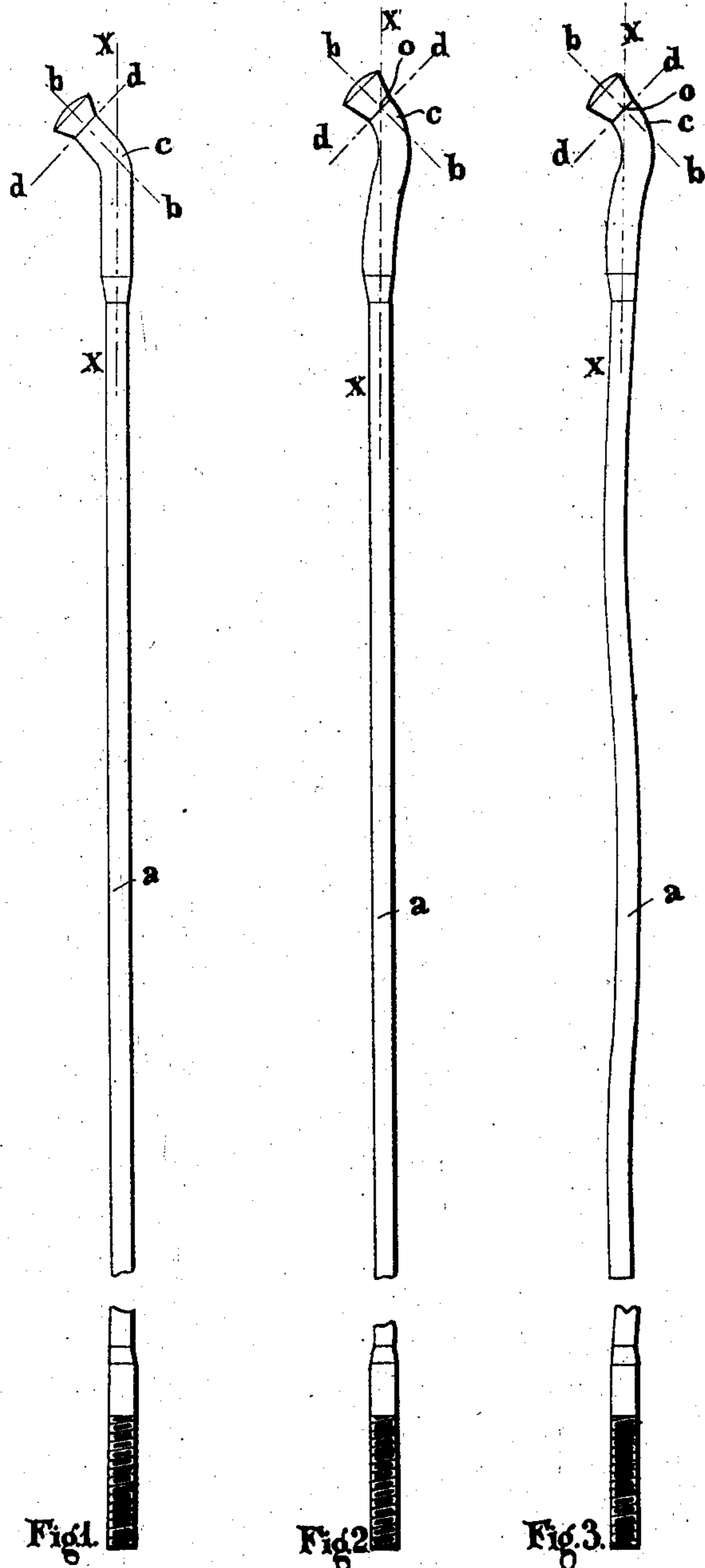


J. V. PUGH.
SPOKE FOR WIRE SPOKED WHEELS.
APPLICATION FILED MAY 12, 1908.

907,282.

Patented Dec. 22, 1908.



WITNESSES:
Edw. D. Spring
W. P. Burke

INVENTOR,
John Vernon Pugh,
By
McMullen & McLean
ATTY.

UNITED STATES PATENT OFFICE.

JOHN VERNON PUGH, OF COVENTRY, ENGLAND.

SPOKE FOR WIRE-SPOKED WHEELS.

No. 907,282.

Specification of Letters Patent.

