

No. 686,037.

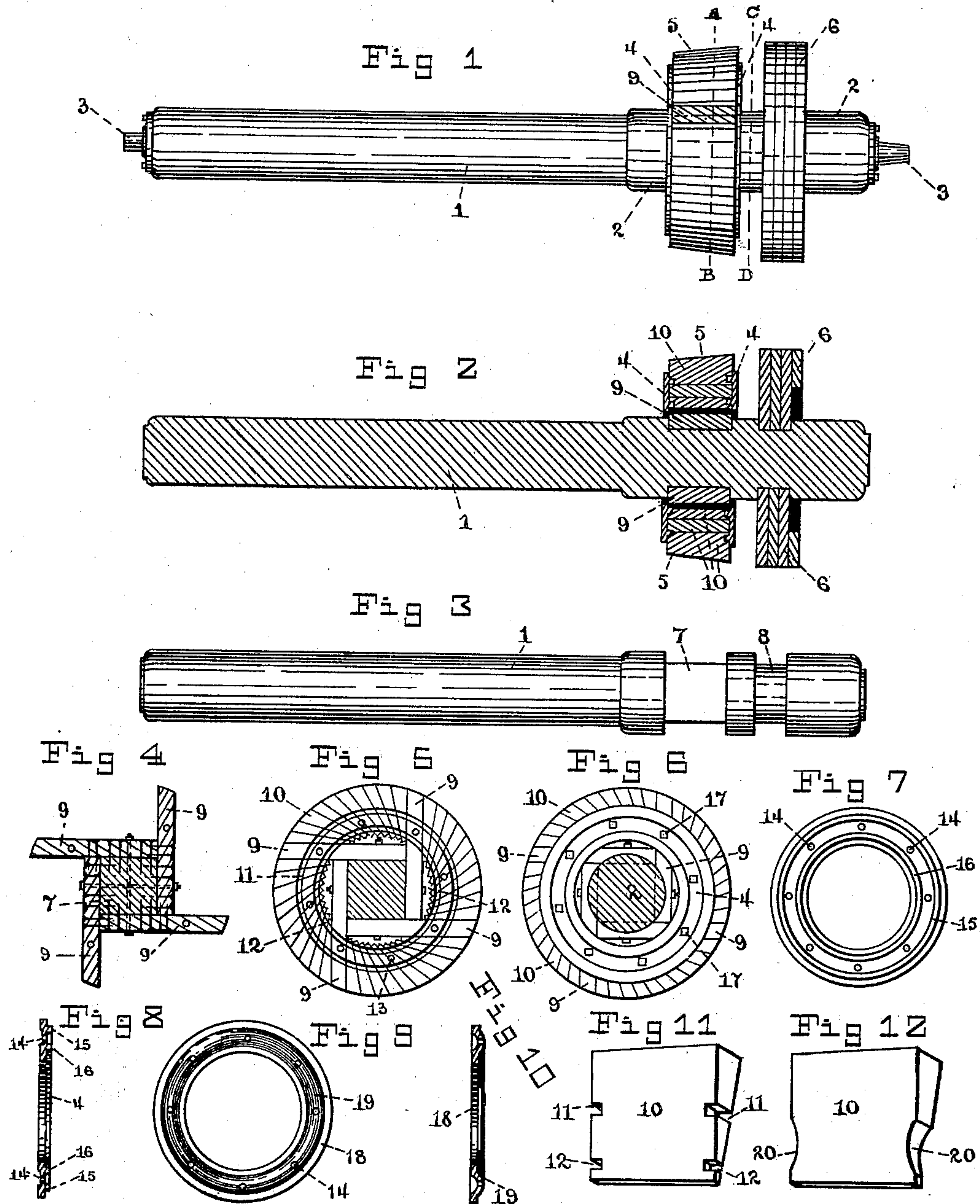
Patented Nov. 5, 1901.

H. W. EATON, JR. & A. BENSON.
SAND REEL FOR ARTESIAN WELLS.

(Application filed Mar. 4, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES;

