

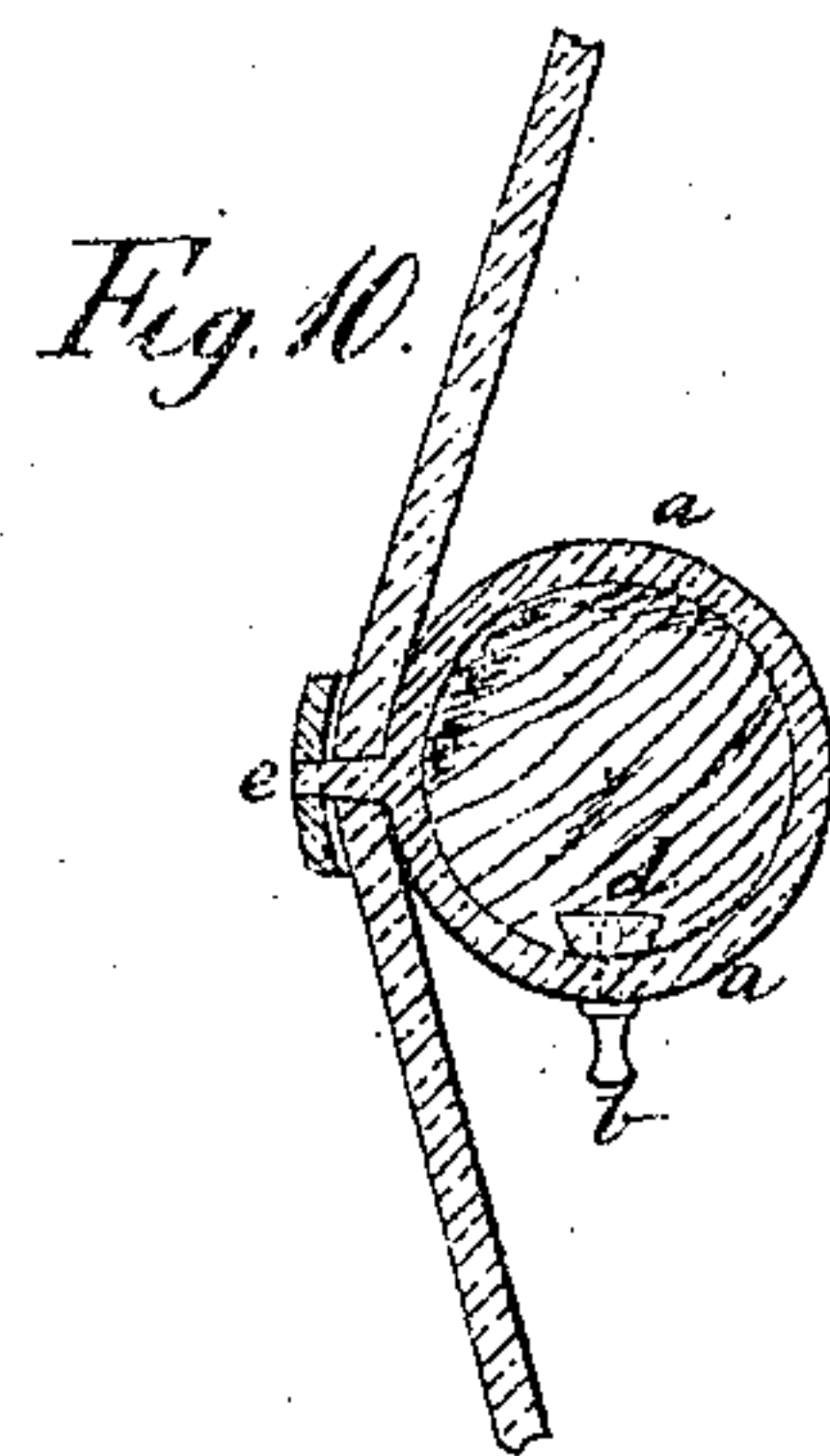
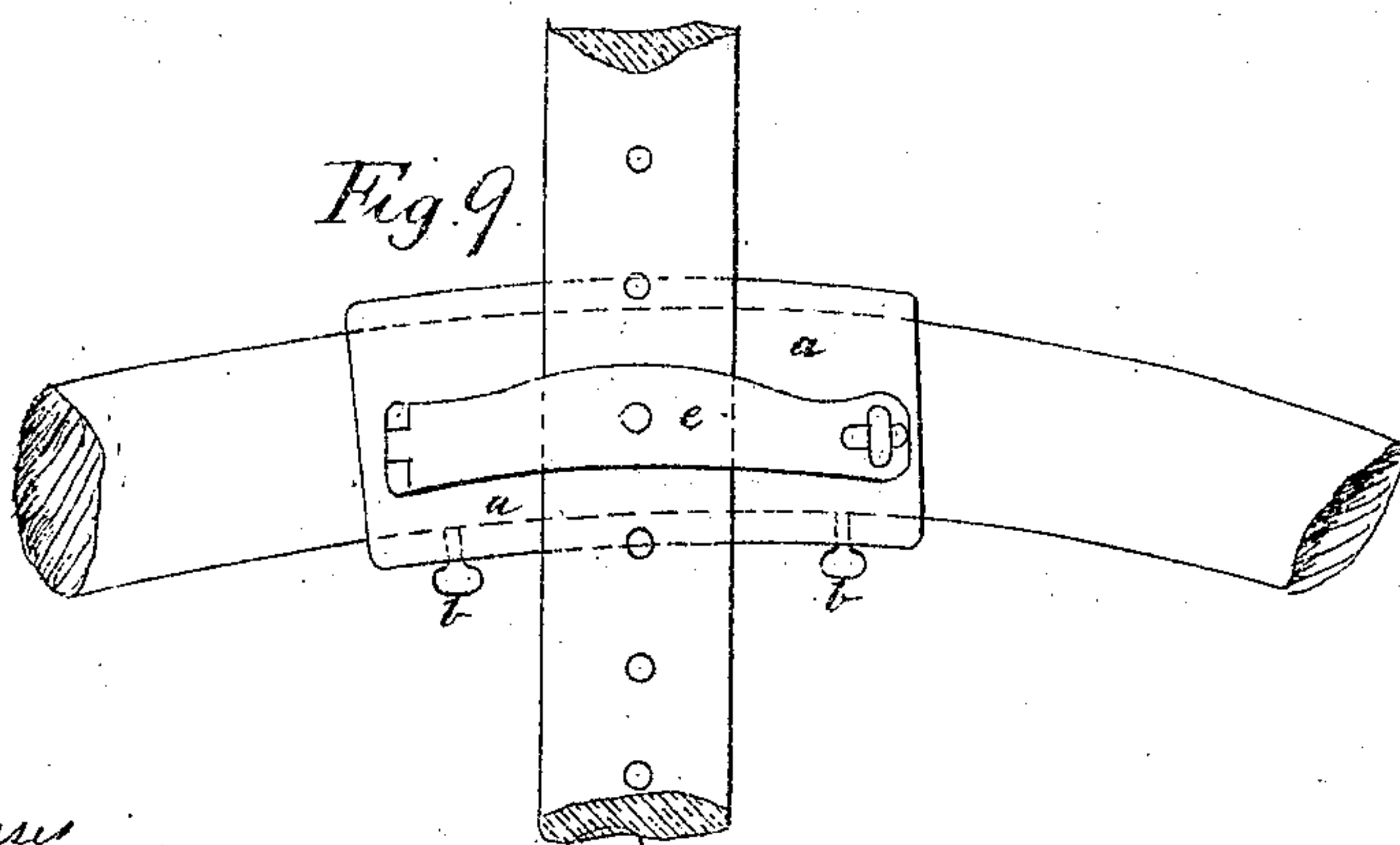
