

(No. Model.)

2 Sheets—Sheet 2.

W. RICHARDS.
SAND REEL FOR DRILLING MACHINES.

No. 413,733.

Patented Oct. 29, 1889.

Fig. 3

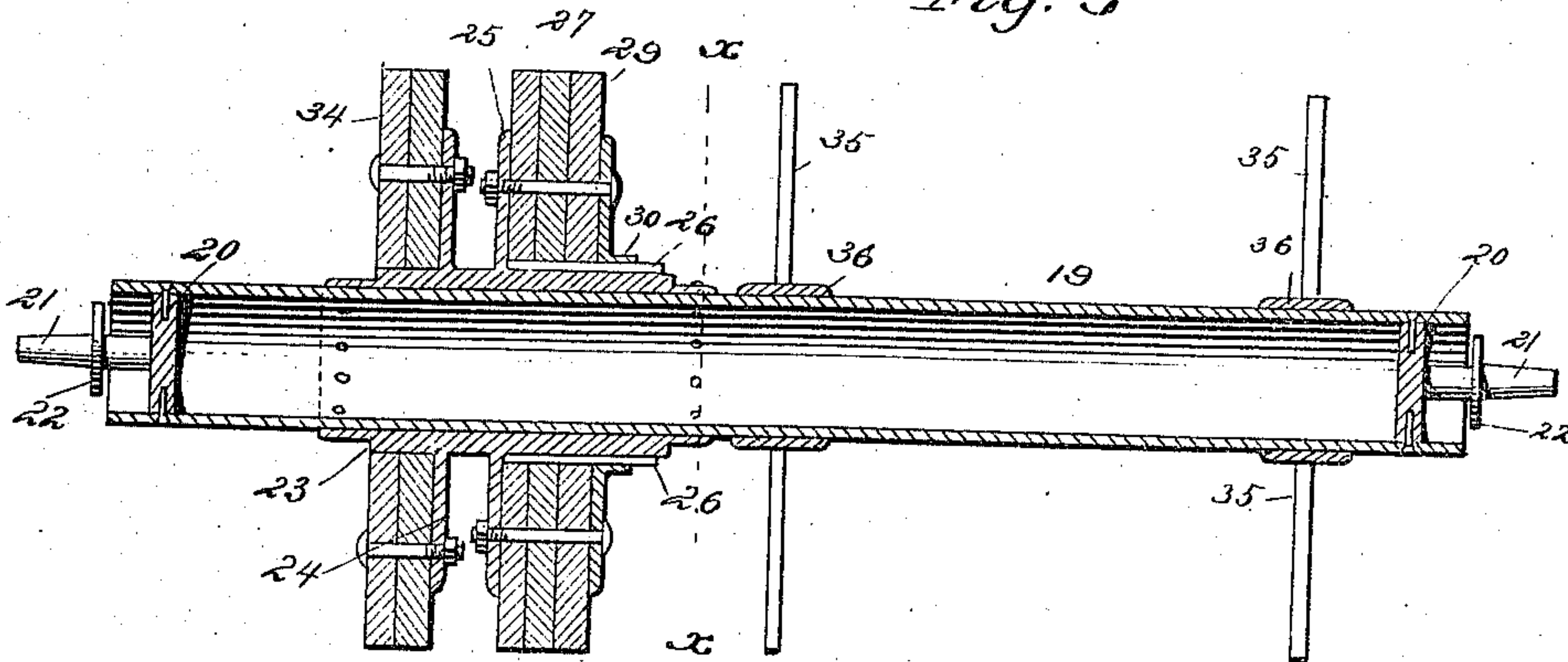


Fig. 4.

