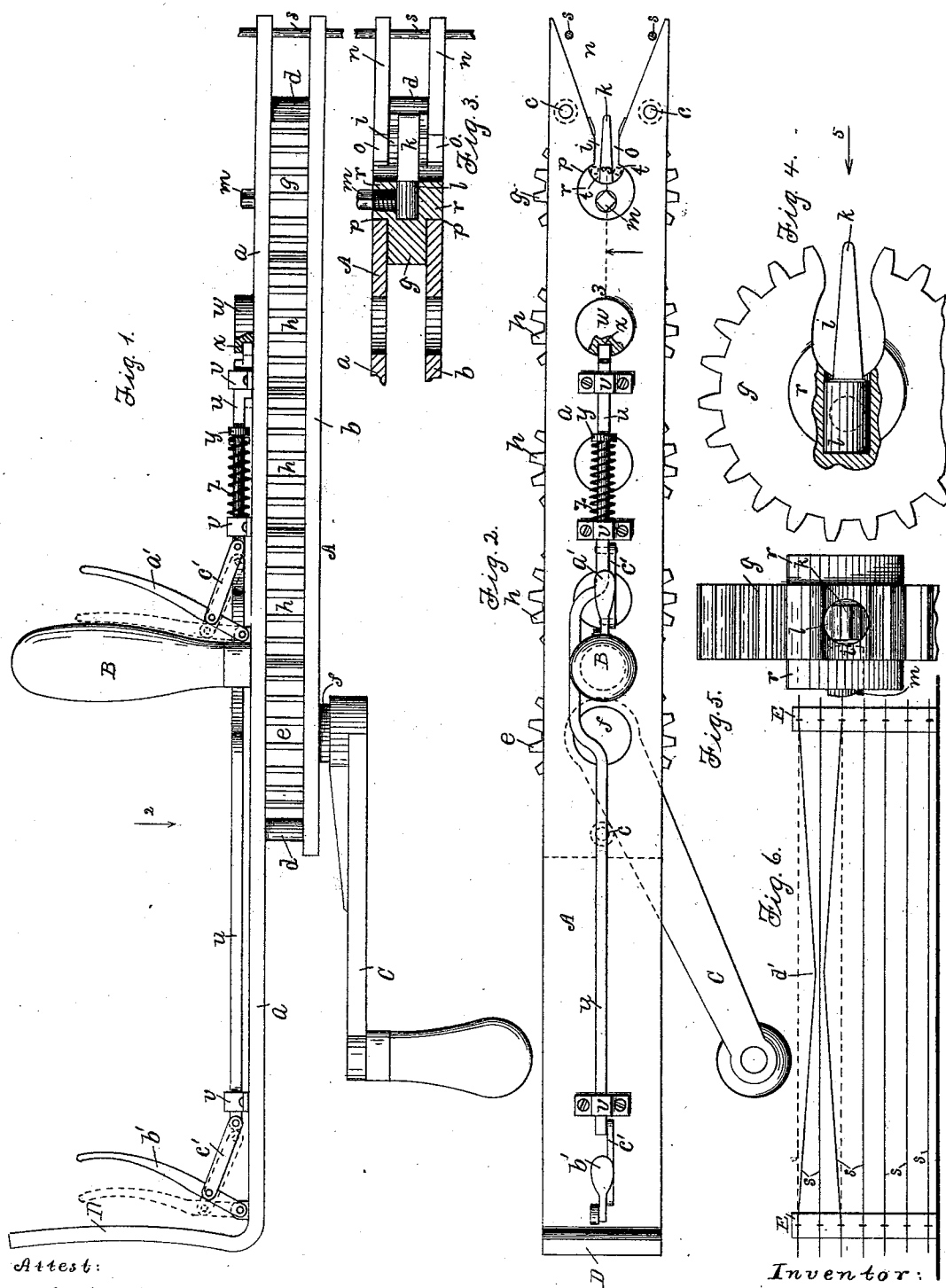


(No. Model.)

J. W. ALVERSON.
WIRE TWISTER.

No. 514,692.

