(No Model.)

G. & P. BLECHSCHMIDT.

SELF LUBRICATING VEHICLE HUB.

No. 552,702. Patented Jan. 7, 1896.

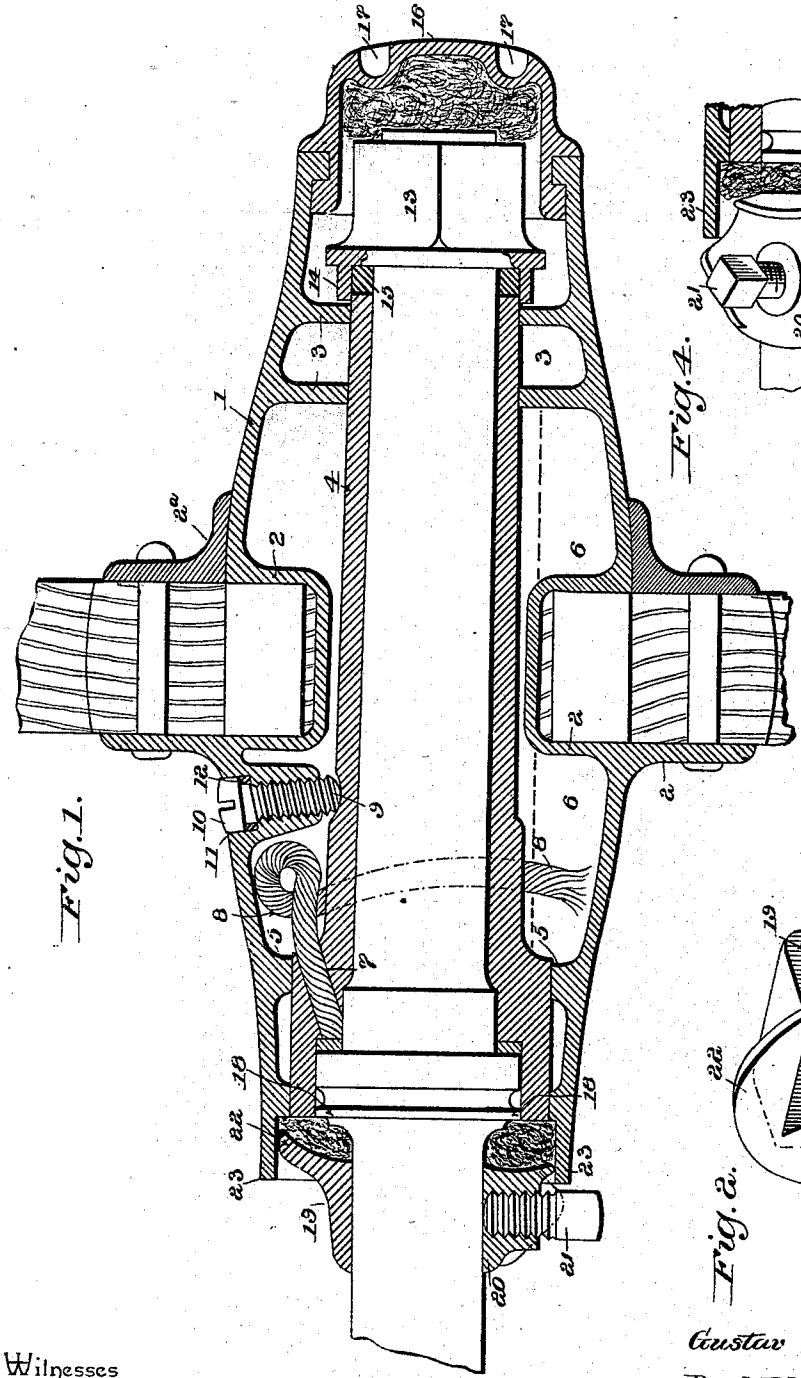

Fig. 1.

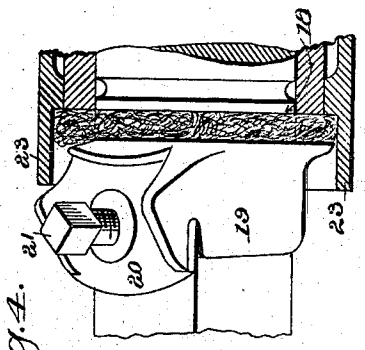

Fig. 4.

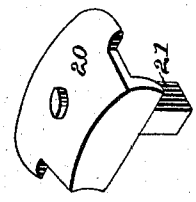

Fig. 3.

