

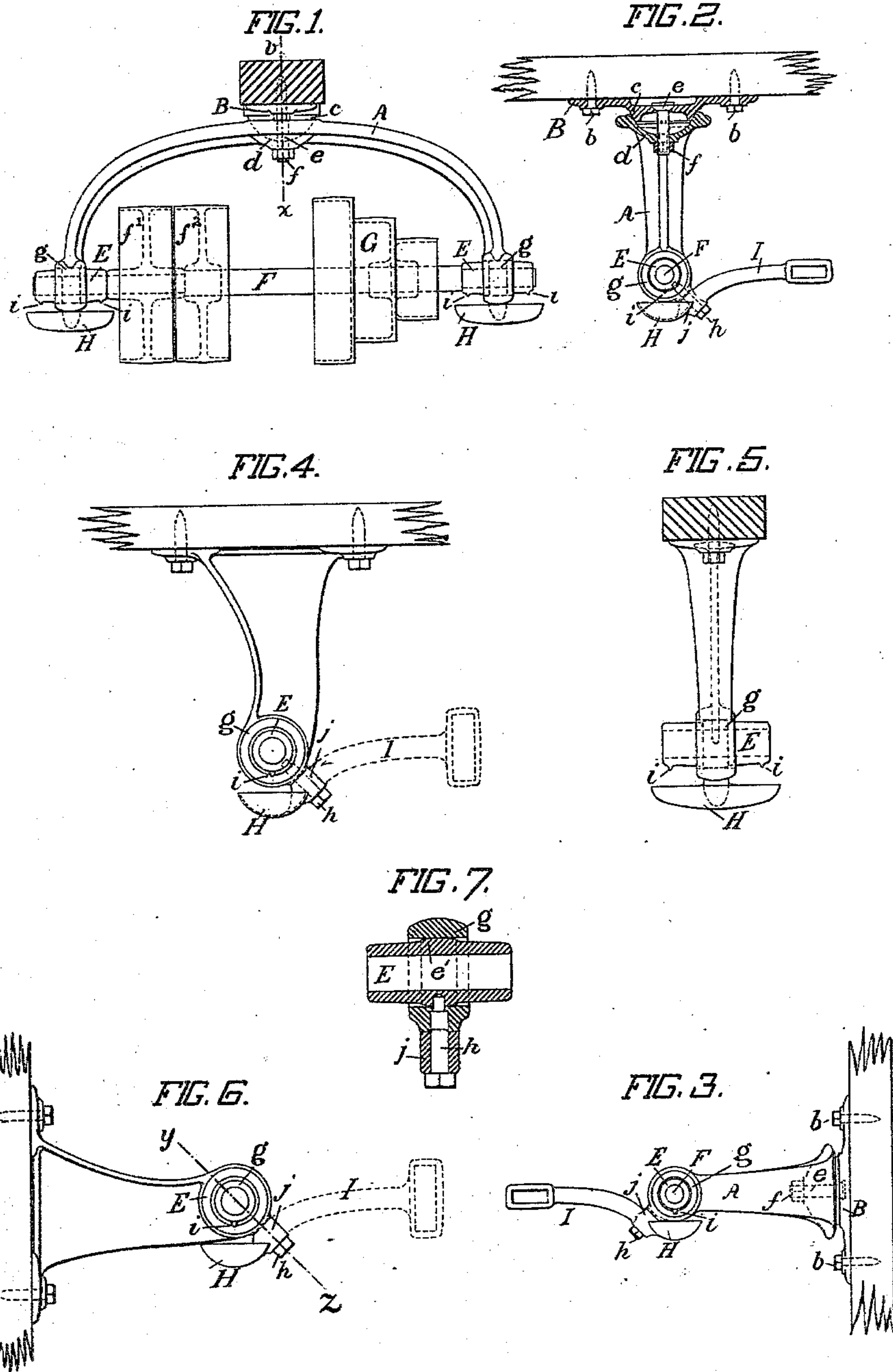
(No Model.)

T. BERGNER.

SHAFT HANGER.

No. 296,384.

