

July 16, 1929.

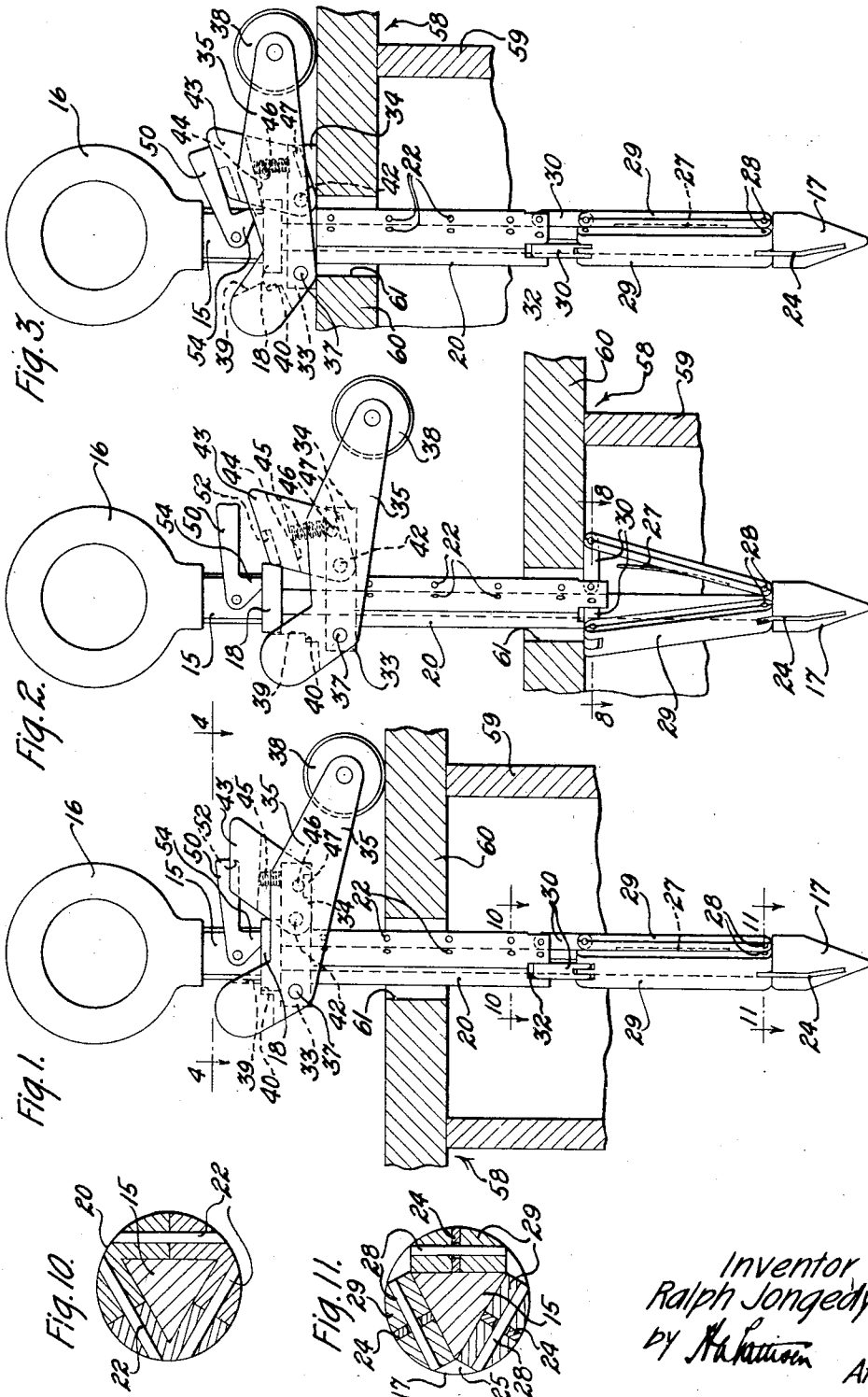
R. JONGEDYK

1,720,732

ARTICLE HANDLING DEVICE

Filed June 13, 1927

2 Sheets-Sheet 1



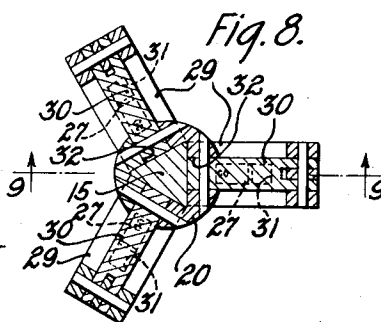
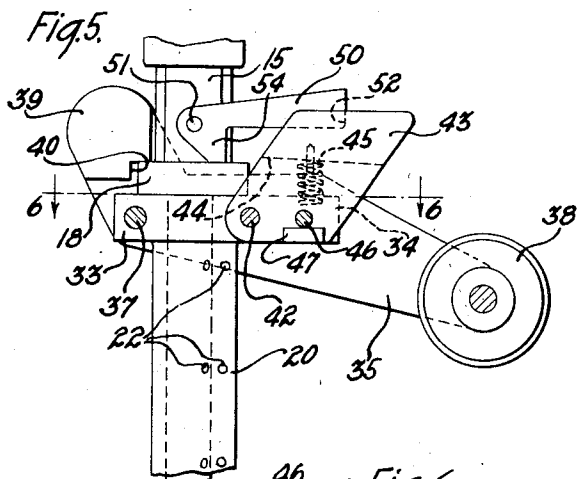
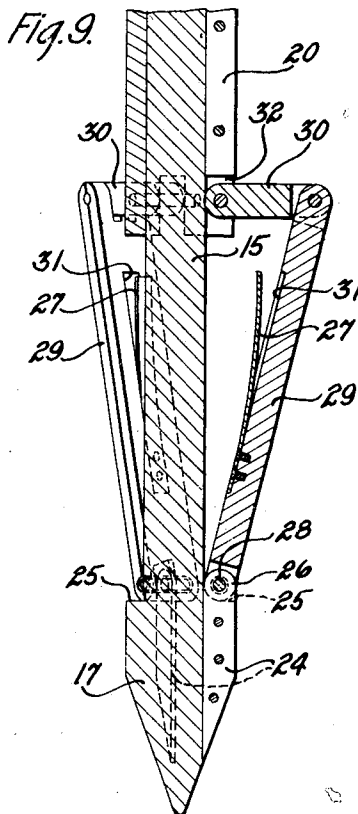
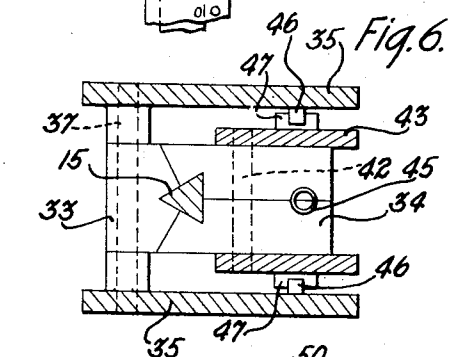
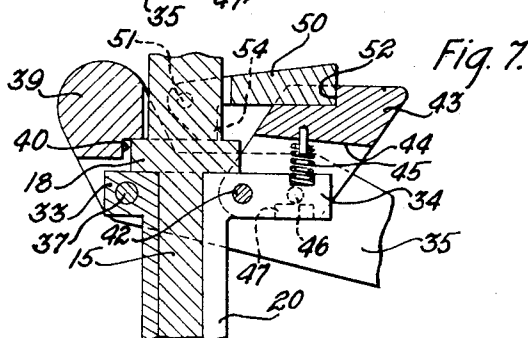
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ARTICLE HANDLING DEVICE

Filed June 13, 1927

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

RALPH JONGEDYK, OF HINSDALE, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

ARTICLE-HANDLING DEVICE.

Application filed June 13, 1927. Serial No. 198,680.

This invention relates to article handling devices, and more particularly to improvements in reel handling devices.

