

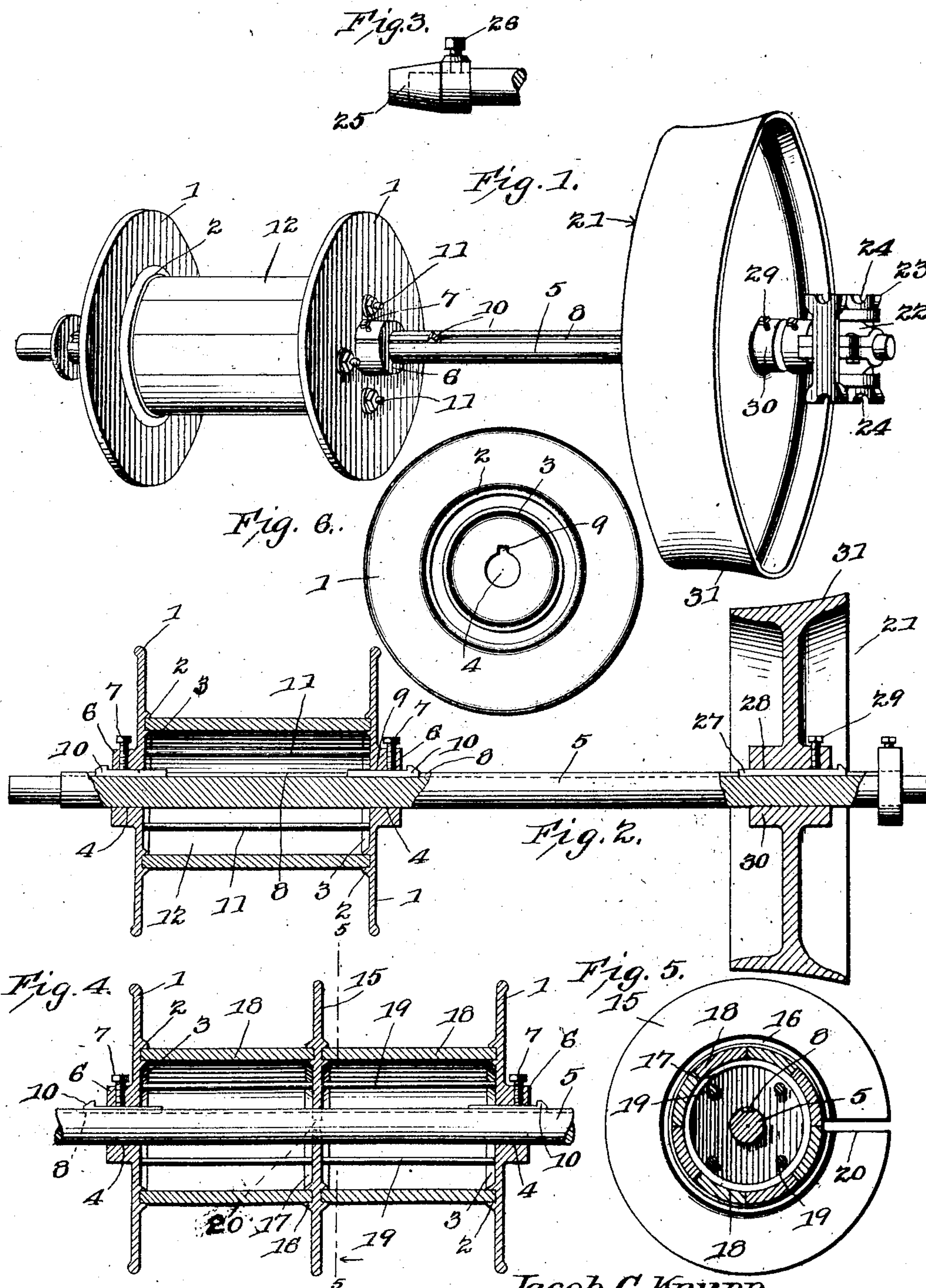
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J. C. KNUPP & J. G. GREENE.

SAND REEL.

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Witnesses

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# UNITED STATES PATENT OFFICE.

JACOB C. KNUPP AND JAMES G. GREENE, OF WARREN, PENNSYLVANIA.

## SAND-REEL.

No. 810,490.

Specification of Letters Patent.

Patented Jan. 28, 1903.

Application filed September 18, 1905. Serial No. 279,056.

*To all whom it may concern:*

Be it known that we, JACOB C. KNUPP and JAMES G. GREENE, citizens of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented a new and useful Sand-Reel, of which the following is a specification.

This invention relates to sand-reels for well-drilling machines, and has among its objects to simplify and improve the construction and operation of this class of devices.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement of parts which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations, and modifications within the scope of the invention may be made when desired.

