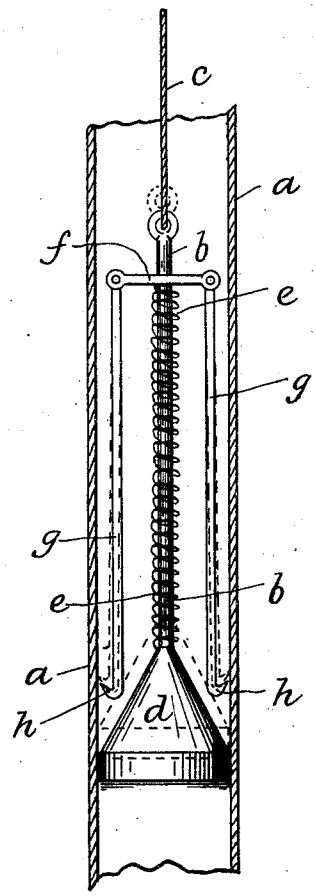
No. 845,936. PATENTED MAR. 5, 1907.

A. J. EDWARDS.

# MEANS FOR GRIPPING AND LIFTING PIPES AND OTHER CYLINDRICAL OBJECTS.

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# UNITED STATES PATENT OFFICE.

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## MEANS FOR GRIPPING AND LIFTING PIPES AND OTHER CYLINDRICAL OBJECTS.

No. 845,936. Specification of Letters Patent. Patented March 5, 1907.

Application filed December 29, 1906. Serial No. 349,960.

*To all whom it may concern:*

Be it known that I, ALFRED JOHN EDWARDS, a subject of the King of Great Britain, residing at Auckland, in the Colony of New Zealand, have invented new and useful Improvements in Means for Gripping and Lifting Pipes and other Cylindrical Objects; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to means that have been designed in order to provide for pipes and other cylindrical objects being gripped on their internal surface, so that they may be lifted longitudinally. The invention will be particularly useful in lifting the tubes used in well-boring and other analogous operations. It has, however, been specially designed for use in connection with my tramway trolley-pole controller described in the specification of United States Patent No. 838,175, dated December 11, 1906, and to elevate the sleeve used with the apparatus described therein.

The means devised consist of a number of hooked bars that are pivotally hung upon a cross-piece in such a manner that the hooked ends of the bars face outward. The cross-piece is supported upon the top end of a spring surrounding a vertical rod, to the lower end of which rod a weight with a conical top surface is attached. The hooked bars and supporting-rod are made of such a relative length that the lower ends of the bars will normally depend a slight distance above the cone-face of the weight, so that on the weight being given an upward movement independently of the bars it will engage with their hooked ends and act as a wedge to force them out into engagement with the inside face of a pipe into which the apparatus has been lowered. This engagement will be of such a nature that the pipe may then be lifted with the apparatus.

The accompanying drawing is a sectional elevation of a pipe with the apparatus shown freely suspended therein in full lines and locked to the pipe in dotted lines.

*a* is the pipe.

*b* is a rod suspended vertically within the pipe from a rope or the like *c*.

*d* is the weight having a cone-shaped top that is attached to the bottom of the rod *b* and the maximum diameter of which is preferably adjusted so as to fit neatly and freely within the pipe *a*, and thus allow of it being lowered or raised therein by means of the rope *c*.

*e* is a helical spring loosely surrounding the rod *b*, with its lower end resting on the top of the weight *d*.

*f* is a cross-piece through which the rod *b* is loosely threaded and which rests upon the upper end of the spring *e*. To the ends of the cross-piece *f* are pivoted the hooked bars *g*, which hang loosely downward within the pipe *a* and have their bottom ends formed with the outwardly-turned hooks *h*.

The spring *e* is of such a length and strength as to support the cross-piece and hooked bars at such a height that the hooks *h* will normally depend a slight distance above the cone-surface of the weight *d*, as shown by full lines in the drawing.

The whole appliance being suspended from the rope *c* may be freely raised and lowered within the pipe *a* so long as no upward jerk is given the rope. To cause the apparatus to engage with the pipe, the rope *c* is given a sudden strong pull upward. This will cause the rod and weight to rise independently of the cross-piece and hooked bars, (the spring *e* being of such a strength as to permit of it compressing between the weight and the cross-piece.) The cone-surface of the weight then engaging with the bottom ends of the hooked bars will force such outward into engagement with the inner surface of the pipe *a*, so that upon any further upward pull upon the rope *c* the pipe will be raised with the appliance.

It will be apparent that the weight of the pipe itself will act in conjunction with the outward wedging action of the weight upon the hooked bars to cause the hooked ends to jam more tightly upon the surface of the pipe, thus preventing any releasing so long as a strain is kept on the rope *c*.

In the drawing only two hooked bars *g* are shown; but it will be readily understood that any desired greater number of bars may be suspended from the cross-piece in order to obtain a grip upon the pipe at other points.

What I do claim as my invention, and desire to secure by Letters Patent, is—

In means for gripping and lifting pipes and other cylindrical objects, in combination, a vertically-suspended rod, a weight with a cone-shaped top upon the lower end of the rod, a helical spring surrounding the rod and

resting at its lower end upon the weight, a cross-piece loosely mounted upon the rod and supported upon the upper end of the spring, and bars pivotally dependent from the cross-piece provided with outwardly-turned hooks on their lower ends, and normally depending a slight distance above the cone-surface of the weight, substantially as specified.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

Dated this 29th day of November, 1906.

ALFRED JOHN EDWARDS.

Witnesses:
E. BROOKE SMITH,
E. F. COURTNEY.