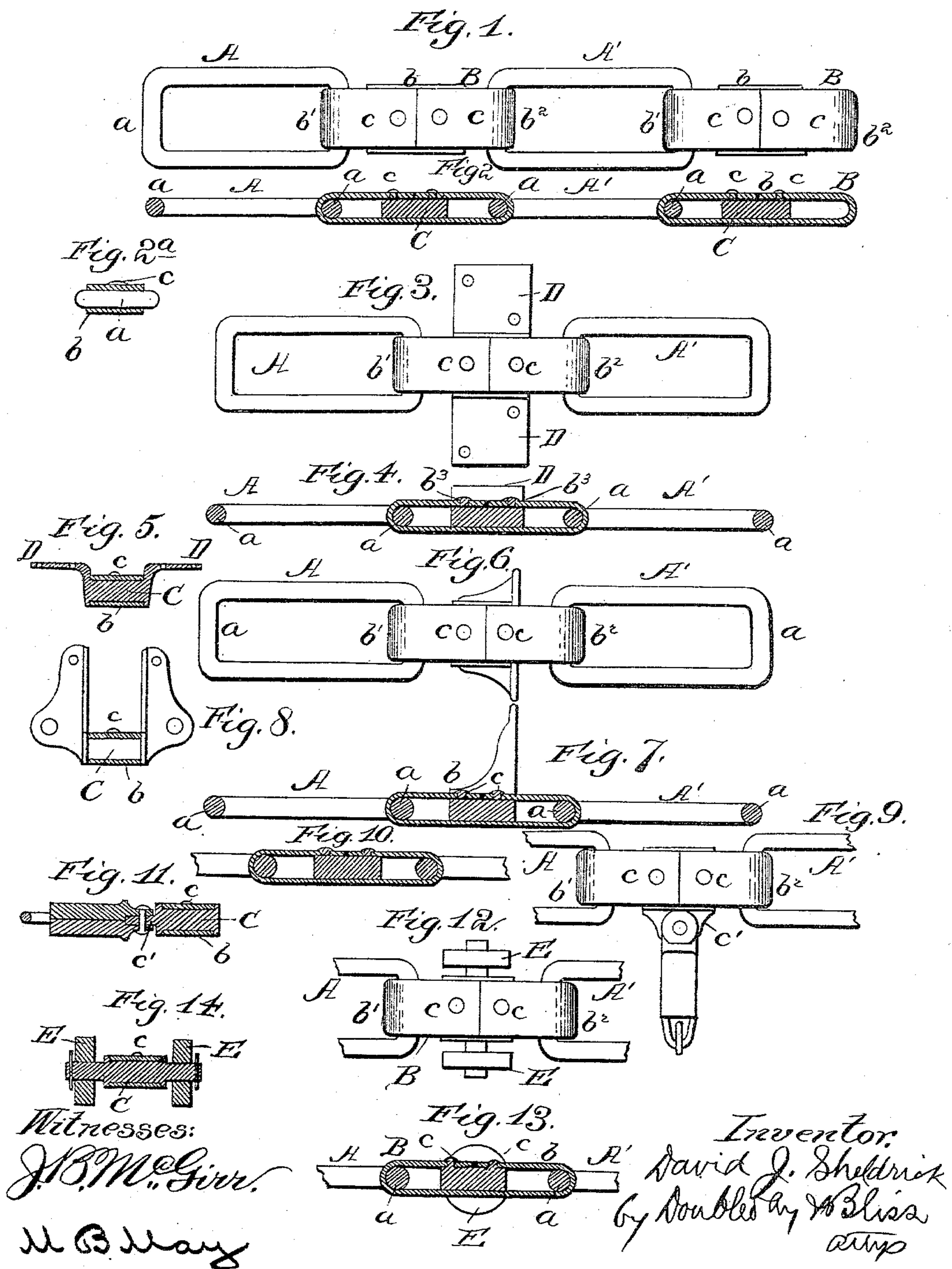


(No Model.)

D. J. SHELDRIK.
CHAIN.

No. 545,178.

Patented Aug. 27, 1895.



UNITED STATES PATENT OFFICE.

DAVID J. SHELDRIK, OF COLUMBUS, OHIO, ASSIGNOR TO JOSEPH A. JEFFREY,
OF SAME PLACE.

CHAIN.

SPECIFICATION forming part of Letters Patent No. 545,178, dated August 27, 1895.

Application filed October 1, 1891. Serial No. 407,427. (No model.)

To all whom it may concern:

Be it known that I, DAVID J. SHELDRIK, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Chains, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improvement in chains, particularly to chains of the class in which use is made of "wrought-rod links." In some of these chains the alternate links are arranged at right angles to each other, and to such arrangement numerous objections are incident.

One of the objects of the present invention is to provide a "flat" chain—that is, one whose parts shall all lie as nearly as possible in the same transverse planes.

Another object of the invention is to provide a means for so constructing chains of this sort that attachments can be readily applied, either such as are adapted to directly engage with the material that is to be transported or adapted to have secured thereto flights, carrier-bars, buckets, or the like. Difficulty is experienced in applying such attachments to the wrought-rod chains, as the metal of which the links are constructed is subjected to the action of rolls in one form or another, and therefore it is not practicable to initially form them with projections, such as can be formed on them to advantage when they are cast.