Patented Feb. 13, 1894.



Attest:
M. L. Winston.
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Att'y.

UNITED STATES PATENT OFFICE.

JAMES W. ALVERSON, OF BRIGHTON, ASSIGNOR TO EMMA A. ALVERSON, OF PITTSFORD, NEW YORK.

WIRE-TWISTER.

SPECIFICATION forming part of Letters Patent No. 514,692, dated February 13, 1894.

Application filed August 5, 1893. Serial No. 482,464. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. ALVERSON, of Brighton, in the county of Monroe and State of New York, have invented a new and useful Improvement in Wire-Twisters, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

My invention is a hand device or implement for twisting wires or similar bodies, intended more particularly for twisting the wires of a wire fence, such wires being previously strung singly upon the posts. This device consists of a simple frame, provided with a handle on one side and a crank at the other, and formed at one end with a breast-piece to be placed against the person using the device. The twisting of the wire is done at the opposite end by means of a rotatory twister of peculiar form, the twister being revolved by means of the crank and intermediate gearing.

The object of the invention is to provide a convenient hand device easily carried about for twisting together the strands of wire in constructing fences, such a fence, for instance, as that shown in Patent No. 431,706, dated July 8, 1890.

The invention is hereinafter fully described and more particularly pointed out.

Referring to the drawings, Figure 1 is a plan of my improved wire twister, parts being shown in two positions by full and dotted lines. Fig. 2 is a side elevation seen as indicated by arrow 2 in Fig. 1. Fig. 3 is a longitudinal section at one end of the device taken on the dotted line 3—3 in Fig. 2. Fig. 4, drawn to a larger scale, shows the twisting wheel or twister. Fig. 5 is the twister seen as indicated by arrow 5 in Fig. 4. Fig. 6 shows, on a small scale, a panel of fence with the wires before they are twisted.

Referring to the parts shown, A is a light iron frame composed of two parallel flat sides *a b*, separated but held together by rivets *c*, Fig. 2, and spacers *b*. The side *a* is provided with a rigid handle, B, to be grasped by the left hand of the operator, and it is bent laterally at one end to form a breast-piece D, as shown. At the opposite side a crank C is provided, to be turned by the right hand of the operator. Within the frame is held a

simple gear *e* with which the crank C is connected, the shaft *f* of the gear extending through the side of the frame and into the crank.

g is the twister, which is practically a gear like *e*, but in some respects being of novel form and construction.

h h is a series of simple intermediate gears like *e*, connecting the latter with the twister *g*, through the medium of which the twister is rotated by the crank.

The gear or twister *g* is cut out at one side to form a radial cavity *i*, Fig. 4, with curved sides and bottom, in which is inserted a radial steel tongue *k*. This cavity extends inward toward the center of the gear so as to remove circular portions of the hubs *r r* at either side thereof, but does not reach to or include the axis of the gear. And in forming the cavity all of the substance of the gear between two alternate teeth, including the intermediate tooth, is removed, the opposing faces of the two alternate teeth forming integral parts of the side walls of the cavity. The cavity increases in width from the base of the teeth inward, as shown, the widest part being about even with the peripheries of the hubs of the gear. The base *l* of the tongue is preferably made cylindrical, and inserted removably in a corresponding cavity in the hub of the gear in such position that it equally divides the space *i*, as shown. The tongue is held rigidly in its seat by some simple device, as a common set screw *m*, Figs. 1, 2 and 3. This tongue is parallel as to its edges, and narrower than the thickness of the gear, as appears in Fig. 3, but made tapering on its flat sides, as appears in Figs. 2 and 4. Its outer end extends even with the points of the teeth of the gear and in position to occupy the place of the tooth removed to form the cavity *i*. Thus the tooth removed is practically replaced by the tongue *k* the end of which acts as a tooth when rolling in mesh with the adjacent gear *h*.

A V-shaped receiving opening *n*, Fig. 2, is formed in the end of each of the side pieces *a b* of the frame, adjacent to the twister *g*, in which to receive the wires to be twisted together. These openings terminate at their contracted inner ends in parallel throats or

passages *o o*, which extend back to the openings *p p* in which the hubs *r r* of the twister rest.