The principal object of the invention is the provision of a simple, inexpensive and reliable device for efficiently and conveniently handling reels and other like objects.

In accordance with the general features of the invention there is provided in one embodiment thereof a device comprising a harpoon-like member designed to enter the axial bore of a reel and mechanically operated to engage or release the reel by means of a plurality of latch members actuated by the engagement of a pivoted member with the face of the reel.

Other features and advantages of the invention will become apparent in the following detailed description, reference being had to the accompanying drawings, wherein

Fig. 1 is an elevational view, partly in section, of a lifting device embodying the features of the present invention, a fragmentary section of a reel being also shown for the purpose of illustrating the operation of the device;

Figs. 2 and 3 are elevational views similar to Fig. 1 illustrating several of the operating positions of the improved lifting device;

Fig. 4 is an enlarged horizontal section taken on line 4—4 of Fig. 1;

Fig. 5 is a fragmentary detail section taken on line 5—5 of Fig. 4;

Fig. 6 is a fragmentary detail section taken on line 6—6 of Fig. 5;

Fig. 7 is a fragmentary section taken on line 7—7 of Fig. 4;

Fig. 8 is an enlarged plan section taken on line 8—8 of Fig. 2;

Fig. 9 is a fragmentary vertical section taken on line 9—9 of Fig. 8, and

Figs. 10 and 11 are enlarged horizontal sections taken on lines 10—10 and 11—11, respectively, of Fig. 1.

Referring now to the drawings wherein like reference numerals designate like parts throughout the several views, the numeral 15 designates a stem or elongated body having an annular loop 16 secured at one end thereof and an enlarged tapered head 17 formed at its opposite end. Projecting transversely from the stem 15 intermediate its ends is a rectangular flange 18 and slidable upon the stem between the flange 18 and the head 17 is a sleeve 20. In order to obtain maximum rigidity, the head 17 and the flange

18 are preferably formed integral with the stem 15. For this reason the sleeve 20 is composed of a plurality of individual sections (Fig. 10) so that it may be readily assembled upon the stem 15. The individual sections of the sleeve 20 are rigidly secured together by means of a plurality of pins or rivets 22—22. As shown in the drawings, the portion of the stem upon which the sleeve 20 is slidable is of triangular cross section and the bore of the sleeve is likewise triangular in cross section. Although it is to be understood that the invention is not to be limited to this particular construction, the advantages of such construction in the present embodiment of the invention will become apparent as the detailed description progresses.

Rigidly secured within suitable slots formed in the head 17 are a plurality of equidistantly spaced metal inserts 24—24, the end portions of which project beyond the upper surface 25 of the head as indicated at 26 (Fig. 9). It will be noted that the inserts 24 are centrally disposed with respect to the side faces of the stem 15 (Fig. 11). Loosely mounted in the projecting end portion of each of the inserts 24 is a pin 28, and secured at one end to each of the pins 28 is a link or supporting member 29 which is pivotally connected at its opposite end to one end of a relatively shorter link 30. The opposite ends of the links 30 are pivoted in bifurcations 32—32 formed in the lower end of the sleeve 20 (Figs. 8 and 9). Each of the links 29 and its associated link 30 normally engages a side face of the stem 15. When in this position the links cooperate with the stem 15 to form a substantially cylindrical member of the same diameter as the sleeve 20 and the head 17. Leaf springs 27, 27 secured at one end in suitable recesses 31, 31 (Fig. 9) formed on the inner surfaces of the links 29 tend to move these links outwardly away from the stem 15.

