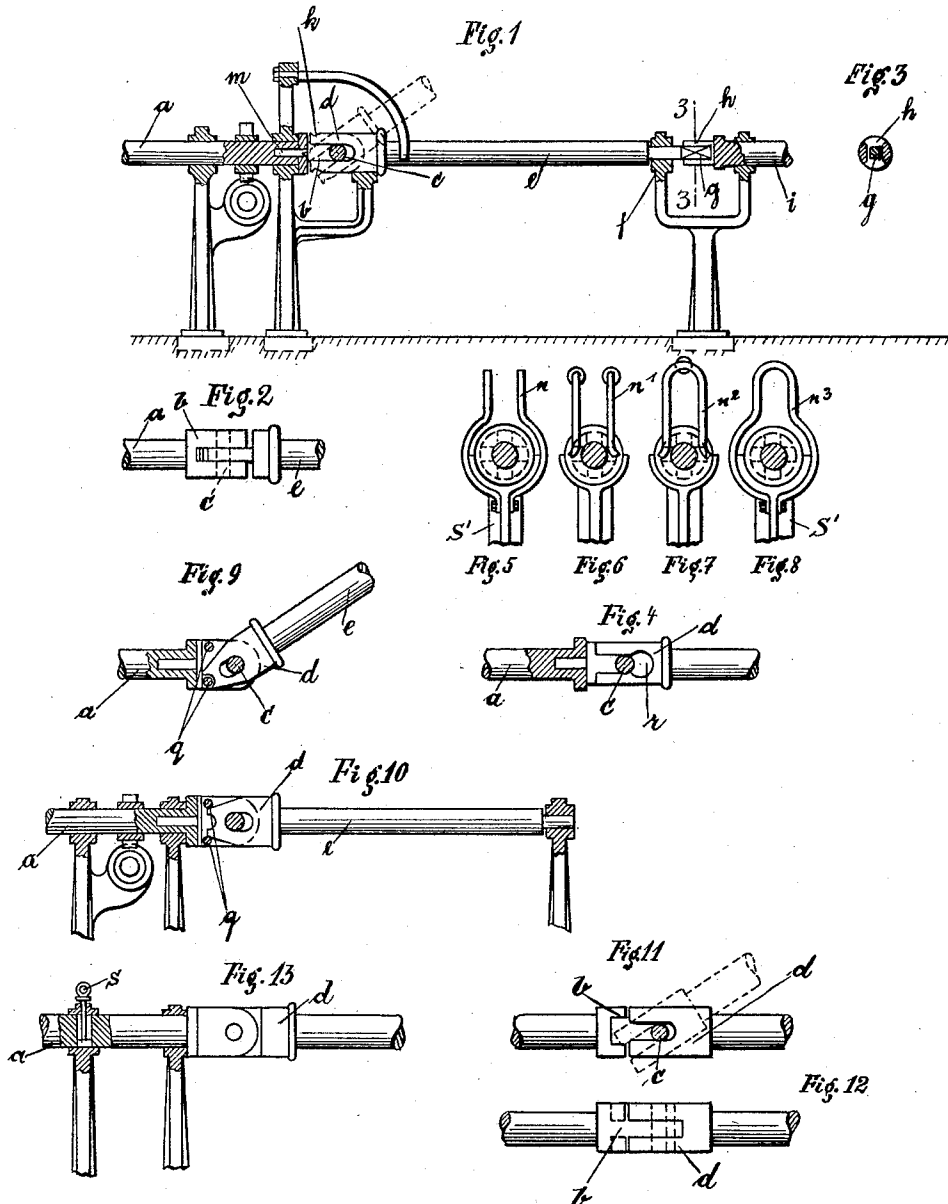


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 MEANS FOR CONNECTING SHAFTS.
 APPLICATION FILED AUG. 7, 1911.

1,104,838.

Patented July 28, 1914.



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MEANS FOR CONNECTING SHAFTS.

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Specification of Letters Patent.

Patented July 28, 1914.

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To all whom it may concern:

Be it known that I, EUGEN SEBASTIAN, a subject of the German Emperor, residing at Saarau, Ida- und Marienhütte, Silesia, Germany, have invented certain new and useful Improvements in Means for Connecting Shafts, of which the following is a specification.

In certain machinery shafts are employed which permanently lie horizontally in line with each other when working and are then coupled together by means of a hinged shaft portion which can be turned up out of engagement when the coupled machine is idle. It is important that the hinged shaft portion shall remain in its turned-up position when so required. This has hitherto been effected by means of counterweights, or by locking the said shaft portion in its turned-up position by means of pins, bolts or intermediate pieces.

Now this invention has for its object to provide means for automatically locking the hinged shaft portion in the turned-up position. The improved means comprises broadly two parts namely the permanently horizontal shaft and the hinged shaft portion. The hinged shaft portion may be constructed either as an end portion or as a middle portion in which latter case it forms normally an intermediate portion of the permanently horizontal shaft so that when turned down into its normal position it serves as a coupling. The hinged shaft portion when turned up is automatically locked in this position, that is to say, is prevented from swinging down, by reason of its own weight. It is also prevented from turning sidewise or falling over either by means of self-locking driving devices acting upon it, or by means of forked or looped guides in which it works. It may also be prevented from turning sidewise by means of non-automatic devices such as keys, pins and the like. In all cases however the hinged shaft portion is always automatically locked when turned up.

