G. H. Fox,

Shaft Coupling,

No. 50,700, Patented Oct. 31, 1865.

Fig: 3

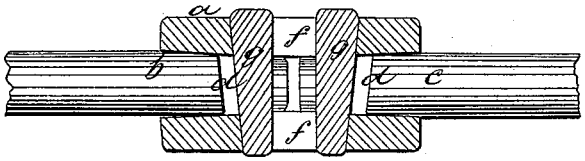


Fig: 1

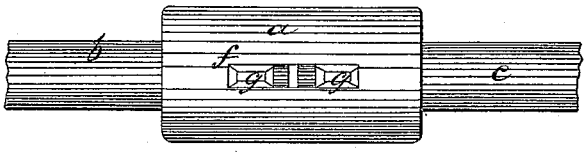
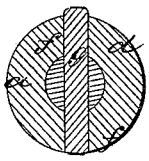


Fig: 2



Witnesses

W. B. Gleason

Francis Gould

Inventor

Geo. H. Fox

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

GEORGE H. FOX, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SHAFT-COUPLINGS.

Specification forming part of Letters Patent No. **50,700**, dated October 31, 1865.

To all whom it may concern:

Be it known that I, GEORGE H. FOX, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Shaft-Coupling; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

This invention relates to the manner of connecting machine-shafting; and it consists in constructing the coupling with an elongated and central key-mortise, in connection with key-mortises made centrally through and near to the adjacent ends of the shafts, these ends being made of tapering form for the purpose of tightening the shafts with respect to each other and the coupling, as will be hereinafter set forth.

The drawings show a coupling and shafting embodying my invention, Figure 1 representing a plan of the coupling; Fig. 2, a cross-section of the same through one of the keys, and Fig. 3 a longitudinal section through the key-mortises.

a denotes the coupling; *b c*, the adjacent ends of the shafts connected thereby. Each shaft has a key mortise or hole, *d*, which is not scarfed out of its side but is made centrally through it, as shown in Fig. 2. Extending centrally through the coupling is an elongated mortise, *f*, made of a width corresponding to the thickness of each of two keys, *g*, the hole through each shaft being brought into line with the hole through the coupling when the shafts are inserted therein, so that the key may pass through the coupling and shaft, as will be readily understood.

The ends of the shafts are made tapering, the main part of each shaft being of slightly greater diameter than the shaft-hole running through the coupling, so that when the end of the shaft is inserted into the coupling it will bind or tighten therein, and the key-hole through each shaft is made of a length greater than the width of the key, and each key is of a wedge form, as seen in Fig. 3. The ends of the shafts being inserted in the coupling and keyed therein by the keys *g*, it will be obvious that driving in the keys draws the adjacent ends of the shafts inward, tightening and straightening the general line of shafting, and at the same time tightening and centralizing each piece of shafting with respect to the next piece and with respect to the coupling, preserving a true axiality in the shafting, and preventing any looseness between the shaft and coupling.

Shafts have been connected by a coupling such as is seen in Patent No. 28,860, in which a scarf is made in one side of each shaft, through which, and a hole made through the coupling so as to match with a scarf in the shaft, a key is passed. This arrangement is objectionable, because, in driving in the key to tighten the shaft, the tendency is to drive the shaft out of center with the coupling, and the adjacent shafts more or less out of center axially with respect to each other, whereas in my coupling the shafts are tightened by driving them axially toward each other. Moreover, in said patented coupling the short length of the key-holes through the coupling causes a liability to irregularity in the position of the core in casting, which is obviated by the elongated slot for both keys, as in my construction, this elongation also permitting the shafts to be loosened in and driven from the coupling by driving a wedge between the adjacent ends of the shafts when the keys are removed.

In my construction intermediate sections of shafting cannot be disconnected from the coupling or from the main line of shafting by sliding the coupling over the shaft, as in said patented arrangement, but any advantage in this respect is more than counterbalanced by the superiority of the connection made in the shafting, this connection to tighten and preserve the axiality of the shafting, and not the facility of disconnecting, being the important object to be gained. The lateral keying of shafts is exceedingly objectionable, as the connecting and disconnecting soon loosens the shaft in the coupling, and the least play is constantly increased by the rotation of the shaft. Moreover with my construction there is no difficulty (as shafting is now hung with collars, no

bearings being turned on the shafts) in moving endwise any practical length of the same to take out any section, and it is therefore entirely unnecessary to have a coupling which shall slide entirely over the shaft to allow any section to be removed.

The cheapness and efficiency of my construction, and the facility with which shafting can be connected and tightened and disconnected thereby, render it an improvement over any other coupling now in use for this purpose.

I am aware of the construction of a shaft-coupling patented by Henry L. Haynes, June 26th, 1860, No. 28,860, but my construction differs entirely from that, as before set forth, and I do not claim any device or combination of parts to be found in such patented coupling; but

I claim—

The coupling-construction substantially as described—that is to say, with the central and elongated key-hole in the coupling and the central key-holes in the shafts, the shaft ends being made of tapering form and the keys wedge-shaped, as specified.

In witness whereof I have hereunto set my hand this 7th day of April, A. D. 1865.

GEO. H. FOX.

Witnesses:
F. GOULD,
W. B. GLEASON.