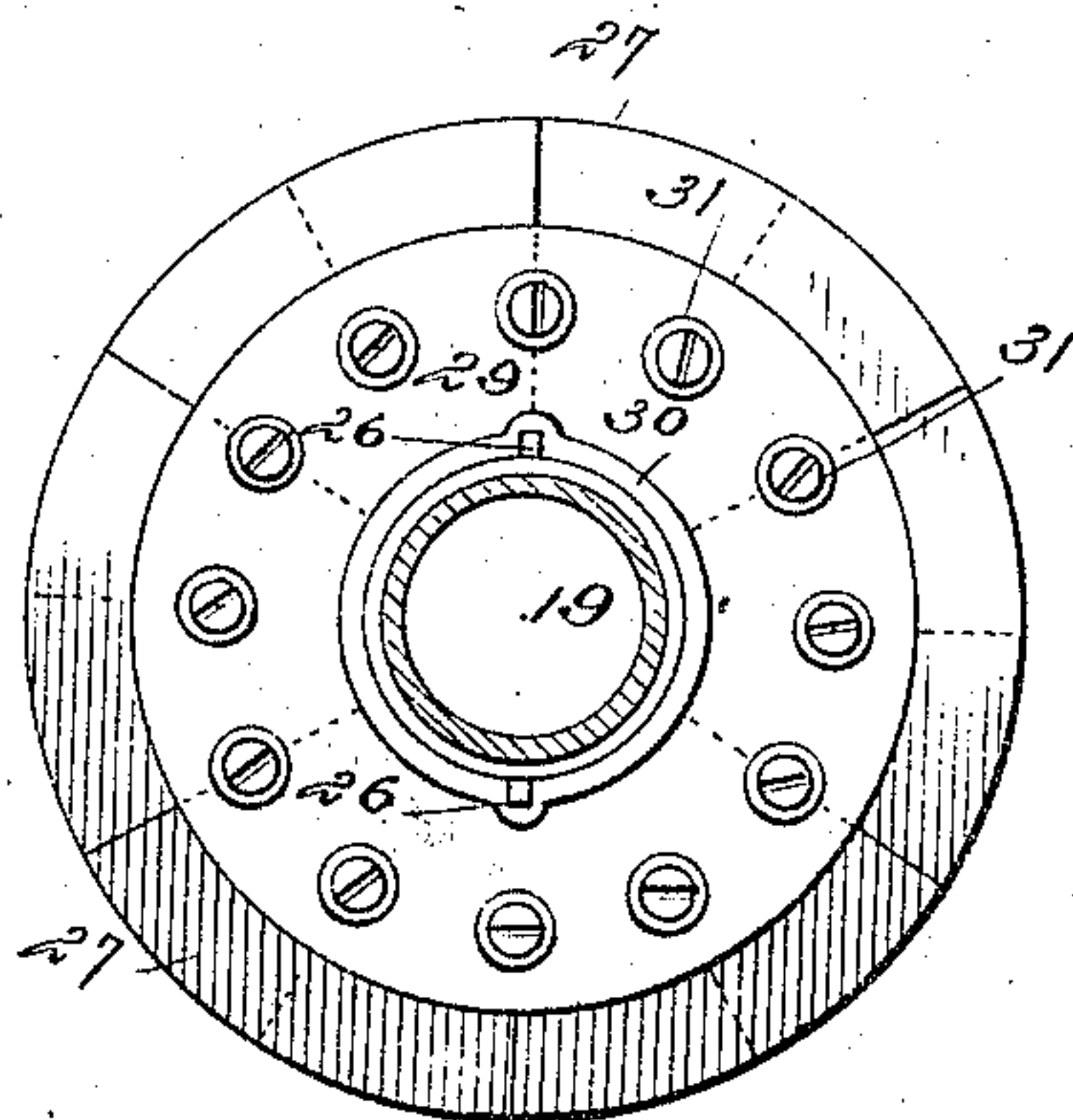
