Dec. 11, 1956 E. E. ROBINS ET AL 2,773,668

HOIST CHAIN GUIDE AND STRIPPER

Filed Jan. 5, 1954

2 Sheets-Sheet 1

Fig. 4

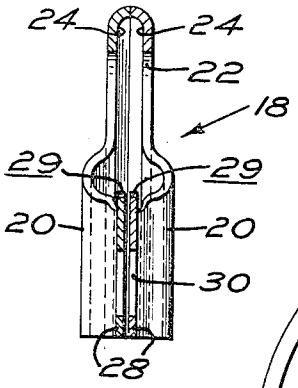



Fig. 1

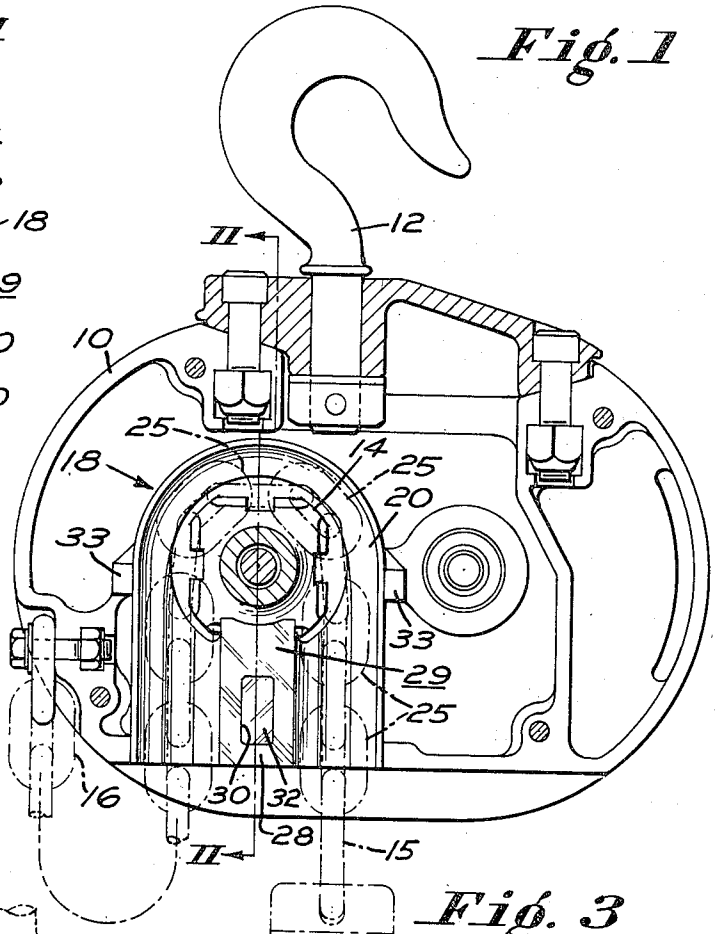



Fig. 5

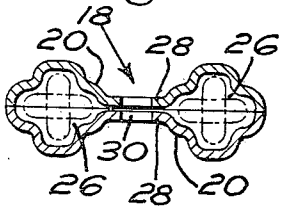



Fig. 2

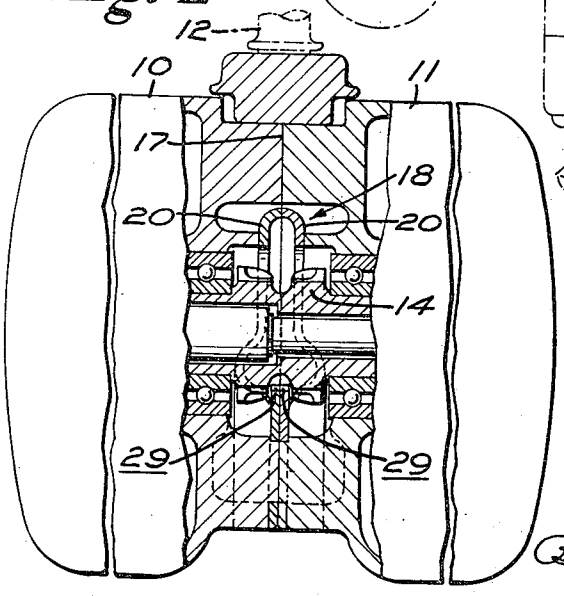
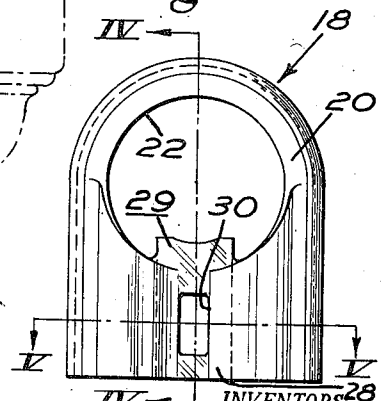



