

L. HÄRTEL & L. KISSLING.
 APPARATUS FOR USE IN TWISTING METAL RODS OR BARS.
 APPLICATION FILED JULY 9, 1906.

942,322.

Patented Dec. 7, 1909.

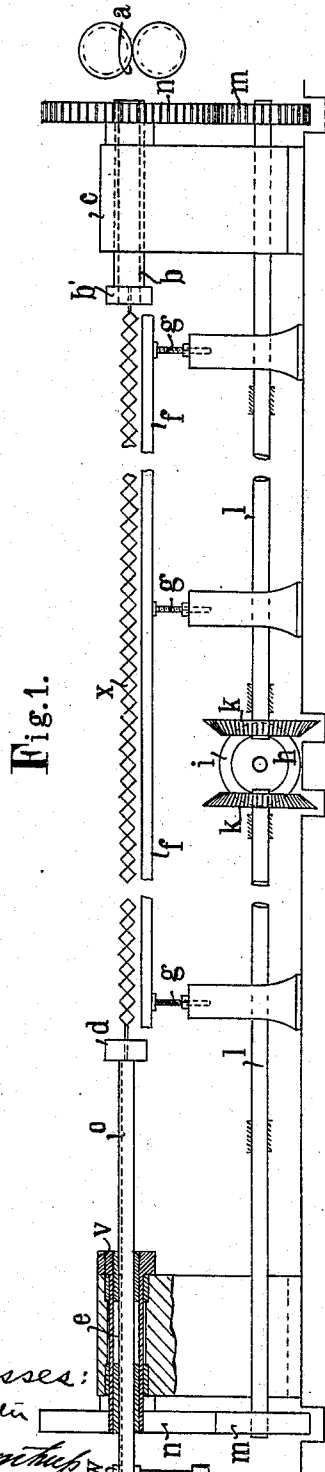


Fig. 1.

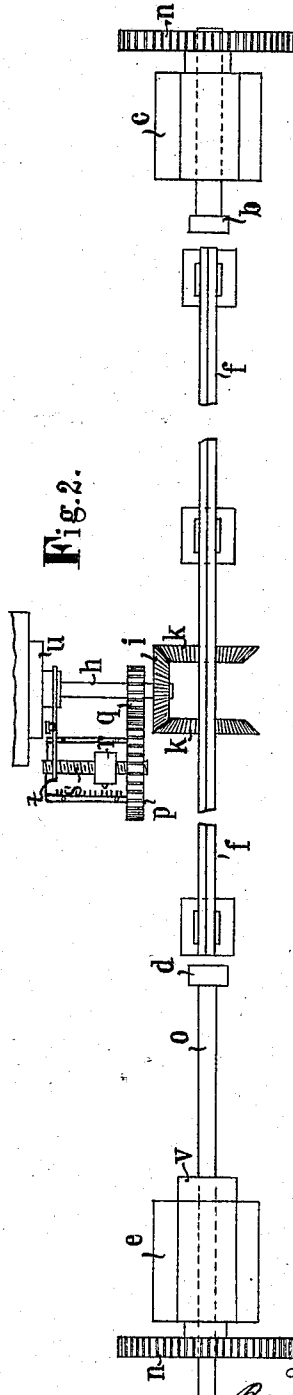


Fig. 2.

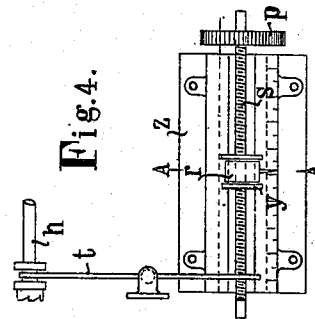


Fig. 3.

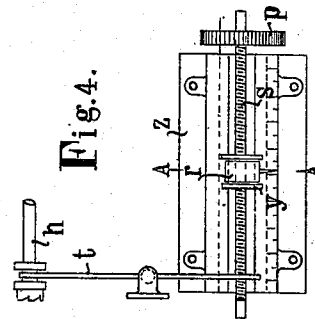


Fig. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

LOUIS HÄRTEL AND LUDWIG KISSLING, OF REMSCHEID, GERMANY.

APPARATUS FOR USE IN TWISTING METAL RODS OR BARS.

942,322.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed July 9, 1906. Serial No. 325,287.

To all whom it may concern:

Be it known that we, LOUIS HÄRTEL and LUDWIG KISSLING, subjects of the King of Prussia, residing at Remscheid, in Germany, have invented certain new and useful Improvements in Apparatus for Use in Twisting Metal Rods or Bars, of which the following is a specification.

