

F. T. KERNS.
BULL WHEEL.
APPLICATION FILED OCT. 11, 1912.

1,102,154.

Patented June 30, 1914.

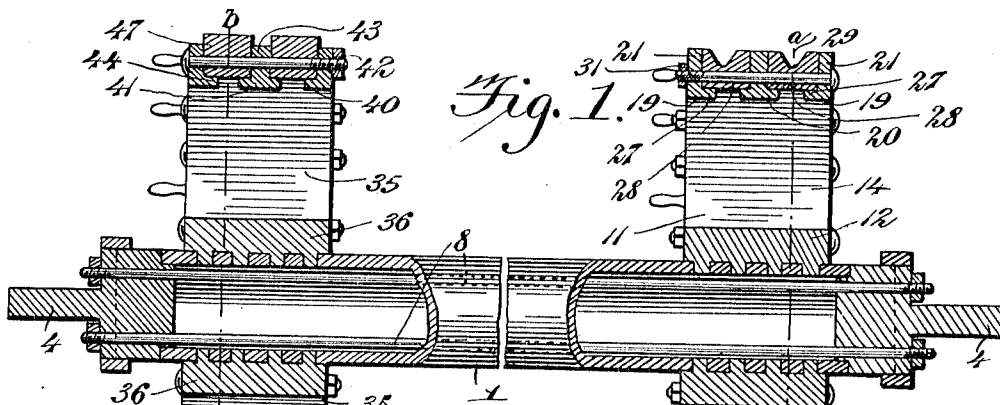


Fig. 1.

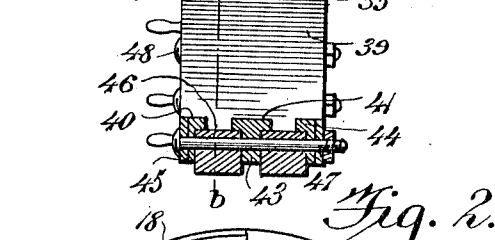


Fig. 2.

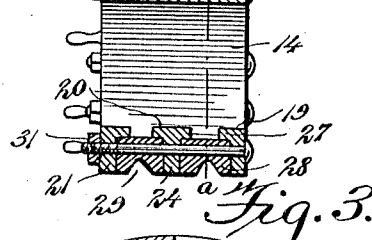


Fig. 3.

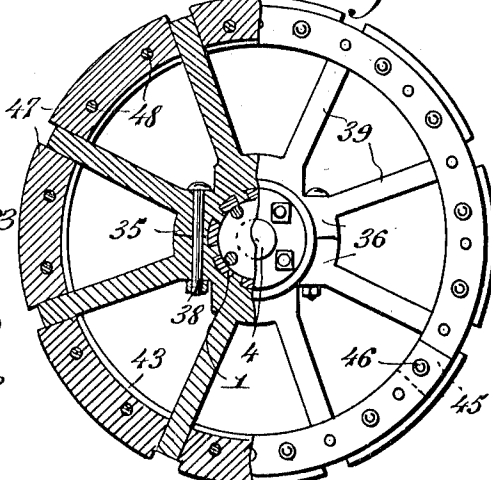
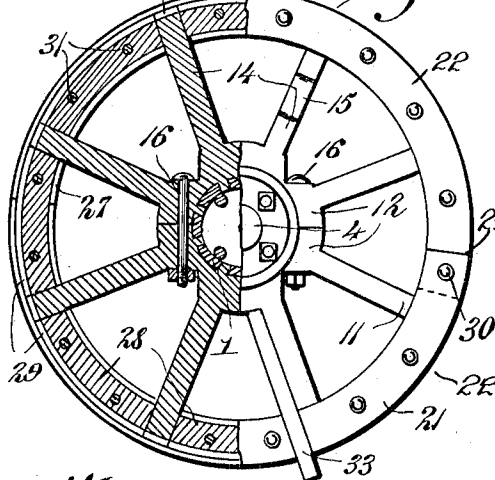
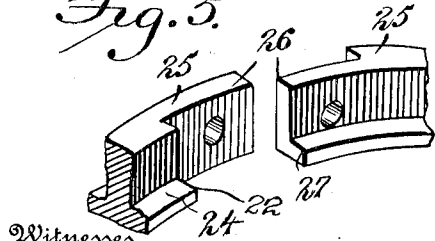
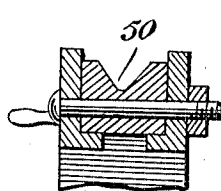


Fig. 4.