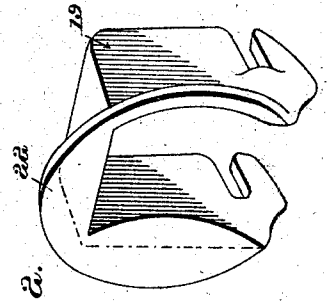

Fig. 2.

Witnesses
Arthur Ashley.
R. M. Smith

Inventors
Gustav Blechschmidt
Paul Blechschmidt

By their Attorneys.
C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

GUSTAV BLECHSCHMIDT, OF PEKIN, AND PAUL BLECHSCHMIDT, OF ROCK ISLAND, ILLINOIS.

SELF-LUBRICATING VEHICLE-HUB.

SPECIFICATION forming part of Letters Patent No. 552,702, dated January 7, 1896.

Application filed April 17, 1895. Serial No. 546,076. (No model.)

To all whom it may concern:

Be it known that we, GUSTAV BLECHSCHMIDT, residing at Pekin, in the county of Tazewell, and PAUL BLECHSCHMIDT, residing at Rock Island, in the county of Rock Island, State of Illinois, citizens of the United States, have invented a new and useful Self-Lubricating Vehicle-Hub, of which the following is a specification.

This invention relates to an improvement in self-lubricating vehicle-hubs.

The object of the present invention is to improve the construction described in a former patent granted to us April 26, 1892, No. 473,607, for improvements in vehicle-hubs.

The invention also has for its object to provide a novel form of sand-collar which may be readily applied to and removed from the vehicle-axle and exclude foreign matter from the journal portion thereof; to provide more efficient means for lubricating said journal, and to engage the axle-skein positively with the outer shell or hub by the same screw or plug which closes the lubricating-hole.

To accomplish the objects above enumerated, the invention consists in certain features and details of construction and arrangement of parts as hereinafter fully described, illustrated in the drawings, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal section through a vehicle-hub constructed in accordance with our improvements. Fig. 2 is an enlarged perspective view of the improved sand-collar. Fig. 3 is a detail perspective view of the movable jaw or clamping portion of the sand-collar. Fig. 4 is a section through the inner end of the hub, showing the sand-collar in elevation.

Similar numerals of reference indicate corresponding parts in the several figures of the drawings.

Referring to the drawings, 1 indicates the cylindrical body or shell of the hub, which is cast or formed in one piece, and is circular in cross-section, centrally, and is made tapering toward each end for imparting the requisite strength and affording beauty of design. Arranged centrally around the hub, and radiating therefrom, are a series of spoke-sockets 2, said sockets being cast integrally with the shell or body of the hub, and projecting outwardly from and also inwardly within the shell 1, as shown in Fig. 1. A separately-formed annular collar 2^a serves to clamp the spokes in place with the aid of suitable rivets, as shown.

Arranged within the hub or shell, and at or near the outer end thereof, are two annular inwardly-projecting flanges 3, which are spaced a short distance apart and adapted to support and form a close bearing with the axle-box 4. The axle-box 4 at or near the rear end is increased in both external and internal diameter to snugly fit within and fill the rear end of the hub or shell 1, or, if desired, the hub may be provided at the rear with shallow inwardly-projecting annular flanges 5 adapted to fit the rear end of the axle-box snugly. It will thus be seen that the axle-box is firmly supported at either end, and this construction also serves, as will be apparent, to brace and strengthen the hub and also to form an oil-reservoir 6, from which oil may be fed through an opening 7 communicating with the interior of the axle-box. The flanges 3 and 5 at either end of the shell effectually prevent the oil from escaping from the hub.

Within the hole or perforation 7 is located one end of a wick 8, the other or free end of said wick being coiled one or more times around the axle-box, and within the oil-chamber 6. By reason of this arrangement the wick 8 will be revolved within the oil as the wheel travels around. The oil-receptacle is filled by means of a screw or threaded plug 9, which passes through a threaded perforation in the shell 1, said screw having an enlarged head 10 which is let into a cylindrical socket 11 in the outer wall of the shell, and is adapted to bear upon a leather washer or packing-ring 12 interposed between the head of the screw and the base of the cylindrical socket. The screw at its inner end engages a small cavity or recess in the exterior face of the axle-box, whereby the latter is locked with relation to the shell 1 and caused to rotate therewith.

