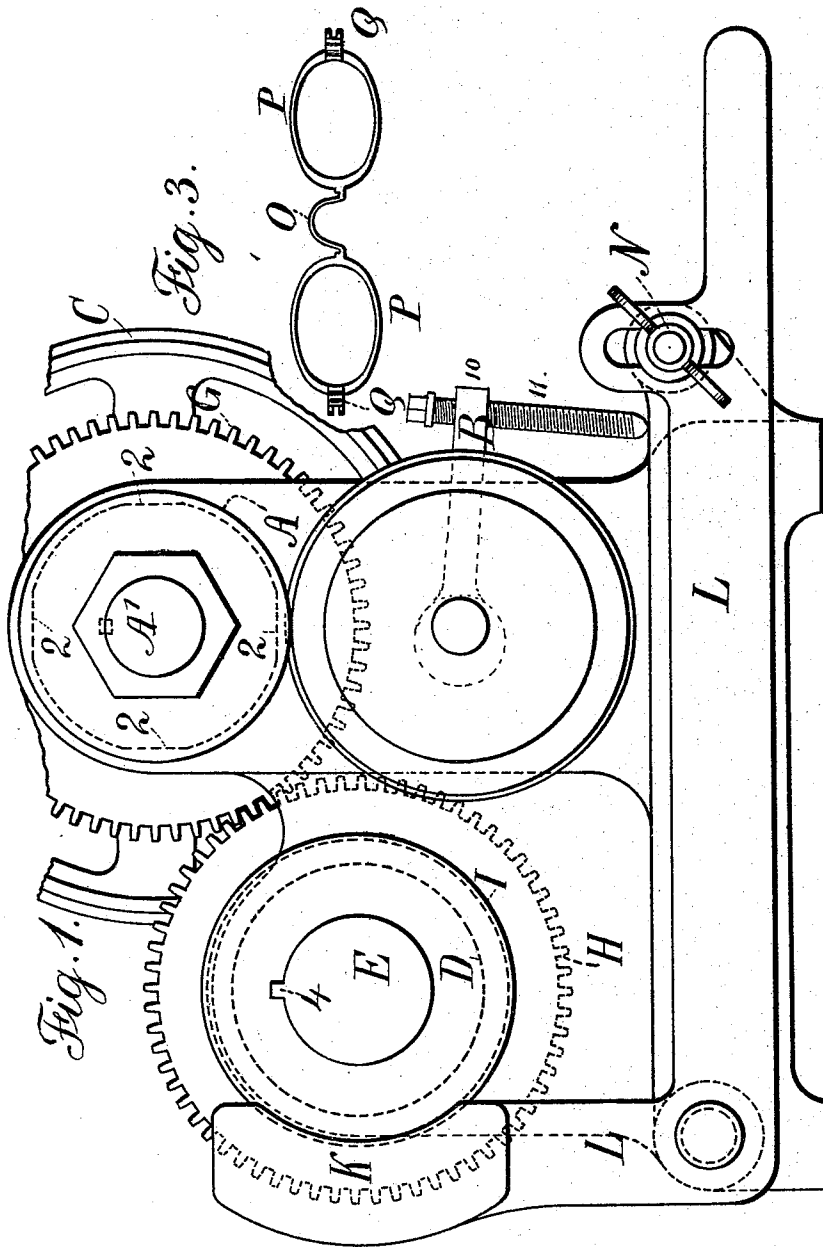


2 Sheets—Sheet 1.

Patented May 30, 1893.



Inventor:

Frederic Ecaubert
per Lemuel W. Perrell Atty.

(No Model.)

