C. F. RIGBY.

MANUFACTURE OF ROPE CLAMPS FOR WELL DRILLING CABLES.

APPLICATION FILED JULY 28, 1913.

1,120,539. Patented Dec. 8, 1914.

FIG. 1.

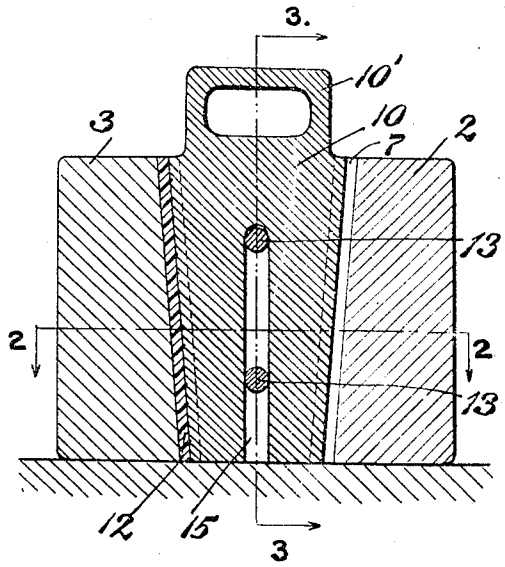


FIG. 2.

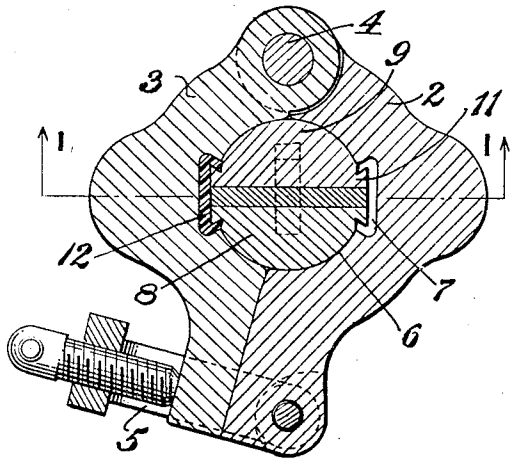


FIG. 3.

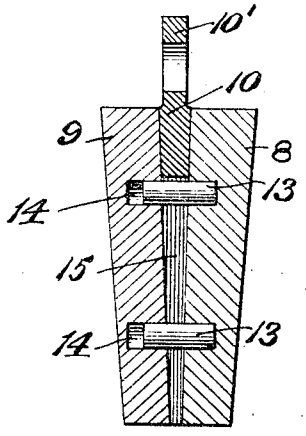


FIG. 4.

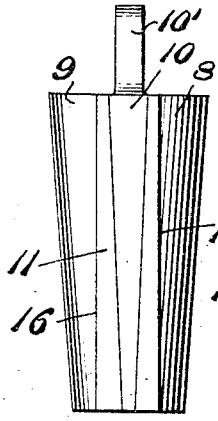
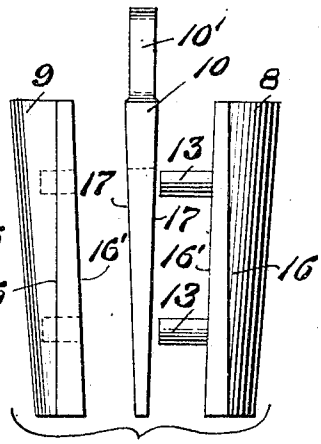


FIG. 5.



WITNESSES

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MANUFACTURE OF ROPE-CLAMPS FOR WELL-DRILLING CABLES.

1,120,539. Specification of Letters Patent. Patented Dec. 8, 1914.

Application filed July 28, 1913. Serial No. 781,581.

To all whom it may concern:

Be it known that I, CLARK F. RIGBY, a citizen of the United States, and resident of Butler, in the county of Butler and State of Pennsylvania, have invented certain new and useful Improvements in Manufacture of Rope-Clamps for Well-Drilling Cables, of which the following is a specification.

In the manufacture of rope clamps for well drilling cables having depressed slip guideways, for example, as shown in my Patent No. 873,090, granted December 10, 1907, the forming of such guideways is laborious and expensive as they must be machined after the clamp body has been cast or forged. Also, difficulty has been experienced in obtaining accurate and uniform downward convergence of the guideways, and this has been particularly pronounced with clamps having sectional or two-part bodies, as shown in my above mentioned patent, due to the great difficulty in maintaining uniform lines in the heavy castings or forgings.

