(No Model.)

C. KORTÜM.

CLAMP FOR ATTACHING ROPES.

No. 294,392. Patented Mar. 4, 1884.

Fig: 1.

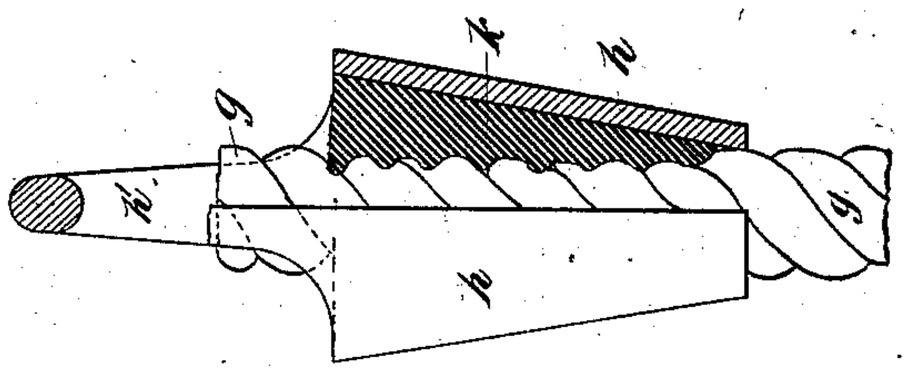


Fig: 2.

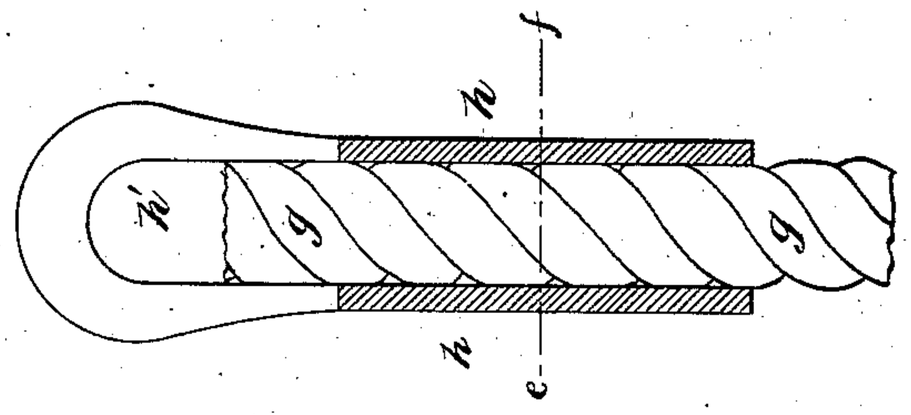


Fig: 3.

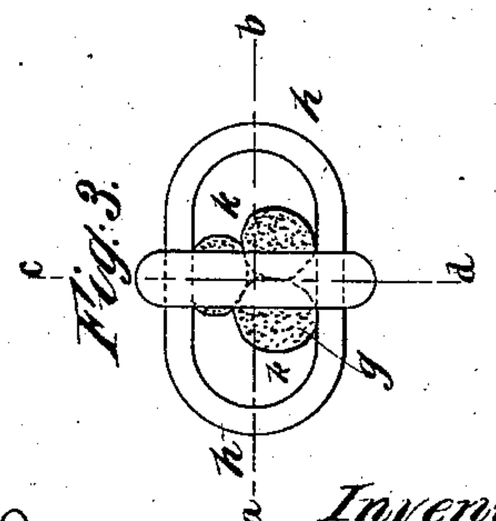


Fig: 4.

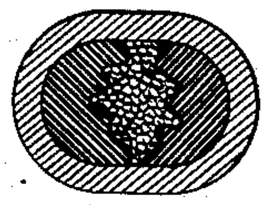


Fig: 5.