Fig. 3




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Fig. 6

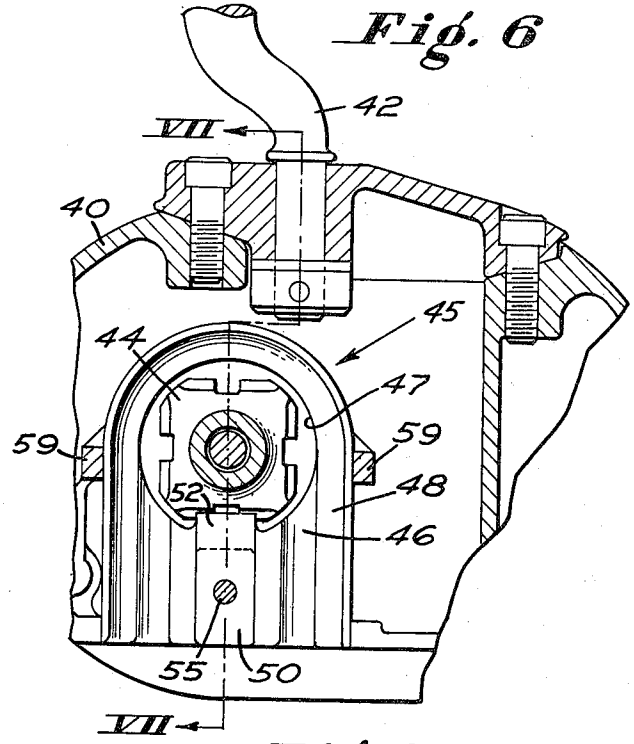



Fig. 9

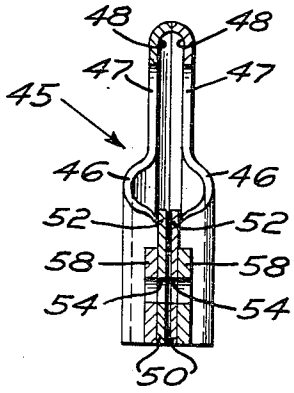



Fig. 7

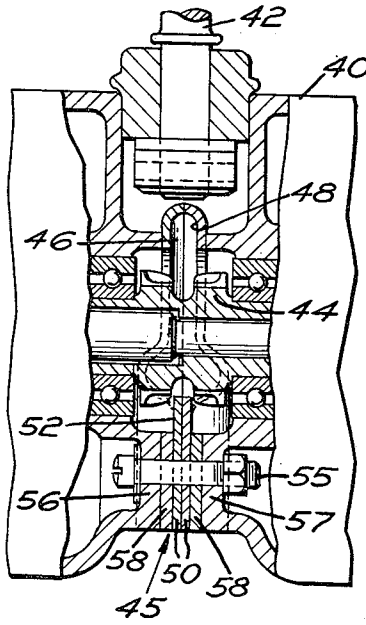



Fig. 8

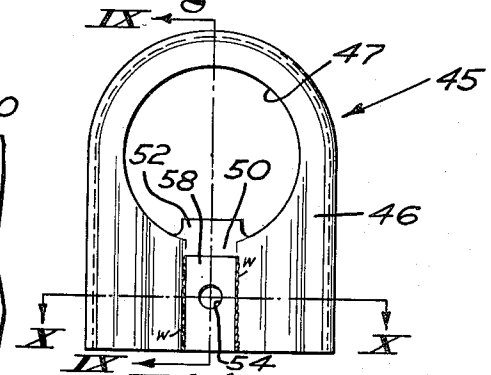
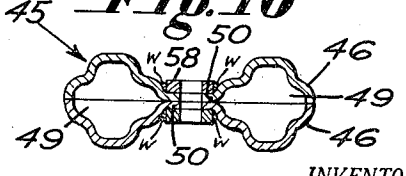



Fig. 10




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# HOIST CHAIN GUIDE AND STRIPPER

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Application January 5, 1954, Serial No. 402,387

6 Claims. (Cl. 254—167)

This invention relates to chain hoists, and more particularly to improved chain guide means in hoists for example of the type shown in Patent 2,493,727 issued January 3, 1950.