The present invention is designed to overcome the difficulties noted and obtain absolute accuracy and interchangeability by the method and means hereinafter described and claimed which, and while illustrated in connection with a sectional or two-part clamp body, its use is not thus restricted.

Mechanism embodying the improvements and by means of which the invention is practised is illustrated in the accompanying drawings, Figure 1 being a vertical longitudinal section of such improved mechanism, taken on line 1—1 of Fig. 2, and Fig. 2 is a sectional plan on line 2—2 of Fig. 1. Fig. 3 is a vertical section of the sectional core. Fig. 4 is an elevation of the core with the parts thereof fitted together, and Fig. 5 is a similar view with the parts separated.

As here shown, the clamp body is formed in two vertical halves 2 and 3 united at one side by hinge 4 and at the opposite side adapted to be secured together by clamp 5, all as shown in my above mentioned patent. The inner sides of sections 2 and 3 are recessed vertically to form when closed the downwardly tapering bore or cavity 6 which is usually circular in cross section.

Instead of machining the slideways in the bore wall for the rope-gripping slips, being the method employed in producing the guideways in the clamp of my above mentioned patent, I cast or forge the clamp body with the relatively large upright depressions 7 which are preferably of dove-tail cross-section, and while the opposite depressions converge downwardly, great accuracy need not be observed either as to such convergence or as to exact cross sectional shape. Adapted to fit within and fill the clamp bore is a core which consists of the outer sections 8 and 9, each substantially semi-circular in plan, and adapted to fit therebetween is the central or intermediate section 10 which may be constructed at its upper end with handle 10′. At opposite sides of the core the three sections 8, 9 and 10 are widened out to form the pattern projections 11 which extend into but only partially fill depression 7, as shown in Figs. 1 and 2. Projections 11 are of dove-tail section in order to form dove-tail slideways in the Babbitt or other soft metal 12 which is filled or cast therearound in depressions 7, the latter locking the metal therein.

The accuracy with which the core is formed, combined with its downward taper, causes it to closely fit within and fill the clamp bore and at the same time center the pattern projections 11 in depressions 7, the result being that absolutely true and accurate slideways are produced in and by the metal 12, this regardless of inaccuracies or lack of exact correspondence between depressions 7. By this means slip guideways that correspond in size and in taper or downward convergence are produced in all clamps constructed as herein described so that slips and clamp body parts may be used interchangeably and always produce maximum efficiency.

The flat central core section 10 is wedge shaped, and the inner faces of sections 8 and 9 diverge upwardly in exact correspondence with the taper of section 10, so that the core expands or spreads uniformly from top to bottom when the wedge is inserted and is thus caused to accurately and completely fill the clamp cavity. Dowel pins 13 carried by section 8 and fitting depressions 14 in section 9 insure accurate relative movement and fitting of the core parts. The dowel pins are embraced by a slot 15 in the central wedge section 10, whereby the latter is accurately directed when being inserted as well as when being removed. By referring to Figs. 4 and 5 it will be seen that the outer edges 16 of patterns 11 are parallel at all times, notwithstanding the upward diver-

gence of their inner edges 16′ carried by the core sections 8 and 9, also notwithstanding the upward divergence of the opposite edges 17 of the portions of the pattern carried by the wedge section 10.

In operation, sections 8 and 9 are first placed within the clamp-body cavity, being maintained in accurate relation by dowels 13, and the central section 10 is then inserted and fully spreads or expands the core within the clamp recess and fills and completes the formation of patterns 11 in cavities 7. After metal 12 has been poured or cast, as above described, and has become set, wedge 10 is withdrawn, thereby releasing parts 8 and 9 and permitting their undercut grooves and dove-tail edges to clear the corresponding edge projections of metal 12, and with the core thus entirely freed it may be readily removed.

In an application filed concurrently herewith, I have made claims for a clamp body having guideways of the form herein disclosed.