This invention relates to apparatus for the helical twisting of metal rods or bars. Hitherto such helical twisting has been effected by fixing the rod, after having been heated, in a winding machine and twisting one end either by hand or mechanically. This process, owing to the necessity of separately heating each rod, takes up a great deal of time and is very costly, besides being applicable only to rods of limited length, and it is considerably simplified according to this invention by causing the rods on leaving the last set of rolls, and while still incandescent, to be taken hold of by the apparatus at both ends and twisted to a previously determined degree. This process effects a considerable saving both in time and cost and makes it possible to deal with rods of much greater length than has been practicable hitherto.

A construction of apparatus according to this invention is illustrated, by way of example, in the accompanying drawing, in which:—

Figure 1 is a front elevation, and Fig. 2 is a plan of an apparatus embodying the invention; Fig. 3 is a section on line A—A of Fig. 4, and Fig. 4 is a plan of the setting device for adjusting the degree of twisting to be carried out.

The arrangement and the working of the apparatus are as follows:

The rod coming from the last set *a* of the drawing rolls driven in any suitable manner passes through a hollow spindle *b* carried in the head *c* and over a trough *f* arranged on supports, the vertical position of the trough being adjustable by means of screws *g*. The trough simultaneously affords support to the rod *x* and protects it against cooling. Thence the rod *x* passes into a second spindle *o* and is fixed at each end in the spindle heads *d* and *b*¹ in any suitable manner, as for instance by screws. The spindle *o* which is supported so as to be movable longitudinally in a sleeve *v* arranged in the head *e*, is provided at its outer end with a rotatable collar *w*, to which is

secured, by means of a cord, a weight for balancing the force acting toward the center of the apparatus, produced by the twisting of the rod. The spindles *b* and *o* are turned in opposite directions from the driving shaft *h* by means of bevel wheels *i k l*, shafts *l l* and toothed wheels *m m, n n*, the latter being connected to the hollow spindles *b o* to which the ends of the rods are secured, so that the rod, fixed in the heads *d* and *b*¹, is twisted.

In order to obtain a definite and uniform pitch of the helical winding of the rod, there is provided a setting nut *r* which is movable by means of toothed wheels *q p* along a screw-threaded spindle *s* and which nut, after a certain number of revolutions, for which it may be set, operates the disengaging lever *t* of a clutch *u*, so that the machine is thrown out of gear. The longitudinal and non-rotative movement of the nut *r* is insured in any suitable manner, for example by the insertion of a wedge or key between it and the fork *y*. The exact setting in any desired position is effected by turning the setting nut *r*, loosely mounted in the fork of a slide block *y*, with the spindle *s* stationary, whereby the slide block is caused to move, which movement can be exactly measured by means of an index on a scale arranged in the path *z* of the slide. The twisted rod is removed from the machine by releasing its ends from the heads *b*¹ and *d* and moving back the spindle *o* so as to free the end of the twisted rod, which can then be removed.

What we claim as our invention and desire to secure by Letters Patent is:—

1. In apparatus for helically twisting rods, the combination with a pair of rolls of a rotatable hollow spindle adapted to receive a rod from the rolls, a second longitudinally adjustable spindle, removed from but in line with the first, a rod-fixing head on each spindle, means to rotate the spindles in opposite directions, and means to automatically stop the rotation of the spindles after a predetermined number of revolutions.

2. In apparatus for helically twisting rods the combination with a pair of rolls of a rotatable hollow spindle adapted to receive a rod from the rolls, a second longitudinally adjustable spindle removed from but in line with the first, a rod-fixing head on each spindle, a vertically adjustable

trough extending between the spindles, means to rotate the spindles in opposite directions and means to automatically stop the rotation of the spindles after a predetermined number of revolutions.

3. In apparatus for helically twisting rods, the combination with a pair of rolls, of a rotatable hollow spindle adapted to receive a rod from the rolls, a second longitudinally adjustable spindle, removed from but in line with the first, a rod-fixing head on each spindle, means to rotate the spindles in opposite directions, and a screw spindle driven by said means, a traveler nut on said spindle and a clutch operating lever in the path of the nut, substantially as set forth.

4. In apparatus for helically twisting rods, the combination with a pair of rolls, of a rotatable hollow spindle adapted to receive a rod from the rolls, a second longi-

tudinally adjustable spindle, removed from but in line with the first, a rod-fixing head on each spindle, means to rotate the spindles in opposite directions, a screw spindle driven by said means, a traveler nut on said spindle, a clutch operating lever in the path of the nut, and means, comprising a sliding guide, an index and scale to exactly position the nut on the spindle when the latter is stationary, so that the nut will engage the clutch-operating lever after a predetermined number of revolutions of the spindle, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

LOUIS HÄRTEL. [L. S.]

LUDWIG KISSLING. [L. S.]

Witnesses:

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J. A. RITTERSHAUS.