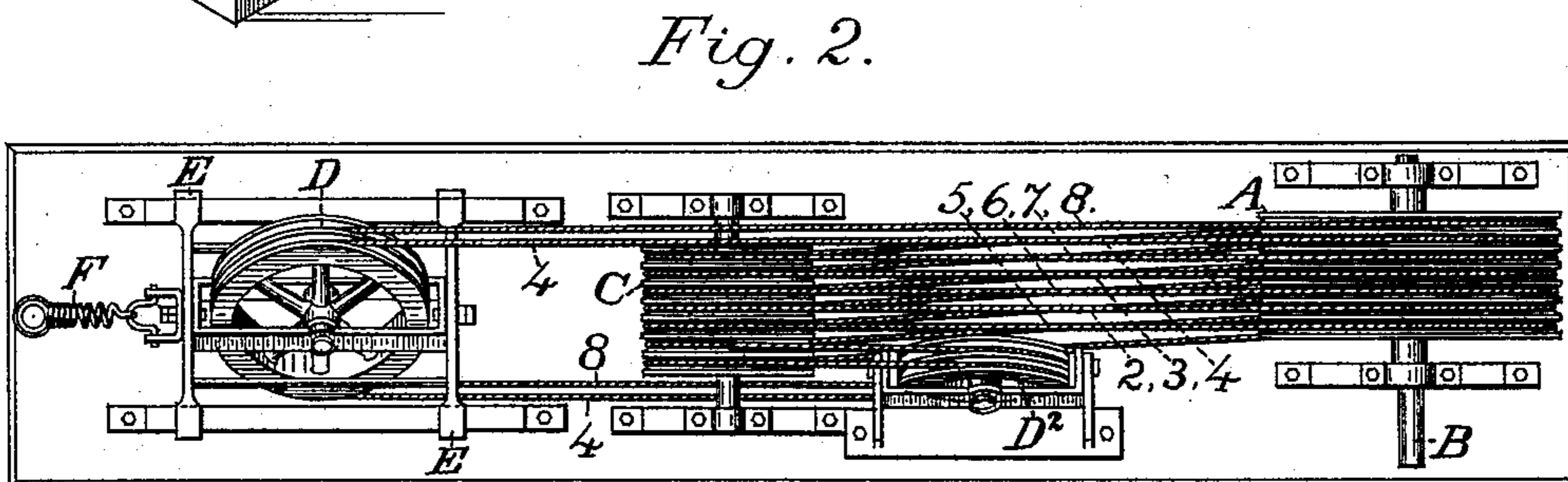
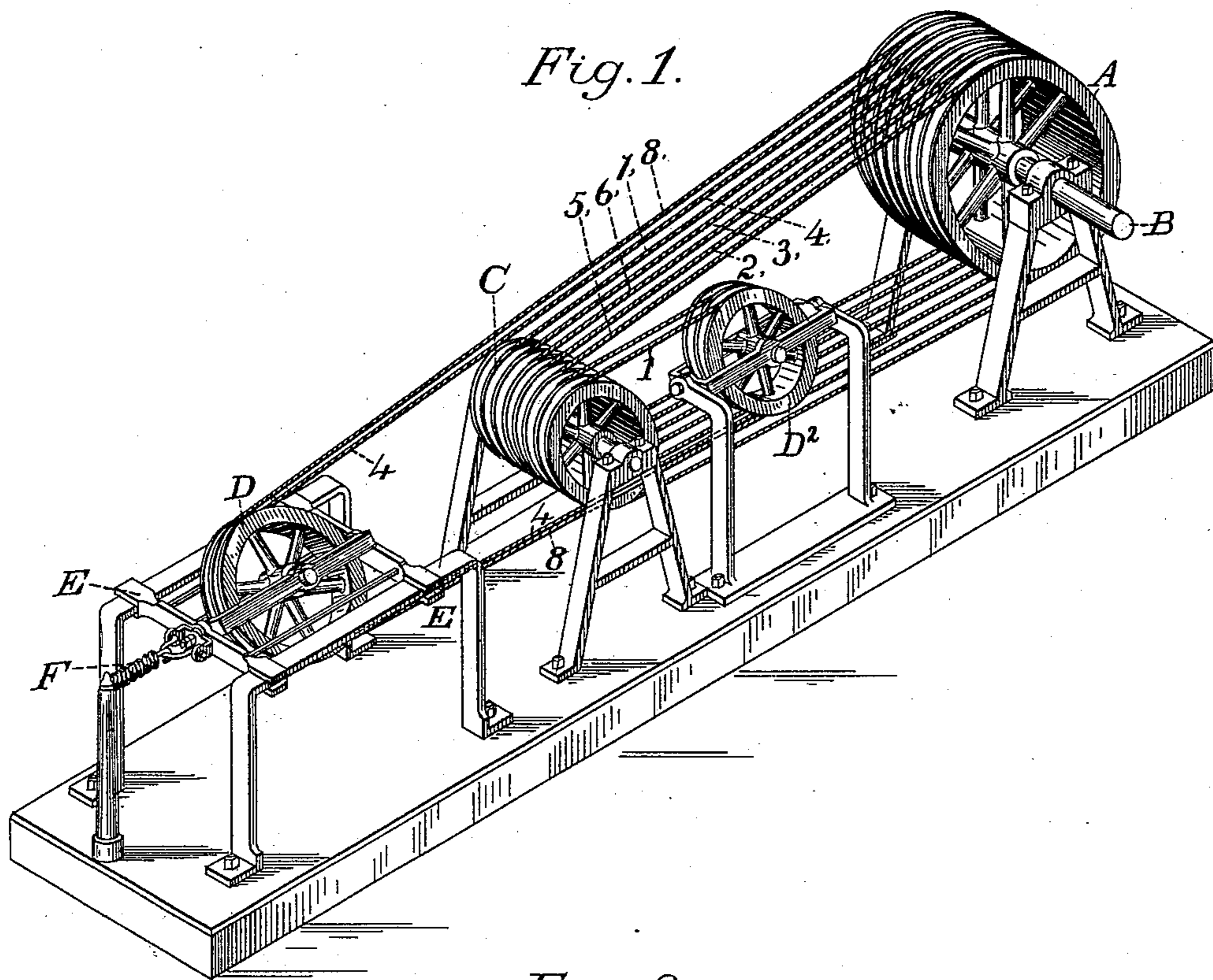


