

(No Model.)

H. J. EISEN.
DUPLEX ESCAPEMENT WHEEL.

No. 515,862.

Patented Mar. 6, 1894.

Fig. 1.

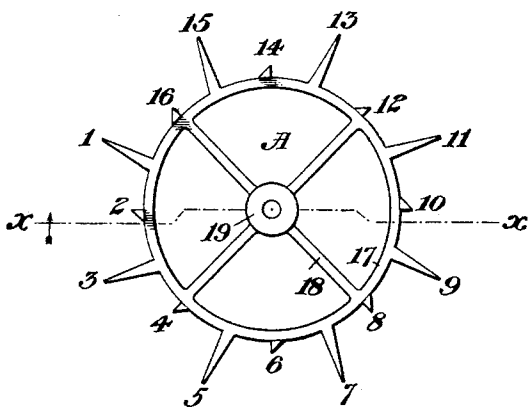
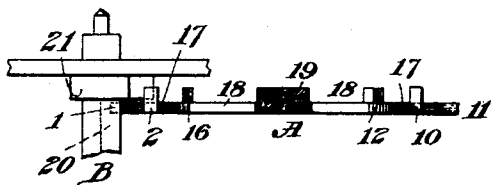


Fig. 2.



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DUPLEX ESCAPEMENT-WHEEL.

SPECIFICATION forming part of Letters Patent No. 515,862, dated March 6, 1894.

Application filed June 28, 1893. Serial No. 479,068. (No model.)

To all whom it may concern:

Be it known that I, HERMAN JOSEPH EISEN, a citizen of the United States of America, and a resident of Brooklyn, in the State of New York, have invented a new and useful Improvement in Duplex Escapement-Wheels, of which the following is a specification.

Heretofore the "scape wheels" of all duplex escapements, except those the teeth of which are laboriously shaped one by one by hand, have of necessity been made of soft brass so as to provide for forming the "impulse teeth" in dies or for bending them to bring them into their different plane as compared with the spur-teeth or "long teeth." Consequently such scape-wheels have had to be made comparatively heavy, in order that the delicate long teeth might resist their contacts with the balance-arbor, and are peculiarly liable to become bent in the hands of watch-makers so as to become inoperative.

The present invention consists in a peculiarly constructed hard-metal scape-wheel for duplex escapements, as a new article of manufacture, the same being adapted to be cheaply manufactured by machinery exclusively, with the highly desirable absolute uniformity thus obtainable, and at the same time to be made of exceedingly light weight, so as to oppose less inertia to the movement of the train than machine-made scape-wheels as heretofore constructed.

A sheet of drawings accompanies this specification as part thereof.

Figure 1 of the drawings is a face view of the improved scape-wheel, and Fig. 2 is a section on the line $x-x$ Fig. 1, with an appended fragmentary elevation of the balance-arbor and its impulse pallet.

Like letters and numbers refer to like parts in both figures.

The improved scape-wheel A is or may be adapted to co-operate with any ordinary or improved balance-arbor B. Said scape-wheel A comprises ordinary long teeth, numbered 1 3 5 7 9 11 13 and 15 in the drawings, and intermediate impulse teeth, numbered 2 4 6 8 10 12 14 and 16 in the drawings. All the teeth project from the periphery of a flat rim 17, said long teeth lying in the plane of the rim, while said impulse teeth, being of greater

thickness from bottom to top, as seen in Fig. 2, extend upward to a second plane, according to the requirements of duplex escapements. And said rim 17 is connected by the arms of a "cross" 18, which is conveniently and preferably of the same thickness as the rim and long teeth, with a drilled hub 19, which is preferably and conveniently of the same thickness as the impulse teeth. Said long teeth 1 to 15 are thus adapted to engage successively with a balance-arbor B or a hub thereon, and with its notch 20, and said impulse teeth 2 to 16 to engage successively with an impulse-pallet 21, or its equivalent, carried by said arbor, in customary manner. C, Fig. 2, represents any ordinary or improved balance wheel. The improved scape-wheel is at the same time adapted to be made of shape-preserving hard-metal and of inertia-reducing light weight as above, and to be so made by machinery exclusively. Its adaptation to be so manufactured is due to said extra thick impulse-teeth, involving no bending or like displacement of the metal, and to their peripheral location so as to be cut "in the stack." The process by which the improved scape-wheel is preferably and conveniently so manufactured is the subject matter of another specification of even date herewith, and forms no part of the present invention. The number of teeth may be increased or lessened, the impulse teeth may project downward instead of upward, and other like modifications will suggest themselves to those skilled in the art.

Having thus described the said improvement, I claim as my invention and desire to secure under this specification—

As a new article of manufacture, a scape-wheel for duplex escapements having long teeth in the plane of its rim, and intermediate impulse-teeth, of extra width from bottom to top, which project bodily from the periphery of said rim, and extend upward to a second plane, substantially as hereinbefore specified, for the purposes set forth.

HERMAN JOSEPH EISEN.

Witnesses:

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