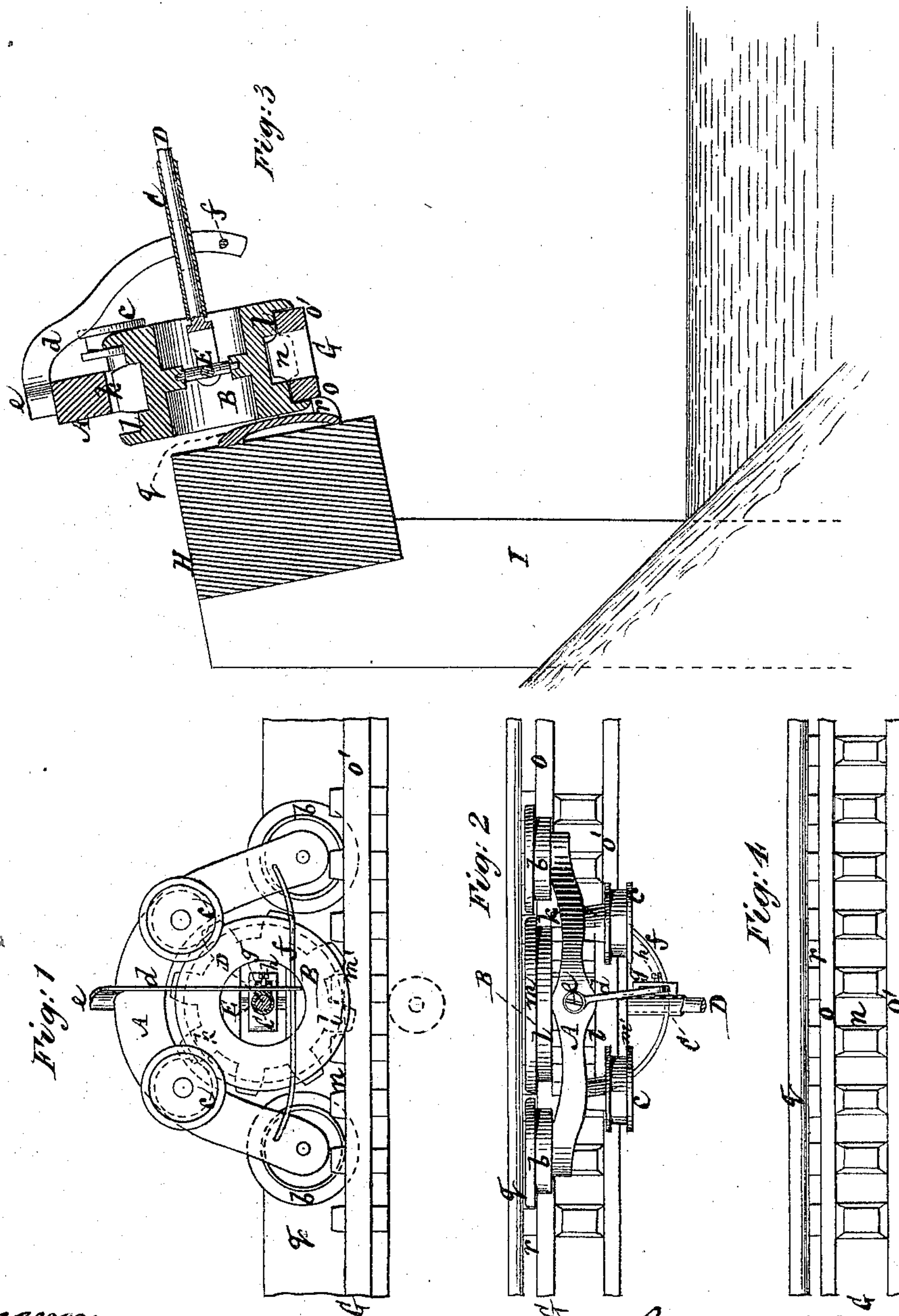


H. H. BAKER.
Propelling Canal-Boats.

No. 139,996.

Patented June 17, 1873.



Witnesses:
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UNITED STATES PATENT OFFICE.

HALSEY H. BAKER, OF NEW MARKET, NEW JERSEY.

IMPROVEMENT IN PROPELLING CANAL-BOATS.

Specification forming part of Letters Patent No. 139,996, dated June 17, 1873; application filed March 10, 1873.

