(No Model.)

W. T. REASER.

ROLLER SUPPORT FOR BALANCED VALVES.

No. 550,691. Patented Dec. 3, 1895.

Fig. 1.

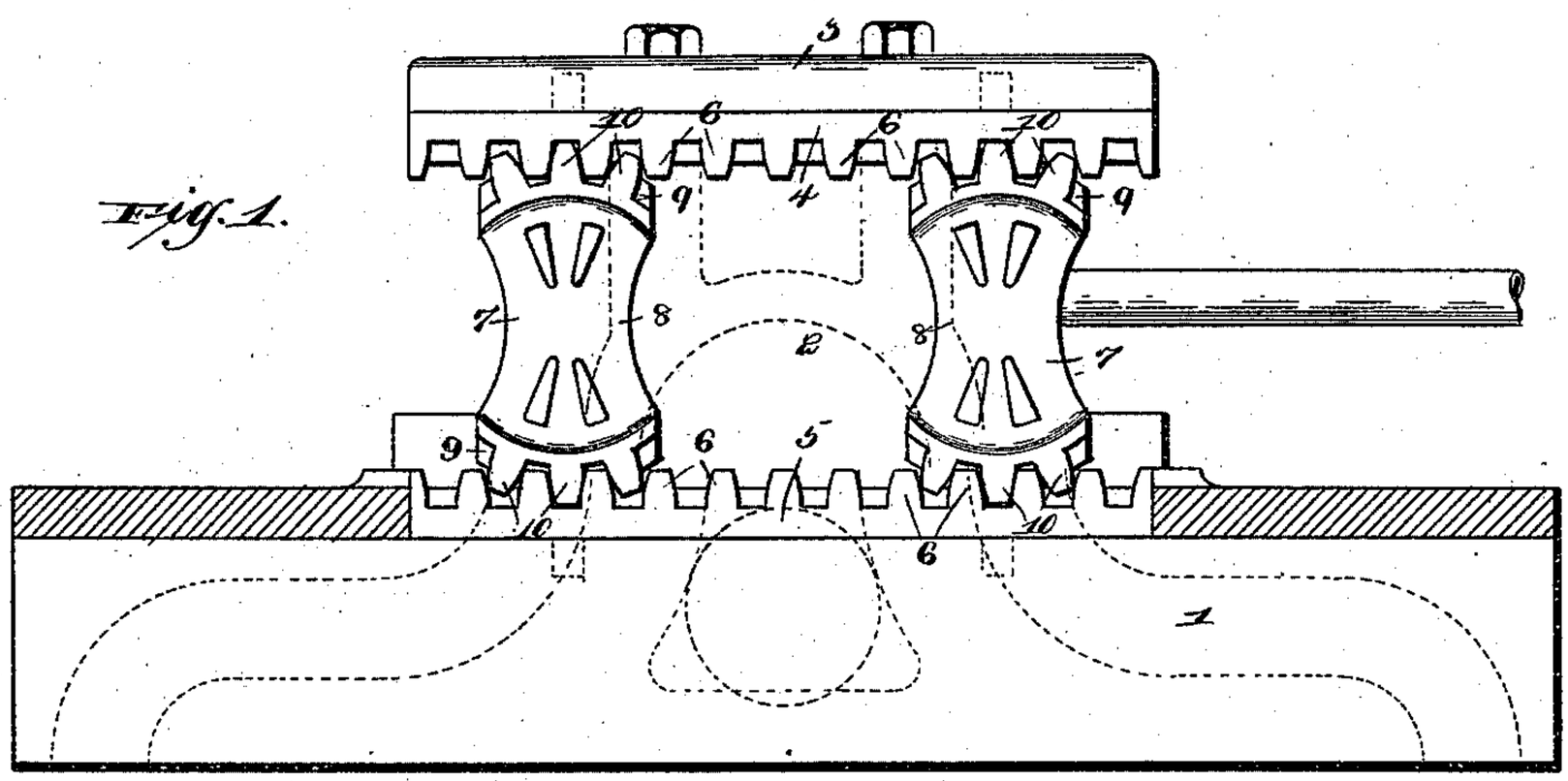


Fig. 2.

