

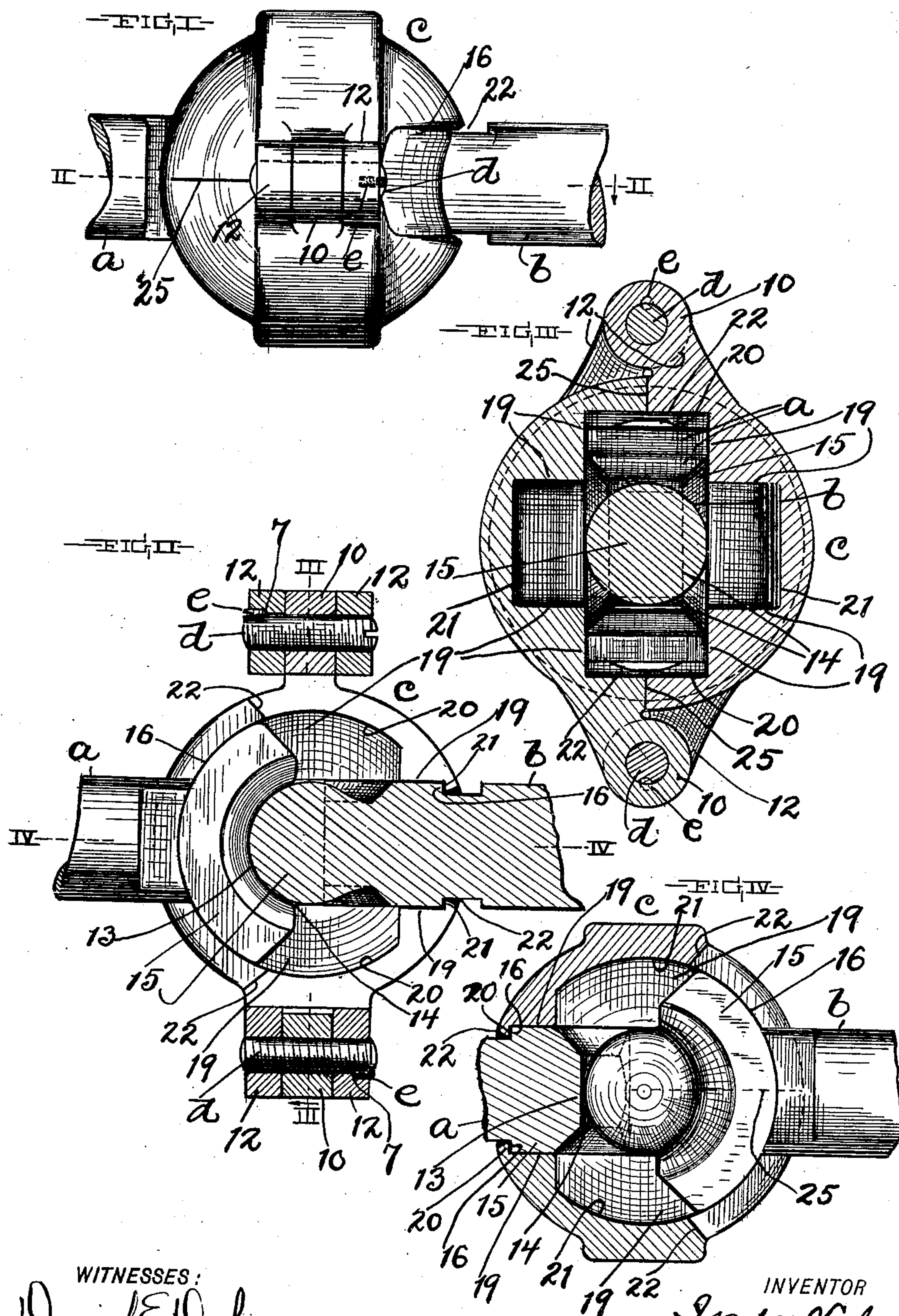
No. 705,366.

Patented July 22, 1902.