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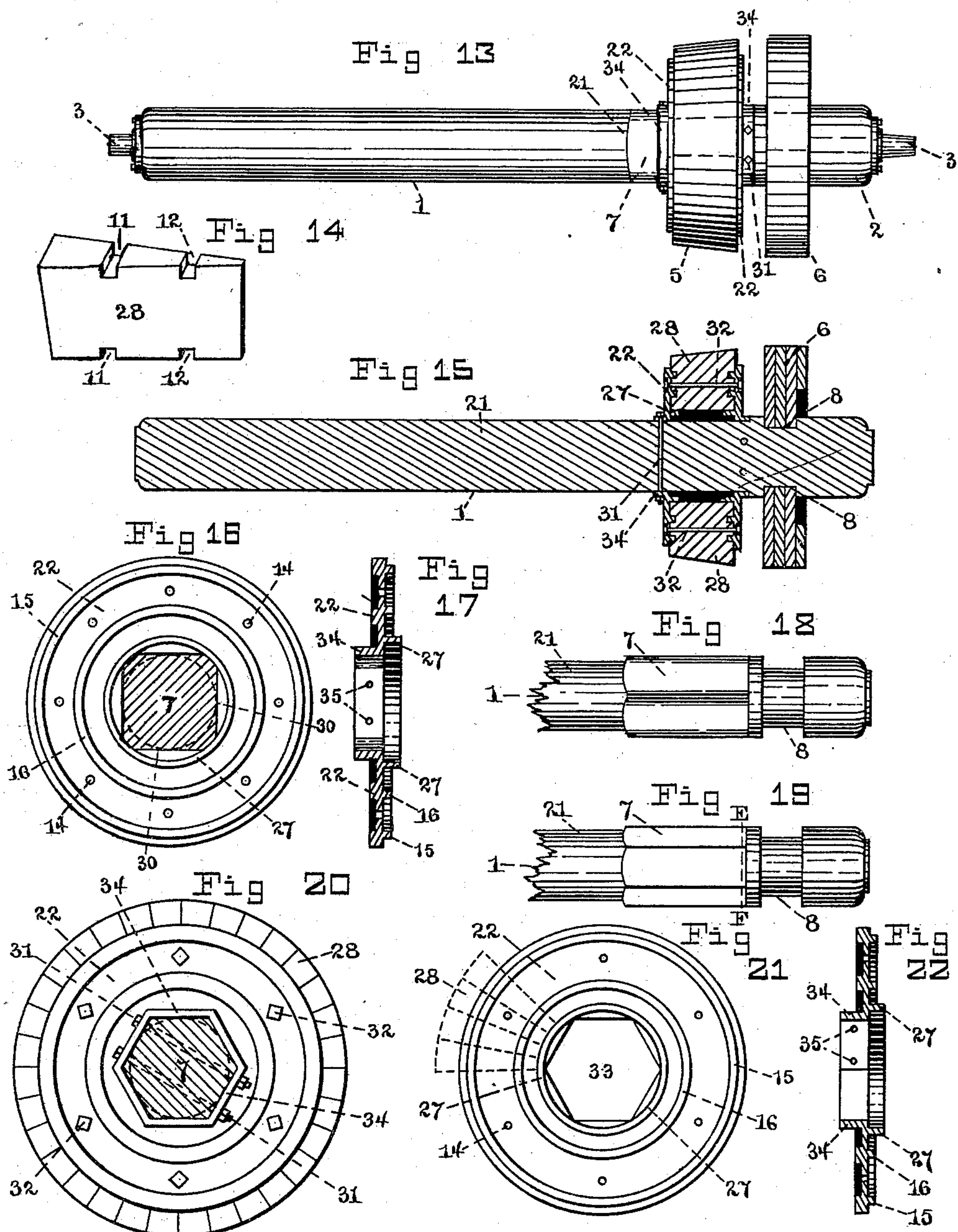
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UNITED STATES PATENT OFFICE.

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SAND-REEL FOR ARTESIAN WELLS.

SPECIFICATION forming part of Letters Patent No. 686,037, dated November 5, 1901.

Application filed March 4, 1898. Serial No. 672,503. (No model.)

To all whom it may concern:

Be it known that we, HIRAM W. EATON, Jr., and ANDREW BENSON, citizens of the United States, residing at Bradford, in the county of McKean and State of Pennsylvania, have invented a new and useful Improvement in Sand-Reels for Oil and Artesian Wells, of which the following is a specification.

Our invention relates to the art of well-drilling, and especially to the drilling of deep wells, so that, more particularly stated, the invention may be said to reside in an improved form of sand-reel for oil and Artesian wells. This being the scope of the invention, it is deemed unnecessary to illustrate various coacting though no less important elements of a complete well-rigging, though these are of course understood to be present, consisting usually of a derrick, an engine for furnishing power, a band-wheel for transmitting rotary motion to the sand-reel, and a sand-line capable of being spooled upon said reel.

Our improved sand-reel is secured in operative position upon the sills of the derrick, and, as is ordinarily the case, is to a slight degree horizontally movable at its head in order that it may at times be moved into contact with a friction-pulley, from which it receives its rotary motion in reeling up the sand-line.

The primary object and particular advantage of this invention therefore resides in the construction of a frictional driving-wheel and mounting same upon the shaft of a sand-reel in a more substantial, durable, and consequently efficient manner than has been the practice heretofore. To this extent the present application for Letters Patent is related to others of a series filed simultaneously herewith on the 4th day of March, 1898, and serially numbered, respectively, 672,502, 672,504, and 672,505.

The invention will be hereinafter described, and particularly pointed out in the claims following.

In the accompanying drawings, which form part of this specification, and whereon corresponding numerals of reference indicate the same parts in the several views, Figure 1 represents in side elevation one form of our invention detached, comprising a main shaft

or drum, end gudgeons or trunnions, a driving-wheel, and a brake-wheel. Fig. 2 is a longitudinal central section through parts last named. Fig. 3 is a side view of the main shaft stripped. Fig. 4 is a transverse section through said shaft and its attached arms, forming a foundation upon which the sectional driving-wheel is built. Fig. 5 is a transverse sectional view through the frictional driving-wheel on line A B, Fig. 1, showing manner of applying wedge-shaped blocks which constitute the friction-surface of said wheel. Fig. 6 is a similar transverse view on line C D of Fig. 1 looking in the direction of the driving-wheel. Fig. 7 is an inside face view of one annulus employed for binding and retaining the driving-wheel sections or wedge-blocks in operative position. Fig. 8 is a diametrical cross-section of the annulus illustrated by Fig. 7. Figs. 9 and 10 represent, in plan and cross-section, respectively, a modified form of retaining-rings. Fig. 11 is a perspective view of one wedge-block or sector in its preferred form. Fig. 12 is a similar view of another wedge-block or sector of modified form, adapted for use with the annulus illustrated by Figs. 9 and 10.

