S. P. Ruggles,

Shaft Coupling,

No. 54,212, Patented Apr. 24, 1866.

Fig. 1.

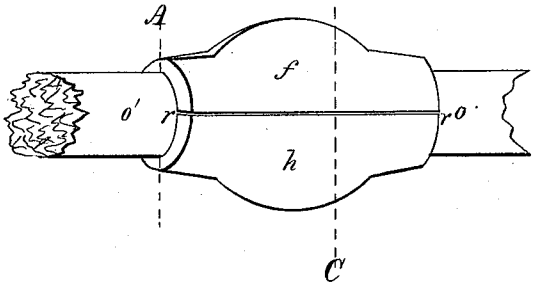


Fig. 2.

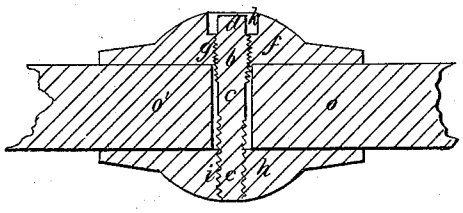


Fig. 3.

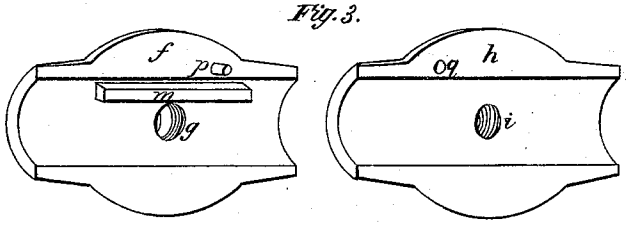
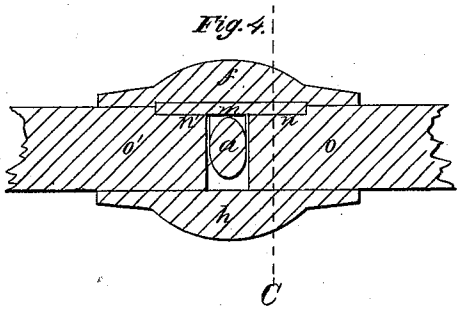


Fig. 4.



B Fig. 5.

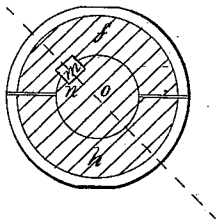


Fig. 6.

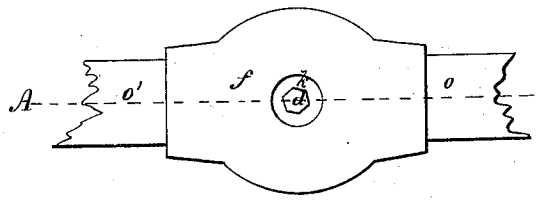
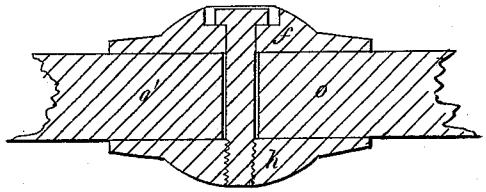


Fig. 7.



Witnesses.

J. C. Corsman.

F. S. Dimm.

Inventor.

Stephen P Ruggles

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

UNITED STATES PATENT OFFICE.

STEPHEN P. RUGGLES, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SHAFT-COUPLINGS.

Specification forming part of Letters Patent No. **54,212**, dated April 24, 1866.

To all whom it may concern:

Be it known that I, STEPHEN P. RUGGLES, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Coupling or Clamp for Shafting; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, with the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is perspective view of the coupling or clamp grasping and holding the ends of the fragments of two shafts. Fig. 2 is an elevation of a longitudinal section of Fig. 1, cut through the center at the point indicated by the dotted line A in Figs. 1 and 6. Fig. 3 is a perspective view, showing the inner surfaces of the two halves of the coupling or clamp detached from the shafting. Fig. 4 is an elevation of a longitudinal section cut in the direction indicated by the dotted line B in Fig. 5; and Fig. 5 is a section of an end elevation cut at the point indicated by the dotted line C in Figs. 1 and 4.

Similar letters refer to the same parts in all the drawings.

The nature of my invention consists, first, in the employment or use of a screw-bolt having two screws on its stem, in combination with a parted box having screws corresponding to the screws on the said screw-bolt for the purpose of grasping and holding firmly in the position desired the ends of shafting or any other material placed between the two halves of said parted box or clamp or coupling.

Among the advantages of my invention I would mention its great economy and simplicity of construtiion, the great ease and expedition with which it can be placed upon or removed from shafting, its perfect freedom from any projecting points or parts on its outer surface, and being so contrived that it is not liable to get entangled in loose belting or the drapery of workmen.

Having stated the nature of my invention and some of its advantages, I will now proceed to describe its construction and operation.