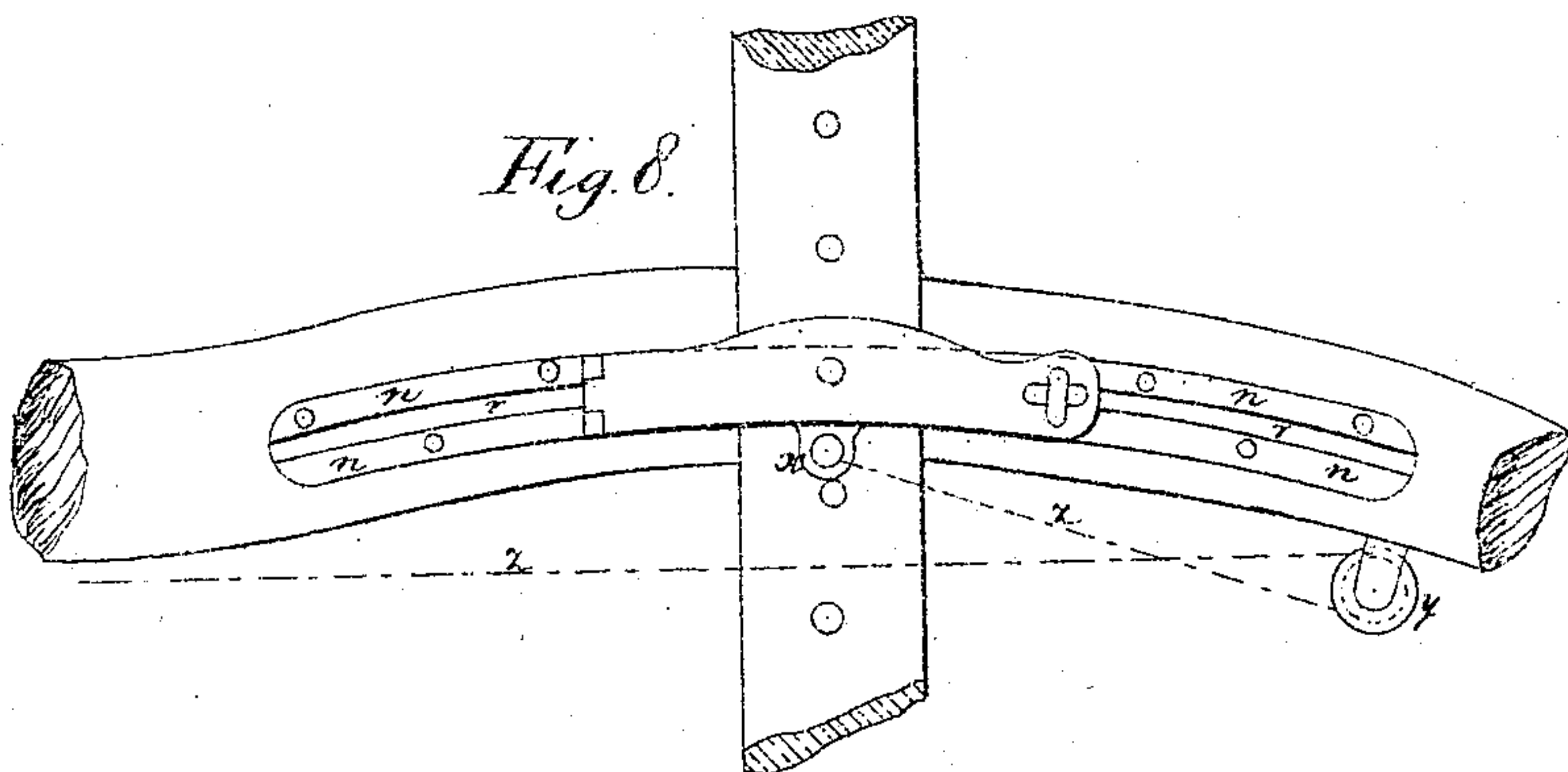
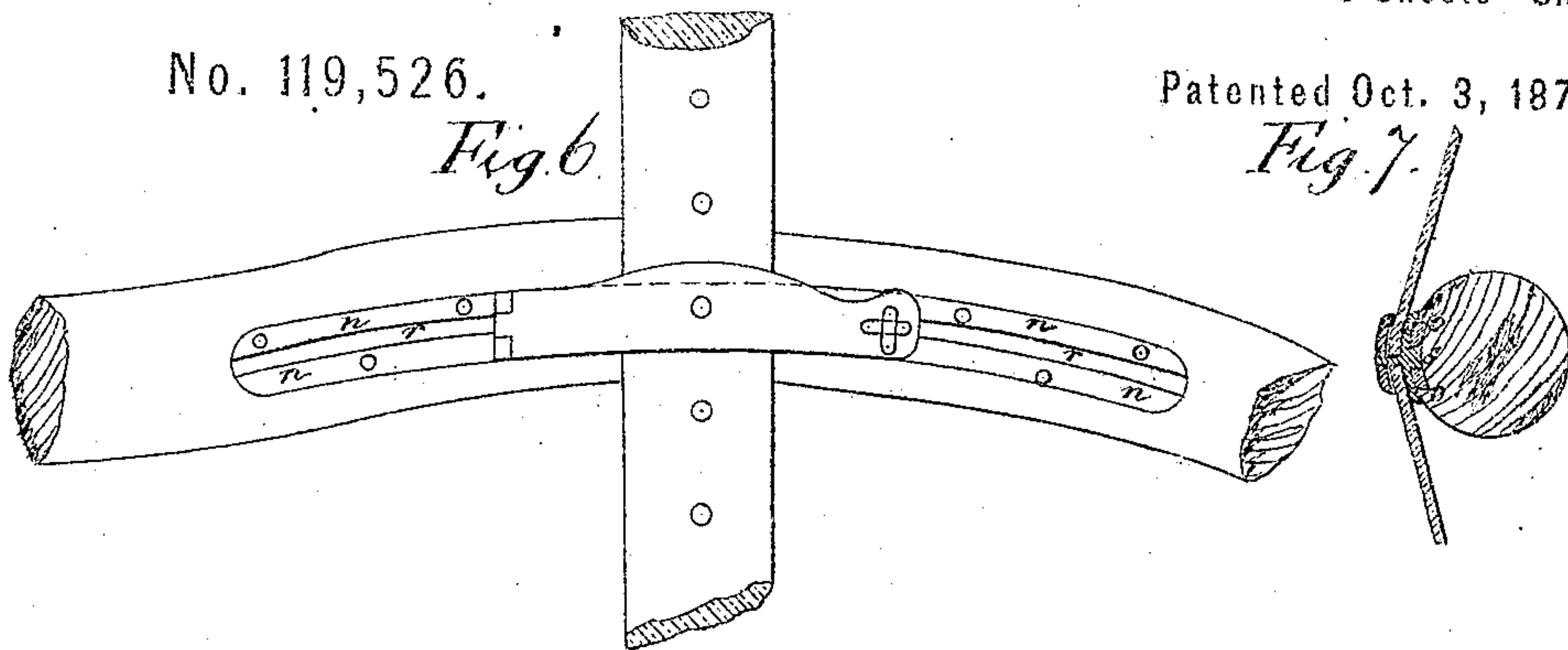
Robert McHardy's Improved Mode of Harnessing Horses to
Vehicles & Apparatus Employed Therefor