One of the objects of the present invention is to provide improved means in a hoist of the character aforesaid for guiding the load lift chain as it trains over the load lift sprocket or wheel, and for "stripping" the slack side of the chain from the wheel.

Another object of the invention is to provide an improved chain guide and stripper for the purposes aforesaid, which may be more readily and inexpensively formed of two-piece construction for mounting within a two-piece type hoist frame during assembly thereof, in improved manner.

Another object of the invention is to provide an improved two-piece chain guide and stripper sub-assembly for use in chain hoists of the two-piece or unitary frame types.

Another object of the invention is to provide in a combination chain guide and chain stripper of the character described improved means for anchoring the device in the hoist frame.

Other objects and advantages of the invention will appear in the specification hereinafter.

In the drawings:

Fig. 1 is a fragmentary sectional view of a typical two-piece frame type chain hoist, incorporating a combination chain guide and stripper of the invetnion;

Fig. 2 is a section taken along line II—II of Fig. 1;

Fig. 3 is a side elevational view of the chain guide and stripper device of Figs. 1 and 2;

Fig. 4 is a section, on an enlarged scale, taken along line IV—IV of Fig. 3;

Fig. 5 is a section taken along line V—V of Fig. 3;

Fig. 6 is a view corresponding to Fig. 1, but showing a chain guide and stripper device of the invention incorporated in a hoist of unitary frame type;

Fig. 7 is a section taken along line VII—VII of Fig. 6;

Fig. 8 is a view corresponding to Fig. 3, but of the chain guide and stripper device of Figs. 6–7;

Fig. 9 is a section taken along line IX—IX of Fig. 8; and

Fig. 10 is a section taken along line X—X of Fig. 8.

Chain guide and stripper devices for the stated purposes have been previously made in various forms but have been somewhat expensive to manufacture, and awkward to assemble, and the present invention therefore contemplates fabrication of an improved chain guide and stripping device consisting of paired stampings which are relatively simple to fabricate and which when mounted together in the hoist frame are adapted to function as would a single piece structure.

Thus, as shown in Figs. 1–5 of the drawing, for example, the invention is illustrated in conjunction with a two-piece chain hoist frame comprising parts **10—11**; the hoist structure being shown for simplification of illustration purposes only fragmentarily. The hoist frame may



comprise for example a hoist structure of the type shown in presently pending patent application Serial No. 239,594 filed July 31, 1951, now Patent No. 2,667,331. Thus, the hoist frame is provided with the usual suspension hook **12** and the hoist load wheel or sprocket is indicated at **14**. The load lift chain is indicated at **15** (Fig. 1) as being trained over the load lift wheel **14**, and the returning dead end of the load chain **15** is indicated at **16**. When bolted together the two frame parts **10—11** meet at the dividing line designated **17** (Fig. 2).

The combination chain guide and chain stripper of the invention is indicated generally at **18**. Fig. 3 shows the device of the invention disassembled from the hoist frame, and Figs. 1–2 illustrate the positional mounting thereof in the hoist frame. Fig. 1 shows an inside elevational view of one of the stamping members which cooperate to provide the unit device **18** of the invention; and it will be understood that each guide and stripper device of the invention comprises a pair of identical matching stampings **20** which are placed in opposed relation to provide the unit assembly as shown in Figs. 2–5. Each stamping **20** is formed with a central circular opening as indicated at **22** to accommodate passage of the load lift wheel **14** therethrough during assembly and disassembly of the hoist mechanism.

The upper portions of the members **20—20** are shaped generally concentric of the circular openings **22** and the members are semi-grooved as indicated at **24** (Fig. 4) inside of the upper and side portions thereof marginally of the openings **22**, so as to accommodate in free-sliding relation therethrough the upstanding links **25** of the load chain as it trains around the wheel **14**. The bottom portions of the members **20—20** are formed as shown in Fig. 5 so that when paired they provide clover leaf shaped openings therethrough as indicated at **26—26** so as to permit the 90° related links of the ascending and descending strands of the load chain **15** to freely slide therethrough; the openings **26—26** being aligned with the vertical strands of the load chain and in continuity with the curved groove portions **24—24** of the stamping members.

