A. C. FERNHOLZ.

FELLY EXPANDER.

APPLICATION FILED AUG. 24, 1912.

1,046,576.

Patented Dec. 10, 1912.

2 SHEETS—SHEET 1.

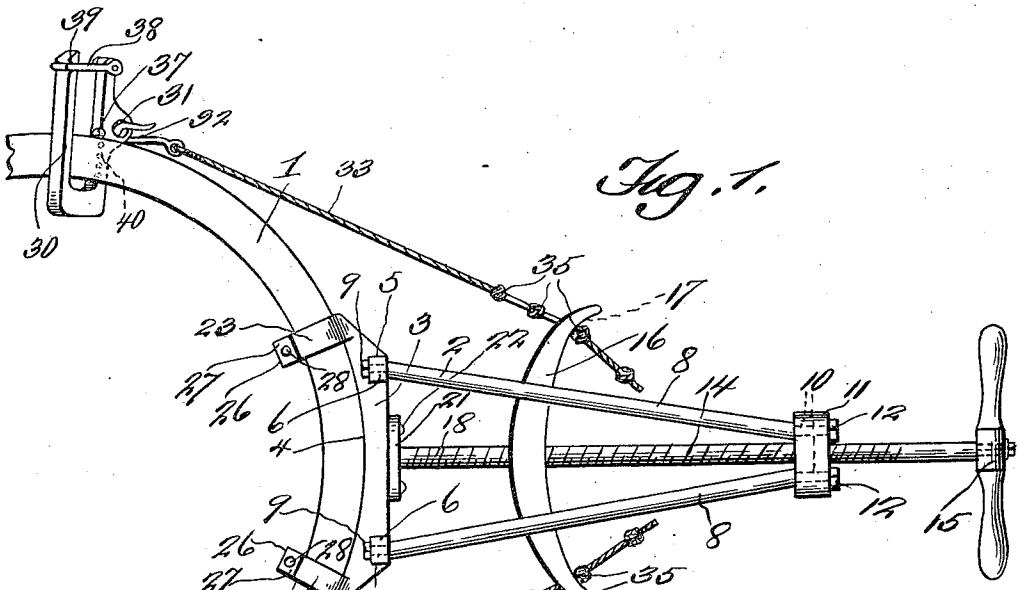

Fig. 1.

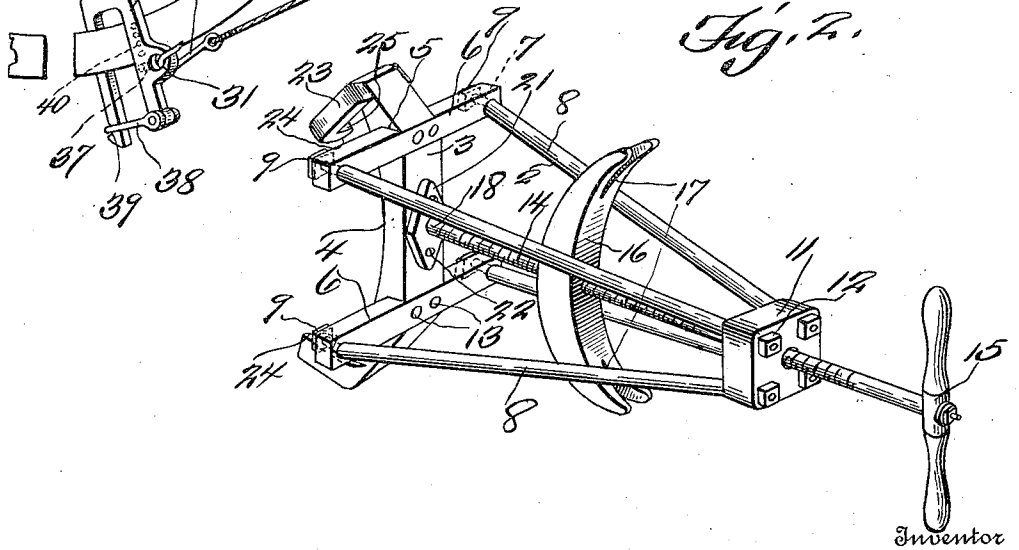

Fig. 2.

