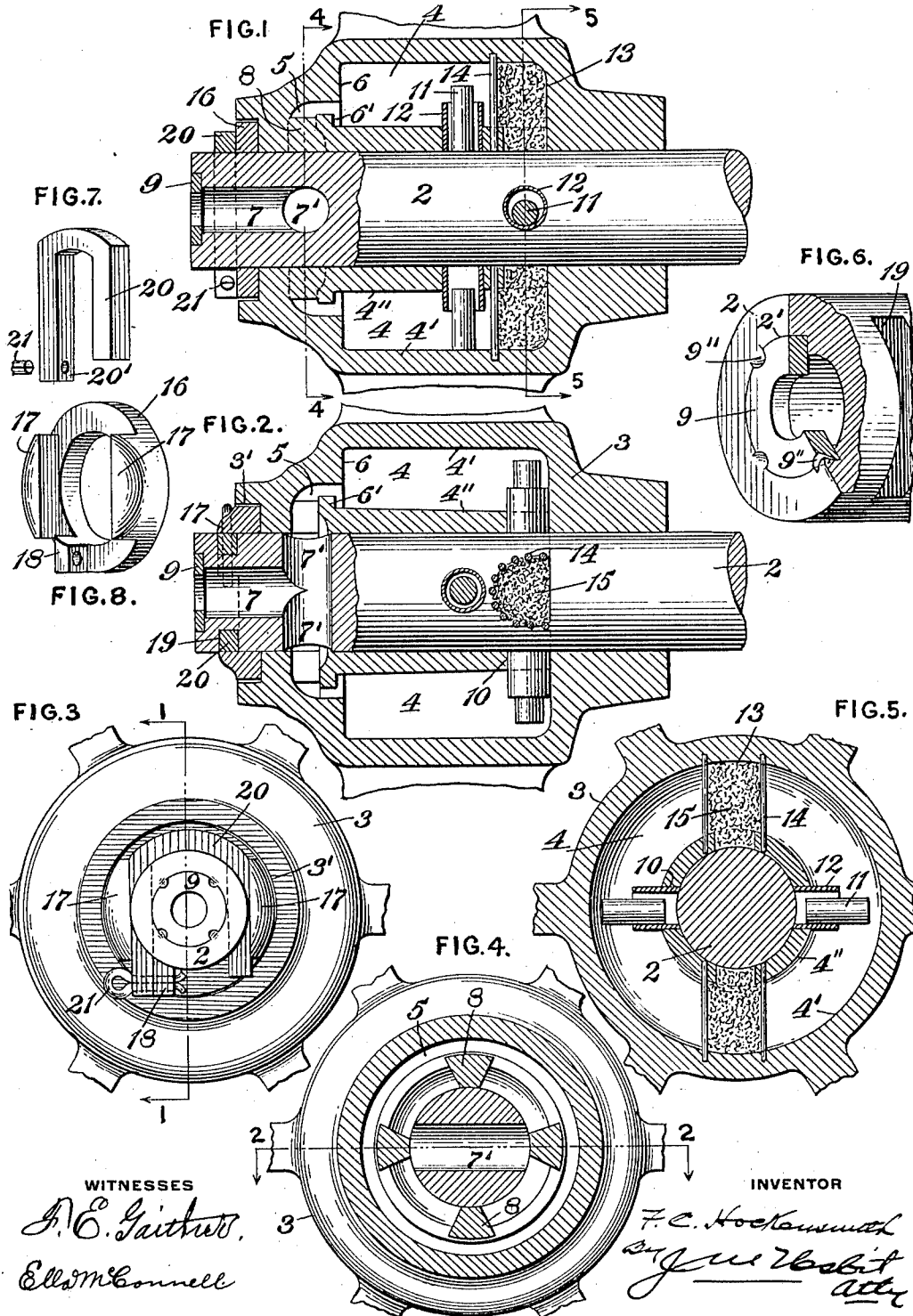


F. C. HOCKENSMITH.
MINE CAR WHEEL.
APPLICATION FILED NOV. 8, 1911.

1,061,746.

Patented May 13, 1913.



UNITED STATES PATENT OFFICE.

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MINE-CAR WHEEL.

1,061,746.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed November 8, 1911. Serial No. 659,217.