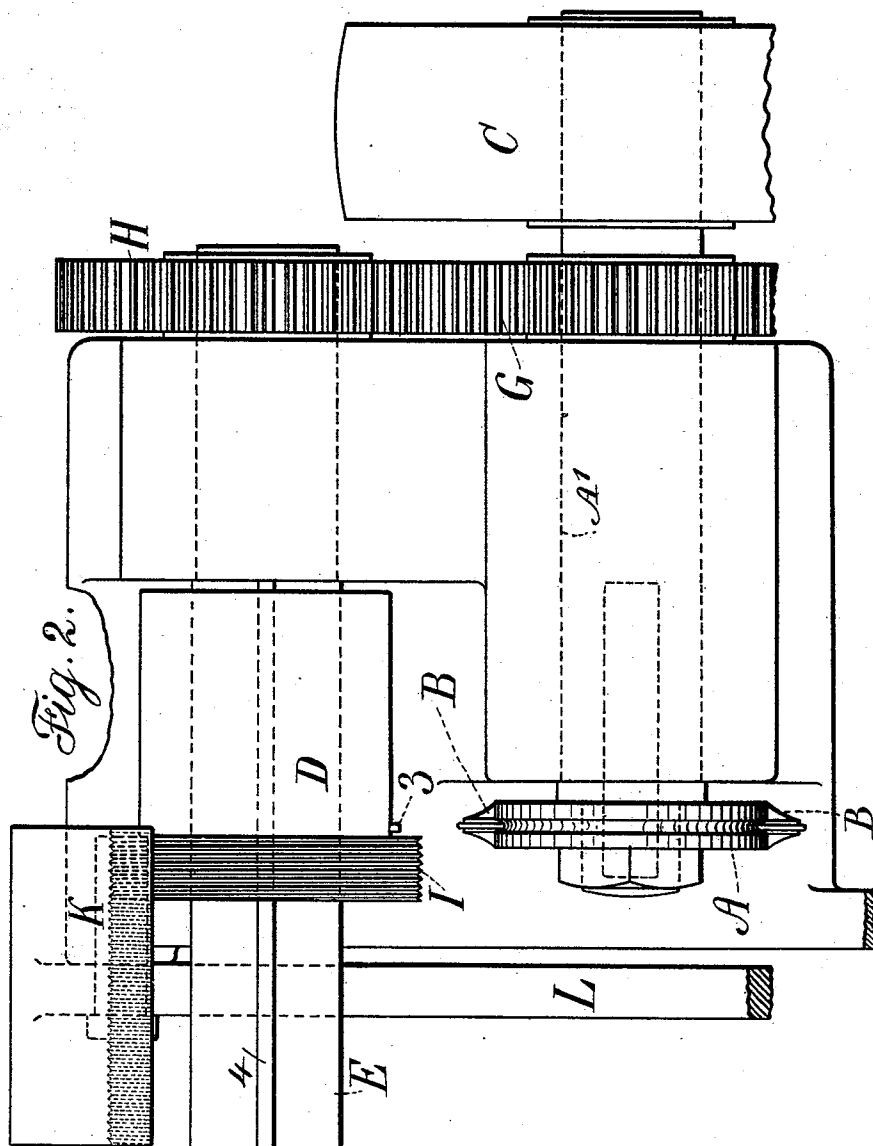
2 Sheets—Sheet 2.

F. ECAUBERT.

MEANS FOR FORMING SPECTACLE BOW WIRE OR OTHER ARTICLES.

No. 498,466.

Patented May 30, 1893.



Witnesses:
J. Staib
Chas. N. Smith

Inventor:
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Att'y.

UNITED STATES PATENT OFFICE.

FREDERIC ECAUBERT, OF BROOKLYN, NEW YORK.

MEANS FOR FORMING SPECTACLE-BOW WIRE OR OTHER ARTICLES.

SPECIFICATION forming part of Letters Patent No. 498,466, dated May 30, 1893.

Application filed February 9, 1893. Serial No. 461,556. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC ECAUBERT, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Means for Forming Spectacle-Bow Wire or other Articles, of which the following is a specification.

Before my invention, wire, wire rods and other substances had been passed through between pairs of rollers, such rollers having grooves or ribs or recesses acting to shape the material passed through between them. Rollers of this character have been used in the manufacture of pipes, horse-shoe nail blanks, barbs for wire fences, &c., and in some instances a wire, strip of metal or similar article has been rigidly connected to a form and rolled upon such form by pressure from a roller or equivalent device. In the latter instance, however, the material was either simply shaped without reduction, or the reduction was uniform or nearly so by the action of the rolling or pressing device.

In the manufacture of articles such as spectacle bows, the wire employed is reduced to the shape required and it is left thicker at proper intervals in order that the nose-piece and joint blocks may be soldered or brazed or otherwise secured to the thicker portions, thereby dispensing with the separate plates that have heretofore been employed for strengthening the parts where they are joined together. To accomplish this object it is indispensable that the thicker portions of the wire should be absolutely accurate in the distance between one thickened part and the other, otherwise the wire cannot be cut up into the lengths required for the manufacture of spectacle bows.