The invention consists broadly in constructing the parts of the joint between the permanent and hinged shaft portions in such a manner that they can slide upon each other and become locked thereby when the hinged shaft portion is turned up.

In the drawings: Figure 1 is a side elevation, partly in vertical section of a shaft

coupling embodying the present improvements; Fig. 2 is a plan of the joint portion of the same; Fig. 3 is a vertical section on the line 3—3 of Fig. 1; Fig. 4 is a side elevation partly in section of a modified form of the joint, Figs. 5 to 8 are end elevations each illustrating a modified form of guide for the hinged shaft portion. Figs. 9 and 10 are sectional side elevations illustrating a further modification of the joint in two positions. Fig. 11 is a side elevation and Fig. 12 is a plan of another modification of the joint. Fig. 13 is a side elevation partly in section of a device for locking the permanently horizontal shaft portion.

Referring first to Figs. 1, 2 and 3; *a* is a shaft formed at its end with a joint head *b* and pin *c* which may be of round or other shape. *e* is the hinged shaft portion; it is formed with an end counterpart *d* which is adapted to engage the head *b* in such a manner as to form a joint such that the two parts can rotate together when the counterpart *d* is inserted in the head *b*. Any suitable device may be provided for the purpose of preventing the joint from opening of itself. At its other end, the hinged shaft portion *e* is carried in a bearing *f*. It may also be provided with an extension *g* adapted to engage in the slot *h* of a further shaft *i* for the purpose of driving the latter shaft as well. The shaft *i* may also be the driving shaft, so that the shaft *a* will be stationary when the shaft portion *e* is turned up, or again, only the joint head *b* mounted in a suitable bearing may be provided. When the shaft portion *e* is to be turned up, it is lifted at its end *g* so as to allow the slotted counterpart *d* to slide automatically down by its own weight on the pin *c* whereby its nose *k* enters the recess *m* of the joint head *b*. Then on being released it will be maintained by the weight of the shaft portion *e* in its up-turned position. In order to avoid jamming, the slot in the counterpart *d* may be enlarged as indicated at *r* in Fig. 4. In order to prevent sidewise twisting or turning of the upturned joint, either the driving device of the shaft *a* is constructed to be self-locking, or the shaft portion *e* in being turned up, moves in a guide *n* which may be constructed in one of the several ways shown in Figs. 5 to 8. This guide *n* is more particularly used when, as shown in Fig. 1, the shaft portion *e* serves as a middle piece be-

tween two shafts *a* and *i*, and the shaft *i* is the driving shaft.

As shown in Fig. 5 the head stock or bearing part *s'* is provided with two guide rods *n* which surround the end *d* of the shaft *e*.

According to Fig. 6, the upper arm *t* of the bearing of the shaft *a* is provided with two guide rods *n'* which, as shown in Fig. 7, may also be constructed to form a stirrup *n²*.

In Fig. 8 the guide piece consists of a closed stirrup *n³*, which is bolted to the part *s'* and adapted to surround the end *d*.

Figs. 9 and 10 show a construction of joint in which in place of the recess *m*, two pins *q* are employed against which the end of the counter part *d* is adapted to bear.

In the construction shown in Figs. 11 and 12 the joint head *b* has only a flat tongue with pin *c* over which the jaws of the counter-part *d* engage.

In Fig. 13, instead of providing a guide to prevent shaft, *e*, turning sidewise when turned up, the permanently horizontal shaft *a* is locked by means of a removable pin, *s*, when the hinged shaft *e* is about to be turned upward.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In means for connecting shafts the combination with a permanently approximately horizontal shaft and a hinged shaft situated approximately in line therewith and capable of turning upward on the end of the permanently horizontal shaft, of means for coupling the two shafts together, when they are in line, and means for automatically locking the hinged shaft in its turned-up position by the action of gravity, as set forth.

2. In means for connecting shafts the combination with a permanently approximately horizontal shaft and a hinged shaft situated

approximately in line therewith and capable of turning upward on the end of the permanently horizontal shaft, of means for coupling the two shafts together, when they are in line, means for automatically preventing the hinged shaft when turned up from falling back out of its turned up position, and means for preventing the hinged shaft from turning sidewise out of its turned-up position, as set forth.

3. In means for connecting shafts the combination with a permanently approximately horizontal shaft and a hinged shaft situated approximately in line therewith and capable of turning upward on the end of the permanently horizontal shaft, of means for coupling the two shafts together, when they are in line, means for automatically preventing the hinged shaft when turned up from falling back out of its turned up position, and means for locking the permanently horizontal shaft, whereby the hinged shaft is prevented from turning sidewise, as set forth.

4. In means for connecting shafts the combination with a permanently approximately horizontal shaft and a hinged shaft situated approximately in line therewith and capable of turning upward on the end of the permanently horizontal shaft, of means for coupling the two shafts together when they are in line, means for automatically preventing the hinged shaft when turned-up from falling back out of its turned up position, and forked guide for preventing the hinged shaft from turning sidewise out of its turned up position, as set forth.

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

EUGEN SEBASTIAN.

Witnesses:

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