The screw-bolt *a*, Figs. 2 and 4, I usually make of steel, and on its upper part, *b*, Fig. 2, I cut a screw having ten threads to the inch, and on its lower part, *c*, Fig. 2, I cut a screw having nine threads to the inch, for the purpose of forming, in combination with the parted box, a differential screw of great power. The upper end, *d*, Figs. 2 and 6, of said screw-bolt is made six-sided, as shown at letter *d*, Fig. 6, and so as to fit a six-sided hollow wrench, by which said screw-bolt is turned down to the position shown in Fig. 2.

The two halves of the parted box, letters *f* and *h*, Figs. 1, 2, 3, 4, 5, I usually make of cast-iron. In the upper half, *f*, Figs. 1, 2, 3, 4, 5, and 6, of said parted box I cut a screw, *g*, Figs. 2 and 3, having ten threads to the inch, and in the lower half, *h*, Figs. 1, 2, 3, 4, and 5, of said parted box I cut a screw, *i*, Figs. 2 and 3, having nine threads to the inch, for the purpose of forming, in combination with the screw-bolt *a*, a differential screw of great power. In the upper half, *f*, of said parted box I make a circular recess, *k*, Figs. 2 and 6, for the purpose of receiving that portion of a six-sided hollow wrench which fits onto the upper six-sided end, *b*, Figs. 2 and 6, of the screw-bolt *a*. On the inner side of the upper half, *f*, of the said parted box I make a projection or key, *m*, Figs. 3, 4, and 5, which enters corresponding recesses or slots *n n'*, Fig. 4, and *n*, Fig. 5, made in the ends of the shafts *o o'*, Figs. 1, 2, 4, 6, and *o*, Fig. 5, for the purpose of preventing said shafts from turning or slipping within said parted box or coupling whenever, from neglect or other cause, the screw-bolt is not turned down with sufficient force to hold said shafts firmly in the position desired. On the upper half of the parted box is a steady-pin, *p*, Fig. 3, which enters a corresponding hole, *q*, Fig. 3, in the lower half of said box for the purpose of facilitating the adjustment of the two halves of said parted box in relation to each other. For the purpose of having a good bearing between the inner surfaces of the parted box and the shafts, I make the said inner surfaces so as to fit said shafts; and I also make the two halves of said parted box so that when they are brought near enough to each other to hold the shafts firmly in place, there will still be a space of about the thirtieth or fourtieth of an inch between them, so that they can never touch each other, as shown at *r r*, Figs. 1 and 5. For the purpose of not having any projecting points or parts about the outside surface of my coupling or clamp which would be liable to get entangled in loose belt-

ing or the drapery of workmen, I make the entire length of the screw-bolt a little less than the diameter of the coupling or clamp, as shown in Figs. 2 and 7 of the drawings. The power of the differential screw varies according to the difference between the two screws on the stem of the same bolt. The differential screw I have herein described possesses a power equal to that of a uniform single-threaded screw having ninety threads to the inch, while at the same time it has the strength of a coarse-threaded screw having only ten threads to the inch. Now, if the lower screw, *c*, had nine and a half threads to the inch, instead of nine, the power of the said screw would be greatly increased, and would be equal in power to a uniform single-threaded screw of one hundred and eighty threads to the inch. For ordinary work, however, I have found the differential screw, herein described, to possess all the power desired, and quite a sufficient strength or coarseness of thread.

Operation: The ends of the shafts *o o'*, Figs. 1, 2, 4, 5, 6, having been placed in position—and if slotted, as shown at *n n'* in Fig. 4, and *n*, Fig. 5, said slots to be placed opposite each other, as shown in Fig. 4—I now place the lower half, *h*, of the parted box against the under side of said shafts. I then place the upper half, *f*, of said parted box on the upper part of said shafts, so that the steady-pin *p*, Fig. 3, will enter the hole *q*, Fig. 3, in the lower half of said box, and so that the projection or key *m*, Figs. 3, 4, and 5, when said projection or key is used, will enter the slots *n n'* in the ends of said shafts, as denoted in Fig. 4. Then, with the aid of a hollow wrench fitting the upper end of the screw-bolt, I screw said screw-bolt into the position shown in the drawings, so that the ends of the shafts will be held firmly in the position desired, and so that neither end of said screw-bolt will project beyond the outer surface of said parted box or coupling.

I am aware that a parted box having flanges on its sides and held together with a plurality of screw-bolts and nuts, but made so as to fit square shafts, has been used as a coupling for such square shafting, and I therefore make no claim to any such device; but

What I claim as my invention, and desire to secure by Letters Patent, is—

A shaft-coupling made in two parts and held together and to the ends of the shaft by a differential screw-bolt and screw-threads in said parts, and by a key, substantially as and for the purpose described.

STEPHEN P. RUGGLES.

Witnesses:
J. C. CROSMAN,
F. S. PIERCE.