(No Model.)

F. D. FRY.

HAT WIRE.

No. 385,410. Patented July 3, 1888.

Fig. 1.

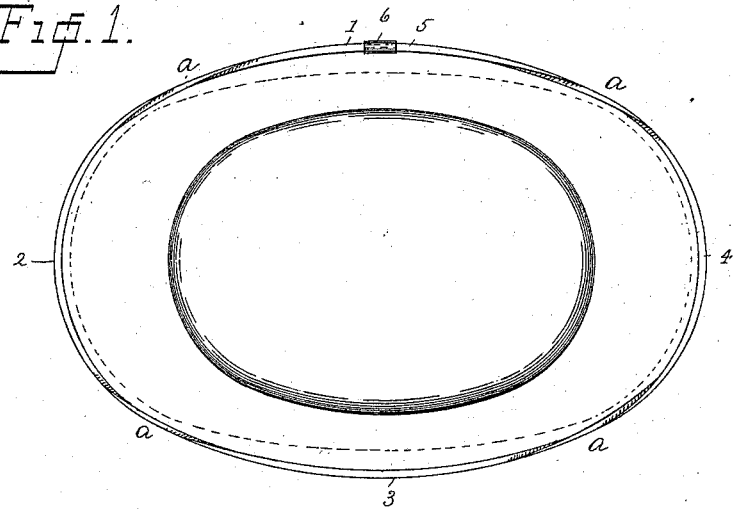


Fig. 2.

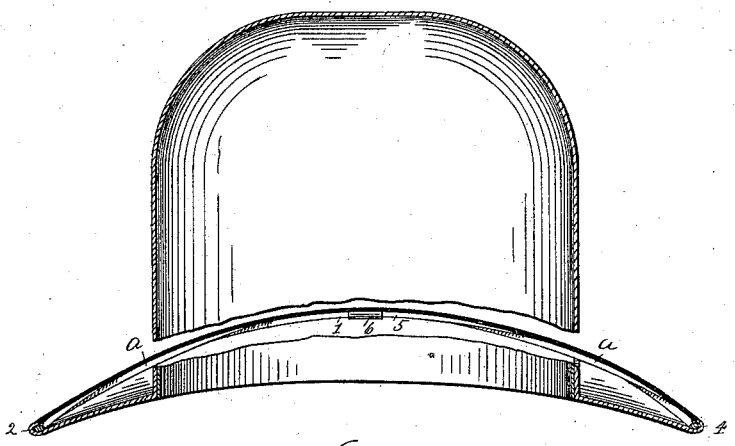
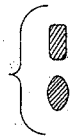


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK D. FRY, OF DANBURY, CONNECTICUT, ASSIGNOR OF ONE-HALF TO THEODORE H. BENEDICT, OF SAME PLACE.

HAT-WIRE.

SPECIFICATION forming part of Letters Patent No. 385,410, dated July 3, 1888.

Application filed November 2, 1887. Serial No. 254,032. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK D. FRY, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Hat-Wires; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to produce a hat-wire which shall be inexpensive to produce, of light weight, will lie flat at front and back, so that the edges of the brim may be pressed backward over it, and which will lie edgewise at the quarters, thus giving the greatest possible strength at just the portions of the brim where it is most needed.

It is of course well understood that the object of hat-wires is to hold the brims in shape and to strengthen them. It is furthermore well understood that the portions of the hat that almost invariably give out first are what are termed the "front quarters"—that is, the break occurs at the edges of the brim in front of the body at points on opposite sides about midway between the center of the brim in front and the center at the sides. This breaking of the brim at the front is a serious defect and almost invariably occurs in use, except in the heaviest hats, the strain being in removing and putting on the hat, or in lifting it from the head in the act of salutation. The expense of the wires, moreover, that are now used is an important element in the cost of manufacture. The variously-shaped wires now in use are made from steel, and of course require to be tempered, the natural result being that great difficulty is experienced in getting two pieces of wire of the same temper, and also in getting a uniform temper throughout the same piece. The scrap, moreover, produced in the manufacture of steel hat-wires is practically valueless.

Having the various objections to the different styles of hat-wire now upon the market in view, I have devised the novel hat-wire, of which the following description, in connection with the accompanying drawings, is a specification.