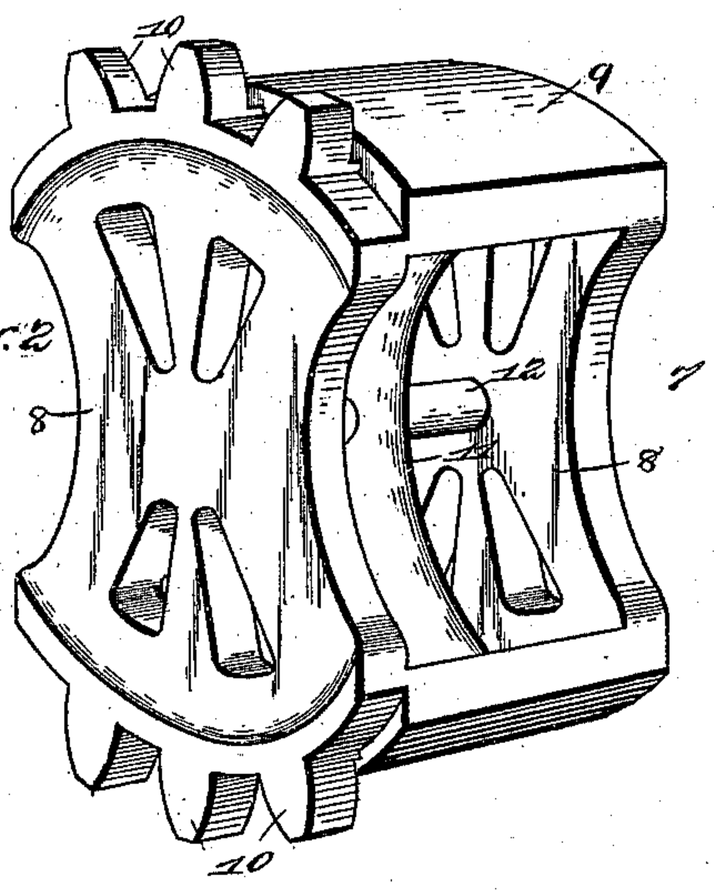


Fig. 3.

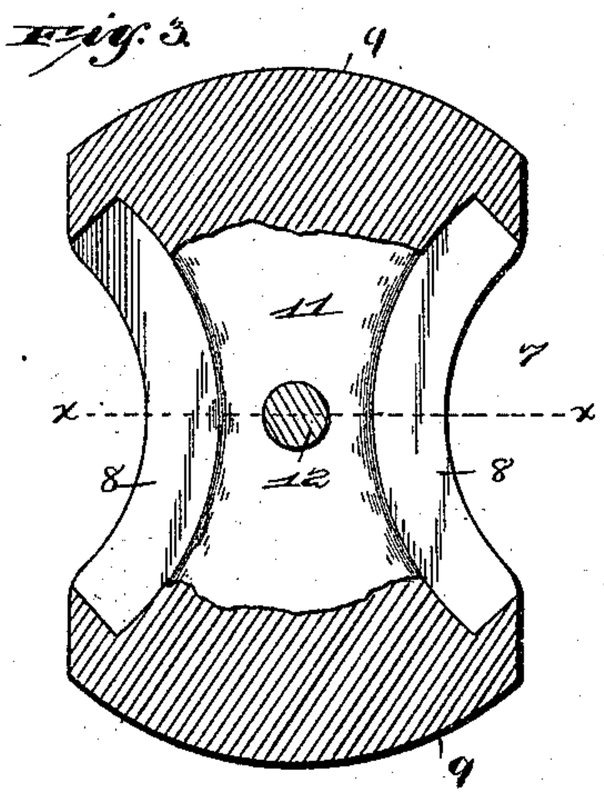
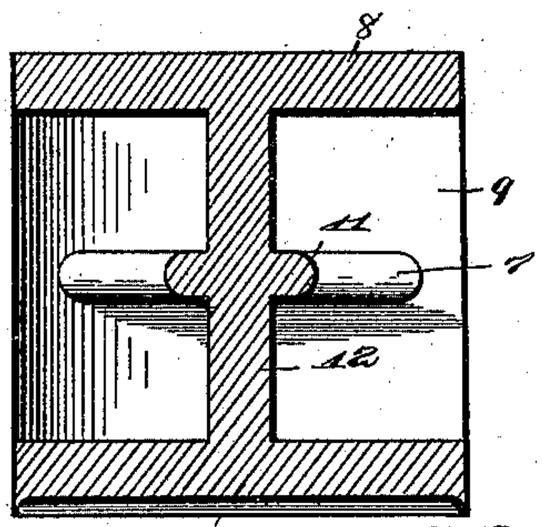


Fig. 4.