Witnesses

Rohe Meyer

Francis G. Boswell

Inventor

Anton C. Fernholz,

By D. Swift & Co

his Attorneys

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2 SHEETS—SHEET 2.

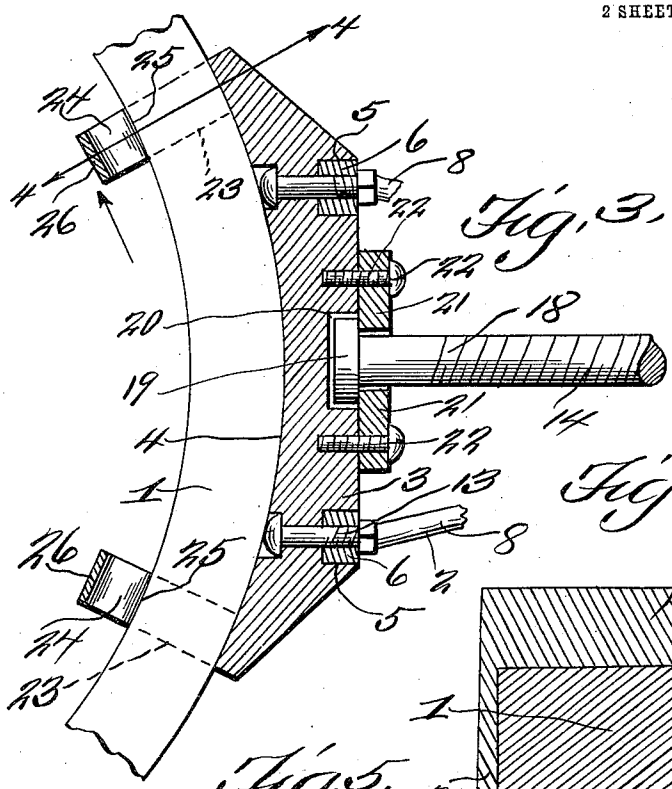

Fig. 3.

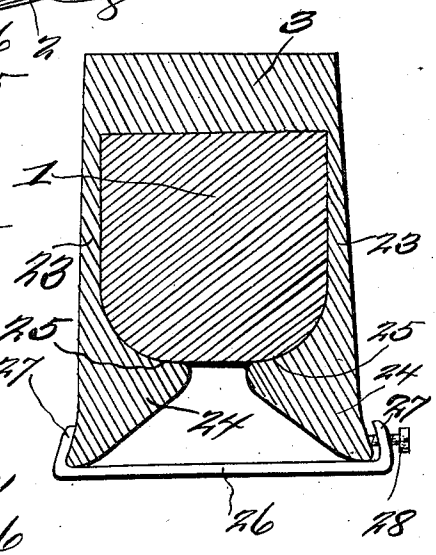

Fig. 4.

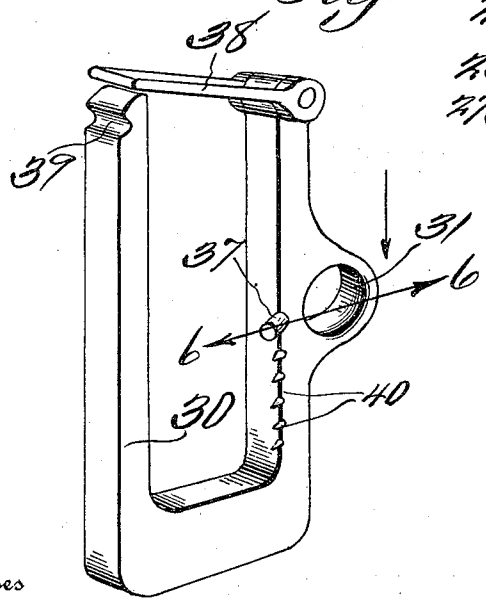

Fig. 5.

