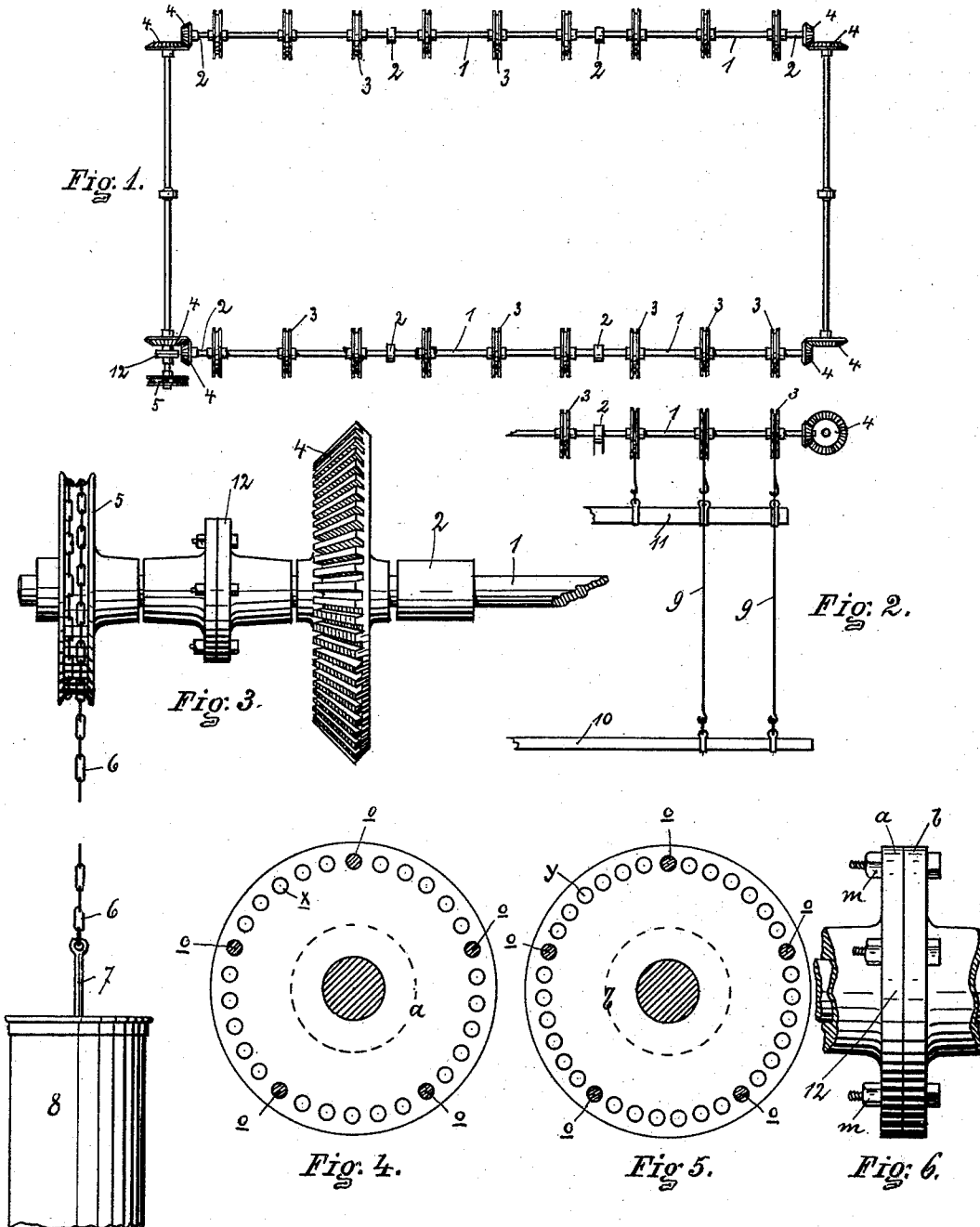


(No Model.)

G. B. CLARK.
SHAFT COUPLING FOR LIFT BRIDGES.

No. 469,314.

Patented Feb. 23, 1892.



WITNESSES.
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SHAFT-COUPLING FOR LIFT-BRIDGES.

SPECIFICATION forming part of Letters Patent No. 469,314, dated February 23, 1892.

Application filed August 6, 1891. Serial No. 401,815. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. CLARK, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Shaft-Couplings; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form part of this specification.

My invention relates to improvements in shaft-couplings as more particularly adapted for use in lift-bridges.

In lift-bridges of the kind to which my device is more particularly adapted the roadway-platform is supported and operated by wire cables passing over grooved pulleys, supported in bearings in the top of a frame structure, and are provided with counter-weights on the opposite ends of the several cables from those to which the platform is attached. In operating the bridge the pulleys are rotated by power in one direction and by the weight of the platform or the counter-weights in the other. In practice it is found that the jolt of the platform as it is lowered into position for use causes the supporting-cables to slip more or less on the cable-pulleys, which interferes with the connection of the motive power after awhile to such an extent that the bridge cannot be properly operated. To obviate this deficiency I provide the shaft-coupling hereinafter described.