In the drawings, Figure 1 is a perspective view of a sand-reel with its shaft and related parts constructed in accordance with the principles of the invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detail view showing a detachable gudgeon sometimes used in connection with the device. Fig. 4 is a longitudinal sectional view illustrating a modified form of reel. Fig. 5 is a transverse sectional view taken on the plane indicated by the line 5 5 in Fig. 4. Fig. 6 is a detail side view of a disk constituting one of the heads of the reel.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

The improved sand-reel includes a pair of solid disks 1 1, preferably of cast iron, and each provided on its inner side with a pair of annular concentric flanges 2 3. Each of the disks 1 has a central aperture 4 for the passage of the reel-shaft 5, and each of said apertures is surrounded by an external collar or hub 6, apertured for the passage of a set-screw 7, which extends radially in the direction of the shaft.

The shaft 5 is provided with a groove or key-seat 8, extending nearly or entirely through the length thereof, and the hubs of the disks are provided with corresponding

key-seats 9. When the disks are mounted upon the shaft, the key-seats 8 are brought into alinement with the key-seats in the hubs of the disks for the reception of keys or splines 10, whereby the disks are secured against rotation. It will furthermore be observed that the key-seats 9 are in registry with the apertures for the reception of the set-screws 7, so that when the parts are assembled said screws may be tightened upon the keys or splines, which are thereby secured firmly in position. The disks are to be fitted upon the shaft in such a manner that while a neat fit is assured there will be no difficulty in sliding or moving the disks lengthwise upon the shaft when the set-screws 7 are loosened.

The disks 1 1 are provided with perforations for the passage of bolts 11, whereby the said disks may be drawn tightly in the direction of each other, thus securing firmly in position the staves 12, which constitute the body of the reel and the ends of which are interposed between the flanges 2 3 of the disks. These staves may be made either of wood or metal, and when adjusted or mounted in the manner described and secured by drawing the heads 1 1 together by means of the bolts 11 they will constitute a drum of a very solid and durable nature, upon which the rope or flexible element whereby the sand-pump is operated may be wound in the usual manner.

In Fig. 4 of the drawings a double drum or reel is illustrated, which is constructed by interposing between the heads 1 1 an auxiliary disk 15, which is provided on each side with annular flanges 16 and 17, corresponding with the flanges 2 3 upon the inner sides of the heads. Two sets of staves, as 18, will be needed in the construction of the double reel, the heads of which are connected by means of bolts, (here designated 19,) which extend through the intermediate disks, thus tightening the staves securely in position. The intermediate disk 15 is provided with a radial slot 20, (clearly seen in Fig. 5,) which admits of the flexible element carrying the sand-pump, but which is not shown in the drawings, being transferred from one section of the double reel to the other. Additional partitions like the disk 15 may be used when desired.

The reel-shaft carries a friction-wheel 21, which may receive motion from a driven band-wheel for the purpose of operating the sand-reel, substantially as shown in Letters Patent of the United States No. 784,571.



granted to ourselves on the 14th day of March, 1905. In order that the shaft 5 may be manipulated so as to throw the friction-wheel into and out of engagement with the driving-wheel, one end of said shaft adjacent to the wheel 21 is journaled in a boxing 22, pivotally mounted in a frame 23, having grooved end members 24, adapted to slide in a suitably-constructed supporting-frame. (Not shown.) The opposite end of the shaft may be supported in a rocking box, or it may be provided with a detachable tapering gudgeon, as 25, secured in position by means of a set-screw 26 and adapted to be used in connection with a common knuckle-post as used in connection with standard well-drilling rigs.

The friction-wheel is preferably secured in position upon the shaft by means of a key or spline 27, engaging the groove 8 in the shaft, and a corresponding seat 28 in the hub of said friction-wheel, said spline being secured in position, as by means of a set-screw 29, extending through the hub 30 of the friction-wheel. The rim of the latter is preferably of the beveled and slightly-concaved shape, (shown in the drawings as 31,) whereby it is enabled to cooperate in a satisfactory manner with a driving-wheel of appropriate construction.

The operation and advantages of this invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed. The construction is simple, durable, and inexpensive,

and the improved device may be readily applied and utilized in connection with modern forms of well-drilling rigs.

Having thus described the invention, what is claimed is—

1. A sand-reel including two heads each provided on its inner side with a pair of concentric annular flanges, said heads being provided with hubs having key-seats and set-screws disposed in registry with the key-seats; in combination with staves having their ends seated between the flanges of the heads, means for drawing the latter tightly in the direction of each other, a shaft extending through the hubs of the heads and having a longitudinal groove in alinement with the key-seats in the hubs, and keys or splines engaging said groove and key-seats and secured by the set-screws.

2. A sand-reel including a pair of heads, means for drawing said heads in the direction of each other, staves interposed between the heads and constituting the reel-body or drum, and an intermediate or auxiliary disk having a radial slot.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JACOB C. KNUPP.  
JAMES G. GREENE.

Witnesses:

HARRY D. GRUNDER,  
MAY HOLLISTER.