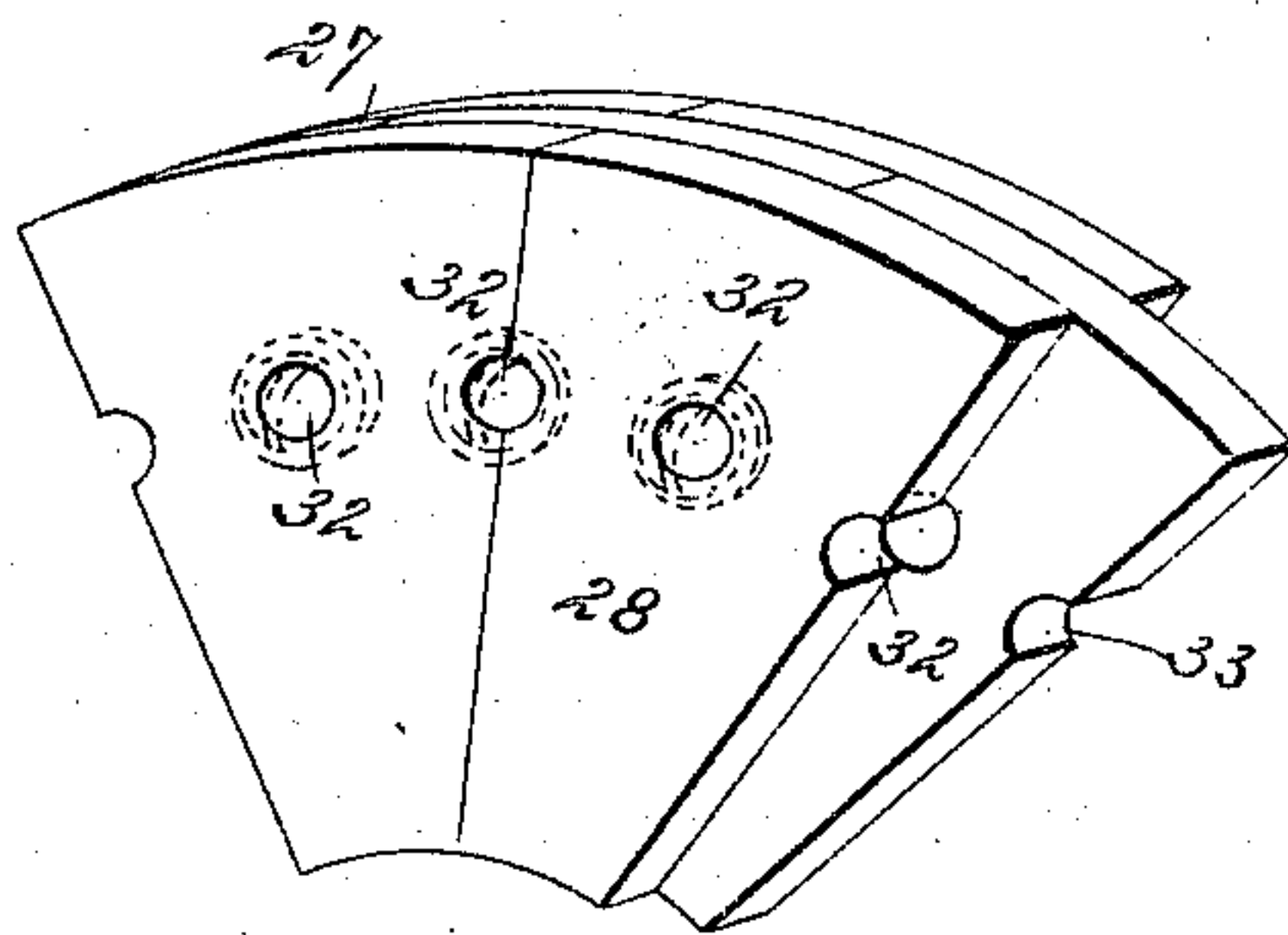


