No. 702,243. Patented June 10, 1902.

C. S. PARCELLS.

REVERSIBLE DRIVING MECHANISM.

(Application filed Feb. 27, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

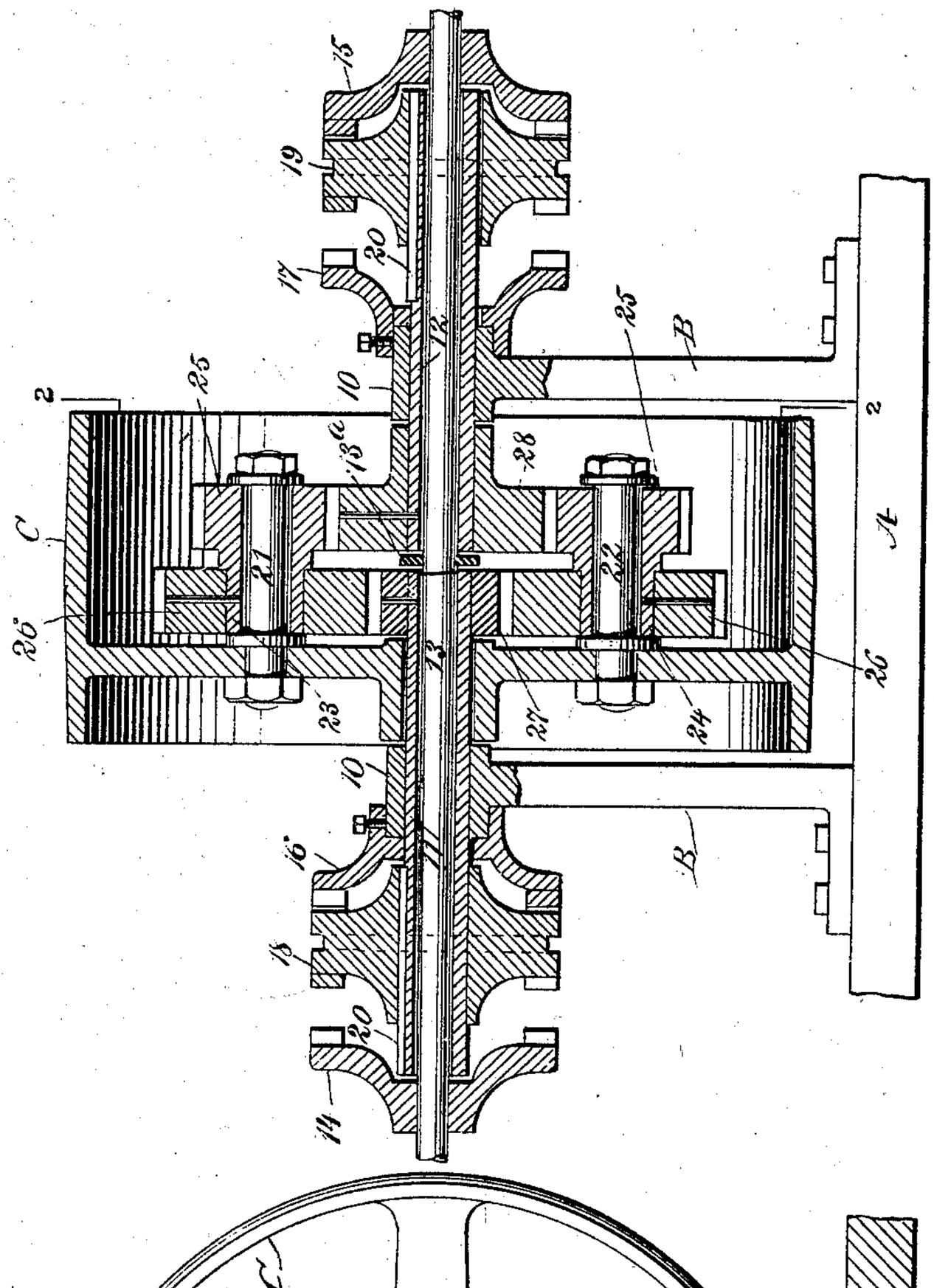

Fig. 2

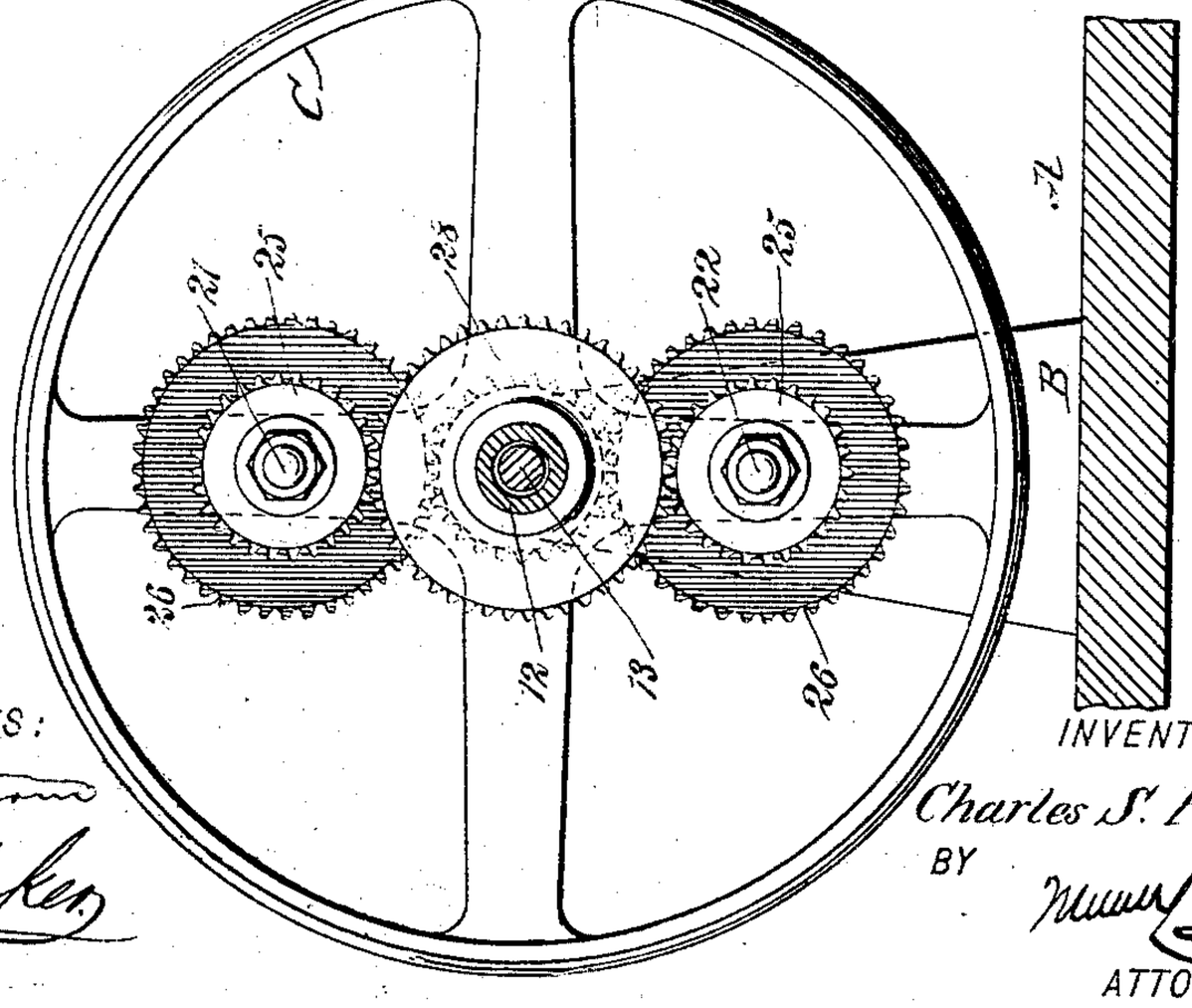

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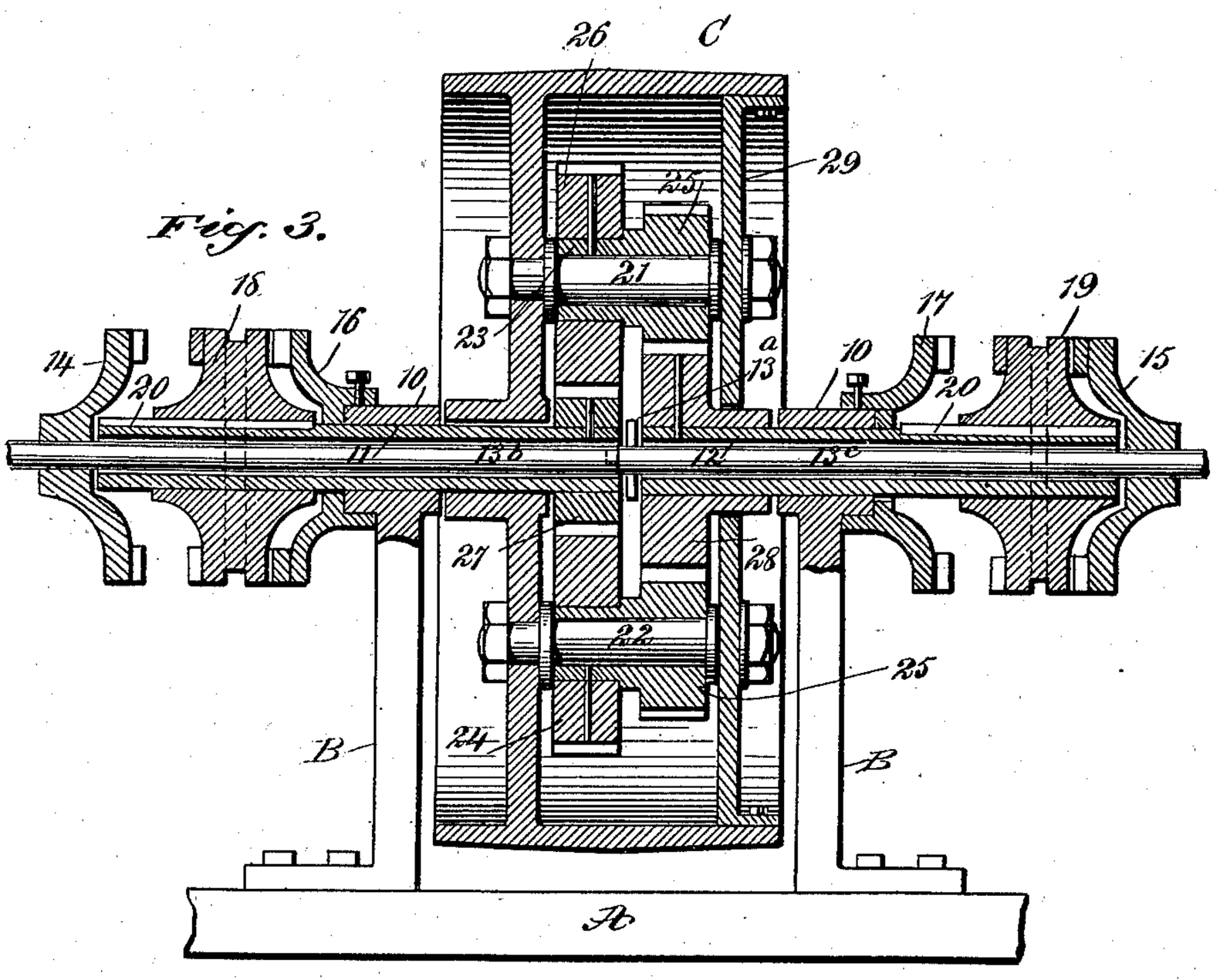
Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES STANLEY PARCELLS, OF WILLARD, NEW YORK.

REVERSIBLE DRIVING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 702,243, dated June 10, 1902.

Application filed February 27, 1902. Serial No. 95,901. (No model.)

To all whom it may concern:

Be it known that I, CHARLES STANLEY PARCELLS, a citizen of the United States, and a resident of Willard, in the county of Seneca and State of New York, have invented a new and Improved Reversible Driving Mechanism, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide a reversible driving mechanism of simple and durable construction adapted for use in connection with motor or horseless carriages and the like to change the speed of the driven shaft without altering the speed of the motor, the motor running at one speed at all times.

A further purpose of the invention is to so construct the device that the direction of rotation of the driven shaft may be instantly reversed and driven at a greater or less speed, as desired.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through the improved driving mechanism, the driven shaft appearing in elevation. Fig. 2 is a section on the line 2 2 of Fig. 1; and Fig. 3 is a vertical section similar to the section shown in Fig. 1, illustrating a slight modification in the construction of the device.