I claim:

1. In the manufacture of rope clamps, the combination of a clamp body formed with a through rope passage and with longitudinal depressions in opposite faces of the passage, of a core removably fitting within and filling the rope passage excepting the longitudinal depressions thereof, and longitudinal slideway-forming projections on opposite sides of the core which are adapted to enter and partially fill said longitudinal depressions for receiving slideway-forming metal.

2. In the manufacture of rope clamps, the combination with a clamp body formed with a downwardly tapering bore and with upright depressions in opposite portions of the bore, of a downwardly tapering core closely fitting within the bore, and downwardly converging lateral projections on the core adapted to enter the bore depressions and define spaces within said depressions for slideway-forming metal.

3. In the manufacture of rope clamps, the combination with a clamp body formed with a downwardly tapering bore and with upright depressions in opposite portions of the bore of dove-tail cross-section, of a downwardly tapering core closely fitting within the bore, and downwardly converging lateral projections of dove-tail cross-section on the core adapted to enter the bore depressions, the projections being of dove-tail cross-section and combining with the bore depressions to form spaces for receiving slideway-forming metal.

4. In the manufacture or rope clamps, the combination of a clamp body formed with a through rope passage and with longitudinal depressions in opposite faces of the passage, of a core removably fitting within and filling the rope passage excepting the longitudinal depressions thereof, and longitudinal slideway-forming projections on opposite sides of the core, the projections being of dove-tail cross-section and adapted to enter the longitudinal depressions and define a space within each depression for receiving metal which forms a slideway of dove-tail cross-section.

5. In the manufacture of rope clamps, the combination with a hollow clamp body having opposite depressions in its inner wall, of a core fitting the interior of the body and having pattern-forming projections at opposite sides which extend into said depressions, the core formed in sections with one of the sections adapted to be removed for collapsing the core and facilitating its removal.

6. In the manufacture of rope clamps, the combination with a hollow clamp body having opposite depressions in its inner wall, of a core fitting the interior of the body and having pattern-forming projections at opposite sides which extend into said depressions, the core formed in three upright sections with a portion of each pattern-forming projection carried by each section and with one of the sections adapted to be removed for collapsing the core and facilitating its removal.

7. In the manufacture of rope clamps, the combination with a hollow clamp body having opposite depressions in its inner wall, of a core fitting the interior of the body and having pattern-forming projections at opposite sides which extend into said depressions, the core formed in two outer sections and a third intermediate section fitting between the outer sections, portions of the guideway-forming patterns carried by each of the three sections and with the intermediate section adapted to be removed for collapsing the core and facilitating its removal from the clamp body.

8. In the manufacture of rope clamps, the combination with a hollow clamp body having opposite depressions in its inner wall, of a core fitting the interior of the body and having pattern-forming projections at opposite sides which extend into said depressions, the core divided vertically and transversely into three sections with portions of the pattern-forming projections carried by each section, the intermediate section and the portions of the patterns carried thereby tapering downwardly and the inner faces of the outer sections and the portions of the pattern projections carried thereby diverging upwardly complementary with the taper of the intermediate section.

9. In the manufacture of rope clamps, the combination with a hollow clamp body having opposite depressions in its inner wall, of a core fitting the interior of the body and having pattern-forming projections at opposite sides which extend into said depressions,

the core formed in three vertical sections with a portion of each pattern-forming projection carried by each section, each complete pattern-forming projection having parallel upright edges carried, respectively, by the outer core sections, the portion of each pattern carried by the intermediate core section tapering downwardly and the inner faces of the portions of each pattern carried by the outer core sections diverging upwardly complementary with said downward taper, whereby when the core sections and the pattern portions carried thereby are fitted together they combine to form pattern projections of uniform width from top to bottom.

10. In the manufacture of rope clamps, the combination with a hollow clamp body having opposite depressions in its inner wall, of a core fitting the interior of the body and having pattern-forming projections at opposite sides which extend into said depressions, the core consisting of two outer sections and a central section removably fitting therebetween, dowels removably connecting the outer sections and the intermediate section slotted vertically to pass over the dowels, and pattern-forming projections carried by the sectional core and extending into the depressions in the wall of the body cavity.

In testimony whereof I affix my signature in presence of two witnesses.

CLARK F. RIGBY.

Witnesses:
J. M. NESBIT,
F. E. GAITHER.