Fig. 5.



Witnesses
W. S. McIlwain
J. C. Garner



Inventor
Francis T. Kerns

By Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

FRANCIS T. KERNS, OF BEHLER, WEST VIRGINIA.

BULL-WHEEL.

1,102,154.

Specification of Letters Patent.

Patented June 30, 1914.

Original application filed March 2, 1912, Serial No. 681,105. Divided and this application filed October 11, 1912. Serial No. 725,278.

To all whom it may concern:

Be it known that I, F. T. KERNS, a citizen of the United States, residing at Behler, in the county of Monongalia and State of West Virginia, have invented new and useful Improvements in Bull-Wheels, of which the following is a specification.

This invention relates to improvements in bull wheels or winding drums such as are employed in connection with well drilling rigs for drilling oil and other like wells, and consists in the construction, combination and arrangement of devices hereinafter described and claimed.

The present case is a division of my co-pending application for Letters-Patent of the United States filed March 2, 1912, Ser. No. 681,105.

One object of the invention is to effect improvements in the construction of the tug and brake wheels.

Another object is to provide the tug and brake wheels which are made of wood and may be readily removed and renewed when worn.

In the accompanying drawing:—Figure 1 is a vertical longitudinal central sectional view of a bull wheel constructed in accordance with my invention. Fig. 2 is partly an end elevation and partly a sectional view of the same on the plane indicated by the line *a—a* of Fig. 1 and intersecting the tug wheel. Fig. 3 is a similar view, the section plane of which is indicated by the line *b—b* of Fig. 1, and intersects a brake wheel. Fig. 4 is a detail sectional view, showing a portion of the tug wheel embodying a modification of my invention. Fig. 5 is a detail perspective view, showing portions of one of the rim rings detached, to illustrate the construction of the overlapping joint between said portions.

The shaft 1 of my improved bull wheel is here indicated as a tube, provided with gudgeons 4 at its ends and also provided with bolt rods 8 which secure the gudgeons in place.

The specific features of the present case are the construction of the tug wheel and the brake wheel as I will now describe.

The tug wheel 11 is formed with a pair of separable tug members 12 which are clamped together and on opposite sides of the tubular shaft 1. Each member of the hub of the tug wheel is provided with a series of spoke

members or arms 14 some of which are in practice formed, on their outer sides, with the usual "helpers" such as indicated at 15. The hub members of the tug wheel are detachably secured together by means of bolts 16 and the spokes or arms of the tug wheel are provided at their outer ends with V-shaped notches 18 and are also provided at their sides with recesses 19 and also with medially disposed recesses 20 at their outer ends.

Outer rim rings 21 are fitted in the recesses 19 and each comprises a pair of semi-circular or segmental members connected at their ends by overlapping joints. A centrally arranged rim ring 24 which is of the same diameter as the rim rings 21 is fitted in the recesses 20 in the outer ends of the spokes or arms of the tug wheel and is also composed of a pair of semi-circular or segmental members 25, the ends of which are connected by overlapping joints 26. The rim rings are provided at their inner sides with inwardly extending flanges 27 on their opposing surfaces which flanges support tug cants or segments 28. These cants or segments are made of wood, are adapted to be renewed when worn and are provided with grooves 29 in their outer sides which correspond with the notches 18 at the outer ends of the spokes or arms and are adapted to receive the usual tug rods or cables. The overlapping ends of the rim rings are connected together by bolts 30, which also secure the rim rings to the spokes or arms of the tug wheel and the cant segments 28 are detachably secured in place between the rim rings and the spokes or arms by means of bolts 31 which extend transversely through the cant segments and also through the rim rings.