To all whom it may concern:

Be it known that I, FRANKLIN C. HOCKENSMITH, a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Mine-Car Wheels, of which the following is a specification.

This invention relates to self-lubricating wheels, and has particular reference to wheels for mine cars.

One object is to facilitate the filling of the oil chamber, and also to provide improved means for preventing the escape of oil through the filling inlet.

A further purpose is to provide improved means for passing oil from the chamber to the journal.

Still a further purpose is to provide efficient means for confining the wheel on the journal.

In the accompanying drawings, Figure 1 is a vertical section of the wheel and journal, taken on line 1—1 of Fig. 3, and Fig. 2 is a similar section taken at right angles to Fig. 1, on line 2—2 of Fig. 4. Fig. 3 is a front or face view. Figs. 4 and 5 are cross-sections on lines 4—4 and 5—5, respectively, of Fig. 1. Fig. 6 is a detail of the axle extremity. Figs. 7 and 8 are details of the wheel-securing devices.

The invention is here illustrated in connection with a wheel for mine cars, 2 being the axle or journal on which hub 3 of the wheel rotates, the hub being cored circumferentially to form the surrounding oil chamber 4 of which 4' is the outer wall and 4'' the inner wall, the latter tapering slightly toward the rear end of the chamber, as shown. Oil is admitted to the chamber through annular port 5 which opens through the front end wall 6 of the chamber, port 5 curving toward and opening through the bore of the hub where it registers with the lateral branches 7' of the oil inlet port 7 extending inwardly from the extremity of axle 2. The main or outer portion of chamber wall 6 overhangs that portion 6' of the wall that is surrounded by port 5, the inner longitudinal portion of chamber 4 being thus slightly longer than the outer portion, so that when the wheel comes to a standstill the oil in the uppermost part of the chamber will drip clear of port 5 and is thus pre-

vented from flowing outwardly into the filling port.

8 are webs or solid portions bridging port 5 in the plane of the wheel bore and operating to wipe the oil from the journal in the plane of branch ports 7' and thus still further prevent leakage. As an additional precaution against the outflow of oil the outer extremity of axle 2 is countersunk at 2' and seated therein is the washer-like ring 9 having an opening of smaller diameter than port 7, thus contracting the latter so that if the oil should rise or back-up within port 7 it cannot escape until of sufficient depth to pass through the port contracting ring. For holding the ring in place its outer face may be formed with depressions with the metal of the axle extremity upset into these depressions at 9''.

Openings 10 are formed through the inner wall 4'' of the oil chamber for passing the lubricant to the journal, and loosely fitting and movable within each of these openings is a pin 11, the pins being shorter than the distance between the journal and outer wall 4' of the oil chamber so that the pins may move inward and outward as the wheel rotates and thus facilitate the flow. Oil used for mine cars is usually rather thick or heavy and its movement is sluggish, particularly in cold weather. The in and out motion of the pins prevents clogging, and will tend to feed the sluggish lubricant to the journal. In the preferred construction each of openings 10 is provided with a tube or liner 12, cast in place when the wheel is formed, and as these tubes are formed of short sections of finished pipe, they present smooth surfaces to pins 11. The tubes are of such length as to prevent the pins from becoming displaced when extended outwardly against wall 4', as at the bottom of Figs. 1 and 2. Four of these oil feeding devices are shown arranged in pairs at right angles to each other and with one pair offset from the other pair, this arrangement facilitating insertion of the pins while placing the wheel on the axle, and also leaving room at the inner end of the oil chamber for the opposite caged spaces 13 which open through the bore of the wheel, said spaces being inclosed by the cast-in rods 14, with the spaces filled with packing of hair or

other material 15, as in my Patent No. 687,027, November 19, 1901. These cages and packed spaces provide additional means for passing the lubricant to the journal, and may be used in connection with the movable pin feeders, or omitted altogether as desired.

The wheel may be confined on the axle by a washer-like head 16 embracing the axle within the countersunk extremity 3' of the hub. At opposite sides of the front face of the washer are the parallel flanges or shoulders 17, and beneath and parallel with one of these shoulders and spaced inwardly therefrom is a third shoulder 18. The outer end of axle 2 is slotted vertically on opposite sides, as indicated at 19, and fitting these slots between shoulders 17 of washer 16 is the U-shaped key 20 having one leg extended at 20' to engage washer-shoulder 18, the extended leg and said shoulder being apertured to receive a cotter 21. This wheel-securing means is of simple construction, is readily accessible, and securely confines the wheel without interfering with the oiling port 7.