I. LEHMAN.
SHAFT COUPLING.

(Application filed Dec. 30, 1901.)

(No Model.)



WITNESSES:
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UNITED STATES PATENT OFFICE.

ISADOR LEHMAN, OF CLEVELAND, OHIO.

SHAFT-COUPLING.

SPECIFICATION forming part of Letters Patent No. 705,366, dated July 22, 1902.

Application filed December 30, 1901. Serial No. 87,849. (No model.)

To all whom it may concern:

Be it known that I, ISADOR LEHMAN, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Shaft-Couplings; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in shaft-couplings suitable for use in coupling two shaft-sections together without interfering with the rotation of the said shaft-sections in unison and with their arrangement at an angle to each other.

This invention pertains more especially to a modification of the type of shaft-coupling embodied and disclosed in United States Letters Patent No. 676,194, granted to me June 11, 1901.

The object of this invention is to construct a shaft-coupling of the character indicated which possesses great strength and durability, which is reliable in its operation, and whose component parts are conveniently assembled and separated.

With this object in view my invention consists in certain features of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure I is a side view of a shaft-coupling embodying my invention. Fig. II is an elevation largely in central longitudinal section on line II II, Fig. I. Fig. III is a central transverse section on line III III, Fig. II, looking in the direction indicated by the arrow. Fig. IV is an elevation largely in central longitudinal section on line IV IV, Fig. II.

Referring to the drawings, *a* and *b* designate two shaft-sections coupled together by a shaft-coupling embodying my invention. The shaft-sections *a* and *b* are provided at their adjacent ends, respectively, with a head 15, which participates in the formation of the coupling.

My improved coupling comprises a shell or casing *c*, into which the adjacent or head-forming ends of the two shaft-sections extend. The shell *c* is suitably chambered to receive the heads 15 of the shaft-sections, and

the chamber of the shell *c* has two walls 20 and 21, arranged in planes at right angles to each other and extending concentrically of the chamber of the said shell. The shell *c* is slotted, as at 22, longitudinally of each of the said walls 20 and 21, centrally between the ends of the walls. The shaft-section *a* extends through the slot 22 in the wall 20, and the shaft-section *b* extends through the slot 22 in the wall 21, and each of the shaft-sections has its head 15 provided with a shoulder 16, engaging the slotted wall through which the said shaft-section extends, which shoulder 16 extends widthwise of the said wall the full width of the wall, and consequently the shell *c* has bearing upon the shoulders 16 of the shaft-sections at opposite sides of the slots 22.

The head 15 of the shaft-section *a* has the inner end or edge thereof provided centrally with a cavity or recess 14, which is open at the sides of the head and has its wall 13 curved and extending concentrically of the center of the shell *c*. The head 15 of the shaft-section *b* has its inner end shaped to form a segment of a ball or sphere whose center is coincident with the center of the shell *c* and which engages the wall 13 of the recess or cavity 14 in the head 15 of the shaft-section *a*, so as to accommodate not only the movement or adjustment of the shaft-section *a* circumferentially of the ball-shaped inner end of the shaft-section *b*, but so as to accommodate also the adjustment of the shaft-section *b* at various angles to the shaft-section *a*. The shoulder 16 of the head of each shaft-section and the slot 22, through which the said shaft-section extends, extend around and concentrically of the center of the shell *c* a distance equal to about one-third or somewhat less than one-half the distance around the said shell. The slotted walls 20 and 21 extend about three-fourths of the distance around the center of the said shell *c*, and, in fact, each of the slotted walls 20 and 21 extends from a point near one side of the other slotted wall concentrically of the center of the shell *c* to near the opposite side of the last-mentioned slotted wall. The portions of the walls 20 and 21 at the sides of the slots 22 have adequate bearing at all times upon the shoulders 16 of the heads 15 of the shaft-sections and are instru-

mental in preventing displacement of the parts.