Figure 1 is a plan view of a chain having some of my improvements. Fig. 2 is a longitudinal section. Fig. 2^a is a cross-section. Figs. 3, 4, and 5 are respectively a plan, a longitudinal section, and a cross-section of one modification. Figs. 6, 7, and 8 show similar views of another modification; Figs. 9, 10, and 11, another. Figs. 12, 13, and 14 show still another modification.

In the drawings the main links are represented by A A'. These are formed of wrought-rods, and therefore possess great strength relative to the weight and section of the metal, which, as is well known, is characteristic of links of this form. Preferably the end parts a a of each link are straight throughout the greater part of their length, so as to provide

a prolonged bearing. These links are joined by intermediate couplers B, which are preferably formed of bar-iron bent so as to provide the central part b, the curved bearing parts b', and the ends b². Chains having these features, generally considered, have been heretofore constructed.

In order to properly space the links A A', I insert a bushing or block C at the central part of the coupler, and form this block with rivet projections c c. The coupler part B has apertures b³ punched in it near the ends prior to putting it in place, these apertures being adapted to receive the rivet projections c c, as shown in Fig. 2. When the parts of the chain are being fastened together, the block C is inserted between the parts b and b² of the coupler after the latter has been placed around the end parts a a of the adjacent links and the metal of the ends of the projections c c has been upset by blows, so that a strong union is provided, the coupler is prevented from bending up or down, its ends are prevented from spreading open, and the rod-links A A' are prevented from having too great an endwise movement. The block C projects a short distance beyond the sides of the strap-coupler B, and has upwardly and downwardly extending flanges c', between which the coupler lies, the edges of the flanges being flush with the upper and lower surfaces, respectively, of the central parts b thereof. These flanges serve to assist the rivets in securing the ends of the coupler together and prevent any lateral movement on the part of the block relatively thereto.

In Figs. 3, 4, and 5 a modification of the block C is shown, it in this case having laterally-extending wings or plates D D cast integrally with the central part. As shown, these wings or plates lie in a transverse plane somewhat remote from those of the links, so that a conveyer composed of parts such as described shall move freely and accurately in relation to the driving-wheels. To the wings or plates D are attached the wooden or other bars of a scraping-conveyer or flat-carrier, or to them buckets or scoops can be applied, such as are used in the elevating of grain, coal, &c.

In Figs. 6, 7, and 8 a modification of the

carrier wings or plates is shown, they here extending upward and lying in a transverse plane, so that flat vertically-arranged bars can be secured thereto.

5 In Figs. 9, 10, and 11 a carrier attachment is shown, comprising a laterally-extending arm and a pivot seated in an aperture formed in the block C or an ear carried thereby. Here, as in the construction above described,
10 the part C is formed with lips or flanges c' which inclose the edges of a coupler B, whereby the block is additionally braced and fastened and the coupler made more solid and rigid. Carrier-chains of the sort herein are
15 especially adapted for elevating and conveying heavy materials on account of their great strength and durability. Prior to my invention flat metal chains have not gone into general use as carrier-chains owing to the difficulty of providing attachments therefor; and
20 even when flights are attached to the chain-links by rivets alone the rivets are not sufficient to resist the powerful strains which they experience. When a heavy load is being elevated by a flight the torsional strain upon the
25 block and the rivets is enormous, and so I have provided by its being taken by the strap-coupler B. The block C is provided as aforesaid with the bracing flanges or projections c'
30 c' which lie against the outer edges of the side bars and which relieve the rivets from torsion. This block is provided with the flanges c' whether the ends of the strap are welded, riveted, or otherwise secured together.
35 In Figs. 12, 13, and 14 the block C is formed with laterally-extending pintles, upon which antifriction-rollers E E are mounted.

While I have herein referred to the coupler part B as being made of wrought metal, (rolled
40 bar or the like,) it will be understood that for some purposes a malleable coupler more or less similar can be employed in lieu of one of wrought metal.

What I claim is—

1. The herein described carrier chain, 45 formed of the wrought round rod links A, A', each having its ends brought together to form a continuous flat loop, in combination with the intermediate alternately arranged links B, B each formed of a strip of relatively thin 50 wrought metal bent to have its ends brought together to form a continuous loop, the bracing block C formed with a body part of a thickness equal to the interior space between the side bars of the link, and with bracing 55 flanges or projections c' c' lying against the side edges of said side bars, and the rivets extending directly upward through the end parts of the wrought strip and bearing inward upon the outer faces thereof to hold said ends 60 together and between the said flanges, substantially as set forth.

2. The herein described carrier chain it having the wrought rod links A, A', the intermediate coupler B formed of wrought metal 65 and bent into a continuous loop, and the block C having a lateral extension for an attachment, and having the bracing flanges c' c' at the edges of the coupler, and a rivet for securing the block to the coupler, substantially 70 as set forth.

3. In combination with the wrought rod links A, A', and the wrought metal coupler B formed into a continuous loop, a carrier block C lying between the side bars of the coupler, 75 and having rivets for securing the block to the coupler, and also having means independent of the rivet, engaging the coupler, for assisting in securing the block against torsional or lateral movement in the coupler, whereby 80 the rivets are relieved from strain, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID J. SHELDRIK.

Witnesses:

SAML. R. MOUNTAIN,
J. S. DOE.