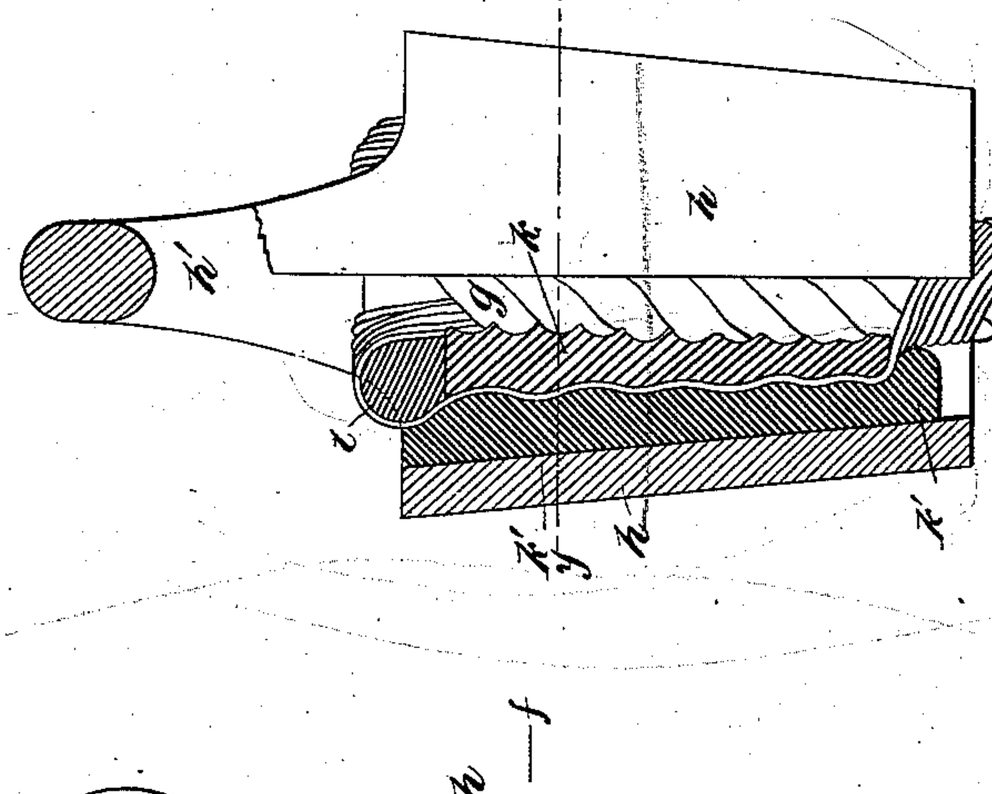


Fig: 6.

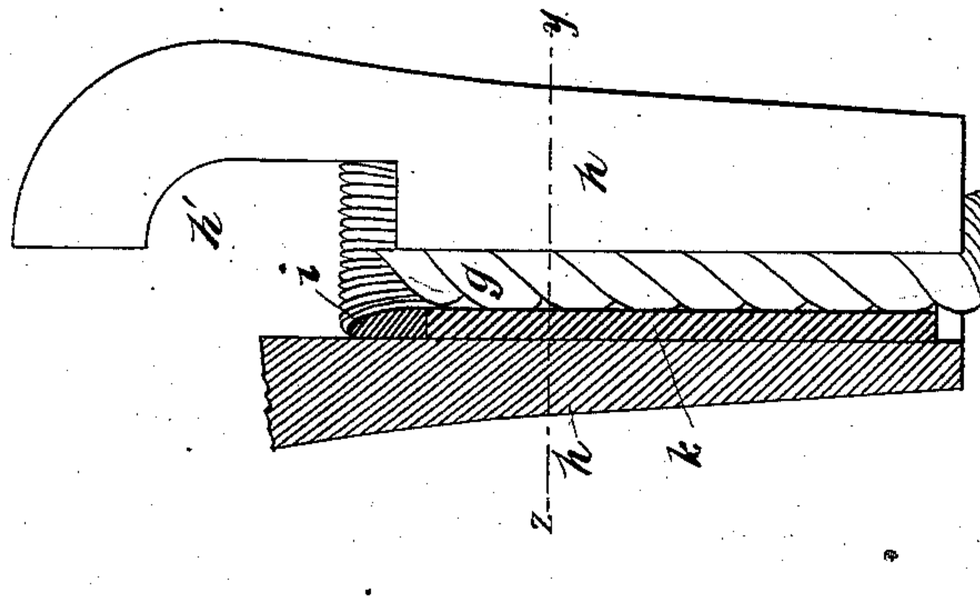
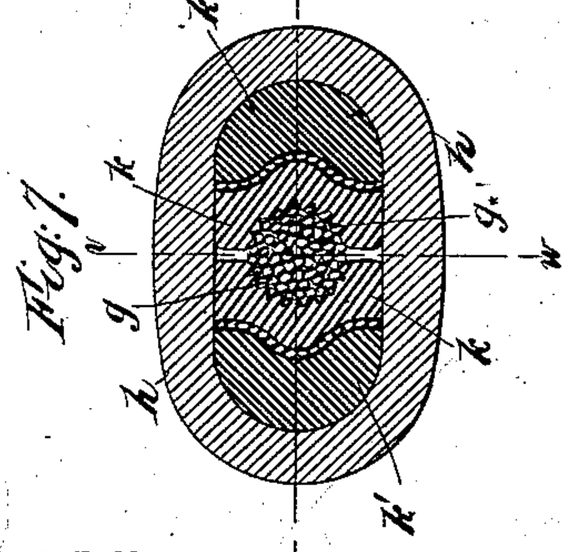


Fig: 7.



Witnesses:
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by his attorney
Thomas D. Stetson.

UNITED STATES PATENT OFFICE.

CHARLES KORTÜM, OF BERLIN, GERMANY.

CLAMP FOR ATTACHING ROPES.

SPECIFICATION forming part of Letters Patent No. 294,392, dated March 4, 1884.

Application filed August 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES KORTÜM, of Berlin, in the Kingdom of Prussia, Germany, have invented a new and useful Improvement in Key-Boxes for Attaching Ropes, of which the following is a specification.

The invention relates to key-boxes for attaching ropes of every kind.