Inventor

Witnesses

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UNITED STATES PATENT OFFICE.

WARREN T. REASER, OF LINCOLN, NEBRASKA.

ROLLER-SUPPORT FOR BALANCED VALVES.

SPECIFICATION forming part of Letters Patent No. 550,691, dated December 3, 1895.

Application filed November 30, 1894. Serial No. 530,451. (No model.)

To all whom it may concern:

Be it known that I, WARREN T. REASER, a citizen of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented a new and useful Rolling Support for Balanced Valves, of which the following is a specification.

This invention relates to rolling supports for balanced slide-valves; and it has for its object to effect certain improvements in rolling supports of that character as set forth in my former patent, No. 404,363.

To this end the main and primary object of the present invention is to provide for lightening the construction of rolling supports for balanced slide-valves, while at the same time making the same sufficiently strong and durable to provide for sustaining the weight of the slide-valve and withstanding the pressure exerted thereagainst, and also for effectually withstanding the hard and excessive wear to which the bearing-surfaces of such supports are subjected, particularly in locomotive-engines.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is an end view of a slide-valve and its seat, showing the valve supported for movement on rolling supports constructed in accordance with this invention. Fig. 2 is a detail in perspective of a rolling valve-support constructed in accordance with this invention. Fig. 3 is a central vertical sectional view thereof. Fig. 4 is a cross-sectional view on the line $x\,x$ of Fig. 3.

Referring to the accompanying drawings, 1 designates an ordinary valve-seat of a locomotive, marine, or other engine, and arranged to slide on the valve-seat is the ordinary slide-valve 2, that is provided with a carrier-cap 3, on the opposite ends of which, beyond the ends of the valve, are fitted the rack-plates 4, that are located directly above oppositely-arranged rack-plates 5, that are fitted on the valve-seat at the ends of the valves. The rack-plates 4 and 5 are provided at one edge with teeth 6 and are adapted to have arranged therebetween the rolling supports 7, that roll on the plain surfaces of the rack-plates and engage with the teeth thereof to provide for supporting the valve to ease the same from its seat in the same manner as contemplated by the supports, as set forth in my former patent referred to.

In the present invention each of the rolling supports 7 consists of a hollow casting provided with opposite parallel side plates 8 and segmental bearing ends 9, which connect the opposite ends of the side plates 8 and which have a common center, so that the same will evenly roll on the plain surfaces of the rack-plates 4 and 5. The hollow casting forming the rolling support is further provided at the opposite ends of one of its side plates 8 and at one side edge of the segmental bearing ends 9 with integral toothed segments 10, the teeth of which project beyond the exterior bearing-surfaces of the ends 9 and are adapted to mesh with the teeth of the rack-plates 4 and 5 at one edge thereof. The proper strength and bracing are given to the opposite sides and ends of the hollow support 7 by further providing the casting forming the support with a central longitudinal integral brace-web 11, the ends of which are connected to the inner sides of the segmental bearing ends 9. A central transverse brace 12 is also formed integrally with the central brace-web 11 and the opposite side plates 8 and intersects the said central brace-web at right angles thereto to complete an interior bracing for the hollow support, which renders the same amply strong for the work required thereof, while at the same time completing as light a construction of rolling support as it is possible to make, thereby assisting to reduce the weight that must be carried by the valve-operating devices in operating the slide-valve.

In order that the herein-described hollow construction of rolling support may be rendered entirely practicable for locomotive and similar work, the exterior bearing-surfaces of the segmental bearing ends 9 are adapted to be hardened by any suitable method to such a degree of hardness as will render the said surfaces capable of withstanding the hard and excessive wear placed thereon.

The many advantages of the herein-described construction of rolling support for balanced slide-valves will readily suggest them-

selves to those skilled in the art, and it will be understood that changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

A rolling support for balanced slide valves consisting of a single hollow casting having opposite parallel side plates, integral segmental bearing ends connecting the ends of the side plates, toothed segments formed integrally at the ends of one of said side plates at one side edge of the bearing ends, an interior central longitudinal brace web integrally connecting said bearing ends, and an integral central transverse brace connecting the opposite side plates at their centers and integrally intersecting said brace web at right angles thereto, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WARREN T. REASER.

Witnesses:
JOHN H. SIGGERS,
G. C. SHOEMAKER.