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DIGGER FOR ENDLESS CHAIN-TYPE DITCHING MACHINES

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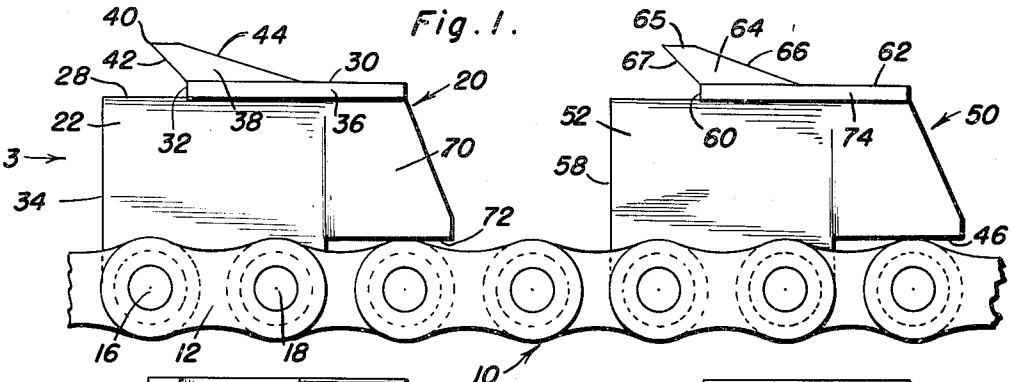


Fig. 1.

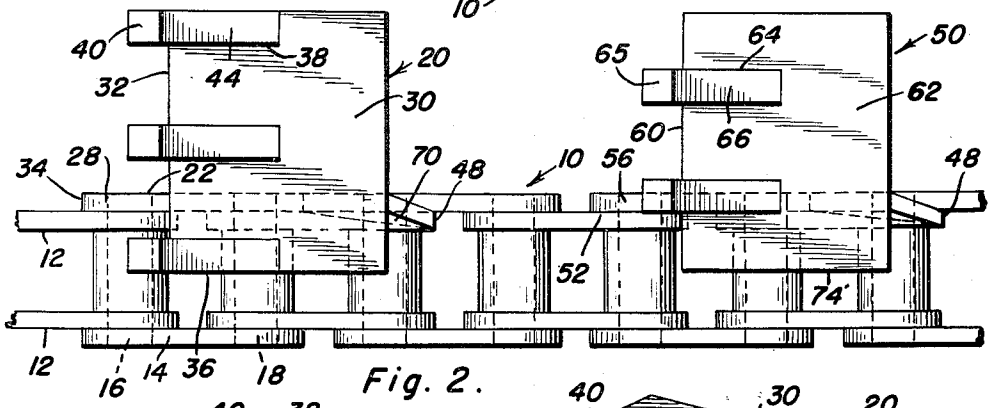


Fig. 2.

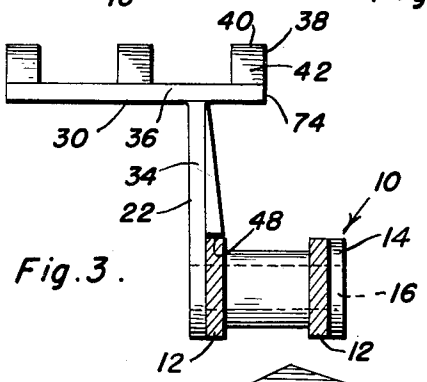


Fig. 3.

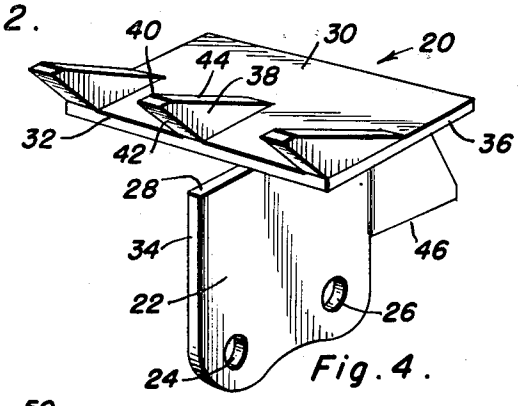


Fig. 4.

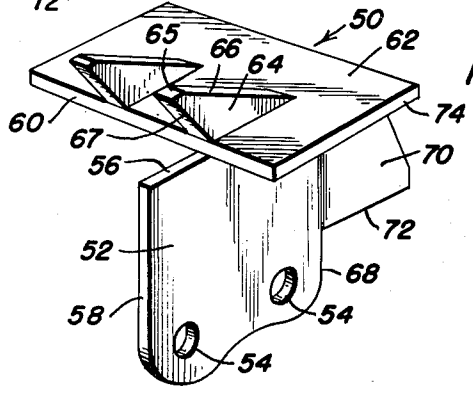


Fig. 5

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DIGGER FOR ENDLESS CHAIN-TYPE DITCHING MACHINES

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5 Claims. (Cl. 37—191)

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This invention relates to new and useful improvements in ditch digging machines for gas lines, water lines, telephone cable and the like and the primary object of the present invention is to provide a novel and improved endless digger chain for the idler sprocket of a ditch digging machine.

Another important object of the present invention is that it provides an endless digger chain for ditch digging machines including novel and improved ground engaging elements so designed as to facilitate the same to efficiently dig into the ground surface.

A further object of the present invention is to provide ground digging members for an endless digger chain of a ditch digging machine that are quickly and readily applied to or removed from the digger chain in a convenient manner.