At a position between the clover leaf openings **26—26** each forging member **20** includes a mid-plate portion **28** so that when the two stamping members are disposed in matched assembled position as shown in Fig. 2, the clover leaf shaped chain inlet and outlet openings **26—26** are separated by matched face plates **28—28**. Each plate portion **28** is formed with an integral upstanding lug portion **29**, and the matched lugs **29—29** are thus disposed to function as a "stripper" for insuring stripping of the slack side of the load chain from the wheel **14** as the latter rotates. Thus, the unit **18** embodies interiorly thereof a horseshoe shaped groove for guiding the load chain, subtended by a "stripper" device which is of integral construction with the stamped members **20—20**. The mid-plate portions **28** of the members **20—20** are formed with registering openings **30** so that bosses **32** (Fig. 1) cast integrally with the hoist frame parts **10—11** may be inserted therethrough so as to mount the unit **18** in proper position within the hoist frame when the parts **10—11** are bolted together.

Bosses **33—33** (Fig. 1) are formed integrally with the hoist frame parts to position the guide device **18** laterally when slip-fitted therebetween. Thus, it will be appreciated that the invention comprises an extremely simple and rugged construction embodying in a single unit an inverted U-shaped chain guide means which completely encircles the load lift wheel for guiding the load chain to accurately train therearound while permitting the ascending and descending strands of the chain to pass freely therethrough; the clover leaf shaped openings at the bottom of the device functioning to prevent the chain from twisting at the entrance to the hoist frame and in-

suring proper guiding of the chain for entry into geared relation with the load lift wheel. At the same time the device provides an efficient chain stripper arrangement for preventing the out-going strand of the load chain from following the load lift wheel so as to become entangled with the ingoing strand of the chain; and this arrangement is provided in the case of the present invention by only two identically shaped members such as may be most readily stamped out of steel plate stock by a single operation stamping die.

Figs. 6–10 inclusive illustrate application of the invention to a unitary frame type hoist construction, wherein the hoist frame comprises a single casting as indicated at **40** having any suitable suspension hook arrangement as indicated at **42** and a load lift wheel as indicated at **44** (Figs. 6—7). In this instance the central portion of the hoist frame **40** is apertured so as to receive in upwardly slip-fitted relation therein the chain guide and stripper unit of the invention, which is designated generally at **45**. As in the case of the chain guide and stripper device of Figs. 1–5, the device of Figs. 6–10 comprises a pair of identically shaped stampings as indicated **46—46** which are generally similar in configuration to the stampings **20—20** of Figs. 1–5. Thus, the stampings **46—46** each include central circular openings as indicated at **47** so as to accommodate lateral slip-fitting of the load shaft and lift wheel **44** therethrough incidental to assembly and/or disassembly of the hoist mechanism. The stampings **46** also include upper portions shaped generally concentric of the circular openings **47**, which parts are semi-grooved as indicated at **48** so that when the stampings are relatively assembled in opposed relationship as shown in the drawing, the grooved portions **48** thereof accommodate in free sliding relationship the upstanding links of the load chain as it trains around the lift wheel **44**. The lower side portions of the stampings **46—46** are formed as shown in Fig. 10 so that when these members are assembled in opposed paired relation they provide clover leaf shaped openings as indicated at **49** for accommodation of the loaded and slack strand portions of the load chain of the hoist, as in the case of the device of Figs. 1–5.

The mid-plate portions **50** of the stampings **46—46** are arranged to mutually abut when the stampings are assembled in unitary operative position, and the mid-plate portions **50—50** are formed with integral upstanding lug portions **52** which are thus adapted to function as "strippers" to insure separation of the slack side of the load chain from the wheel **44**, as the latter rotates. The mid-plate portions **50—50** of the stamping members are suitably drilled in mutual alignment as indicated at **54** (Fig. 8) to accommodate a suitable nut and bolt connection device as indicated at **55** which may also be conveniently arranged to engage through suitably apertured portions of the hoist frame as indicated at **56—57** so as to complete the locking of the chain guide and stripper device in the hoist frame subsequent to assembly thereof. Filler plates **58—58** may be conveniently attached to the outside portions of the mid-plate sections **50—50** of the stamping members so as to swell the bodies thereof in the region of the bolt connection **55**. Bosses **59—59** (Fig. 6) are provided in the frame to hold the guide device **45** laterally and to complete a snug fitting assembly thereof in the hoist frame.