Patented Dec. 22, 1908.

Application filed May 12, 1908. Serial No. 432,553.

To all whom it may concern:

Be it known that I, JOHN VERNON PUGH, a subject of the King of Great Britain and Ireland, and residing at Rudge Works, Crow Lane, Coventry, in the county of Warwick, England, have invented certain new and useful Improvements in and Relating to Spokes for Wire-Spoked Wheels, of which the following is a specification.

10 This invention relates to improvements in wire spokes and is especially applicable to wheels having wire spokes which are slightly set at the ends to engage in holes set to about 45° to the face of the spoke flange.

15 In spokes of this character, the center line of the straight portion of the spoke passes considerably beyond the intersection of the center line of the bent portion with the center line of the bearing surface in the flange.

20 As the result of experiment and practice it is found that while such spokes possess an increased ultimate strength over spokes bent in the usual way to about 90°, and are more advantageous in resisting the effects of repeatedly applied stresses, yet they are not entirely satisfactory in this respect.

25 The object of the present invention is to produce a spoke having in addition to the advantage which results from the slight set or bend above referred to, the additional advantage of increased strength to resist the effects of repeatedly applied stresses.

30 The invention consists in a wire spoke in which the end of the spoke is slightly bent—say to about 45° to the center line of the straight part of the spoke and is also bent in the opposite direction to such an extent that the center line of the straight portion of the spoke shall pass through or near the point of intersection of the center line of the slightly bent end with the center line of the bearing portion of the flange.

35 Referring now to the accompanying drawings:—Figure 1 is a view showing a spoke constructed according to the known manner. Fig. 2 shows a spoke according to the present invention, and Fig. 3 shows a spoke similar to Fig. 2, but in which the stem is slightly bent to increase its elasticity.

40 In spokes of the known character represented in Fig. 1, the center line XX of the straight portion *a*, of the spoke passes considerably beyond the intersection of the center line B—B of the bent portion, *c* with the center line D—D of the bearing surface

in the flange. As the result of experiment in practice it is found that while such spokes possess an increased ultimate strength over spokes bent in the usual way to about 90° and are more advantageous in resisting the effects of repeatedly applied stresses, yet they are not entirely satisfactory in this respect. Now if a spoke according to Fig. 1, in addition to being set at the end to say 45°, be bent backwards as shown in Figs. 2 and 3, so that the center line X—X of the straight part, *a*, passes through or near the point of intersection of the center line B—B with the center line D—D, it is found that very marked advantages are obtained in the matter of give or elasticity for a given stress, thus rendering the spoke better able to stand shocks. Further by this construction in which the center line X—X of the straight portion, *a*, passes through or near the point, *o*, the pull of the portion, *a*, is taken direct by that part of the bent portion, *c*, which bears in the flange and the tendency to deform at the bend is removed. It will be obvious that this principle of bending the metal of the spoke may be extended to the shank, *a*, as shown in Fig. 3 in which the spoke is so arranged as to its bending that the mean center line of the stem passes as before through the point, *o*. The spoke constructed according to Fig. 3 possesses a great amount of elasticity or give and is thus able to withstand shocks. The bends shown in Fig. 3 may be either waves in the plane of the paper as shown in the drawings or in the form of a corkscrew or spiral and the bends may be either considerably sharper or flatter than illustrated, the height of the waves shown in Fig. 3 being merely chosen to illustrate one convenient form.

By experiment it has been found that very marked advantages are obtained by setting the ends of the spokes in the manner shown in Figs. 2 and 3. The set portion of the spoke may be made somewhat thicker than the straight portion, *a*, if desired as shown in the figures, and the end of the bent portion is formed with a head in the usual or any convenient manner.

Having thus described my invention what I claim is new and desire to secure by Letters Patent is:—

1. A spoke in which the point of intersection of the axis of the head portion and the

center line of the flange engaging portion of the head lies on the mean center line of the stem portion.

- 5 2. A spoke in which the point of intersection of the axis of the head portion and the center of the flange engaging portion of the head lies on the mean center line of the stem and in which the stem is bent.

In testimony whereof I have signed my name to this specification in the presence of 10 two subscribing witnesses.

JOHN VERNON PUGH.

Witnesses:

BERTRAM H. MATTHEWS,
GEORGE I. BRIDGES.