One of the segments or members of the outer rim ring is formed with a dog 33. All the parts of the tug wheel except the cants or cant segments are made of iron or steel and may be cast. Hence, the tug wheel is exceedingly strong, is adapted to be readily disassembled or assembled and may be manufactured at comparatively slight cost. It requires only a short time in which to remove any of the cant segments and replace the same by a new one and, hence, the tug wheel may be continued in service for an indefinite period of time, the cant segments which are made of wood and which are the only members of the tug wheel that are sus-

ceptible to wear being thus adapted to be readily and economically renewed.

The brake wheel 35 comprises a pair of hub members 36 which are identical in construction with those of the tug wheel, the members of the brake wheel being secured together and on opposite sides of the tubular shaft by bolts 38 and the spokes or arms 39 of the brake wheel being provided at their outer ends with side recesses 40 and centrally disposed recesses 41 which respectively receive the side and center rim rings 42-43. The rim rings of the brake wheel are substantially identical in construction with those of the tug wheel and are provided on their inner sides with inwardly extending flanges 44 which project from their opposing surfaces, the side rim rings of the brake wheel being provided with overlapping joints 45 and their members being secured together and also to the outer end of the hubs of the brake wheel by means of bolts 46. The cants 47 on the brake wheel are made of wood, are fitted between the outer ends of the spokes of the brake wheel, and also between the rim rings thereof, and their inner sides bear on the flanges of said rim rings, the outer sides or peripheries of the cants of the brake wheel projecting beyond the outer sides or peripheries of the rim rings and beyond the outer ends of the spokes of the brake wheel, as shown. These cants are detachably secured in place by means of bolts 48 which permit of their ready removal and renewal when they become worn and, hence, the brake is adapted to be also kept in use for an indefinite period of time.

In Fig. 4, I have shown a modified form of the tug wheel in which the central rim ring of the tug wheel is dispensed with and the cant of the tug wheel forming only a single peripheral groove 50 for engagement by a single tug rope or cable.

I claim:—

1. In a device of the class described, a wheel member having spokes or arms provided with recesses and also with projections at their outer ends, in combination with rim rings spaced apart, arranged in said recesses and provided with supporting flanges on their opposing sides, the said rim rings being detachable from the said spokes

or arms, and cant members detachably secured in the spaces between the ends of the spokes or arms and the opposing sides of the rim rings, said cant members bearing between and being spaced between the projections of the outer ends of the spokes or arms and being engaged on their inner sides by the supporting flanges of the rim rings.

2. In a device of the class described, a wheel member having separable hub members provided with spokes or arms formed therewith, and means to secure the hub members together and permit of their being detached, said spokes or arms being provided with recesses and projections at their outer ends, in combination with rim rings spaced apart, arranged in said recesses and provided with supporting flanges on their opposing sides, the said rim rings being detachable from the spokes or arms, and cant members bearing between and being spaced between the projections of the outer ends of the spokes or arms and being engaged on their inner sides by the supporting flanges of the rim rings.

3. In a device of the class described, a wheel member having separable hub members provided with spokes or arms formed therewith, and means to secure the hub members together and permit of their being detached, said spokes or arms being provided with recesses and projections at their outer ends, in combination with rim rings spaced apart, arranged in said recesses and provided with supporting flanges on their opposing sides, the said rim rings being detachable from the spokes or arms, cant members bearing between and being spaced between the projections of the outer ends of the spokes or arms and being engaged on their inner sides by the supporting flanges of the rim rings, the said cant members and rim rings being composed of detachable segments, and bolts extending through the rim rings and cant members and securing them together and on the outer ends of the spokes or arms.

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

FRANCIS T. KERNS.

Witnesses:

NIMROD EDDY,
P. W. MOORE.