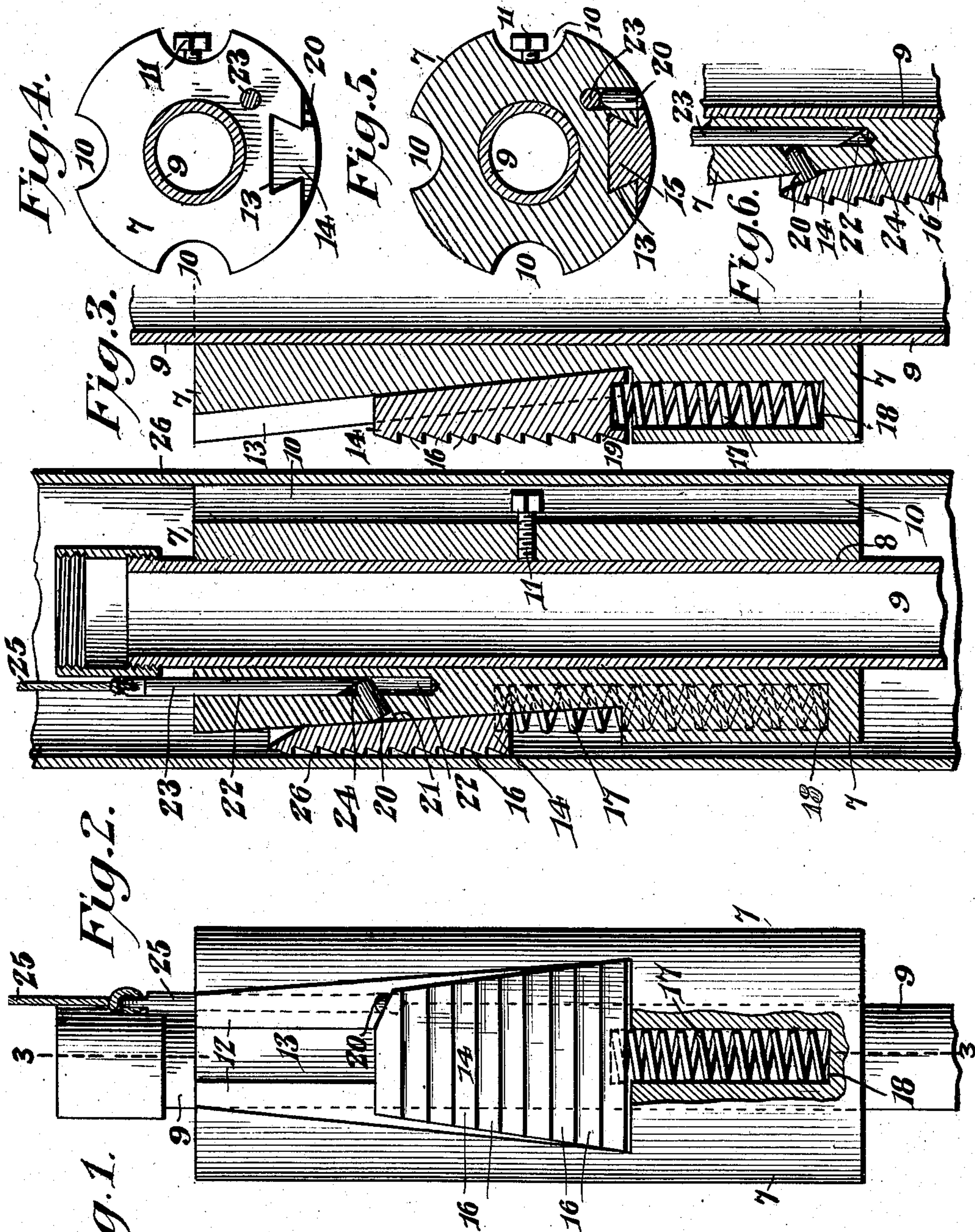


No. 885,195.

PATENTED APR. 21, 1908.

H. W. STALEY.
TUBE CATCHER AND SUPPORT.
APPLICATION FILED MAY 5, 1908.



Witnesses
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UNITED STATES PATENT OFFICE.

HENRY W. STALEY, OF KNAPP CREEK, NEW YORK, ASSIGNOR OF ONE-FOURTH TO CARLEY HEATER COMPANY, OF OLEAN, NEW YORK, A COPARTNERSHIP.

TUBE CATCHER AND SUPPORT.

No. 885,195.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed May 5, 1906. Serial No. 315,398.

To all whom it may concern:

Be it known that I, HENRY W. STALEY, a citizen of the United States, residing at Knapp Creek, in the county of Cattaraugus and State of New York, have invented a new and useful Tube Catcher and Support, of which the following is a specification.