Patented Apr. 8, 1884.



WITNESSES:

Louis Kuebler.  
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# UNITED STATES PATENT OFFICE.

THEODORE BERGNER, OF PHILADELPHIA, PENNSYLVANIA.

## SHAFT-HANGER.

SPECIFICATION forming part of Letters Patent No. 296,384, dated April 8, 1884.

Application filed February 28, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, THEODORE BERGNER, a citizen of the United States, residing at the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Hangers for Shafting, of which improvements the following is a specification.

My invention, while primarily intended for hangers of "counter-shafts," also embodies, in its present state of development, features of novelty which are equally applicable to hangers for line-shafting of almost any description used in the transmission of power in factories, &c.

The objects of my invention are, first, to provide facilities for the easy putting up and correct adjustment of counter-shafts; second, to afford facilities for such relative adjustment of parts in a hanger, duplex or single, as will adapt the same hanger either to vertical suspension from a ceiling or overhead beam, or to the position of a so-called "bracket-hanger" projecting horizontally from its fastening to a wall or post. Innumerable varieties of machines now employed in industrial pursuits require a transmission of power from the motor to the individual machines, and the use of pulleys and belts is almost universal for this purpose, an intermediate or counter shaft being placed between the continuously-revolving driving-shaft and the machine to be driven, so that the latter, by means of a fast and loose pulley on this counter-shaft and by a shifting belt or belts, may be started or stopped or reversed at any instant. Upon the true adjustment of the axis of this counter-shaft to that of the line-shaft and of the pulley-shaft of the machine the proper running of the belts is mainly depending, so that the correct putting up of the counter-shaft of ordinary construction, with two separate fixed hangers, requires the experience of a skilled mechanic. A small printing-press, for example, may often be suitably placed and secured to the floor by an inexperienced operative, while the aid of a machinist or millwright must be enlisted for the putting up of the counter-shaft sent with the machine, in order to insure the parallelism of shafts and the true running of the belts, without any tendency to slip sidewise and to run off the face of the pulleys. Now, to provide for the convenient putting up and easy and

correct adjustment of such counter-shafts by unskilled hands, the first part of my invention consists in carrying both journal-boxes of the counter-shaft in a single hanger, which, while supporting the counter-shaft at two points the proper distance apart, is itself only supported at a single point and adjustable about this point of support, and this in a ball-and-socket bearing, like a universal joint, so provided on a fixed footing-plate that the whole counter-shaft with its two journals may with ease be nicely adjusted or "lined" about this spheroidal bearing, and then, by the tightening of a single clamping-bolt, be so securely held in place as to safely withstand all working strains.

The second object of my invention is to provide a hanger with such facilities for the change of position of parts relatively to each other as to adapt the same hanger both for suspension vertically from a ceiling or beam and for lateral projection from a fastening to a post or wall. This object I attain by a novel means of conjointly holding the journal-box, oil-dish, (or drip-pan,) and belt-shifter arm so in place upon the body of the hanger that on loosening a single screw the position of these parts may instantly be so reversed as to change the condition of the hanger from that of a "drop-hanger" to that of a "bracket-hanger," or vice versa; and this second feature of my invention applies with the same utility to the single form of hangers now in general use for line-shafting and counter-shafts as to my improved duplex hanger, constituting the first part of my present invention, which is hereinafter more fully described, and illustrated in the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a front elevation of a counter-shaft with my improved duplex hanger suspended from an overhead beam. Fig. 2 is a sectional side view on the line *v x*, Fig. 1. Fig. 3 is a side view of my improved duplex hanger as secured to an upright post, and showing the journal-box, oil-dish, and belt-shifter arm suitably reversed for this horizontal position of the hanger. Fig. 4 is a side elevation of a suspended single hanger embodying my improvements for reversal of the journal-box and oil-dish, with or without a belt-shifter arm. Fig. 5 is an end view of Fig. 4. Fig. 6 is a



side view of my improved single hanger as fastened to an upright surface, and with its reversible parts adjusted for this horizontal position of the hanger. Fig. 7 is an enlarged section on the line  $y z$ , Fig. 6, showing details of the manner of reversing and securing in either position the journal-box, oil-dish, and—for counter-hangers—also the belt-shifter arm, (shown in dotted lines in Figs. 4 and 6.)

