each, the former with the parallel eye-knuckles e e and the latter with the parallel eye-knuckles e' e'. The female eye-head B′ is also formed with the recesses e^2 e^2 for the reception of and engagement with the opposed edges of the eye-knuckles e e of the male eye-head B, thus interlocking and reinforcing all the knuckles, since the opposed sides of the recesses e^2 e^2 insure the accurate alinement of the parts, prevents looseness or play, and effectually counteracts lateral strain. The central space between the inner or male knuckles e e also affords suitable accommodation for the coupling-pin P, since the opposed inner surfaces of said knuckles e e act as shoulders to limit the play of said pin, and thereby enable me to dispense with retaining-shoulders or similar devices otherwise necessary on the rung to prevent longitudinal movement thereof. Furthermore, this construction enables me to extend the ends of the rung, free and unobstructed, beyond the eye-heads, so that said ends may be available for engagement with shoulders or arms on the sprocket-wheels, which may thus engage the

rungs on both sides of the eye-heads. It also enables me to make and use a rung of the plainest form, consisting simply of a cylindrical rod formed only with the transverse holes *r*.

I have found by actual experience that by my invention a hod elevator can be constructed for one-third the cost of the old sprocket-chain elevator with a saving in weight of six hundred pounds to every hundred feet of length. Furthermore, frictional resistance and wear is reduced to the minimum.

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

1. In an elevator-chain of the character designated, the combination of a series of links each consisting of a section of flexible wire rope, a female eye-head rigidly secured to one end and a male eye-head rigidly secured to its other end, said eye-heads each formed with two parallel eye-knuckles, rungs passing through said eye-heads and coupling adjoining links together, and means for holding said rungs in engagement with the eye-heads, for the purpose described.

2. In an elevator-chain of the character designated, the combination of a series of links each consisting of a section of flexible wire rope, a female eye-head rigidly secured to one end and a male eye-head rigidly secured to its other end, said female eye-head formed with parallel eye-knuckles and with recesses in its shank adjoining said eye-knuckles, said male eye-head formed with eye-knuckles coinciding with and adapted to fit in the recesses in the female eye-head, rungs passing through said eye-heads and coupling adjoining links together, and means for holding said rungs in engagement with the eye-heads, for the purpose described.

3. In an elevator-chain of the character designated, the combination of a series of links each consisting of a section of flexible wire rope, a female eye-head rigidly secured to one end and a male eye-head rigidly secured to its other end, said eye-heads each formed with two parallel eye-knuckles, rungs passing through said eye-heads and formed with transverse holes coinciding with the space between the eye-knuckles of the male eye-heads when the rungs are in position, and key-pins inserted through said holes in the rungs, for the purpose described.

4. In an elevator-chain of the character designated, the combination of a series of links each consisting of a section of flexible wire rope, a female eye-head rigidly secured to one end and a male eye-head rigidly secured to its other end, said eye-heads each formed with two parallel eye-knuckles, rungs passing through said eye-heads and formed with transverse holes coinciding with the space between the eye-knuckles of the male eye-heads when the rungs are in position, and spring key-pins inserted through said holes in the rungs, for the purpose described.

5. In a chain of the character designated, a link consisting of a section of flexible wire rope, an eye-head at each extremity, each eye-head having a flaring recess for the reception of an end of the wire rope, said flaring recess being formed with a transverse groove in its side walls, the ends of the wire of which the rope is composed being spread within said grooved flaring recess and secured therein by a setting of metallic alloy, in combination with said setting for the purpose described.

6. In an elevator-chain of the character designated, the combination of a series of links each consisting of a section of flexible wire rope, a female eye-head at one extremity and a male eye-head at the other, said eye-heads each formed wth two parallel eye-knuckles and with a flaring recess in its shank for the reception of the splayed ends of the wire of which the rope is composed, a setting of metallic alloy in each recess securing the splayed ends of the wire, rungs passing through the knuckles of said eye-heads and coupling adjoining links together, and means for holding said rungs in engagement with the eye-heads, for the purpose described.

7. In an elevator-chain of the character designated, the combination of a series of links each consisting of a section of flexible wire rope, a female eye-head at one extremity and a male eye-head at the other, said eye-heads each formed with two parallel eye-knuckles and with a flaring recess in its shank for the reception of the splayed ends of the wire of which the rope is composed, a setting of metallic alloy in each recess securing the splayed ends of the wire, rungs passing through and extending beyond said eye-heads, so as to form bearings on both sides thereof for engagement with sprocket-wheels, and formed with transverse holes coinciding with the space between the eye-knuckles of the male eye-heads when the rungs are in position, and key-pins inserted through said holes in the rungs for the purpose described.

8. In a chain of the character designated, a series of links each consisting of a section of flexible metal, an eye-head at each extremity rigidly secured thereto, rungs passing through said eye-heads and coupling adjoining links together, the portions of said rungs which rest in the eye-heads being formed with transverse holes for the reception of spring-pins and said spring-pins arranged to hold the rungs in engagement with the eye-heads.

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