This invention relates more particularly to means for catching and holding tubes in well casings.

As is well known, the tubes are suspended from the top of the casing by the casing head, but in case of fire, these heads and the upper ends of the tube often become highly heated, so that the latter, because of its great weight, is drawn downwardly through the head and drops into the well. Furthermore, it sometimes happens that the derrick is blown over and the head broken, so as to free the tube, in which case also it will drop into the well. In both cases, it then becomes necessary to fish the tube out, a tedious and expensive undertaking. Besides, the tube may become so badly jammed or bent that it cannot be withdrawn, in which case, the well is made useless.

It is the principal object of the present invention to provide novel and simple catching and holding means that is located within the casing and is so disposed that if the tube is accidentally freed from the casing head from any cause, it will automatically catch and hold the same, thereby preventing its dropping into the well, said catching and holding means being furthermore disposed out of the range of accident, and being readily removable with the tube, in case the same is drawn from the well.

An embodiment of the invention that is at present considered the preferable one is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the clamp, showing a tube within the same. Fig. 2 is a sectional view, illustrating the clamp in position in a casing. Fig. 3 is also a sectional view taken on the line 3—3 of Fig. 1. Fig. 4 is a top plan view of the device. Fig. 5 is a horizontal sectional view through the same. Fig. 6 is a detail sectional view, showing the clamping element locked against movement by the spring.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated, a body 7 is employed that is arranged to pass freely into the casing of a well, said body having a central bore 8 that receives the tube 9 to be supported. Longitudinal vent channels 10 are formed in different sides of the body, and a tube engaging device in the form of a set screw 11 is threaded into said body, the inner end of said screw being arranged to bear against a tube passed through the bore; the outer end of the screw having a head that is located in one of the gas vents.

The body 7 is provided in one side with a longitudinal upwardly and outwardly inclined flat guide surface 12, terminating short of the lower end of the body, and a longitudinal groove 13 is formed in the body between the side margins of the flat guide surface 12, said groove being preferably dovetailed in cross section, as shown in Figs. 4 and 5. A clamping element in the form of a pinch-block 14, has its rear face bearing against the surface 12, said pinch-block being provided with a dovetailed flange 15 that operates in the grooves 13, and serves to hold the block on the body. The outer face of the block is preferably curved to correspond to the curved surface of the body, and has transversely disposed teeth 16. A coiled spring 17 has its lower portion seated in a socket 18, formed in the body 7 below the guideway, the upper end of said spring being located in a seat 19, formed in the lower end of the clamping block or element. This spring thus serves to force the block upwardly, and thereby outwardly. A lock is, however, employed for holding the block against the action of the spring. In the present embodiment, this lock comprises a detent pin 20, slidably mounted in a socket 21 that opens through the flat guide surface 12 at one side of the groove 13. A longitudinal opening 22, formed in the body, intersects the socket 21, and the pin 20, is slidable inwardly into the opening 22 and outwardly into the path of movement of the block 14. A plunger 23 is slidably mounted in the opening 22, and has a beveled lower end 24 that is arranged to pass behind the detent pin 20. Any suitable means may be employed for drawing the plunger 23 upwardly, as for instance, a wire 25 secured to the upper end of the plunger.

In using this device, it is placed on the tube 9 at the desired point, preferably just

below one of the couplings. The clamping or pinch-block 14 is forced to its lowermost position against the tension of the spring 17, and is locked by the detent pin 20, which
 5 detent pin 20 is held in its projecting relation by the plunger 23, as illustrated in Fig. 6. The tube and clamp are then lowered into the well casing 26 the desired distance. When this distance has been reached, it is
 10 only necessary to draw upwardly on the wire 25, and thereby remove the plunger 23 from behind the detent pin 20. The spring 17 will then act to force the clamping block upwardly, at the same time moving the de-
 15 tent pin inwardly, and inasmuch as the upward movement of said block is also an outward movement, the teeth 16 will be brought against the inner face of the casing 26. The tube is supported in the usual manner from
 20 the casing head, but if, from any cause, the said tube becomes released, its initial downward movement will cause a downward movement of the body 7. This, as already explained, will move the pinch-block 14
 25 outwardly, and the teeth 16 will bite into the casing. As a result, the tube will be caught and held, so that its dropping into the well, and the undesirable consequences of such an accident, are avoided. More-
 30 over, it will be clear that as the catching and holding device is located within the well, it is out of the range of such accidents as often cause the detachment of the tube from the head. The structure furthermore, does
 35 not interfere with the withdrawal of the tube, for on the upward movement thereof, the block 15 will be caused to slide downwardly and inwardly out of binding engagement with the well casing.
 40 From the foregoing, it is thought that the construction, operation, and many advantages of the herein described invention will be apparent to those skilled in the art without further description, and it will be under-
 45 stood that various changes in the size, shape, proportion, and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

50 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. In a device of the class described, the combination with a tube holding body, of
 55 means carried by the body for securing it to a tube, a casing clamp movably mounted on the body, means carried by the body for effecting an automatic movement of the clamp thereon, and manually actuated holding
 60 means movably mounted on the body and movably associated with the clamp to hold it against said automatic movement.