I claim:—

1. The combination of a car wheel having its hub formed with a circumferential oil chamber with the inner wall of the chamber separating it from the wheel bore and with said wall ported to pass oil to the bore, the outer portion of the hub formed with ports each of which communicates with the oil chamber between the inner and outer walls of the latter and with said ports extending to the hub bore in a plane outwardly from the plane of the oil chamber, means at the inner ends of said ports for preventing oil from flowing outwardly therethrough when the position of the wheel places them above the wheel bore, and an axle extending through the hub bore with the end of the axle exposed at the outer side of the wheel, the axle having a constantly open oil inlet port extending inwardly from its outer end with the inner portion of said port branched laterally into the plane of and adapted to register with the hub ports leading to the oil chamber, the hub having a flange-like portion adapted to rotatably fit on said axle outside said ports.

2. A car wheel having its hub formed with a circumferential oil chamber 4 having outer longitudinal wall 4' and inner longitudinal wall 4'' and with end walls connecting the outer and inner walls, end wall 6 having port 5 open therethrough between walls 4' and 4'' and with portion 6' of wall 6 encircled by port 5 spaced outwardly from the main portion of said wall 6 for the purpose described, inner wall 4'' being open for the passage of oil to the wheel bore and with port 5 extending to said bore, and an axle having an oil inlet opening adapted to register with port 5, the hub having a flange-like portion adapted to rotatably fit on said

axle outside said ports, said portion forming in part an end wall of the oil chamber.

3. The combination of a car wheel having its hub formed with an oil chamber with the inner wall of the chamber separating it from the wheel bore and with said wall ported to pass oil to the bore, the hub formed with a port extending from the oil chamber and open to the wheel bore between the plane of the oil chamber and the outer end of the hub, and an axle on which the hub rotates, the axle having a port extending inwardly from its extremity and with the port branching laterally through the periphery of the axle in the plane of and adapted to register with the said hub port, the hub having a flange-like portion adapted to rotatably fit on said axle outside said ports, said portion forming in part an end wall of the oil chamber.

4. A wheel hub formed with substantially imperforate flange-like portions having a bore adapted to receive and rotatably fit on the supporting member, said hub also having an oil chamber open at one end for receiving oil, said chamber having inner and outer longitudinally-extending walls, said opening and the chamber being located between said portions, said portions forming in part the end walls of the oil chamber, the opening being spaced from the inner longitudinal wall of the chamber.

5. A wheel hub formed with substantially imperforate flange-like portions having a bore adapted to receive and rotatably fit on the supporting member, said hub also having a circumferential oil chamber open at one end with the inner and outer walls thereof extending longitudinally of the hub, said opening and the chamber being located between said portions, said portions forming in part the end walls of the oil chamber, the opening being spaced from the inner longitudinal wall of the chamber, one of said portions having a port leading to said opening in a direction lateral to the bore axis, said port being positioned inside and spaced from the plane of the outer end of the hub to provide a flange rotatably fitting the supporting member between said port and the outer face of the hub.

6. The combination with an axle having a port extending inwardly from its outer end and laterally through the axle periphery, of a wheel hub having a substantially imperforate flange-like portion provided with a bore rotatably fitted on said axle outside of the lateral port, said hub being also formed with an oil chamber located inside of the plane of said lateral port and also with a port extending from the chamber to the bore, the oil entrance to said hub lateral port being in the plane of the port in the periphery of the axle.

7. The combination with an axle having a

port extending inwardly from its outer end
and laterally through the axle periphery, of
a wheel hub having a substantially imper-
forate flange-like portion provided with a
5 bore adapted to rotatably fit on said axle
outside of the lateral port, said hub being
also formed with an oil chamber and with
a port extending from the chamber to the
bore in the plane of the port in the periph-
10 ery of the axle, and ribs traversing the hub

port in the plane of the bore wall and adapt-
ed to act as wipers to the axle in the plane
of the axle port.

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

FRANKLIN C. HOCKENSMITH.

Witnesses:

J. M. NESBIT,
F. E. GAITHER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."