To all whom it may concern:

Be it known that I, HALSEY H. BAKER, of New Market, in the county of Middlesex and State of New Jersey, have invented an Improved Truck and Rail for Propelling Purposes, of which the following is a specification:

This invention, which is applicable to canals and other narrow waters, relates to means for propelling boats or vessels thereon, in which the driving-power carried on board the vessel or boat to be propelled is communicated by a revolving-shaft, capable of universal motion or adjustment, to a traction-truck arranged to run upon a rail placed along the side or bank of the canal or other water and connected by a tow-line, chain or rod, with the boat or vessel to be drawn, essentially, so far as the general principle or action is concerned, as described in Letters Patent No. 131,839, issued to me October 1, 1872. The invention consists in an arrangement of the universal joint of the shaft that connects the truck with the motor, within the eye and at the center of the propelling-wheel or pinion of the truck, thereby allowing for the self-adjustment of the truck to the track in every direction, and applying the power in the center of the wheel so as to do away with all leverage or twist on the truck, and insuring for the latter a freedom of run upon the track. Furthermore, said propelling-wheel is constructed of a pinion having treads or rolling surfaces on both sides of it, and corresponding as regards diameter with the pitch-line of the pinion, also provided with one or more flanges, by which construction a free rolling action is obtained for the pinion, and the latter is restrained from twist, also the cogs or teeth of the pinion from binding laterally in the rack with which they gear. In this connection the invention likewise consists in a track composed of an open rack to free itself of snow, ice, or dirt, combined with a rail upon both sides of it arranged on a level with the pitch-line of the pinion, to insure a clear and smooth rolling action for the latter. The invention also consists in a construction of said track with a back by which it is not only bolted to the carrying-timbers, but which also, in connection with the one rail, answers to guide the flange of the propelling-wheel and keep the pinion from binding in the rack under

lateral pressure when guiding or steering the boat. This back is connected with its contiguous rail by a perforated web or open-work to keep the space for the flange of the propelling-wheel clear of snow and other obstructions.

In the accompanying drawing, which forms part of this specification, Figure 1 represents an inside face view of the truck in its place on a section of the track; Fig. 2, a plan of the same; Fig. 3, a transverse vertical section thereof as applied to the side of a canal; and Fig. 4 a plan view of a section of the track detached.

Similar letters of reference indicate corresponding parts.

A is the frame of the truck provided with guide or supporting wheels *b b* arranged to run upon the track, also with steadying and bearing rollers, *c c*, arranged to rest upon the upper surface of the propelling-wheel B at its one side, and which may be duplicated to bear also upon the other side of said wheel when increased weight on that side is required. Attached to or forming part of the frame A, also, is a swinging yoke, *d*, pivoted at *e*, and traveling at its lower end along a curved guide, *f*, to provide for connection in a universally-adjustable manner with the truck of the sleeve C within which the power-shaft D rotates, the yoke *d* freely passing through a slotted portion, *g*, of the sleeve, but being immovably connected by a set-screw, *h*, therewith when necessary. The shaft D, by which power is communicated from the motor on board the boat to the propelling-wheel B, is attached at its outer end to said wheel by a universal joint, E, arranged within the eye of the wheel B, and in the center of the latter. This attachment of the shaft to the wheel applies the power at the center of the latter and provides for self-adjustment of the wheel to the track in every direction without strain or twist of the truck or its propelling-wheel and track. The wheel B is composed in part of a central toothed portion or pinion *k*, treads *l l* on both sides of said pinion, and of a diameter corresponding with the pitch-line of the pinion; also flanges *m m'*, or, if preferred, only a single flange, *m*. The track G, upon which the truck runs, is made up in part of an open rack, *n*,

that relieves itself of snow, ice, or dirt, and side rails $o o'$, the upper surfaces of which are on a level with the pitch-line of the rack and its pinion k . This gives a smooth, rolling action, not only to the treads, but also to the teeth of the wheel on or over the track as said wheel is rotated by the shaft D , and its pinion k made to travel along the rack n . In some cases a single rail might be substituted for the two rails $o o'$. The track is furthermore composed of a back, q , which is connected by a perforated web or portion, r , with the rail o . This back q not only answers as a surface or means for bolting the track to the timbers H , carried by the posts I along the sides of the canal, but also in connection with the rail o , as a guide to direct the wheel B by its flange m , and keep the pinion k from twist and its teeth from binding in the rack n , and also assists in guiding or steering the boat. The flange m' also, when such is used, may likewise serve, in conjunction with the side of the rail o' , to similarly guide the wheel B or its pinion-surface k . The perforated web r prevents snow, ice, or dirt from collecting in the space along which the flange m travels and keeps the back q and rail o clear for the flange m to rub or bear against.

If desired there may also be provided a guide or roller, as shown by dotted line in Fig. 1, to clip the under side of the track for the purpose of resisting any tendency of the truck to lift

from or jump the track; but in such case said guide or roller should be so connected that it may be automatically moved out of the way or from under the track when lifting the truck on board the boat, and so that said guide or roller will fall to its place again under the track when replacing the truck upon the latter.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The arrangement, substantially as herein described, of the universal joint E , which connects the shaft D with the propelling-wheel B , within said wheel and at the center of the latter.

2. The propelling-wheel composed of a toothed surface or pinion, k , side treads $l l$, corresponding with the pitch-line of the pinion, and one or more flanges, $m m'$, substantially as specified.

3. The track G , composed of an open rack, n , and side rail or rails $o o'$ arranged with their upper surfaces in the same line or plane as the pitch-line of the rack, essentially as described.

4. The back q of the track and perforated web r , in combination with the rail o , and open rack n , substantially as shown and described.

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