Efforts have heretofore been made to manufacture wire adapted to spectacle bows, but in consequence of the wire being moved along by the friction of the rolls upon the surface it has been impossible to obtain such wire in the required form in consequence of inequalities in the distances between the thicker portions.

In my present invention I make use of rolls that reduce the wire at some places more than at other places, so that the thicker portions are of the proper size and shape, and I apply

to the wire or similar material, after it has passed through between the rolls, a positive drawing mechanism with which the wire is firmly engaged, so that the wire as it is reduced to the proper thickness shall be drawn through between the rolls at the proper speed in relation to such rolls, in order that the thicker parts may be at the proper distances apart regardless of whether the rolls slip on the wire or not, and in some instances it is advantageous to roll up the reduced wire upon a form or mandrel so that the thicker parts are in line with each other longitudinally of such mandrel.

In the drawings, Figure 1 is an elevation illustrating the rolls made use of by me. Fig. 2 is a plan view of the same. Fig. 3 represents a spectacle frame made up from the wire produced by this apparatus.

The form roll A is upon the shaft A' that is driven by any suitable power, such for instance as gearing or a belt to the pulley C, and B represents a presser roller, and the peripheries of the form roll A and presser roller B are such that the material passing through between them shall receive the proper shape sectionally, and the surface of the form roll A is reduced or recessed as at 2, so that the material is left thicker at these places than it is at the other places, and with wire that is adapted to spectacle frames the recessed portions 2 are to be at such distances apart that the thicker portions of the wire will be left where the nose-piece O is fastened to the bow P and where the joint blocks Q are fastened to the ends of the bow wires; and it is to be understood that the recesses in the form roll and the shape of the surfaces of the rolls A and B may be varied according to the article or material that is operated upon; and I remark that the roller B may be of any desired character and it is preferably circular and free to revolve by frictional contact with the material passing through between the roll A and the roll B, and in cases where the reduction is comparatively small a stationary burinisher or equivalent device may be employed as the presser in place of the roller B.

If the devices thus far described alone were made use of, the form roll A, as it is rotated, might slip more or less upon the surface of the wire or material acted upon, and hence

the thickened portions of the wire would be at irregular and unreliable distances apart. In practice this has been found the case, and to avoid this difficulty the wire or other material that has passed through between the rolls A and B and thereby been reduced, is grasped or firmly connected to a positively moving device in order that the material may be pulled along the exact distance required between one thicker part and the next. Any suitable mechanism may be used for this purpose, such for instance as a draw bench in which there is a rack moved along by a pinion, there being a pair of pinchers for positively gripping the wire, or a roller and chain extending to the pinchers might take the place of the rack. These devices being well known do not require further description; but I remark that the device that pulls the wire along is to be positively connected to the form roll A as by gearing, so that one part cannot slip or move at an incorrect speed in relation to the other part.

In the manufacture of spectacle wire it is advantageous to wind up the wire upon a form, which form can be of a size corresponding to the spectacle bow or a multiple thereof, so that when the wire is wound up, all the thickened parts will be in line with each other longitudinally of the mandrel or form upon which it is wound.

I have represented in Figs. 1 and 2 a drawing roll D having a stud or pin 3 around which the bent end of the wire is hooked so that said stud or pin 3 serves as a positive attachment for the end of the wire, but a hole for the insertion of the bent end of the wire, or a positive clamping device may take the place of this pin, and this drawing roll D is upon a shaft E that receives a positive motion by the gears G and H from the shaft A' of the roller A, and the parts are so proportioned that the surface speed of the roll D is as fast as the surface speed of the roll A, and usually the surface speed of the roll D is to be faster than the surface speed of the roll A so that a tension may be applied to draw the wire through between the roll A and the roll B as it is reduced, and by varying the surface speed of the roll D in relation to the surface speed of the roll A, slight variations in length between the thickened portions of the wire or other material may be effected. The variation in the surface speed of the roll D, in relation to the surface speed of the roll A, may be effected in any desired manner, but a convenient way is to slip off the roll D, and slip on another of a larger or smaller diameter. Under all circumstances the surface speed of the positive moving device with which the end of the reduced wire is attached must be as fast or faster than the wire would be delivered by the action of the reducing rolls, otherwise the reduced wire would buckle and not be uniform. In all instances, however, the distances between the thickened portions

with a given adjustment or construction of the parts will be positive and reliable.