(Model.)
T. H. MACDONALD, O. R. WILLIAMS & L. D. HITZEROTH.
ROPE DRIVING APPARATUS.

No. 478,875.

Patented July 12, 1892.



Witnesses:
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UNITED STATES PATENT OFFICE.

THEODORE H. MACDONALD, ORLANDO R. WILLIAMS, AND LORENZ D. HITZEROTH, OF SAN FRANCISCO, CALIFORNIA.

ROPE-DRIVING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 478,875, dated July 12, 1892.

Application filed July 10, 1890. Serial No. 358,347. (Model.)

To all whom it may concern:

Be it known that we, THEODORE H. MACDONALD, ORLANDO R. WILLIAMS, and LORENZ D. HITZEROTH, all of the city and county of San Francisco, and State of California, have invented a new and useful Improvement in Rope-Transmitting Apparatus; and we hereby declare the following to be a full, clear, and exact description of the manner of constructing, arranging, and operating the same, reference being had to the drawings herewith, in which—

Figure 1 is a perspective view of our improved rope-driving apparatus. Fig. 2 is a plan view of the same. Fig. 3 is a sectional view of the rim of the driving and driven drum.

Similar letters of reference on the different figures indicate corresponding parts of the mechanism.

This invention relates to what is called "rope-driving" gearing, wherein a fibrous rope is wound about grooved drums with a number of wraps or strands, sufficient in number to create traction for transmitting power from one drum to another, the same as in the case of flat flexible bands, but with multiplied wraps of a rope that can be varied in number, as the amount of power or other conditions may require.

Our invention consists in the construction of the main drums or the driving and driven ones with an odd instead of an even number of grooves, so the strands of the rope when double wound will also be uneven in number and not crossed between any two drums or in any part of the system; and it also consists in the construction, arrangement, and combination of the several parts, substantially as will be hereinafter described and claimed.

In the methods hitherto in use the arrangement of the driving and driven drums has in all cases, so far as we know, been such that when the ropes were compounded or double wound they were, by reason of the number of wraps being even, crossed at some point in the system, causing abrasive wear of the rope and endangering entanglement in the case of its breaking or coming out of the grooves. This crossing of the rope we discovered to be a result of the construction of the main drums

with an even number of grooves or strands of the rope, and that by a different construction, wherein the number of grooves will be odd—that is, three, five, seven, nine, and so on—the crossing is avoided and the rope takes the form shown in the drawings.

A denotes the main or driving drum, mounted on the suitably-journaled shaft B, to which power is applied in any convenient and desirable manner, and C denotes the driven drum, carried in the main frame near the opposite end thereof.

D designates a tension-pulley, which is used for the purpose of causing a uniform tension of the rope, and D² indicates an idle-pulley, around which the rope likewise passes. In winding the rope, supposing the wrap at 1 to be the first or starting one, it will be observed that the rope is first passed around the drum C and then around the drum A in alternate grooves corresponding with the wraps 5, 6, 7, and 8. The wrap 8 is then passed around the tension-pulley D, thence to idle-pulley D², and from there again to drum C, so as to be again wound on drums C and A, forming intermediate wraps 2 3 4, the latter wrap passing around pulleys D and D² back to the beginning, forming a completed system, as will be clearly evident upon inspection of the drawings, without crossing the wraps at any point and permitting them to run freely and out of contact, except in the grooves of the several pulleys or drums. Now if the drums A and C had an even number of grooves and the wraps of the rope were also even, the latter would have to be crossed somewhere in the system, as is the case with all similar machinery of which we are aware, in common practice. The pulley D is mounted in a movable carriage E, held by the spring F or a movable weight when it may be convenient to regulate the tension of the rope, and both the tension-pulley D and idle-pulley D² are set in gimbal-frames to adjust themselves to the proper alignment of the rope and for driving-drums of different widths.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a rope-driving apparatus, the driving and driven drums, each formed with grooves,

and the rope wound in an uneven number of non-crossing wraps, substantially as described.

2. In a rope-driving apparatus, the combination of driving and driven drums, each having
5 ing grooves, a tension-pulley, an idle-pulley, and a rope wound in an uneven number of wraps upon the drums and passing around the tension and idle pulleys, substantially as described.

In testimony whereof we have hereunto affixed our signatures in the presence of two witnesses.

THEODORE H. MACDONALD.

O. R. WILLIAMS.

LORENZ D. HITZEROTH.

Witnesses:

HENRI WIGGER,

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