The shell *c* is provided internally at each side of each slotted wall of the said shell with
 5 a shoulder 19, extending along the said wall, and the two shoulders 19 and 19, extending along the said wall, are arranged at and a short distance from opposite sides, respectively, of the slot 22 in the said wall at and
 10 contiguous to opposite sides, respectively, of the head 15 of the shaft-section extending through the said slot and are instrumental in establishing operative connection between the shell *c* and the said shaft-section.

15 Obviously by the construction hereinbefore described the two shaft-sections and the shell *c* will rotate in unison upon applying power to one of the said shaft-sections, and each shaft-section can be arranged at an angle to
 20 the other shaft-section, and when the shaft-sections are arranged at an angle to each other the shell *c* will, during the operation of the parts, not only rotate, but rock or oscillate upon the shoulders 16 of the heads 15 of
 25 the shaft-sections.

The shell *c* is divided, as at 25, into halves or sections centrally and longitudinally of one of the slots 22 of the said shell to accommodate the assemblage of the parts. The
 30 said halves or sections correspond in construction and are consequently interchangeable. Each shell-section is provided at one side of the shell and externally with a pair of internally-screw-threaded registering ears 12,
 35 arranged a suitable distance apart, and at and externally of the opposite side of the shell has a correspondingly internally-threaded single ear 10, which extends between and registers with the two ears of the pair of ears of
 40 the other shell-section. A correspondingly-threaded screw *d* is screwed into the registering ears 10 and 12 at each side of the coupling, and a screw-threaded hole 7 is formed partially in the said screw *d* and partially in
 45 one of the said ears 12 and engaged by a screw *e*, which prevents unscrewing of the said screw *d*.

What I claim is—

1. The combination, of a casing or shell *c*
 50 made in sections and having two internal walls 20 and 21 arranged in different planes, respectively, at right angles to each other and extending partially around the center of the said shell, which shell is provided, in each of
 55 the said walls, with a slot 22 extending along the wall; means for holding the sections of the shell or casing together, and two shaft-sections extending through the slot 22 in the different aforesaid walls, respectively, and
 60 provided, respectively, with a head 15 con-

tained within the aforesaid shell, and a shoulder 16 extending along and affording bearing for the wall through which the respective shaft-section extends, and the head of one of the shaft-sections having its inner end
 65 shaped as required to form the segment of a ball whose center is coincident with the center of the aforesaid shell, and the head of the other shaft-section having a cavity or recess 14 open at the sides of the head and hav-
 70 ing its wall 13 arranged concentrically of the center of the shell and engaged by the aforesaid segment of a ball, substantially as and for the purpose set forth.

2. The combination, with two shaft-sections 75 *a* and *b* having their adjacent ends provided with heads 15, of a casing or shell *c* embracing and having bearing upon the said heads and establishing operative connection between the said shaft-sections and composed
 80 of two halves or sections, and each half or section having a pair of registering ears 12 at one side of the shell and a single ear 10 at the opposite side of the shell with the last-mentioned ear of the said half or section inter-
 85 posed between and registering with the ears of the pair of ears of the other half or section, and means for securing the registering ears together.

3. The combination, with two shaft-sections 90 *a* and *b* having their adjacent ends provided with heads 15, of a casing or shell *c* embracing and having bearing upon the said heads and establishing operative connection between the said shaft-sections and composed
 95 of two halves or sections, and each shell-section having a pair of registering internally-screw-threaded ears 12 at one side of the shell and a single internally-threaded ear at the
 100 opposite side of the shell, with the last-mentioned ear of the said shell-section interposed between and registering with the ears of the pair of ears of the other shell-section, a screw extending into and engaging the registering ears of the shell-sections at each side of the
 105 shell, and another screw engaging a correspondingly-threaded hole formed partially in the first-mentioned screw and partially in one of the ears engaged by the said first-mentioned screw, substantially as and for the
 110 purpose set forth.

In testimony whereof I sign the foregoing specification, in the presence of two witnesses, this 23d day of December, 1901, at Cleveland, Ohio.

ISADOR LEHMAN.

Witnesses:

C. H. DORER,
 TELS A SCHWARTZ.