It is advantageous to wind up the wire in a helical or screw form upon the roll D, and with this object in view such roll D is fitted to slide endwise upon the shaft E and the feather or spline 4 causes the roll D to rotate with the shaft E and upon the roll D is a screw section I that is of large diameter and runs in contact with the sectional nut K so that the rotation of the screw I against the stationary nut section moves the roll D along endwise and bodily as the winding up progresses, so as to keep one convolution of the wire from lapping upon the previous convolution, and when the roll D is full of the wire the end may be clamped or otherwise held in position and the roll D slipped off the mandrel and the wire marked upon the lines of separation, and removed, and then the roll D replaced for use as before, and with this object in view the sectional nut K is preferably upon a lever L so that it can be thrown back out of the way or brought up into contact with the screw I and held in position by the clamping nut N represented in Fig. 1.

In the present invention the adjustment of the rolls nearer together or farther apart may be effected, so as to produce lighter or heavier wire for spectacle bows, and this is effected without necessarily varying the distance between the thicker parts, and the positive movement of the device that draws the wire along after it has been reduced remains unchanged. This is a great convenience, especially in making spectacle frames.

Any desired means for adjusting the distance between the rollers A. and B. may be employed. I have shown the arbor for the roll B. as upon an eccentric bushing or pin with an arm 10. and adjusting screw 11. by which the arbor of said roll B. can be raised or lowered.

I claim as my invention—

1. The means herein specified of rolling spectacle wire or other material consisting in a reducing roll and a form roll having recesses adapted to roll the material with the parts that are thicker at regular intervals along its length in combination with a device with which the reduced wire is positively connected and gearing between the form roll and such connected device, whereby a positive progressive movement is given to such reduced material as fast or faster than the said material is delivered by the rolling operation for insuring uniformity in the distance between the thicker portions substantially as set forth.

2. A form roll having recesses adapted to the production of the spectacle wire or other material with portions of such material thicker than other portions, in combination with a presser roll acting with the form roll, a winding mechanism and means for connecting the reduced material with the winding mechanism.

ism, and gearing between the form roll and the winding mechanism for giving to such winding mechanism a positive movement and insuring uniformity in the distance between the thicker portions upon the wire, substantially as set forth.

3. A presser roll and a form roll having recesses by which the material passing through between the rolls is reduced and portions left thicker than other portions, in combination with a drawing roll, means for connecting the reduced wire to the drawing roll, a shaft for revolving the drawing roll and upon which such drawing roll is free to move endwise, substantially as set forth.

4. A presser roll and a form roll having recesses by which the material passing through between the rolls is reduced and portions left thicker than other portions, in combination with a drawing roll, means for connecting the reduced wire to the drawing roll, a shaft for revolving the drawing roll and upon which such drawing roll is free to move endwise, and a screw upon such drawing roll and a stationary nut segment for giving the end motion to the drawing roll, substantially as set forth.

5. A presser roll and a form roll having recesses by which the material passing through between the rolls is reduced and portions left thicker than other portions, in combination

with a drawing roll, means for connecting the reduced wire to the drawing roll, a shaft for revolving the drawing roll and upon which such drawing roll is free to move endwise, a screw upon such drawing roll, a stationary nut segment for giving the end motion to the drawing roll, a lever carrying the nut segment and by which it is thrown into or out of action, substantially as set forth.

6. The means herein specified of rolling spectacle wire or similar material, consisting in a reducing roll and a form roll having recesses adapted to give to the wire the proper shape, in combination with devices with which the reduced wire is positively connected, and means for giving to such connection a positive and unvarying motion slightly faster than the surface speed of the form roll, whereby a regular tension and progressive movement are given to the reduced material for insuring uniformity in the distance between the thicker portions thereof, substantially as set forth.

Signed by me this 7th day of February, 1893.

F. ECAUBERT.

Witnesses:

GEO. T. PINCKNEY,
A. M. OLIVER.