Reference being had to the drawings and numerals thereon, 1 indicates the spooling-shaft or reel-drum to which a sand-line is ordinarily attached, 2 an enlargement or head at end of said shaft, and 3 3 are gudgeons at opposite ends thereof, serving as trunnions upon which the reel is rotatably mounted.

The enlarged head 2 of shaft 1 in its preferred arrangement is squared, as best shown at 7, Fig. 3, and at this point a frictional driving-wheel of novel construction is bolted or spiked, as follows: Arms 9 are bolted and spiked or otherwise firmly secured to each of the squared surfaces aforesaid, one end of each arm overhanging its preceding arm and abutting against its succeeding arm, as clearly shown by Fig. 4. Upon these tangential arms 9 and their supporting-hub 7 are tangentially arranged around the spooling-shaft a series of wedge-shaped or sector friction-blocks 10, their width being in line with or substantially in the plane of the shaft, which blocks are in apposition and combine to produce an unbroken circular driving-wheel 5,

and said blocks are so cut lengthwise with the grain of the wood as to present at all times a cross-grain periphery or frictional working surface. The sectors or wedge-
 5 blocks 10 are preferably of a width equal to the transverse or operative face of the wheel and are grooved transversely upon each edge, as at 11 and 12, and arms 9 are like-
 10 wise configured so as to produce distinct concentric channels upon each side of the head or driving wheel 5 when its arms and blocks are thus assembled.

Flanking the head 5 upon both sides are metallic rings or annuli 4 4, upon the oppos-
 15 ing faces of which project concentric ribs 15 and 16, corresponding in position with the channels 11 and 12 aforesaid, into which they snugly fit, as shown by Fig 2. Rings or an-
 20 nuli 4 4 are perforated by a series of bolt-holes 14, and through these are projected bolts 17 for the purpose of securely retaining said blocks 10 and rings 4 4 together in oper-
 25 ative relation and binding same to the tangential arms 9. Beyond head 5 the enlargement 2 of shaft 1 is turned down slightly, as at 8, to receive a sectional brake-wheel 6. The latter is by preference constructed of
 30 hemlock wood and is made up of individual flanges, each divided upon a median line to permit of attachment in their common groove or hub-channel 8. In the present instance four parts or sections are employed. The wheel 6 is therefore a laminated structure, and in assembling the same care is taken to
 35 stagger the grain of the several sections, thus increasing the life of the wheel and distributing the wear more uniformly.

This being a general description of our invention, it should be understood that various
 40 modifications in the arrangement and combination of component parts may be made and substituted for those hereinbefore set forth without departing from the spirit of the invention. For instance, an annulus
 45 such as illustrated by Figs. 9 and 10 of the drawings, made of pressed or cast steel or of cast-iron, may be employed in place of those indicated by Figs. 7 and 8, in which case the wedge-blocks or sectors 10 are provided with

single side grooves 20 for reception of an em- 50
 bossment, as 19, on said annuli.

As the sand-reel friction driving-wheel 5, hereinbefore described, is composed of a series of wedge-blocks or sectors of width equal to the operative face of the wheel, cut length- 55
 wise with the grain and held between clamp-rings or annuli, it will be evident that in operation all applied force will tend rather to bind than disrupt the sections, thus adding greatly to the stability of the construction, while the 60
 relation of the fiber to the wheel will increase its frictional and wearing qualities.

Having thus described our present invention, we claim and desire to secure by Letters 65
 Patent—

1. In a sand-reel for oil and Artesian wells the combination with a spooling-shaft, of a polygonal hub upon the head of said shaft, tangential arms secured to said hub, a series of wedge-blocks surrounding the shaft in 70
 tangential arrangement, and binding-rings embedded in opposite sides of said friction-blocks, substantially as described.

2. The combination with the spooling-shaft of a sand-reel, said shaft having a polygonal 75
 portion, of a driving-wheel comprising a series of tangentially-arranged arms secured to the polygonal portion of the shaft, a series of sector or wedge shaped blocks of width equal to the width of the operative face of the wheel, 80
 said blocks arranged between the tangential arms in apposition and in line with the shaft, and means for confining the said sector-shaped blocks, substantially as and for the purposes specified. 85

3. The combination with the spooling-shaft of a sand-reel, of a driving-wheel mounted thereon, and a brake-wheel comprising a plurality of laminated sections arranged with the grain of the wood of one lamina staggered 90
 with relation to the grain of the wood of the adjacent lamina, substantially as and for the purposes specified.

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Witnesses:

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