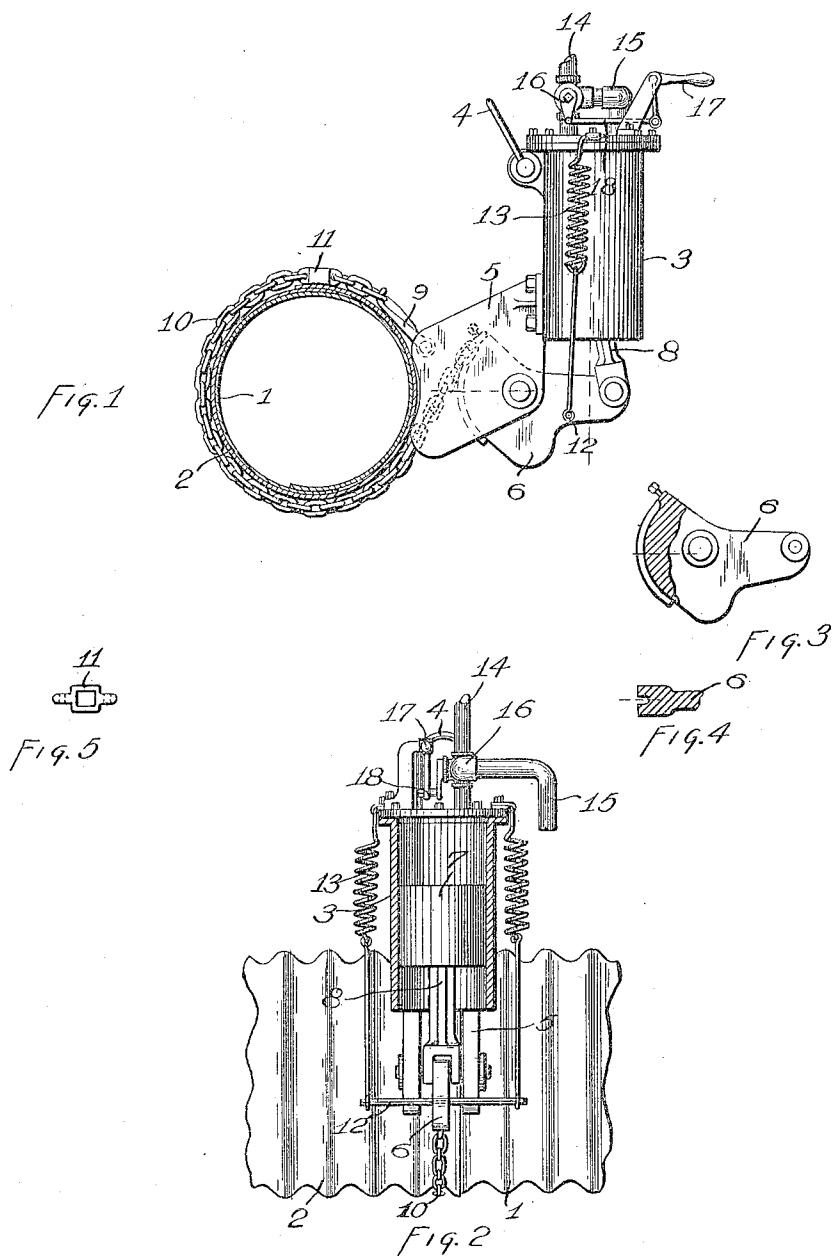


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CINCH FOR SHEET METAL PIPE.
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1,104,579.

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Witnesses:

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CINCH FOR SHEET-METAL PIPE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, KARL JOHAN THORSBY, a citizen of Norway, residing at Oakland, Alameda county, California, have
5 invented certain new and useful Improvements in Cinches for Sheet-Metal Pipes, of which the following is a specification.

This invention pertains to a device for forcibly drawing together the overlapping
10 ends of the sections of sheet-metal pipe to facilitate the uniting of the sections, as by means of riveting or welding.

The invention will be readily understood from the following description taken in con-
15 nection with the accompanying drawing in which:—

Figure 1 is a side elevation of a cinch forming one exemplification of my present invention, the pipe being operated upon ap-
20 pearing in transverse section. Fig. 2 a rear elevation of the device, the fluid-pressure cinching cylinder appearing in vertical section in the plane of the axis of the cylinder. Fig. 3, a side elevation of the cinching lever, part appearing in vertical section in a
25 plane at right angles to the axis of the lever. Fig. 4, a section through the segment of the cinching lever in a plane parallel with the axis of the lever, and Fig. 5, a plan of
30 the special open link in the wrapping connector.