My apparatus is applicable for all kinds of ropes or cables, no matter if the ropes or cables are destined for transmissions, mines, vessels, or for any other purposes, if they are manufactured of vegetable fibers, catgut, leather, or metallic wires, if they are round cords composed of three, four, or many strands. If the apparatus is to be used for attaching ropes made of vegetable fibers, catgut, or leather, it consist in a key-box with two or more keys. If it is to be used for attaching ropes made of metallic wires, it is, in addition to the keys, provided with a metal ring arranged horizontally above the keys. The box of malleable iron or other convenient metal has in its side view a conical form and in its cross-section a form which is generally more or less oblong, but can also be circular. The smaller diameter of the box must be so large that the rope to be attached can be passed in it. The keys or wedges, of malleable iron, brass, or steel, are constructed in their horizontal sections in a convexo-concave form, corresponding to the form of the interior of the box and to the periphery of the rope, respectively. If a rope manufactured of vegetable fibers, catgut, or leather is to be attached, each key is one solid body; but if the rope is manufactured of metallic wires, each key is composed of two bodies coupled together by surfaces which have corresponding undulatory lines. The concave side of the solid keys, as well as of the compound keys, is furnished on its whole surface with a number of projections or teeth, which have a blunt form if the rope to be attached is manufactured of vegetable fibers, catgut, or leather; but the teeth must have a sharp form if the rope is manufactured of metallic wires. It is to be recommended to make the superior teeth, or those nearest the end of the rope, higher or longer than the inferior teeth. The teeth of the keys will be forced into the rope by driving in the keys, and the keys will compress still more the rope when it becomes charged or strongly pulled.

The accompanying drawings, in which the same letters represent the same parts, show my invention.

Figures 1, 2, 3, and 4 represent the key-box for a rope manufactured of vegetable fibers, catgut, or leather. The remaining figures show the box for a rope manufactured of metallic wires. Fig. 1 represents a longitudinal view, partly in section, (on the line *a b* of Fig. 3,) of the box and its contents. Fig. 2 represents a vertical section, (on the line *c d* of Fig. 3;) and Fig. 3, an end view of the box, of the two keys, and of the rope; Fig. 4, a cross-section (on the line *e f*, Fig. 2) of the box, of the two keys, and of the compressed rope. Fig. 5 correspondingly represents a half side view of a box and a half longitudinal section (on the line *s t* of Fig. 7) of the box, of the ring, of one of the compound keys, and of the attached rope. Fig. 6 shows a half longitudinal section (on the line *v w* of Fig. 7) and a half view of the box; and Fig. 7 is a cross-section (following the line *y z* of Figs. 5 and 6) of the box and its contents.

In the drawings, *g* represents the rope; *k*, the solid or inner keys; *k'*, the outer keys, and *i* the ring arranged horizontally above the keys.

The manner in which the key-box is to be used is as follows: To attach a rope manufactured of vegetable fibers, catgut, or leather, the end of the rope is passed into the box through its smaller opening, and then the keys are driven in until they resist. Then, after having fixed the box, the rope is charged or strongly pulled. The rope, producing by its end movement a compressive power on the keys, will force them to slide deeper into the box to compress the rope and to strongly compress the keys and engage the teeth. As the compressibility of the rope is limited, and as the keys by their teeth press in many points on the rope and can move only exactly equal with the end of the rope, the rope will be retained in the box and compressed in such a manner that it cannot expand, and consequently cannot break in the box or in proximity to the same. To attach a rope manufactured of metallic wires, the key-box repre-

sented in Figs. 5, 6, and 7 is to be used. The rope is passed through the box and also through the ring *i*, the ample size of the box allowing the rope to be moved to one side sufficiently to pass the eye *h'*, formed on the end of the box. Then the end of the rope is untwisted or unlaid in its wires, the serrated or toothed parts of the keys are put on the rope close under the ring. The wires are bent over the ring and extended downward, outward, and around the ring and keys, and finally wound tightly around the rope. Then the end of the rope, with the enveloped ring and key parts, is drawn partly into the box and the external keys, *k'*, thrust into the correct positions with their irregularities on the exteriors of the internal keys, *k*, so that the external parts of the outer keys, *k'*, will apply against the tapering interior of the box. Now, the rope can be charged or pulled strongly, and the charged rope will be so attached that it cannot break in the box or in proximity to the same.

I attach much importance to the fact that the teeth by which the keys engage with the rope are increased in length toward the end of the rope. The effect is to compress the rope into an approximately-tapering form, or, more correctly, to imprint the teeth deeply at the expense of weakening the rope near the end of the latter without so deeply imprinting as to weaken it near the small ends of the keys, where it is more important to preserve the full strength in the rope.

I claim as my invention—

1. The combination, with a rope, conical box, and two or more keys, *k*, of the ring *i*, the material of the rope being unlaid and caused to inclose the ring and the keys *k*, substantially as herein specified.

2. The combination, with a rope, conical box, and two or more keys, *k*, of the ring *i* and the external keys, *k'*, joined to the internal keys, *k*, by engaging the irregular surfaces, substantially as herein specified.

In testimony that I claim the foregoing as my own I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES KORTÜM.

Witnesses:
B. ROI,
H. ZIMMERMAN.