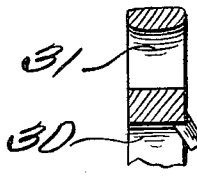

Fig. 6.

Witnesses

Rohe Meyer

Francis G. Boswell

Inventor

Anton C. Fernholz,

By D. Swift & Co

his Attorneys

UNITED STATES PATENT OFFICE.

ANTON C. FERNHOLZ, OF WEAVER, NORTH DAKOTA.

FELLY-EXPANDER.

1,046,576. Specification of Letters Patent. Patented Dec. 10, 1912.

Application filed August 24, 1912. Serial No. 716,860.

To all whom it may concern:

Be it known that I, ANTON C. FERNHOLZ, a citizen of the United States, residing at Weaver, in the county of Cavalier and State of North Dakota, have invented a new and useful Felly-Expander; 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.

This invention relates to a new and useful felly straightener or opener used particularly in building vehicle wheels.

It is the aim of this invention to provide a simple and efficient felly straightener or opener in which various desirable and practical features of construction are involved.

Further stated, one of the features of construction is the provision of means for preventing displacement laterally of the straightener from the felly, when straightening the same.

Further stated, another feature is the provision of devices which are arranged on the felly, one upon each side of the felly, to which cables are connected, which, in turn, are detachably connected to a member of the straightener, which is fed outwardly by a screw, in order to straighten the felly.

Another feature of the invention is to construct these devices U-shaped in contour, there being simple and novel means for preventing the arms of the U-shaped devices from spreading or separating, when the member of the straightener is moved outwardly.

Another feature of the invention is the provision of lugs, one extending at an angle from one arm of each U-shaped device, in order to overlie the felly, in order to prevent displacement of the device. To slip the devices on the felly, the space between the arms of each device is wide enough so that the felly may pass between one arm and the extremity of the lug.

Another feature of the invention is the fact that the member of the straightener, which member is adapted to be moved outwardly, is provided with claw ends, as shown in Figure 2, to receive one end of each cable, there being a series of knots on the cables, whereby the cables may be shortened or lengthened, that is, in connecting them between said member and the U-shaped devices.

The invention comprises further features and combinations of parts, as hereinafter set forth, shown in the drawings, and claimed.

In the drawings, Fig. 1 is a view in side elevation, showing the straightener or opener as applied to the felly of a wheel, for straightening or opening the same. Fig. 2 is an enlarged detail perspective view of the frame of the straightener, showing the means for holding the frame to the felly, against a lateral displacement, and further showing the claw ends of the member, which is moved outwardly by the screw. Fig. 3 is a sectional view through the base of the frame, showing the same fastened to the felly. Fig. 4 is an enlarged detail sectional view on line 4—4 of Fig. 3. Fig. 5 is an enlarged detail sectional view of one of the U-shaped devices which is secured to the felly shown in Fig. 1. Fig. 6 is a sectional view on line 6—6 of Fig. 5.

Referring to the drawings, 1 designates a felly of a wheel, while 2 denotes the frame of the straightener. This frame comprises a base membear 3, the surface 4 of which is curved on the same contour as the felly of the wheel, so as to fit close thereto. Secured in recesses 5 of the base are transverse bars 6, through the ends of which restricted portions 7 of the rods 8 are extended, there being nuts 9 threaded on the restricted portions, in order to hold the rods secure. The outer ends of the rods 8 terminate in restricted portions 10, which extend through the head 11 of the frame. Nuts 12 are threaded to the restricted portions 10, thereby insuring a rigid structure for the frame. The bars 6 are secured to the base 3 by any suitable means, such as shown at 13. A threaded screw rod 14 is provided, which is not threaded in the head 11, and at one end of this rod a handle 15 is secured, so as to rotate with the rod. By virtue of the handle, the rod may be rotated, and when rotated, the transverse member 16, which is threaded on the rod, is moved toward and from the base 3 of the frame. This transverse member at each end is provided with a V-shaped opening or slot 17, thereby forming a claw tooth. The rods 8 not only constitute means for insuring a rigid structure, but also act as means to prevent too much lateral movement of the transverse member 16, as the screw 14 is being rotated. The end portion 18 of the threaded screw is provided with a head 19 seated in a recess 20 of the base, there be-

ing a plate 21 secured to the base by means of the screws 22, so as to swivel the end portion 18 of the screw in place.