A still further aim of the present invention is to provide an endless ground digging chain that is simple and practical in construction, strong and reliable in use, small and compact in structure, relatively inexpensive to manufacture, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the deails of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a fragmentary side elevational view of a digger chain constructed in accordance with the present invention;

Figure 2 is a top plan view of Figure 1;

Figure 3 is an end view taken substantially in the direction of arrow numbered 3 in Figure 1;

Figure 4 is a perspective view of one of the ground engaging members of one group used in conjunction with the present invention; and,

Figure 5 is a perspective view of one of the ground engaging members of the second group of members used in conjunction with the present invention.

Referring now to the drawings in detail, wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents the endless driving chain of a ditch digging machine generally, including a plurality of opposed inner and outer link plates 12 and 14 which are connected by removable pins 16 and 18.

Removably secured on the pins 16 and 18 of selected links of the endless driving chain 10, is a first group of spaced digging members which are designated generally by the numeral 20, one

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of which is shown best in Figure 4 of the drawings. Each of these digging members 20 includes a substantially rectangular attaching plate 22 having apertures 24 and 26 that engage the pins 16 and 18. Rigidly secured by welding or the like to the outer longitudinal edge 28 of each attaching plate 22, is a flat substantially rectangular base plate 30 which is disposed at right angles to the attaching plate 22. The base plates 30 are provided with leading or forward longitudinal edges 32 which are spaced rearwardly from the leading or forward edges 34 of the attaching plates 22. The inner edges 36 of the base plates 30 are so disposed as to substantially align the central portion between the link plates 12 and 14.

Integrally formed with the base plates 30 is a plurality of forwardly extending transversely spaced ground engaging elements or substantially triangular teeth 38 having pointed extremities 40 and forwardly converging inner and outer edges 42 and 44. It should be noted, that the extremities 40 of the ground engaging teeth 38 are in transverse alignment with the longitudinal axis of the pins 16 on the link plates 14 which the members 20 are applied. The rear inner corners of the members 20 are notched to provide inner edges 46 that frictionally engage the outer edges 48 of the inner link plates 12, which are disposed rearwardly from the links on which the plates 22 are applied, to further aid in providing the base plates 22 with rigidity.

The numeral 50 represents a second group of spaced digging members generally, one of which is shown best in Figure 5 of the drawings. These members include attaching plates 52 that are alternately arranged relative to the members 20 and include spaced apertures 54 that engage the pins 16 and 18 of the link plates on which the members 52 are applied. Fixedly secured to the outer edges 56 of the attaching plates 52, rearwardly from the forward edges 58 of the attaching plates 52, are the forward edges 60 of substantially rectangular base plates 62. Integrally formed with the base plates 62, is a pair of forwardly inclined substantially triangular ground engaging elements or teeth 64 having pointed extremities 65 and converging outer and inner edges 66 and 67. It should be noted, that the pointed extremities 65 of the teeth 64 extend forwardly from the forward edges 58 of the base plates 52 and terminate in transverse alignment with the longitudinal axes of the pins 16 on the link plates on which the attaching plates 52 are secured.

The rear inner corners of the attaching plates 52 are notched as at 68 to provide inwardly turned portions 70 having inner edges 72 that frictionally engages the inner links adjacent the links on which the plates 52 are applied. The inner edges 74 of the base plates 52 are spaced between and parallel to the link plates 12 and 14 on which the plates 52 are attached.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. In a ditch digging machine including an endless link chain having inner and outer link plates and removable pins joining the inner and outer link plates; digging members secured to said pins, each of said digging members comprising an attaching plate having a pair of apertures receiving an adjacent pair of said pins, a base plate fixed to the attaching plate and disposed perpendicular thereto, a plurality of transversely spaced ground engaging elements mounted on the base plate and paralleling the chain, and an extension formed on an end of each of said attaching plates, each of said extensions having a lower edge resting upon and overlapping a selected inner link plate.

2. In a ditch digging machine including an endless link chain having inner and outer opposed pairs of link plates and removable pins connecting opposed pairs of link plates; a digging member adapted to replace a selected one of said outer link plates, said digging member comprising an attaching plate of a length substantially equal to the length of an outer plate, said attaching plate having a pair of openings therein receiving a pair of adjacent pins, a base plate rigidly attached to and disposed perpendicular to said attaching plate, digging teeth on said base plate, and an inclined extension on said attaching plate supported on a selected link of the chain, said extension including a lower edge overlapping the link of the chain on which the extension is supported.

3. In a ditch digging machine including an endless chain having inner and outer opposed pair of links and pins joining said opposed pairs of links, said links including a removable outer link and an inner link adjacent the removable outer link; a replacement for the removable outer link comprising an attaching plate having openings therein for receiving a pair of said pins, an inclined extension on said attaching plate having an inner edge resting upon and overlapping the inner link adjacent the removable outer link, a base plate fixed to said attaching plate, and ground engaging teeth mounted on said base plate.

4. The combination of claim 3 wherein one of said teeth overlies said attaching plate.

5. In a ditch digging machine including an endless chain having a first pair of inner links, a second pair of inner links, a first pair of outer links, the ends of said first and second pair of inner links overlying the ends of said first pair of outer links a first pin securing the first pair of outer links to the first pair of said inner links and a second pin securing the first pair of outer links to said second pair of inner links; a replacement for one link of the first pair of outer links, said replacement comprising a base plate having a pair of openings therein receiving said first and second pins, a base plate fixed to said attaching plate and overlying the chain, teeth on said base plate spaced parallel to each other and paralleling the chain, and an extension on said attaching plate having an inner edge resting upon and overlapping one link of said first pair of inner links.

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