In the drawings which accompany and form a part of this specification, and in which unnecessary parts are omitted, and in which similar letters and figures of reference refer to corresponding parts in the several views, Figure 1 shows a plan view of the operating shaft and pulleys of a lift-bridge which are mounted on the top of a suitable bridge structure. Fig. 2 shows a side view of a portion of the same shaft and pulleys in connection with the supporting-cables, platform, and counter-weights. Fig. 3 shows the details relating to the connection of the driving mechanism to the shafts and pulleys and the employment of the shaft-coupling. Figs. 4, 5,

and 6 show details relating to the shaft-coupling.

Referring more specifically to the reference letters and numerals in a more particular description of the device, 1 indicates the supporting and operating shaft, mounted in bearings, as 2, 2, &c., carrying cable-pulleys 3 3, &c., preferably grooved on their face and provided with meshing bevel-gears 4 4 for transmitting motion to the shafts 1 on each side of the bridge. The power is applied through the wheel or pulley 5, to which is connected cable-chain 6, which, after passing several times around wheel 5, passes to and is connected to piston-rod 7 of cylinder 8. Over the pulleys 3 pass supporting-cables 9 9, which are attached at one end to the roadway-platform 10 and at the opposite end to the counter-weights 11. In the shaft between the driving-wheel 5 and the pulley-shaft 1 is provided a shaft-coupling 12. (Shown in detail in Figs. 4, 5, and 6.) The shaft-coupling consists of plates or flanges *a* and *b*, each of which is firmly keyed or otherwise secured to adjacent ends of the shaft to be coupled, so that the plates when in position will lie with their faces in contact, as shown in Fig. 6. The plate *a* is provided with a circular row of holes—say thirty in number—and the plate *b* is provided with a row of holes *y* in a circle to coincide with the circle *x* of plate *a*—say thirty-five in number.

In connection with the plates shown are used five coupling-bolts *m*, which, being placed in the bolt-holes, as *o*, distribute the points of engagement so as to produce equal and true connection. By reason of the unequal number of holes it will be observed that by removing the bolts *m* and causing the plates *a* and *b* to be rotated slightly with reference to each other it will be found that the bolts will then pass through the next adjacent hole in each of the plates when the slightest adjustment is required to that from which they were removed. By this change one plate is moved one two-hundred-and-tenth part of a circumference with reference to the other when the number of holes shown and described are used; or, of course, a much greater adjustment can be had.

In using the device described the cylinder is filled above the piston by water under press-

ure or any other active agent, and as the piston is drawn down the pulleys 3 are rotated to either hoist or lower the bridge-platform, depending on which way the chain 6 is passed around the wheel 5. The parts are returned to their normal position when the pressure in the cylinder is relieved by the excess of weight in either the platform or counter-weights. When the platform and piston have become so out of time by reason of the slipping of the cable that the piston strikes the head of the cylinder, the parts may be adjusted by removing the bolts in the shaft-coupling, as before described.

It is evident that many modifications in the construction herein described may be made without departing from the equivalents of my construction, and in reference to the shaft-coupling two or more circular rows of holes might be provided in each plate and more or less bolts and holes be used.

What I claim as new, and desire to be secured by Letters Patent, is—

1. The combination, with a lift-bridge platform, of supporting-cables therefor, counter-weights, cable-pulleys, supporting-shaft, and an adjusting shaft-coupling, substantially as set forth.

2. The combination, with the platform of a lift-bridge, of the supporting-cables, the counter-weights, the cable-pulleys, the supporting and operating shaft, and an adjusting shaft-coupling having plates provided with an unequal number of holes for receiving bolts,

and the coupling-bolts, substantially as set forth.

3. The combination, with the platform of a lift-bridge, of the supporting-cables, the counter-weights, the cable-pulleys, and the supporting and operating shaft, a cylinder and piston and connections with the shaft, and an adjusting shaft-coupling, substantially as set forth.

4. The combination, with the operating mechanism of a lift-bridge, of a shaft-coupling consisting of engaging plates having circular rows of bolt-holes in the two plates, of unequal number of holes in each plate, and the coupling-bolts, substantially as set forth.

5. A shaft-coupling consisting of engaging plates having coinciding circular rows of bolt-holes, being an unequal number of holes in the two plates, and the coupling-bolts, substantially as set forth.

6. A shaft-coupling consisting of two engaging plates secured one to each section of shaft, one of the plates having a circular row of bolt-holes and the other plate having a coinciding row of bolt-holes of unequal number, and a coupling pin or bolt, substantially as set forth.

In witness whereof I have affixed my signature in presence of two witnesses.

GEO. B. CLARK.

Witnesses:

JOHN S. CASEY,
JOSIAH PERRY.