The hub is held upon the axle-spindle by means of a nut 13, which is provided upon its inner face with an inwardly-projecting horizontal annular flange 14 within which is placed an annular washer 15 of leather or

other suitable material. This leather washer 15 presses snugly against the outer circular edge of the axle-box and assists in preventing the oil from escaping from the journal or axle-spindle into the outer end of the shell or hub. The end of the hub is closed by a cap 16 having wedge-shaped peripheral flanges or mutilated threads at its inner end, adapted to engage corresponding wedge-shaped flanges or threads formed within the outer end of the hub, said flanges co-operating in a manner similar to ordinary screw-threads to hold the cap in place upon the hub. The exterior of the cap is rounded off, as shown, and provided with cylindrical sockets 17, by means of which said cap may be turned by a suitable spanner.

In rear of the axle-box and back of the usual enlargement 18 on the axle-spindle at the inner end of the hub the axle is slightly reduced and made square in cross-section. Upon such squared portion of the axle is secured a sand-collar 19, which is substantially rectangular or four-sided, as shown, one of its sides being made removable for enabling said collar to be placed over the axle preparatory to securing the same thereon. The removable side of this collar is engaged with the main portion thereof by means of laterally-projecting ears or lugs which engage corresponding horizontally-extending notches or slots preferably at the rear of the sand-collar. The removable side 20 of the sand-collar is perforated and threaded to receive a tap-screw 21, which passes upwardly through the same and bears against the lower side of the axle. The sand-collar 19 at its forward edge is provided with a concavo-convex flange 22, which is convex on its outer face and hollowed out upon its face adjacent to the hub. The flange 22 is of a size that will adapt it to fit snugly within a horizontally-extending annular flange 23 on the inner end of the hub or shell, by means of which sand, &c., which falls upon the hub will be deflected and prevented from entering the axle-box. Suitable wicking or packing is disposed around the axle between the sand-collar 19 and the enlargement 18, above referred to, thereby rendering it impossible for foreign matter to obtain access to the interior of the axle-box.

The device as a whole is very simple, light, and efficient. Oil is conducted in a clean state from the oil-reservoir to the interior of the axle-box and applied to the axle-journal in the desired quantity, and at the point where the lubricating material is most needed. By means of the manner in which the wick is arranged and extended around the axle-box, no matter how small the supply of oil within the reservoir may be, said wick, on account of its being revolved within the oil-chamber as the wheel turns, will always find and take up said oil and conduct it to the journal. By interposing the packing or wicking around the axle and between the sand-collar and inner end of the journal, as described, oil is prevented from escaping at the inner end of the hub, and at the same time dust, sand, dirt, and other foreign matter are prevented from getting into the interior of the axle-box, thus greatly increasing the life of the journal and its box. By locating the packing or wicking at the outer end of the hub, within the end cap, the blackened and refuse oil, after it escapes from the journal, is absorbed by said material and prevented from flowing out and gumming up the end of the hub.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. The combination, with a vehicle hub provided at its inner end with a longitudinally extending annular flange, of a sand collar formed with an open side adapting the same to be placed over the axle, a detachable section fitting within said open side, a set screw carried by said section, and a concavo-convex peripheral flange extending around or partially around said sand collar, substantially as and for the purpose described.

2. The combination, with a vehicle hub provided at its inner end with a longitudinally extending annular flange, and with a vehicle axle, of a sand collar partially surrounding said axle and provided with a peripheral flange and also having oppositely disposed slots, a detachable section of said sand collar formed to enter and engage said slots, and a binding screw for clamping the said detachable section to the sand collar and engaging both with the axle, substantially as described.

3. In a self lubricating hub, a metallic outer shell provided adjacent to its ends with inwardly extending annular flanges 3 and 5, an inner axle box located within said shell and of a diameter adapting it to fit snugly within said annular flanges of the outer shell, and to leave an oil reservoir extending entirely around the axle and from the annular flanges at the outer end of the shell to the inner end thereof, an oil conducting wick passing at one end through an oblique hole in the axle box and bearing against the axle and coiled around the same, and a threaded plug engaging a perforation in the outer shell in communication with the oil reservoir, the inner end of said plug being in positive engagement with the axle box, substantially as and for the purpose described.

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

GUSTAV BLECHSCHMIDT.
PAUL BLECHSCHMIDT.

Witnesses as to Gustav Blechschmidt:
A. W. TOENNIGS,
FRANKLIN L. VELDE.

Witnesses as to Paul Blechschmidt:
M. J. B. LIEBRANDT,
P. W. TIEDEMANN.