[22.]

3 Sheets--Sheet 2.

No. 119,526.

Patented Oct. 3, 1871.



Witness.

John H. Shumway
A. J. Tibbitts

Robert McHardy
Inventor

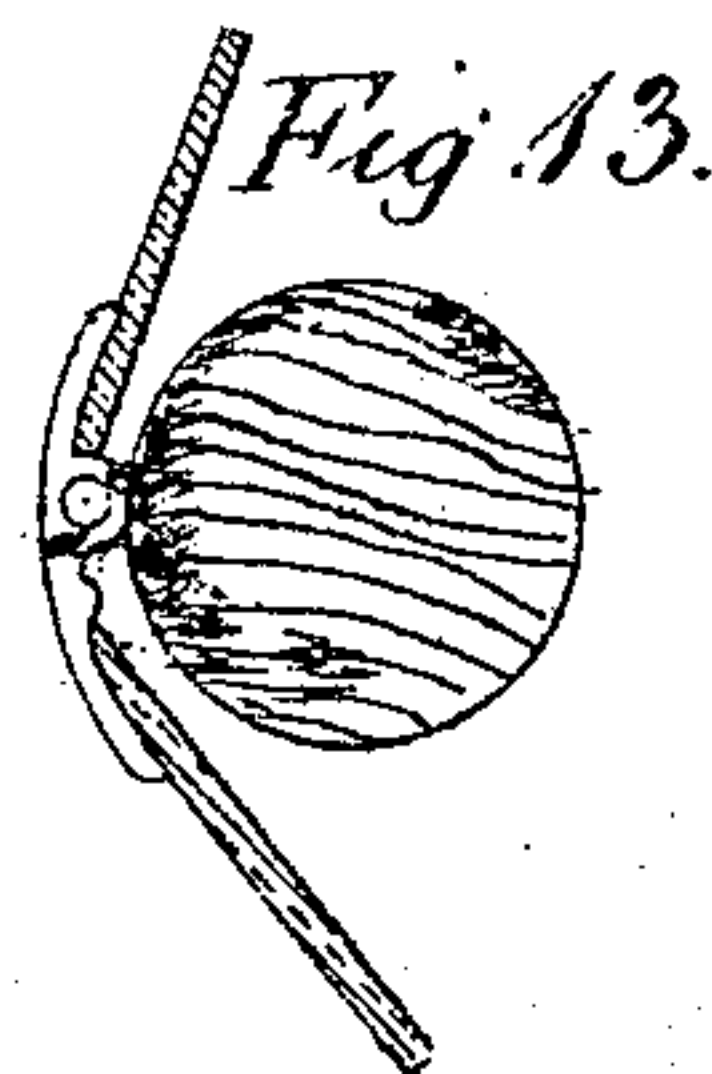
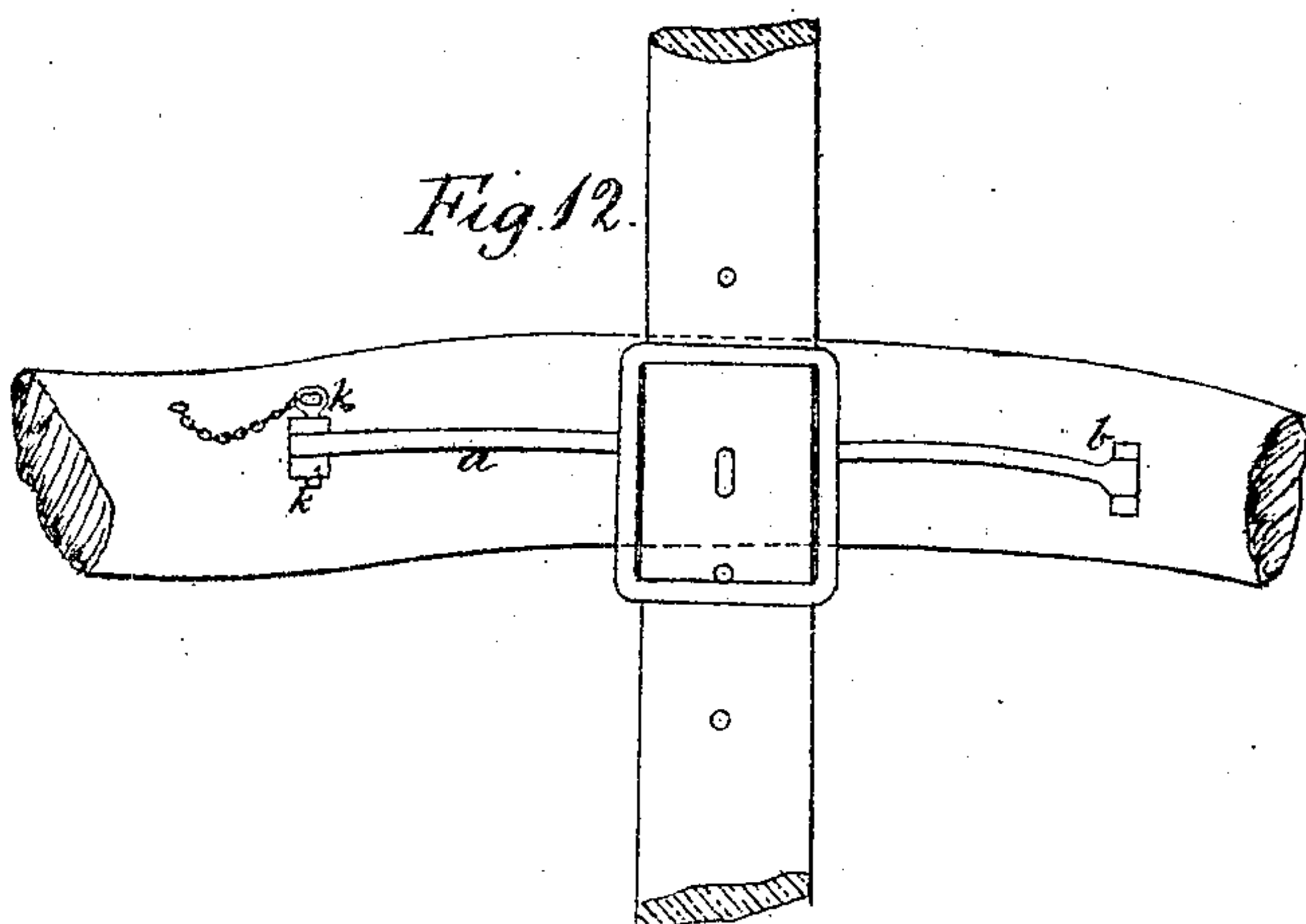
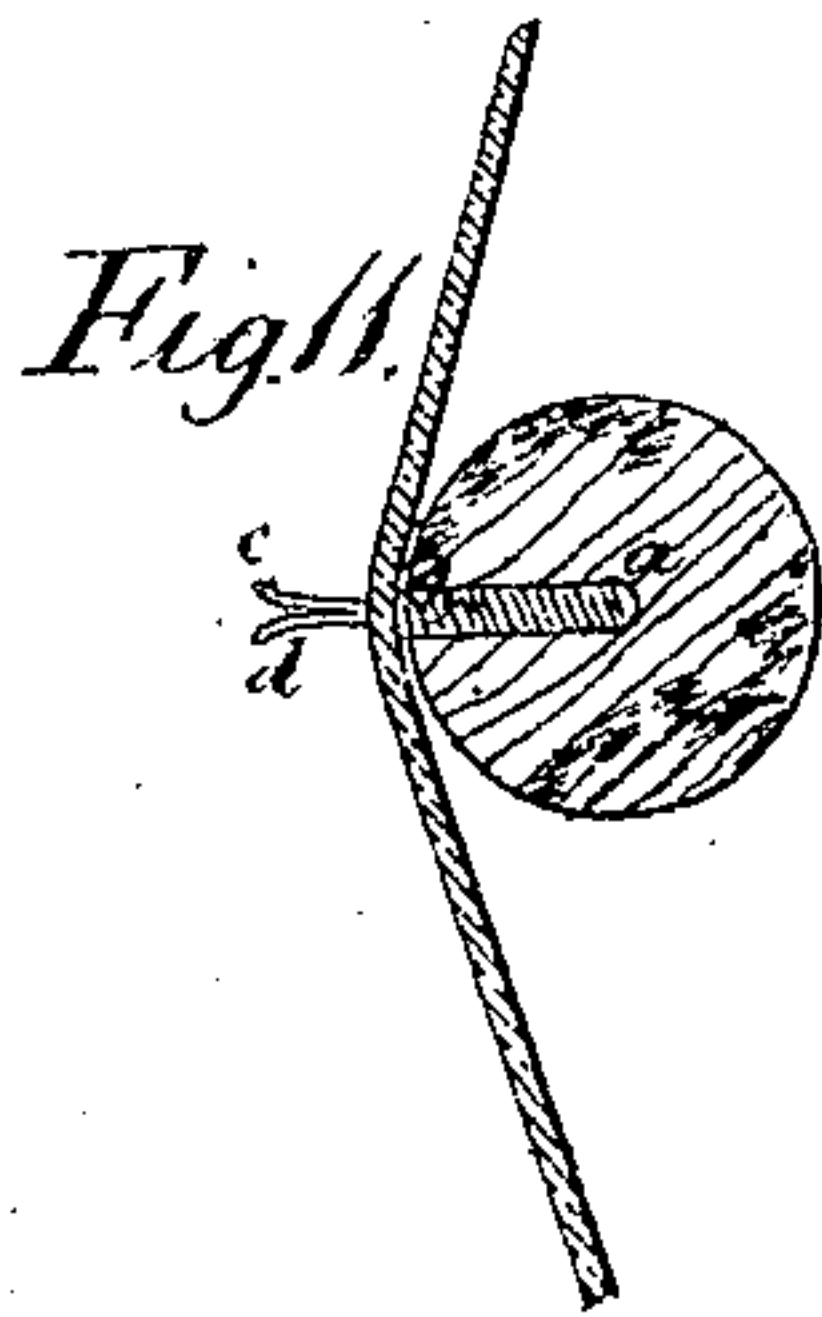
By his Atty.
John S. Park