Projecting transversely from the upper end of the sleeve 20 are a pair of oppositely disposed rectangular flanges 33 and 34 (Figs. 5 and 6). A pair of oppositely disposed parallel bars or levers 35—35 are pivotally supported intermediate their ends upon outwardly projecting end portions of a pin 37 mounted within the flange 33. Carried at one end of the levers 35 is a roller 38 and supported between the opposite ends thereof is a block or latch member 39 having a notch

formed therein which is designed to latch-
ably engage the upper surface of the flange
18 (Fig. 5). Pivotally supported upon out-
wardly projecting end portions of a pin 42
5 mounted in the flange 34 is a latch member
43 which is slotted or bifurcated so as to
straddle the flange 34, the upper surface 44
of the slot being adapted to engage the upper
surface of the flange 18, as shown in Fig. 3.
10 A compression spring 45 (Fig. 7) interposed
between the upper surface of the flange 34
and the surface 44 of the latch member serves
to normally hold the latch member in latch-
ing engagement with the flange 34.

15 Oppositely disposed pins 46, 46 projecting
inwardly from the levers 35 are positioned
and arranged to engage lugs 47, 47 project-
ing from opposite sides of the latch member
43 (Figs. 4 and 5). The construction is such
20 that the levers 35 disengage the latch member
43 from the flange 18 when the levers are
caused to rotate in a clockwise direction from
the position shown in Fig. 3 to the position
shown in Fig. 1. A finger 50 pivotally sup-
25 ported at one end upon a pin 51 secured to
the stem 15 is arranged to engage a recess 52
formed in the latch member 43 when the
latch member is disengaged from the flange 18
and serves to hold the latch member in a dis-
30 engaged position against the opposing action
of the spring 45. Downward movement of
the finger 50 is limited by the engagement
of a transversely projecting portion 54 of
the finger engaging the upper surface of
35 the flange 18.

The following is a brief description of the
operation of the above described lifting de-
vice as employed in the handling of reels and
other like objects. The device is carried in
40 a vertical position, as shown in the drawings,
the hook 16 thereof being designed to engage
a depending hook (not shown) of an over-
head crane or other hoisting apparatus of
any suitable type. When the device is idle,
45 the pivoted supporting links 29 and 30 there-
of are latched in the position shown in Fig.
1 by the engagement of the latch member 39
with the flange 18. When so positioned, the
device may be inserted in the axial bore of a
50 reel, the tapered construction of the head 17
serving to facilitate such insertion. In Figs.
1, 2 and 3, the reference numeral 58 desig-
nates a fragmentary section of a reel of any
usual type, such as those employed for ship-
55 ping telephone cables, comprising a hollow
drum 59 having a head 60 secured at each end
thereof, each head being provided with a
central aperture 61 which is of smaller diam-
eter than the inside diameter of the drum.

60 Upon the downward movement of the de-
vice into the hollow of the drum 59, the
roller 38 engages the upper head of the reel, as
shown in Fig. 1, and as the device continues
to move downwardly, the levers 35 are ro-
65 tated in a counter-clockwise direction (Fig.

1) whereupon the latch member 39 is disen-
gaged from the flange 18. This permits the
movement of the stem 15 upwardly through
the sleeve 20, which movement causes the links
29 and 30 to expand, as shown in Fig. 2. It
70 will be obvious that the function of the leaf
springs 27 is to start this expanding move-
ment of the links 29 and 30.

When positioned, as shown in Fig. 2, the
upper ends of the links 29 are adapted to en-
75 gage the under side of the upper head of the
reel and thus when the device is moved up-
wardly the reel is supported and carried up-
on the links 29. By reason of the loose piv-
otal connection of the lower ends of the links
80 29, as hereinbefore described, the links are
caused to engage the upper surface 25 of the
head 17, as best shown in Fig. 9, thus eliminat-
ing substantially all strain upon the pivotal
pins 28.

In order to release the reel after it has been
brought to rest, the device is moved down-
wardly and upon the lower surface of the
flanges 33 and 34 engaging the upper surface
of the reel head, as shown in Fig. 3, the stem
90 15 is caused to move downwardly through the
sleeve 20, thus causing the links 29 and 30
to move to their normal positions whereupon
the spring actuated latch 43 engages the
flange 18. The device may now be lifted
95 out of the bore of the reel and in so doing the
levers 35 rotate in a clockwise direction (Fig.
2), due to the weight of the roller 38 being
greater than that of the latch member 39.
It will be understood that such rotation of the
100 levers 35 causes the latch member 39 to en-
gage the flange 18. At the same time the pins
46 which are carried by the levers 35 engage
the lugs 47 of the latch member 43, thereby
causing this latch member to become disen-
105 gaged from the flange 18, whereupon the fin-
ger 50 drops into the recess 52, as shown in
Fig. 1.