In the drawing:—1, indicates the end portion of a section of sheet-metal pipe, illustrated as being of well known circumfer-
35 entially corrugated type: 2, the end portion of a similar section of pipe to be united to the end of section 1, the end of section 2 surrounding the end of section 1: 3, a fluid-pressure cylinder with its axis arranged at
40 right angles to the axis of the pipe to be joined, the single exemplification illustrated showing the cylinder as being vertically disposed: 4, a bail pivoted to the cylinder and serving as means by which the
45 cylinder and its attachments may be conveniently suspended from a crane or other suspending device: 5, a bracket secured to the cylinder and having its outer extremity in the form of a saddle to engage the pe-
50 riphery of the pipe at the point of juncture, the bracket in the illustrated case being double or formed with two cheeks: 6, a lever pivoted between the cheeks of the bracket, that portion of the lever nearer the
55 pipe being in the form of a grooved seg-

ment: 7, the piston of a cylinder: 8, a connecting-rod connecting the piston and the outer end of the lever: 9, a hook pivoted to the outer portion of the bracket and adapted to lie against or near the periphery of
60 the pipe: 10, a wrapping connector illustrated as being a chain, one end of the chain being secured to the upper extremity of the segment of the lever, while a link at or near the opposite end of the chain engages hook
65 9 so that the pipe at its juncture is nearly encircled by the chain and the saddle of the bracket: 11, a link of the chain formed with a specially large opening leading to the exterior of the pipe: 12, a cross-bar car-
70 ried by the lever and projecting sidewise from the lever: 13, pull-back springs engaging this cross-bar and the cylinder-head and serving to pull lever 6 in the inactive
75 direction: 14, the inlet pipe for the pressure fluid, this pipe being adapted for connection with a flexible supply-pipe connected with a source of fluid under pressure: 15, the exhaust-pipe: 16, an ordinary three-
80 way valve connected with the inlet-pipe and the exhaust-pipe and the upper end of the cylinder in such usual manner that one position of the valve will connect the inlet
85 with the cylinder while another position of the valve connects the cylinder with the exhaust and cuts off the connection from the inlet: 17, a valve-operating hand-lever, in bellcrank form: and 18, a link connecting one arm of the bellcrank-lever with an arm
90 on the rotary plug of the three-way valve.

In making the circumferential joints of sheet-metal pipes, it is highly desirable and sometimes of extreme importance, that the outside pipe at the juncture be brought into
95 close hugging connection with the inner pipe before the joint is secured, and this is particularly true in the case of circumferentially corrugated pipe owing to the fact that the corrugations greatly stiffen and resist the contraction of the outer pipe while
100 at the same time the frictional hugging of the metal at the sides of the corrugations at the joint resists the contraction of the outer pipe.

In using the present device the suspended
105 machine is brought to proper position and the chain wrapped around the outer pipe at the overlapping circumferential joint. Different diameters of pipe may be taken care
110 of by employing chains of various lengths

and by engaging the hook with selected links in the chain. It will be understood, of course, that in making the joint between the two sections of pipe the inner pipe will have its longitudinal seam completed while the outer pipe will have its longitudinal seam left open at the end where the joint is to be made. In applying the device to the pipe the pipe may be given any desired position of support and the cinch may then be adjusted into proper working relationship with it, or, if desired, the cinch may have a substantially constant position, and the pipe be adjusted into proper relationship with it, the latter plan being quite feasible in connection with pipes of comparatively small size, it being understood that sheet-metal pipe, such as circumferentially corrugated pipe designed for culverts, varies in diameter from about six inches to over six feet.

The pipe and cinch having been adjusted into proper relationship to each other, the valve-operating handle is manipulated to so adjust the valve as to cut off the exhaust from the cylinder and to admit the pressure-fluid to the cylinder, the result being that the piston becomes forced down and the chain forcibly tightened around the joint of the pipe, causing the outer pipe to be snugly and nicely contracted upon the inner pipe. While the joint of the pipe is thus cinched the layers of metal may be drilled through for the reception of rivets, or a welding tool may be applied, as in spot welding, and the joint thus made secure at one point in such manner that it will be held when the cinch is removed from the pipe to permit further drilling and riveting or spot welding. If desired a number of points may be riveted or spot-welded, and the specially open link facilitates the drilling and riveting or spot-welding operation, the fluid-pressure serving as a lock to hold the cinch to action.

When the use of the cinch at a particular joint is over, the valve is to be adjusted to cut off the inflow of pressure-fluid and to put the cylinder in communication with the exhaust whereupon the piston will rise un-

der the influence of the strain of the springs, thus permitting the slackening of the chain sufficiently to permit it to be entirely disconnected from the pipe or to be shifted endwise along the pipe to another joint to be dealt with.

The pressure fluid to be employed in the cylinder may well be compressed air or steam and the device is extremely efficient and can be employed by unskilled labor in the forming of tight joints. The vertical disposition of the cylinder and the employment of a lever between the piston and chain will be found particularly convenient, but it should be understood that the axis of the cylinder, instead of being vertical, may be horizontal or at any desired angle, and it is also to be understood that the segment lever merely serves in connecting the end of a chain to be forcibly moved by means of a piston moving in the opposite direction.

The drawing and description set forth but a single exemplification of my invention, for which I have explained the principle and set forth the best embodiment thereof within my present contemplation.

I claim:—

A cinch for pressing together the overlapping layers of metal at the joint of sheet metal pipe comprising, a fluid-pressure cylinder, valve mechanism carried by the cylinder for controlling the flow of fluid to and from the cylinder, a saddle carried by the cylinder and adapted to engage the outer one of the overlapping layers of the pipe to be joined, a wrapping connector adapted to encircle the pipe where the layers thereof overlap each other and having one end fixed with relation to said cylinder, a piston in said cylinder, and operative connections between said piston and the second end of said wrapping connector, combined substantially as set forth.

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Witnesses:

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