Figure 1 is a plan view of a hat illustrating my improved hat-wire in place, the brim being removed, but its position indicated in dotted lines; Fig. 2, a central longitudinal section, the body being partly broken away to show the position of the wire; and Fig. 3 an enlarged section illustrating two forms of wire.

Three important peculiarities of my improved wire are its shape, the material from which it is made, and the manner in which it is twisted.

My improved hat-wire is made from drawn brass, is oval or flat in cross-section, giving it a greater and a less diameter, and each wire is given two complete turns, the ends being then secured together in any suitable or preferred manner. As already stated, steel hat-wires have been found seriously objectionable, on account of the necessity for tempering, the irregularity of the product, and the waste of material.

In manufacturing wire for my improved hat-wires ordinary spring-brass is used, and is drawn to form an oval or flat wire of a predetermined size. This wire is then reduced to the desired size for use by repeated drawings, each drawing having the effect of reducing the size, of hardening the wire, and of imparting to it a quality similar to that produced upon steel wire by the process of tempering. Suppose, for instance, that the wire as originally drawn is eleven-gage, each drawing will reduce it one gage and will impart one degree of hardness.

In the manufacture of wire for my improved hat-wires the wire is usually given five or more drawings after the first, which reduces it, if five are given, to a sixteen-gage. Supposing the degree of hardness of the wire as first drawn to be indicated by five, after the fifth additional drawing the degree of hardness may be indicated by ten, and the spring qualities of the wire will be equal to the finest steel wire. Any desired color is imparted to the wire by any suitable process of bronzing. The special object of the oval or flat form of the wire, in connection with the two complete turns given to each hat-wire, is to impart the greatest possible strength and rigidity to the hat-brim at the portions known as the "quarters"—that is, the portions denoted by *a* in the drawings—

and also to permit the edge of the brim at the front and back to be pressed down close over the wire, as is clearly shown in Fig. 2. This makes a very much neater finish at the extreme front and back of the hat-brim, and is called for by the trade in the finer grades of hats.

Turning now to Fig. 1, suppose the left side to indicate the back of the hat-brim and the right side the front, 1 and 5 denote the two ends of the wire, and 6 the sleeve by which the ends are joined together. As already stated, in forming each hat-wire the piece from which it is formed is given two complete turns. At 1 the wire lies flat under the turn at the side of the brim—that is, the greater diameter lies in the horizontal plane. At the point denoted by 2—that is, the front, which is one-quarter around the hat-brim—the wire will have made a full half-turn and will lie flat again, so that the edge of the brim may be pressed over it readily. Continuing on, the wire will have made another half-turn at 3, which will be at the opposite side of the hat; another half-turn at 4, which will be at the back of the hat, and still another half-turn at 5, where it is joined under the turn at the side of the brim by means of the sleeve 6 to the other end denoted by 1. It of course follows, from the half-turns made in each fourth of the circumference of the brim, that at the middle of each fourth the wire will stand edgewise—that is, the greater diameter will be in the vertical plane. These points are designated by *a* in the drawings, and in the nomenclature of the art are termed the "quarters" of the hat. In lifting the hat the strain is at this portion of the brim, which is very apt to break when ordinary wires are used.

It is a serious objection to the various styles of wires now upon the market that they not only do not give additional strength at the quarters, but that they tend to force the turned-over edge of the brim outward at the quarters, thereby rather increasing the liability of breaking at that point. With my improved hat-wires there is no outward pressure whatever at the quarters, and the wire stands edgewise—that is to say, the greater diameter of the wire is vertical. I thus, by the use of the oval or flat form and by the special twisting of the wire, secure at the points where it is most needed the greatest possible strength from a given weight of metal. By the use of brass instead of steel I avoid tempering and secure perfect evenness of quality. The spring of the metal is unequaled, the cost is reduced, and even the scrap is valuable, being worth about half the original cost of the wire.

Having thus described my invention, I claim—

A hat-wire having a greater and a less diameter in cross-section, and being completely turned twice before the ends are joined, so that at the front, back, and sides of a hat-brim the greater diameter lies in the horizontal plane and at points midway between in the vertical plane, thereby giving great strength at the quarters of the brim and permitting the brim to be pressed over backward at the front and back.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK D. FRY.

Witnesses:
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