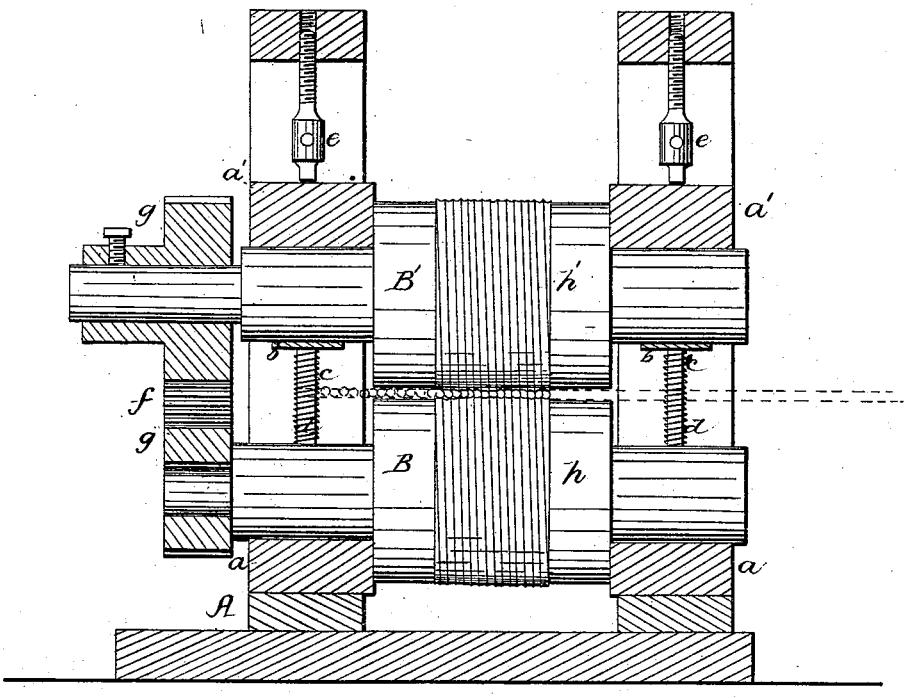
E. Croft,

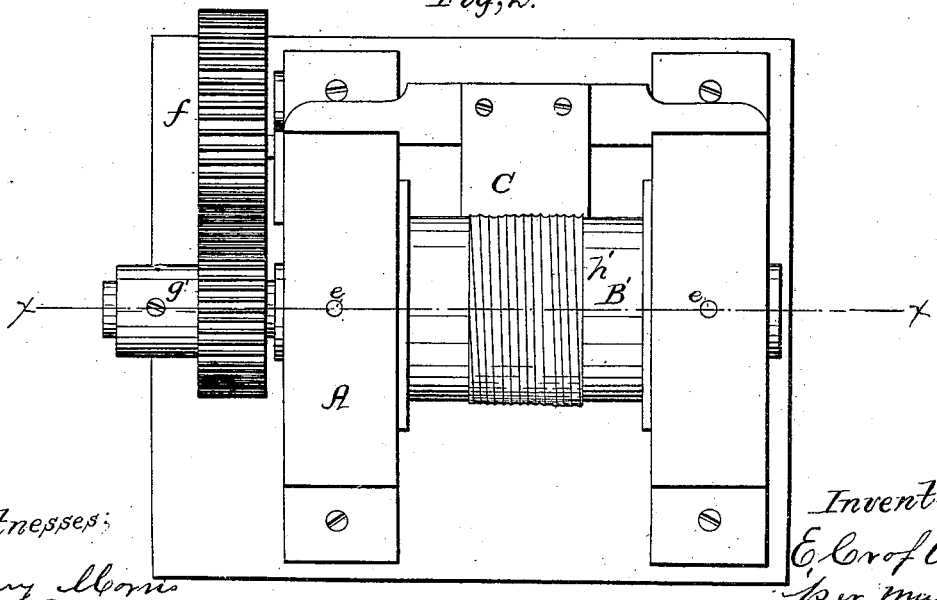
Making Beaded Wire,

No. 46,967. Patented Mar. 21, 1865.

Fig; 1.



Fig; 2.