Each end of the base 3 is provided with spring arms 23, one embracing the felly upon each side. Each spring arm is provided with an enlargement 24, thereby forming a shoulder 25, which engages the inner surface of the felly, in order to prevent displacement of the base. In order to insure against displacement of the base, a transverse clamping bar 26 having lateral ends 27 is provided, for the purpose of engaging the enlargements 24, so as to prevent the spring arms at each end of the base from spreading. Each transverse clamping bar, at one end, is provided with a screw 28, as shown clearly in Fig. 4, to engage one of the enlargements 24, in order to bring the spring arms at each end of the base closely in contact with the felly. By the provision of said spring arms and the attendant coöperating parts, novel provision is made to insure the base 3 against displacement.

Adapted to be arranged at any suitable location upon the felly upon opposite portions thereof, for instance as shown in Fig. 1, are U-shaped devices 30 having eyes 31, which are engaged by the hooks 32 of the cables 33. The end portions 34 of the cables 33 are provided with a series of knots 35. In applying the various parts of the straightener to the felly, the ends 34 of the cables are arranged in engagement with the claw teeth of the member 16, so that any one of the knots 35 may be arranged upon the outer face of the member 16, as shown in Fig. 1, and when such is the case, especially when the cables are drawn taut, by the member 16 being moved outwardly by the screw, the U-shaped devices 30 assume angular positions, relative to the felly. When the U-shaped devices are thus arranged, the lugs 37 engage or overlie the outer circumference of the felly, thereby preventing undesirable displacement of said devices. The lugs 37 extend angularly, one from one arm of each U-shaped device. In order to prevent the arms of the U-shaped devices from spreading, especially when the cables 33 are drawn tight, one arm of each U-shaped device has pivoted thereto a U-shaped clevis member 38. These U-shaped clevis members 38 are designed to swing over the other arms of the U-shaped devices, so as to engage the notches 39. It will be seen that when the cables 33 are being stretched by the outward movement of the member 16, and the arms to which the cables are connected, tend to spring apart from the other arms of the U-shaped devices, the U-shaped clevis members will pull against the other arms, and in this manner the U-shaped devices will be held firmly in engagement with the felly, and in angular position. To further insure the U-shaped devices against displacement, the arm (which carries the lug 37) of each U-shaped device is provided with spurs 40, which engage the felly, as will be seen in Figs. 1 and 5.

From the foregoing, it will be seen that there has been devised a novel and inexpensive and efficient apparatus adapted for application to a felly of a wheel, whereby the same may be straightened or opened, and one which has been found more than practical, it having been discovered that during the construction of wheels, it is in many instances necessary to straighten the felly, as well as open the same, in order to arrange the spokes as desired.

In the drawings there is disclosed certain features of construction, but in practical fields these features may necessitate alterations, to which the applicant is entitled, provided the alterations are comprehended within the scope of what is claimed.

The invention having been set forth, what is claimed as new and useful is:—

1. In a felly straightener, a frame adapted to be held in contact with the felly and provided with a member designed to move toward and from the felly, means for moving the member, connections between the member and the felly, said connections including U-shaped devices positioned angularly on opposite portions of the felly, said U-shaped devices having lugs to overlie the outer circumference of the felly and provided with spurs to engage the felly.

2. In a felly straightener, a frame adapted to be held in contact with the felly and provided with a member designed to move toward and from the felly, means for moving the member, connections between the member and the felly, said connections including U-shaped devices positioned angularly on opposite portions of the felly, said U-shaped devices having lugs to overlie the outer circumference of the felly and provided with spurs to engage the felly, and means to prevent the arms of the U-shaped devices from spreading, as the connecting means between the member and the felly are drawn taut.

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

ANTON C. FERNHOLZ.

Witnesses:
A. B. Brandt,
W. A. Turner.