From the above description it will be obvi-
ous that the improved lifting device may be
110 readily and conveniently operated by a sin-
gle operator from a crane cab or other dis-
tant point without the aid of an attendant.
Furthermore, it will be understood that the
simple and rigid construction of the device
115 renders its use very safe and reliable for han-
dling heavy reels and other like objects.

Although the invention is herein illustrated
and described in conjunction with a preferred
embodiment thereof, it is to be understood
120 that the novel features of the invention are
capable of various other applications within
the scope of the appended claims.

What is claimed is:

1. In an article handling device, an elon-
125 gated stem, a tubular member loosely carried
thereon, an expansion member interconnect-
ing the stem and the tubular member and
adapted to enter within the article, said ex-
pansion member being actuated by a rela- 130

5 tive movement between the stem and the tubular member to grip and release the article, a pivoted member carried by the tubular member adapted to engage an outer surface of the article, and a plurality of latch members associated with the pivoted member and effective upon the engagement thereof with the surface of the article for controlling the movement between the stem and the tubular member to thereby control the actuation of the expansion member.

10 2. In a device for handling reels, a stem having an enlarged head at one end thereof, and a transverse flange at its opposite end, a sleeve slidable upon the stem intermediate the flange and the enlarged head, an expansion member interconnecting one end of the sleeve with the enlarged head of the stem, said expansion member being adapted to enter within the axial bore of a reel and actuated by a relative movement between the stem and the sleeve to engage the under surface of a head of the reel, a latch member pivotally carried by the sleeve adapted to engage the transverse flange of the stem to prevent relative movement therebetween, one end of the latch member being adapted to engage the outer surface of the reel head whereby the latch member is disengaged from the flange of the stem upon the downward movement of the stem within the axial bore of the reel.

3. In a device for handling reels, an elongated stem, a tubular member slidable thereon and adapted to enter the axial bore of a reel, a plurality of hinged gripping fingers adapted to open upon a relative movement of the stem and the tubular member in one direction and close upon a relative movement thereof in the opposite direction, the gripping fingers when in their open positions being adapted to engage the under surface of a head of the reel, a latch member carried by the tubular member for normally holding the gripping fingers in their closed positions, a pivoted arm associated with the latch member and adapted to engage the upper surface of the reel head whereby the latch member is released when the tubular member moves downwardly within the bore of the reel, thereby permitting a relative movement between the stem and the tubular member whereby the gripping fingers are opened into position to engage the under side of the reel head, means for limiting the downward movement of the tubular member within the bore of the reel whereby a downward movement of the stem closes the gripping fingers, and a spring pressed latch for thereafter locking the gripping fingers in their closed positions.

35 adapted to enter the axial bore of a reel, a plurality of hinged gripping fingers adapted to open upon a relative movement of the stem and the tubular member in one direction and close upon a relative movement thereof in the opposite direction, the gripping fingers when in their open positions being adapted to engage the under surface of a head of the reel, a latch member carried by the tubular member for normally holding the gripping fingers in their closed positions, a pivoted arm associated with the latch member and adapted to engage the upper surface of the reel head whereby the latch member is released when the tubular member moves downwardly within the bore of the reel, thereby permitting a relative movement between the stem and the tubular member whereby the gripping fingers are opened into position to engage the under side of the reel head, means for limiting the downward movement of the tubular member within the bore of the reel whereby a downward movement of the stem closes the gripping fingers, and a spring pressed latch for thereafter locking the gripping fingers in their closed positions.

In witness whereof, I hereunto subscribe my name this 2nd day of June, A. D. 1927.

RALPH JONGEDYK.