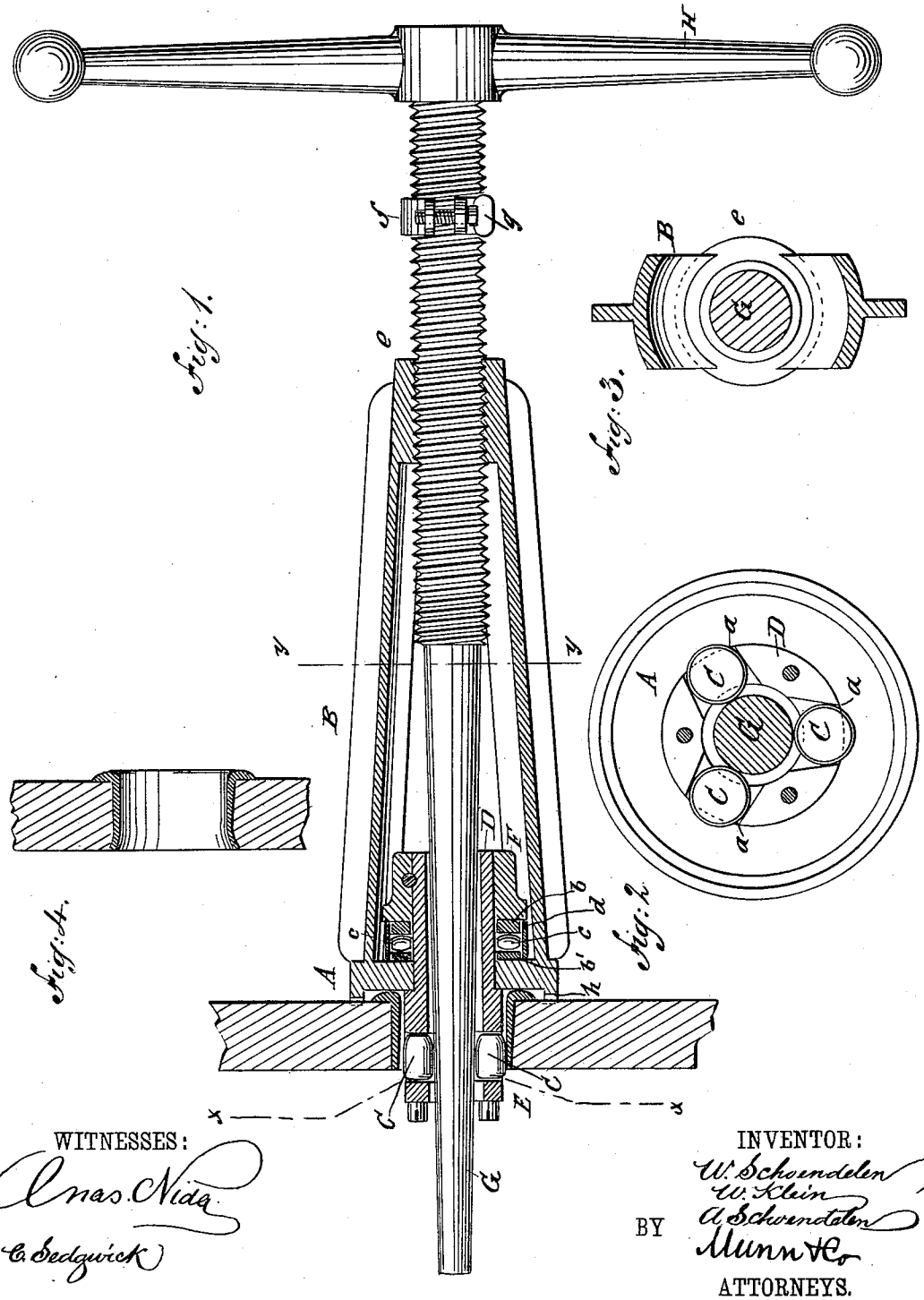
(Model.)

W. SCHOENDELEN, W. KLEIN & A. SCHOENDELEN.

TUBE EXPANDER.

No. 350,701. Patented Oct. 12, 1886.



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UNITED STATES PATENT OFFICE.

WILLIAM SCHOENDELEN, WILLIAM KLEIN, AND AUGUST SCHOENDELEN, OF DAVENPORT, IOWA.

TUBE-EXPANDER.

SPECIFICATION forming part of Letters Patent No. 350,701, dated October 12, 1886.

Application filed November 30, 1885. Serial No. 184,375. (Model.)

To all whom it may concern:

Be it known that we, WILLIAM SCHOENDELEN, WILLIAM KLEIN, and AUGUST SCHOENDELEN, of Davenport, in the county of Scott and State of Iowa, have invented a new and useful Improvement in Bung-Bush Expanders, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a longitudinal section. Fig. 2 is a transverse section taken on line *x x* in Fig. 1. Fig. 3 is a transverse section taken on line *y y* in Fig. 1. Fig. 4 is a transverse section of a part of a barrel-stave and the bung-bush in position in the stave.