A represents a base, and B standards extending upward from the base, having bearings 10 at their upper ends. Two tubular shafts 11 and 12 are mounted to turn in the said bearings, a space intervening between their inner ends, as shown in Fig. 1, and a driven shaft 13 is mounted to freely turn in the tubular shafts 11 and 12, said driven shaft being provided with a spacing-block 13^a for the inner end portions of the tubular shafts. This driven shaft may be in one piece, as shown in Fig. 1, or in two sections connected to turn one in the other, as is shown in Fig. 3, wherein the shafts are designated as 13^b and 13^c. Clutch-disks 14 and 15 are secured upon the outer ends of the driven shaft 13, their clutch-faces facing inward, and upon the outer end portion of each bearing 10 a clutch-disk is also secured, (designated as 16 and 17,) and the clutch-surfaces of these latter disks face outward. Double-faced clutches 18 and 19 are held upon the outer ends of the tubular shafts 11 and 12 by feathers 20, and while the clutches 18 and 19 are free to slide upon the tubular shaft they are compelled to turn with them. The double clutches 18 and 19 are located between the clutch-disks on the driving-shafts and opposing disks upon the bearings 10, being adapted for engagement with either, as is also shown in Fig. 1. A pulley-wheel C is loosely mounted upon the tubular shafts between the bearings 10, and opposing spokes of the pulley are provided with pins 21 and 22, having hubs 23 and 24 loosely mounted thereon. A pinion 25 is correspondingly secured upon each hub, as is likewise a gear-wheel 26, the two gears having the same number of teeth, and the two pinions are of the same size. A pinion 27 is secured upon the inner end of the tubular shaft 11, corresponding in diameter to the diameter of the pinions 25 of the pulley C, and said pinion 27 meshes with the gears 26 of the pulley. At the inner end of the opposing shaft 12 a gear 28 is securely fastened, which gear is of the same size as the pulley-gears 26, and the gear 28 meshes with the pinions 25 of the pulley. Under this construction it will be observed that when the clutches 18 and 19, which may be operated in any approved manner, are out of engagement with the clutch-disks on the driven shaft 13 and bearings 10 the pulley C and its connected train of gearing will turn idly around the driven shaft. When both clutches 18 and 19 are in engagement with the clutch-disks 14 and 15 on the driven shaft, the pulley C becomes a simple driver and will revolve at the same rate of speed as that of the motor to which the pulley is applied.

In order to obtain a change of speed at the driven shaft 13 and to reverse the direction of rotation of the said driven shaft while the motor is running, the clutch 18 on the tubular shaft 11 is made to engage with the clutch-disk 16 on the bearings 10, and the clutch 19 is made to engage with the clutch-disk 15 on the driven shaft, as is shown in Fig. 1, and

the shaft 13 will be thus driven backward at slow speed. When the clutch 19 is in engagement with the fixed clutch-disk 17 and the clutch 18 engages with the clutch-disk 14 of the driven shaft 13, said shaft will be driven forward at a greater rate of speed than the speed of the motor. When the driven shaft is made in two sections, as is indicated in Fig. 1, the two sections can be simultaneously driven in opposite directions, to turn different lines of shafting, for example.

In Fig. 1 the pulley C is shown provided with one set of spokes, whereas preferably the said pulley is provided with a second set of spokes 29, as is shown in Fig. 3, which second set of spokes is bolted or otherwise secured to the rim of the pulley and constitutes an additional support for the pins 21.

The pinions and gears are preferably made of rawhide, which will render them practically noiseless in action, and, if desired, the pulley C may be toothed to receive driving-power through the mechanism of gearing.

The improved reversible driving mechanism is particularly adapted for use in connection with the propeller-shafts of vessels and gearing of automobiles or motor-vehicles, and line and counter shafts and various machines.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a reversible driving mechanism, a driven shaft, tubular shafts mounted to turn upon the driven shaft, a driving-pulley loosely mounted upon the tubular shafts, hubs loosely mounted upon the driving-pulley, a gear and a pinion fast on each hub, a gear on one of the tubular shafts in mesh with the pinions of the driving-pulley, a pinion upon the opposing tubular shaft meshing with the gears on said pulley, and clutches arranged to bring either tubular shaft in locking engagement with the driven shaft and for checking the rotation of either tubular shaft, as described.

2. In a reversible driving mechanism, the combination with the driven shaft, tubular shafts loosely mounted on the driven shaft, bearings for the tubular shafts, disks secured to said bearings, and clutch-disks attached to the driven shaft, of a pulley loosely mounted on the tubular shafts, pins carried by the said pulley, hubs loosely mounted on the said pins, a pinion and a gear secured to each hub, a pinion attached to the inner end of one of the tubular shafts, meshing with the gears carried by the pulley, a gear secured upon the inner end of the opposing tubular shaft meshing with the pinions carried by the pulley, and clutches mounted to turn with the tubular shafts yet slide thereon, which clutches are adapted for engagement with the said disks or clutches on the driven shaft, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES STANLEY PARCELLS.

Witnesses:
THOMAS J. CURRIE,
FRANK L. MARNE.