In Figs. 1, 2, and 3, A is the bow or frame of my improved duplex hanger. B is the stationary footing-plate, which, without regard to a correct level or true vertical position, as the case may be, is simply secured in place by wood-screws or bolts  $b b$ .  $c$  is the spheroidal adjusting and clamping surface for the universally-adjustable frame A, which has a concave counterpart,  $d$ , and turns to the required extent in every direction upon the central clamping-screw,  $e$ . When the shaft is duly adjusted, the tightening of the nut  $f$  firmly clamps the spheroidal surfaces together and prevents any slipping of the bow-shaped frame upon this secure fastening, so that the frame is thus maintained in its adjusted position. I deem it important to note here that this adjustable quality of the duplex hanger also admits, to an ample extent, of the easy taking up of any slack belts by a slight setting over of the shaft in the required direction to tighten the stretched belt, instead of shortening the latter.

E E, Fig. 1, are the two journal-boxes in which revolves the counter-shaft F. This is shown in Fig. 1 as provided with the usual fast and loose pulleys,  $f'$  and  $f''$ , and a cone-pulley, G. Each of the boxes E E is held in place within its socket  $g$  on frame A by a clamping set-screw,  $h$ , Figs. 2 and 3, and this same screw secures the oil-dish H and belt-shifter arm I, Figs. 2 and 3, in position upon the hanger, the details of this arrangement being more clearly shown in the enlarged section, Fig. 7. By placing this screw  $h$  and the respective clamping-surfaces at an angle of forty-five degrees to the horizontal and vertical planes, and by suitably conforming the eye or collar  $j$  of the casting comprising the oil-dish H and shifter-arm I, I attain the second object of my invention. Upon loosening the screw  $h$ , a half-turn of the released collar  $j$  around this screw will at once change the position of the oil-dish H and shifter-arm I from that shown in Fig. 2 to that shown at Fig. 3, thereby instantly converting a drop-hanger into a bracket-hanger, or vice versa. Upon ref-

erence to Fig. 7 it will be further seen that the point of the set-screw  $h$  enters a central collar or convex enlargement,  $e'$ , formed on the journal-box E, in such manner that, while it securely holds the box from revolving or moving endwise, it permits the box to adjust itself within the socket  $g$  to the position of the shaft, thereby avoiding the defects of rigid bearings by insuring reduced wear and uniform distribution of weight and friction over the entire length of the journal. When this box E is provided with little protuberances  $i i$  on its under side for leading the drippings of waste oil from the ends of the box into the oil-dish below, the box must also be turned end for end when the position of the hanger is changed; but this reversal of the boxes is not necessary when they are made plainly cylindrical without the bulbs  $i i$ .

Upon reference to Figs. 4, 5, and 6, illustrative of my improvement as applied to a single hanger, and bearing the same letters of reference for parts identical with those already described above, it will be seen that the second feature of my invention applies with equal utility to such single hangers which, by this improvement, may also be instantly converted from the condition of a drop-hanger to a bracket-hanger, or vice versa.

In Figs. 4 and 6 the belt-shifter arm is shown in dotted lines to indicate that such hangers may be made for line-shafting without the shifter-arm, and with it for counter-shafts requiring the use of one or more shifting belts.

Having thus described the nature and objects of my invention, what I claim herein as new, and desire to secure by Letters Patent, is—

1. A duplex hanger for counter-shafts mounted and universally adjustable upon a stationary foot-plate, substantially as and for the purposes described.

2. In combination with the frame, single or duplex, of a hanger, the journal-box, oil-dish, and clamping set-screw, substantially as and for the purposes set forth.

3. The combination, in a single or duplex hanger, of a reversible journal-box, reversible oil-dish, and reversible belt-shifter arm, substantially as and for the purposes described.

THEODORE BERGNER.

Witnesses:

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