*Robert McHardy's Impd. Mode of Harnessing Horses to
~ Vehicles & Apparatus Employed Therefor. ~*

3 Sheets--Sheet 3.

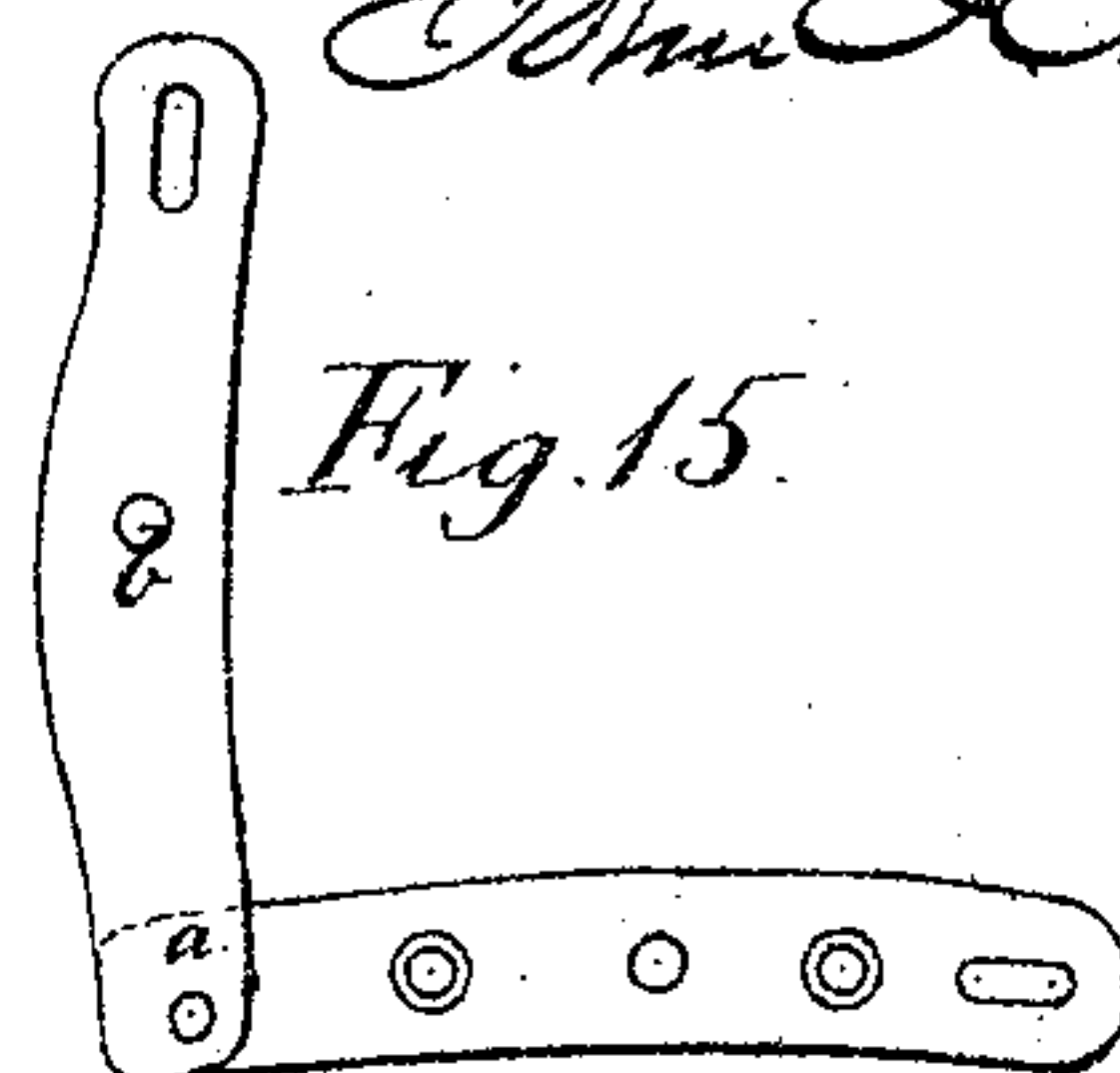
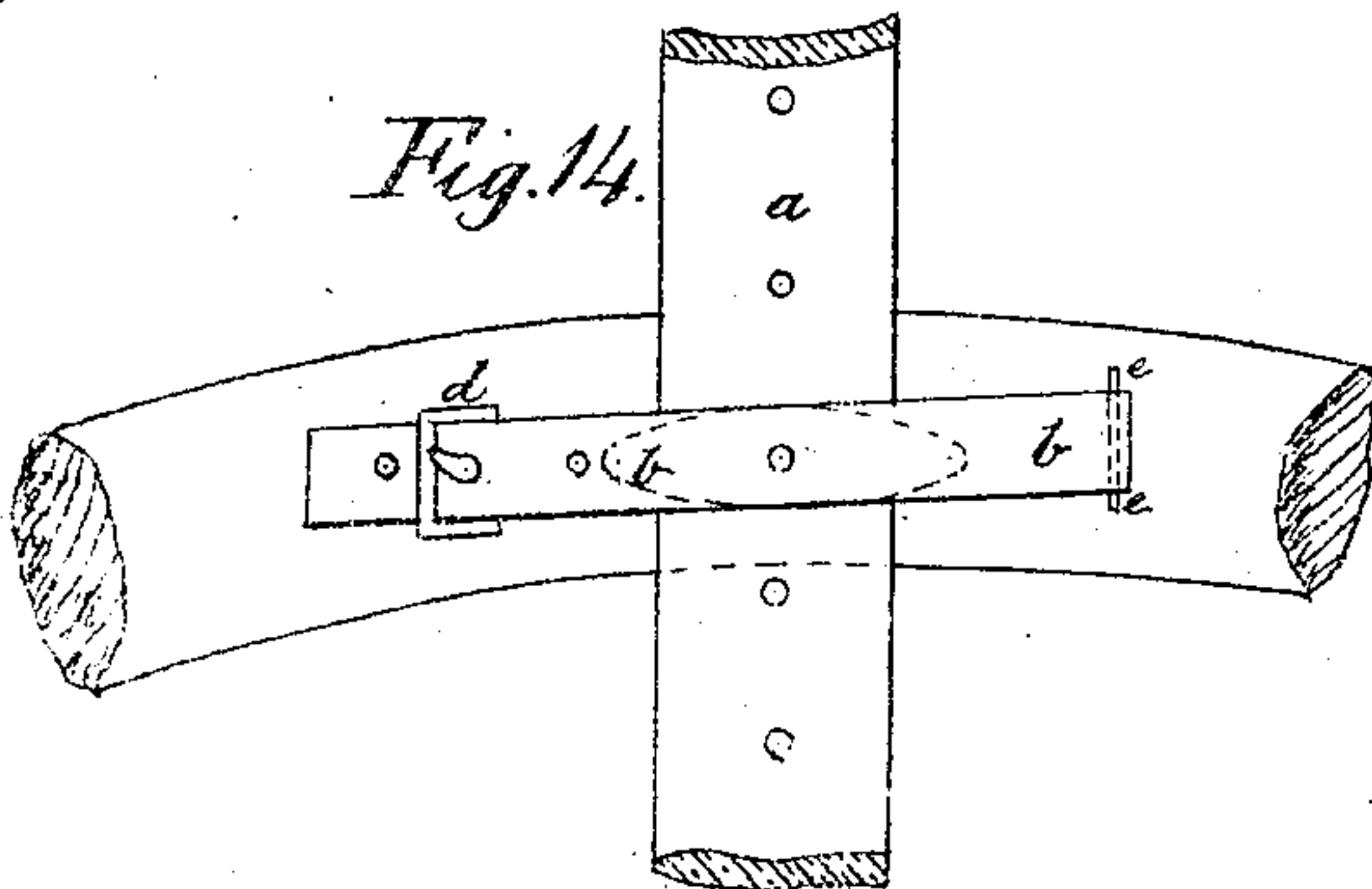
No. 119,526.