2. In a device of the class described, the combination with a tube holding body hav-
 65 ing a tube receiving bore therethrough, of

means carried by the body for securing it to a tube, a casing clamp movably mounted on the body and having a casing engaging portion that projects therefrom, and manually
 70 operated means separate from the tube held in the body for controlling the movement of the clamp.

3. In a device of the class described, the combination with a tube holding body, of a casing clamp movably mounted thereon and
 75 having a casing engaging portion that projects therefrom, and means controlling the movement of the clamp, said means being movably mounted in the body in rear of said clamp.

4. In a device of the class described, the combination with a tube holding body hav-
 80 ing a tube receiving bore, of a casing clamp movably mounted on the body and having a casing engaging portion that projects there-
 85 from, and means for controlling the movement of the clamp, said means being movably mounted on the body between the clamp and bore.

5. In a device of the class described, the combination with a tube holding body hav-
 90 ing a longitudinally inclined guide-way, of a casing clamp movably mounted on the guide-way and having an outer casing engaging
 95 portion, and means controlling the movement of the clamp, said means being longitudinally slidable in the body in rear of the guide-way.

6. In a device of the class described, the combination with a tube holding body hav-
 100 ing a tube receiving bore, and a longitudinally inclined outer guide-way, of a casing clamp movably mounted in the guide-way and having an outer casing engaging por-
 105 tion, a spring for moving the clamp, and means for holding said clamp against movement by the spring, said means including a plunger slidably mounted in the body be-
 110 tween the guide-way and bore thereof.

7. In a device of the class described, the combination with a tube holding body hav-
 110 ing a tube receiving bore and an exterior gas vent extending from end to end thereof, of a holding device movably mounted on the body and movable into the bore, said device
 115 having an actuating end located in the vent, casing clamping means movably mounted on the body and projecting therefrom, and means for controlling the movement of the
 120 clamp, said means being movably mounted on the body.

8. In a device of the class described, the combination with a tube-holding body, of a casing-engaging element mounted on the
 125 body and movable outwardly thereon, a spring for moving the element, and manually operated means movably mounted on said body for holding the element against move-
 130 ment by the spring.

9. In a device of the class described, the

combination with a tube-holding body, of an outwardly movable casing-engaging element slidably mounted on the body, a spring for moving the element in one direction, a detent pin slidable into and out of the path of movement of the element for holding it against movement by the spring, and a plunger for holding the pin in the path of movement of the element.

10 10. In a device of the class described, the combination with a body arranged to fit within a well casing and having a tube-receiving bore therethrough, said body having an inclined guideway on one side, a clamping block slidably mounted on the guideway and having transversely disposed casing-engaging teeth, a spring for moving the block outwardly in the guideway, a detent pin movable into the guideway and in the path of movement of the block, and a manually actuated plunger slidably mounted in the body in rear of the pin for holding the same in the guideway and in the path of movement of the block.

25 11. In a device of the class described, the combination with a body having a tube-receiving bore and a gas vent, said body being arranged to fit within the well casing and having a longitudinally disposed upwardly and outwardly inclined guideway in one side, of a clamping block slidably mounted in the guideway and having curved transverse teeth on its outer side, a spring interposed between the lower end of the block and a portion of the body to move said block upwardly and thereby outwardly, a detent pin slidably mounted in the body and movable into the guideway and into the path of movement of the block to hold the

same against movement by the spring, and a plunger slidably mounted in the body and movable behind the detent pin to maintain the same in the path of movement of the block.

12. In a device of the class described, the combination with a tube holding body arranged to be placed within a well casing and having a bore therethrough, of a tube that passes through the bore, means carried by the body for securing it to the tube placed in the bore, a casing clamp movably mounted on the body, means carried by the body for effecting an automatic movement of the clamp thereon, and means independent of the tube to which the body is secured, for controlling the movement of the clamp by said automatic means.

13. In a device of the class described, the combination with a single piece body arranged to be placed within a well casing and having a longitudinal tube-receiving bore therethrough, of a tube that passes through the bore, means that operates in the bore for securing the body against movement to the tube placed in the bore, a casing clamp movably mounted on the body and movable outwardly thereon to a position to engage the casing, means for moving the clamp, and means independent of the tube passing through the bore, for controlling the movement of the clamp by said means.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HENRY W. STALEY.

Witnesses:

JOHN D. SWIFT,
ANNA GILL.