Thus, it will be appreciated that the chain guide and stripper device of Figs. 6–10 may also be readily fabricated by simply stamping the parts **46—46** out of plate metal stock into the configurations shown in the drawing, and then slip-fitting the members upwardly into the hoist frame into the operative position as shown, and then slip-fitting the bolt **55** laterally therethrough so as to engage the chain guide and stripper device in mounted relation in the hoist frame as shown in Fig. 7. The chain guide and stripper device of Figs. 6–10 thereupon function as in the manner referred to hereinabove in connection with Figs. 1–5.



Whereas, only two forms of the invention have been illustrated and described in detail, it will be understood that various changes may be made therein without departing from the spirit of the invention or the scope of the appended claims.

We claim:

1. In a chain hoist, the combination including a multi-part frame, a load lift wheel therein, and a combination chain guide and stripper device comprising a pair of stamped metal plate members having circular apertures therethrough enabling said members to slip-fit over said load lift wheel during assembly of said hoist, the inside faces of said members being of inverted generally U-shape and semi-grooved and said members being assembled in opposed face-to-face relation to provide therebetween a continuous slideway around a load lift chain as it trains over said load lift wheel, the bottom portions of said members being further grooved so that when said members are assembled in opposed face-to-face relation the bottom portions thereof provide a pair of spaced clover leaf shaped openings therethrough separated by abutting plate sections, said members at said plate sections having matched lug portions extending upwardly therefrom to function as a stripper for peeling a load lift chain from said load lift wheel, said plate sections being apertured and said hoist frame parts having bosses formed integrally therewith and extending into said plate section apertures for positioning said chain guide and stripper device in said hoist.

2. In a chain hoist including a frame and a load lift wheel therein, a combination chain guide and stripper device comprising a pair of stamped members having circular apertures therethrough enabling said members to slip-fit over said load lift wheel during assembly of said hoist, the inside faces of said members being grooved and said members being assembled in opposed united relation to define therebetween a continuous slideway around a load lift chain as it trains over said load lift wheel, the bottom portions of said members having abutting face portions extending upwardly therefrom between the opposite ends of said slideway and cooperating to provide a single stripper for peeling a load lift chain from said load lift wheel, said face portions being apertured, and means carried by said frame and extending into said face portion apertures to positionally fix said chain guide and stripper device in said hoist frame.

3. In a chain hoist including a frame and a load lift wheel therein, a chain guide device comprising a pair of members having circular apertures therethrough enabling said members to slip-fit over said load lift wheel during assembly of said hoist, the inside faces of said members being grooved and said members being assembled in opposed united relation to define therebetween a continuous slideway around a load lift chain as it trains over said load lift wheel, said members being further apertured beneath said circular apertures, and means carried by said frame and received in said further apertures to positionally fix said members with respect to said hoist frame.

4. In a chain hoist including a frame and a load lift wheel therein, a combination chain guide and stripper comprising a pair of matched members, the inside faces of said members being grooved and said members being assembled in opposed unit relation to provide therebetween a continuous slideway around a load lift chain as it trains over said load lift wheel, the bottom portions of said members cooperating to provide an abutment device between the opposite ends of said slideway functioning as a stripper for peeling a load lift chain from said load lift wheel, said members being apertured at their bottom portions to accommodate therethrough locking means extending from said frame.

5. In a chain hoist including a two piece split assembly

frame and a load lift wheel, a combination chain guide and stripper device comprising a pair of matched members assembled in opposed united relation between said frame parts, the inside faces of said members being grooved so that said members define therebetween a continuous slideway around a load lift chain as it trains over said load lift wheel, the bottom portions of said members coacting to provide an abutment device between the opposite ends of said slideway functioning as a stripper for peeling a load lift chain from said load lift wheel.

6. In a chain hoist, a two piece split assembly frame comprising two frame parts each having bosses extending therefrom, a load lift wheel, and a chain guide device comprising a pair of matched members assembled in opposed united relation between said frame parts, the bottom central face portions of said members being apertured to accommodate said bosses and said assembled members engaging upon said frame bosses for positionally locking said guide device in said hoist.



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