Patented Oct. 3, 1871.



Witnesses,
John H. Shumway
A. J. Tibbitts

Robert McHardy
Inventor
By his Atty
John E. Earle



UNITED STATES PATENT OFFICE.

ROBERT McHARDY, OF EDINBURGH, GREAT BRITAIN, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN COATSWORTH, OF LONDON, ENGLAND.

IMPROVEMENT IN THE MODES OF HARNESSING HORSES TO SHAFTS OF VEHICLES.

Specification forming part of Letters Patent No. 119,526, dated October 3, 1871.

To all whom it may concern:

Be it known that I, ROBERT McHARDY, of Edinburgh, Great Britain, have invented an improved mode of harnessing horses to carriages, gigs, and other vehicles, and in the apparatus or means employed therefor; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

This invention relates to improved methods of harnessing horses to carriages, gigs, and other vehicles, and more especially to that portion of the harness in which the shafts of the vehicle are supported; and consists, under one arrangement, in attaching to the sides of the shafts plates of metal or other material, the said plates being provided with one or more pins or studs, which, when the horse is yoked to the vehicle, are passed through holes or openings formed in the back-band or strap, and the said band or strap is retained in position by means of another plate, which is hinged at one end to the plate hereinbefore mentioned, and when closed over the back-strap or band the upper plate is firmly held by a thumb-screw or other suitable contrivance; or the back-band or strap may be retained on the pins or studs by providing these pins or studs with movable T or crooked heads, which, after the band is passed over them, are capable of being turned round, thereby retaining the band in position; or spring-headed split pins or studs may be employed for that purpose, as also may pins driven into or otherwise held in the shaft be employed; but I prefer to use any of the foregoing arrangements for attaching the back-band to the shafts in lieu of that last mentioned.

On the drawing I have illustrated several different methods of carrying into practice my said invention of improvements in the mode of harnessing horses to carriages, gigs, and other vehicles, and which improvements more especially relate to those portions of the harness in which the shafts of the vehicle are supported.

The said shafts, under one modification, are supported by the arrangement of clasps or holders shown in side elevation at Figure 1 of the accompanying drawing, in enlarged transverse section at Fig. 2, and by the enlarged detached view at Fig. 3. This clasp or holder consists of two metal plates, *a* and *b*, hinged together at one

end, as shown more particularly at *c*, Figs. 1 and 3. The under plates *a* are attached to the shafts by means of screw-bolts or rivets, and are each provided with a pin or stud, *d*, which is passed through one of the holes formed in the back-band *e*, as shown at Figs. 1 and 2. When the band is so placed in position the upper plates *b* of the shaft-holders are closed over the band *e*, and retained in position by the T-headed thumb-bolt *i*, as shown at Fig. 1; or the plates *b* may be otherwise retained in place. In lieu of forming the shaft-holders with a single pin or stud, as shown at Figs. 1, 2, and 3, several pins or studs may be formed thereon, as shown in plan at Fig. 4. By this arrangement the back-band may be shifted either forward or backward as far as may be required. In lieu of forming the pin or stud or pins or studs in one piece with the under plates of the shaft-holders, as shown on the annexed drawing, they may be formed in one piece with the upper plates; or they may be attached to the upper or under plates of the shaft-holders by means of a pin passed through suitable projections formed on the said upper or under plates, and also through a hole or eye formed on the end of the holding-pin or stud, as shown in plan at *k*, Fig. 5. By this arrangement the pin or stud *k* is rendered movable, so that if the horse should run out from between the shafts of the vehicle the pin *k* will move into such a position that the back-band will slip off the pin. When the horse is yoked to the vehicle the pin or stud *k* is held in position by the upper plate *m* of the shaft-holder.