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UNITED STATES PATENT OFFICE.

EDWARD CROFT, WATERBURY, CONNECTICUT, ASSIGNOR TO BENEDICT & BURNHAM MANUFACTURING COMPANY, OF SAME PLACE.

MACHINE FOR MAKING BEADED WIRE.

Specification forming part of Letters Patent No. **46,967**, dated March 21, 1865.

To all whom it may concern:

Be it known that I, EDWARD CROFT, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new and Improved Machine for Making Beaded Wire; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this invention, taken in the plane indicated by the line *x x*, Fig. 2. Fig. 2 is a plan or top view of the same. Fig. 3 is a diagram of the wire when finished.

Similar letters of reference indicate like parts.

This invention consists in the employment or use, for the purpose of rolling beaded-wire, of two rollers revolving in the same direction, and provided on the peripheries with helical grooves of gradually-increasing pitch and width, in such a manner that when a piece of wire is passed through between the rollers lengthwise the grooves commence a bead at one end, and, gradually rolling the wire along, finish the same at the other end, the grooves being so graduated that there is just enough metal taken into the groove at the beginning to form a complete bead without closing the metal together and forming cold shuts, as would be the case were the grooves not properly graduated.

A represents a frame made of cast-iron or any other suitable material, and sufficiently strong for the occasion. It is provided with two pairs of journal boxes, *a a'*, the lowest pair, *a*, to form the bearings for the axle or gudgeons of the lower roller, B, and the upper pair, *a'*, being reversed and applied to form the bearings for the axle or gudgeons of the upper roller, B', during the operation of rolling. When not in use, the upper roller is prevented from dropping down upon the lower roller by lifters *b*, which rest upon spiral springs *c*, and are guided in their up-and-down motion by pins or rods, *d*. The distance between the two rollers is regulated by set-screws *e*, which bear upon the boxes *a'*, as clearly shown in Fig. 1 of the drawings, and a rotary motion is imparted to said rollers by a cog-wheel, *f*, gearing in pinions *g g'*, mounted on the ends of the axles or gudgeons of the rollers B B'. These pinions are so arranged in relation to the cog-wheel *f* that both rollers revolve in the same direction. Each roller is provided on its circumference with a helical groove, *h h'*, the pitch and width of which gradually increase from one end toward the other. The grooves on both rollers are exactly the same in size, and the pinion *g'* on the upper roller is secured in position by a set-screw, *i*, so that said roller can be turned until its groove corresponds exactly to that in the lower roller, B'. A stop, C, which extends from a fixed rest or cross-bar in the frame between the rollers, is applied for the purpose of preventing the wire falling off during the operation of rolling. The wire is introduced between the rollers lengthwise, as indicated in red outlines in Fig. 1, commencing at that end where the pitch of the helical grooves is the smallest. As the grooves commence to act upon the wire, a rotary motion is imparted to the same, and it is drawn along, and the bead commenced by the smallest portion of the helical grooves is gradually formed, and by the time it arrives at the largest end of the helical grooves it is finished. Strips of wire of any desired length can thus be beaded in a short time, and perfectly uniform. The helical grooves are so graduated, that the first groove takes just metal enough to finish the bead without producing cold shuts on the surface, which would be the case if the grooves were made uniform throughout, or not properly graduated.

It is obvious that for rolling beads of different size, rollers with different-sized helical grooves have to be used; but the diameter of the rollers and their length may be the same, so that different rollers can be used in the same frame.

If desired, plain dies with graduated hemispherical grooves might be used; but in that case the wire would have to be moved and turned step by step and exposed to the repeated action of the dies until the metal taken by the first or smallest groove would

be formed into a regular bead by the gradually-increasing grooves, and finally finished by the last bead.

I claim as new and desire to secure by Letters Patent—

1. A machine for producing beaded wire, having a connected series of gradually-increasing semicircular grooves adapted to act successively upon the beads in the manner herein described.

2. The helical graduated grooves $h\ h'$ in the peripheries of the rollers B B′, revolving in the same direction and operating in combination with the stop C, constructed and operating substantially as and for the purpose set forth.

EDWARD CROFT.

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