Fig. 5.



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WILLIAM RICHARDS, OF MAYBURG, PENNSYLVANIA:

SAND-REEL FOR DRILLING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 413,733, dated October 29, 1889.

Application filed December 7, 1888. Serial No. 292,905. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM RICHARDS, of Mayburg, in the county of Forest and State of Pennsylvania, have invented new and useful Improvements in Sand-Reels for Drilling-Machines, of which the following is a full, clear, and exact description.

My invention relates to an improvement in sand-reels for drilling-machines, and has for its object to provide a reel of simple and durable construction, in which the friction-pulley will be free from cleats, and wherein the shaft will be stronger than heretofore and not liable to as rapid decay; also, wherein the gudgeons will be prevented from becoming loosened by the heat of the bearings.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of a reel attached to the main sills of the drill-frame. Fig. 2 is an end view of the reel and the band-wheel. Fig. 3 is a central vertical section through the reel. Fig. 4 is a transverse section on line $x x$ of Fig. 3, and Fig. 5 is a perspective view of a segment of the friction-pulley.

The prime object of the invention is to provide a sand-reel of simple and durable construction purposed for use in connection with the sand-pump of a drill adapted for drill-wells.

In Figs. 1 and 2 I have illustrated a portion of a drill-frame and the location of the sand-reel upon such frame. The sand-reel is shown as mounted in bearings 10, attached to the main sills 11, and the friction-pulley of the reel is shown as engaging with the band-wheel 12, also mounted upon the sills. The band-wheel carries a bull-rope 13, adapted to pass over a bull-wheel. (Not illustrated.) A walking-beam 14 is shown connected with the band-wheel by a pitman 15, and a portion of the sand-reel draw-bar 16 is also illustrated having pivoted thereto the sand-reel lever 17. The sand-pump line 18 is illustrated as coiled upon the reel.

In carrying out the invention, the sand-reel

consists of a tubular body 19, (best shown in Fig. 3,) having a disk 20 riveted or otherwise secured at each end, from the center of which disks a gudgeon 21 is outwardly projected, provided with a collar 22, to take the end friction and keep the thin end of the hollow shaft or body from cutting the bearings. The outer extremity of the gudgeon may be made tapering, as illustrated, or cylindrical, if so desired. Upon the shaft or body 19, at one side of the center, a tubular sleeve-like casting 23 is riveted or otherwise secured, which sleeve-like casting is provided between the ends with approaching independent integral annular flanges 24 and 25, and two or more feathers 26 are produced upon the outer face of the sleeve-like casting 23, extending longitudinally of the same from the flange 25 outward to the end of said casting, as best shown in Figs. 3 and 4. The friction-pulley 27 is preferably constructed of series of wooden segments 28, arranged to break joints, as illustrated in Fig. 5, and having the grain of the wood radially of the pulley. One side of the pulley 27 so constructed is made to bear against the annular flange 25, and a detachable flange 29 is brought in close contact with the opposite side of the pulley, as best illustrated in Fig. 3. The detachable flange 29 is provided with a short hub 30, and the hub and flange are grooved to receive the feathers 26, whereby the said flange is prevented from moving upon the sleeve-like casting 23. The inner ends of the segments above the said feathers are also grooved to receive the same. The segments constituting the friction-pulley 27 are held in close contact with each other and with the flanges 25 and 29 by a series of transversely-arranged bolts 31, as best shown in Figs. 3 and 4. These bolts are so arranged that one bolt will pass through the center of the outer segment and through the inner segment lying between the two said outer segments, as best shown in Fig. 5, and the next bolt is made to pass through the joints of the outer segments and the center of the inner segment, breaking the joints of the said outer segments, as is also illustrated in Fig. 5. To this end each segment making up the pulley is provided with a central aperture 32 and an essentially transverse aligning circular

recess 33 in the side edges. The arrangement of the several bolts 31 is plainly shown in Fig. 4. The brake-pulley 34 is also mounted upon the sleeve-like casting 23, and is securely bolted to the outer face of the flange 24. The brake-pulley 34 may be of any approved construction, and is made to operate in the ordinary manner.

It will be observed by reason of the construction above described of the friction-pulley that the filling or face of the pulley can never be torn away so as to destroy it, as is often the case with the old style of friction-pulley.

In order that the sand-pump line, when coiled upon the body of the shaft 19, as illustrated in Fig. 1, may not slide over upon the gudgeon 21, the said line is confined to a given space by means of arms 35, projected radially from spaced collars 36, which collars are rigidly secured to the shaft or body, as best shown in Figs. 1 and 3.

While I have illustrated a tubular shaft and the gudgeons 21 as applied to the sand-reel, I desire it to be distinctly understood that the same shaft is equally applicable to the bull-wheels of a well-drilling machine.

If in practice it is found desirable, paper may be substituted for the wooden segments

forming the friction-pulley, or the wood or paper used in building up said pulley may consist of a series of disks or rings bolted together; substantially in the manner specified.

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

The hereinbefore-described improvement in sand-reel pulleys, consisting of a sleeve-like casting adapted to be secured upon the shaft 19, provided with two spaced integral annular flanges upon the periphery, feathers extending from one flange to the end of the casting, a friction-pulley consisting of a series of wooden segments arranged to break joints, located upon the sleeve-like casting at the feathered portions and bearing against one of the said flanges, a detachable flange engaging one face of the pulley, bolts passing through the two flanges and through the said pulley at the center and joints of the several segments, and a brake-pulley rigidly secured to the remaining flange, all arranged substantially as and for the purpose described.

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