In using this device the two wires, *s s*, to be twisted together are brought near to each other, as indicated at *d'*, Fig. 6, so as to enter the openings *n n*; and when carried back pass on either side of the tongue *k* into the enlarged openings *t t* at the bottom of the space *i* and within the openings *p p*, in the sides of the frame. When the wires are in this position a turning of the crank *C* twists them together, the twists of the wires receding in each direction from the twister as the latter is rotated by the crank.

By using this device the various wires of the fence may be rapidly twisted together in pairs the twists being even and rigid.

To insure the twister being in position to receive the wires, that is to say, in such position that the tongue shall point longitudinally outward through the spaces *n n*, as shown in Fig. 2, I employ a detent. This detent or controller for the twister consists of a rod *u*, Figs. 1 and 2, held in bearings *v* rigid with the frame and adapted to slide endwise therein. A hub *w* of the gear *h* next the twister projects through the side of the frame and is formed with an opening *x* into which the free end of the detent is adapted to enter, as shown. The detent is provided with a rigid collar *y*, and a spiral spring *z* between said collar and a bearing *v*, the tendency of which spring is to drive the detent into the opening *x*.

a' b' are two similar levers convenient with the handle *B* and the breast-piece *D* respectively, connected with the detent by simple straps *c' c'*. By means of either one of these levers the detent may be withdrawn from the hub *w* at any time by the hand grasping either the handle *B* or the breast-piece *D*. This is done in each case previous to turning the crank; and when it is wished to withdraw the device from the twisted wires the lever is first released to allow the detent to enter the socket *x*. This holds the tongue in position to release the wires as well as to receive other wires to be twisted together.

What I claim as my invention is—

1. In a wire twisting device, a frame formed with a receiving opening for the wire, in combination with a circular toothed twister held by the frame to co-act with said opening, having a cavity extending inward from its periphery to a point near its center, the substance of the twister removed to form said cavity being that contained between two al-

ternate teeth, including the intermediate tooth, a radial tongue held in said opening 60 and extending to the periphery of the twister to occupy the place of the tooth removed, and means to rotate the twister, substantially as shown and described.

2. In a wire twisting device, a frame formed with two separated parallel side pieces and holders therefor, the side pieces being formed with similar opposing receiving openings *n n* for the wire, and circular openings *p p*, the former being flaring with the smaller ends nearest the openings *p p*, and parallel passages *o o* narrower than the openings *p p*, and connecting the latter with the openings *n n*, in combination with a circular toothed twister having hubs resting in the openings *p p* and formed with a radial cavity extending inward from its periphery to include parts of said hubs but not to reach or include the axis of the twister, said cavity having curved sides and increasing in width from the periphery inward, a radial tongue in the cavity rigid with the twister and having its outer end in the circle of the teeth of the twister and adapted to act as a tooth, and means to rotate the twister, substantially as shown and described. 85

3. In a wire twisting device, a frame formed with two separated parallel side pieces and holders therefor, the side pieces being formed with similar opposing receiving openings *n n* for the wire, and circular openings *p p*, the former being flaring with the smaller ends nearest the openings *p p*, and parallel passages *o o* narrower than the openings *p p*, and connecting the latter with the openings *n n*, in combination with a circular toothed twister having hubs resting in the openings *p p* and formed with a radial cavity extending inward from its periphery to include parts of said hubs but not to reach or include the axis of the twister, said cavity having curved sides and increasing in width from the periphery inward, a radial tongue in the cavity rigid with the twister, and having its outer end in the circle of the teeth of the twister and adapted to act as a tooth, means to rotate the twister, and a detent for the latter, substantially as shown and described. 105

In witness whereof I have hereunto set my hand, this 31st day of July, 1893, in the presence of two subscribing witnesses. 110

JAMES W. ALVERSON.

Witnesses:

ENOS B. WHITMORE,
M. L. WINSTON.