At Fig. 6 is shown in side elevation, and at Fig. 7 in transverse section, another method of fixing the shaft-holders to the shafts, in contradistinction to the method of attaching them by means of screw-bolts or rivets, as hereinbefore described. Under this modification brass or other metal plates *n* are fixed on the shafts, as shown. The said plates *n* are formed with grooves *r* extending longitudinally, as shown at Fig. 6, into which dovetailed or T-headed projections *s* formed on the backs of the under plate *o* of the shaft-holders are introduced, as shown in transverse section at Fig. 7, and the shaft-holders are therein held firmly in position. The grooves *r* are made of sufficient length to allow the shaft-holders to be adjusted to any required position on the shafts by means of screw thumb-

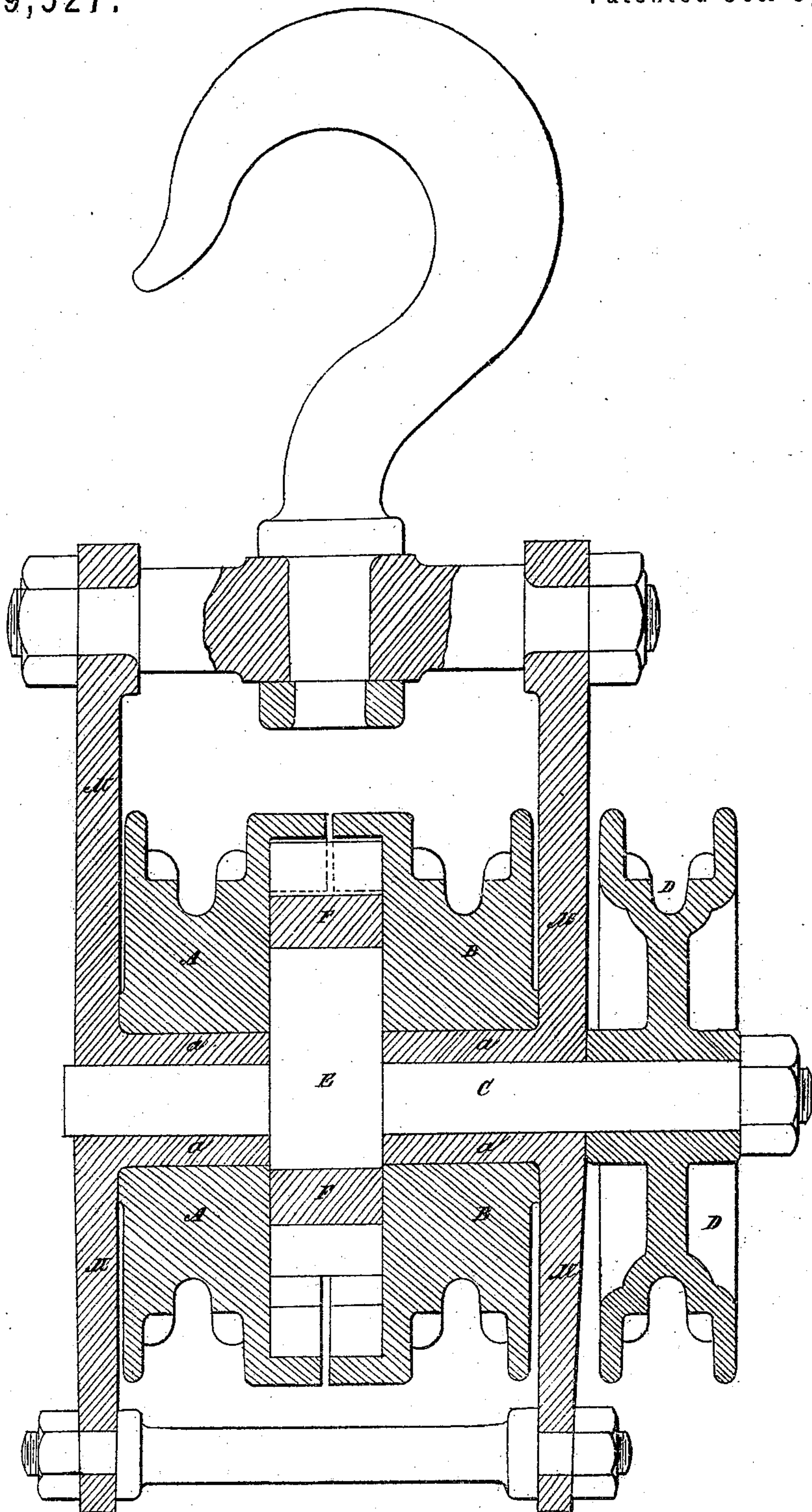
[63.]

7 Sheets--Sheet 1.

THOMAS MOORE.
Weight-Raising Machine.

No. 119,527.

Patented Oct. 3, 1871.



Attest;

John Foster
Witness

Inventor:

Thomas Moore