Similar letters of reference indicate corresponding parts in the different figures of the drawings.

The object of our invention is to provide a simple and easily-manipulated tool for expanding bushes in the bung-holes of barrels and kegs, to retain the bushes in their place, and also to tighten them should they become leaky after a long use.

Our invention consists in the construction and arrangements of parts, as will be hereinafter fully described and claimed.

In the circular head A of the yoke B is journaled a sleeve, D, in the sides of which, at equally-distant points, are formed mortises *a*, for receiving and retaining rollers C. The sides of the mortises *a* are convergent, and the rollers C, being larger than the outer ends of the mortises, are retained loosely in the mortises. An annular cap, E, secured to the end of the sleeve D, retains the rollers C in the mortises *a*. The end of the sleeve D, which projects into the yoke B, is provided with a collar, F, between which and the circular end of the yoke are placed two washers, *b* and *b'*, between which are placed convex rollers or balls *c*. The rollers *c* retain their position by a hoop, *d*, which surrounds the series of rollers and the washers *b* and *b'*. The end *e* of the yoke B is threaded internally to receive the threaded portion of a tapering spindle, G. The tapering spindle G extends through the sleeve D and passes between the rollers C, and the opposite end of the tapering spindle G receives a handle or wrench, H, by which it is turned.

Upon the threaded portion of the spindle G, between the yoke B and the handle H, is placed a split internally-threaded ring, *f*, which may be tightened upon the threaded part of the spindle by a tangent screw, *g*, passing through one of a pair of ears formed on the split ring *f* and into the other ear.

Upon the face of the circular end A of the yoke B is formed a toothed flange, *h*, which engages the wood of the keg or barrel in connection with which the expander is to be used, and prevents the yoke B from turning, while the spindle G is revolved by means of the handle H. The rollers C are slightly rounded at one end to facilitate their entrance into the bung-bush, and are made approximately hemispherical at the opposite end, to give the desired form to the bushes as they are forced outward by the spindle.

In applying a bung-bush to a keg or barrel by means of our improved device, the bush is first inserted in the bung-hole of the keg or barrel, when the end of the sleeve D which projects beyond the face of the circular end A of the yoke B is inserted in the bush, as shown in Fig. 1, the tapering spindle G having been withdrawn to allow the rollers C to retreat within the sleeve D, to admit of inserting it in the bush. By pressing the yoke B forward against the stave in which the bush is inserted, the teeth *h* enter a short distance into the wood and offer resistance to the turning of the yoke B, permitting the spindle to be turned. The turning of the spindle G by virtue of the engagement of the threaded portion thereof with the internally-threaded end *e* of the yoke, advances it so that the portion passing between the rollers C is of a constantly-increasing diameter. By this means the rollers C are forced outward radially into contact with the bush, and their contact with the smooth surface of the tapering portion of the spindle G causes them to revolve, while they are at the same time being forced outward laterally by the tapering spindle. The rolling contact and the outward pressure of the rollers expands the inner end of the bush, as shown in Fig. 4. The ring F is adjusted upon the threaded portion of the spindle G, so as to limit the forward movement of the spindle to the amount necessary to expand the bush to the required extent. After the bush is expanded a reverse motion

of the handle withdraws the tapering part of the spindle from between the rollers more or less, allowing the rollers to retreat into the mortises *a*, when the expander may be removed from the keg or barrel and applied to another.

Bung-bushes may be inserted by means of our improved expander in a much more satisfactory way than by the usual method of screwing them in, and when a bush applied by means of our expander after long use or by accident becomes leaky, an application of the expander will enlarge it, so that it again becomes tight.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the yoke B, having one end, *e*, provided with a longitudinal screw-threaded aperture, and a circular head, A, at the opposite end, provided with an aperture in alignment with that in the end *e*, of sleeve D, projecting through the head A into the yoke and having a longitudinal aperture, the rollers C, and an external shoulder abutting against the outer face of the head A, the collar F on the sleeve within the yoke, a ring, *d*, between the collar F and the inner face of the head A, a series of loose rollers or balls, *c*, in the space between the collar, ring, and head, and the tapering shaft G, screw-threaded to engage the end *e*, substantially as set forth.

2. The combination, with the yoke B, having the circular head A at one end formed with a series of penetrating teeth on its forward edge, and the internally-threaded opposite end, *e*, of the shouldered sleeve D, extending through the circular head and provided with the rollers C and the retaining-collar F, and the tapering threaded shaft G, substantially as set forth.

WILLIAM SCHOENDELEN.
WILLIAM KLEIN.
AUGUST SCHOENDELEN.

Witnesses:
WM. HOERSCH,
THEO. KLAHN.