No. 635,073. Patented Oct. 17, 1899.

S. LOGAN.

REVERSING MECHANISM.

(Application filed Feb. 21, 1899.)

(No Model.)

Fig. 1.

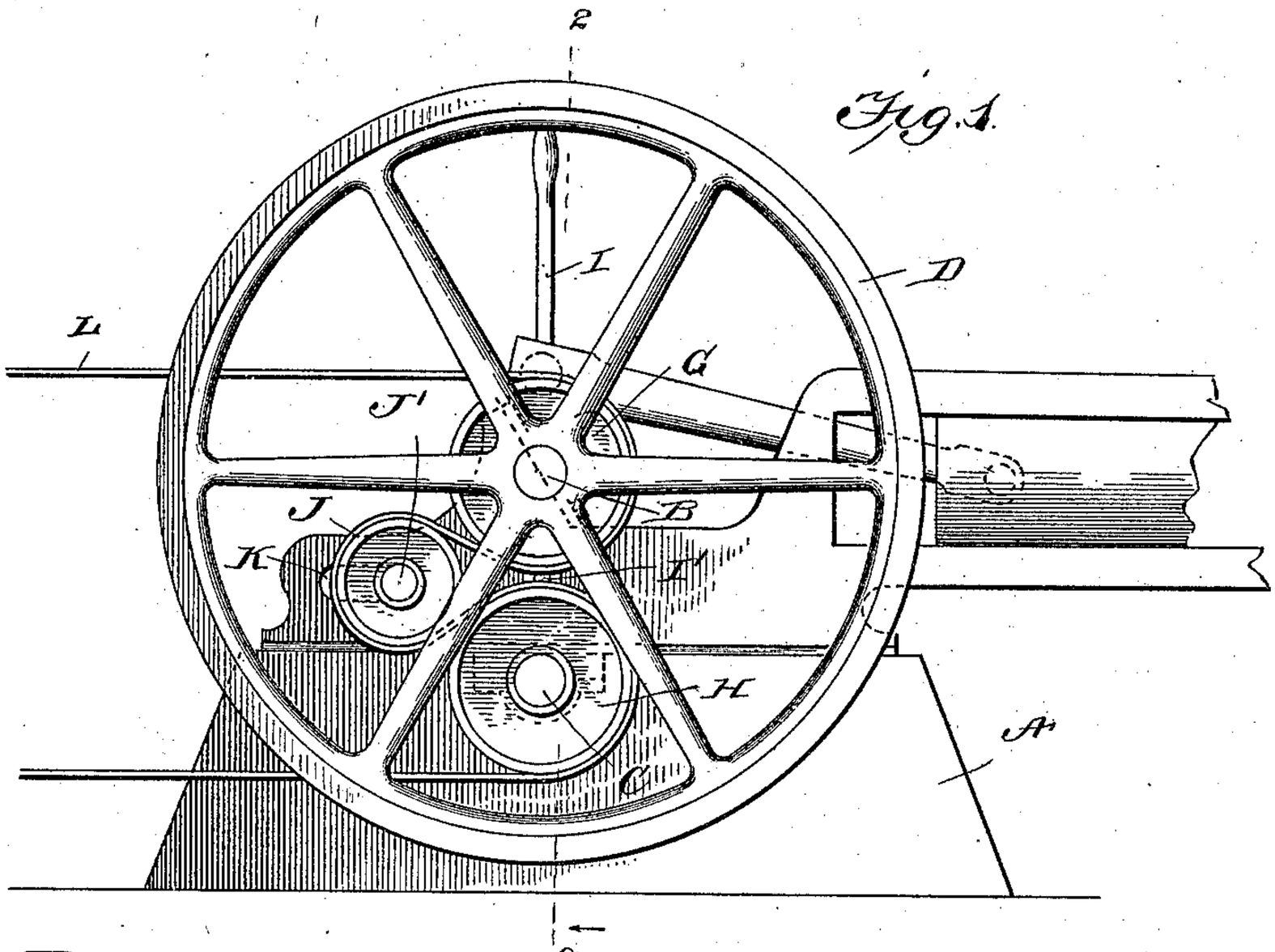


Fig. 2.

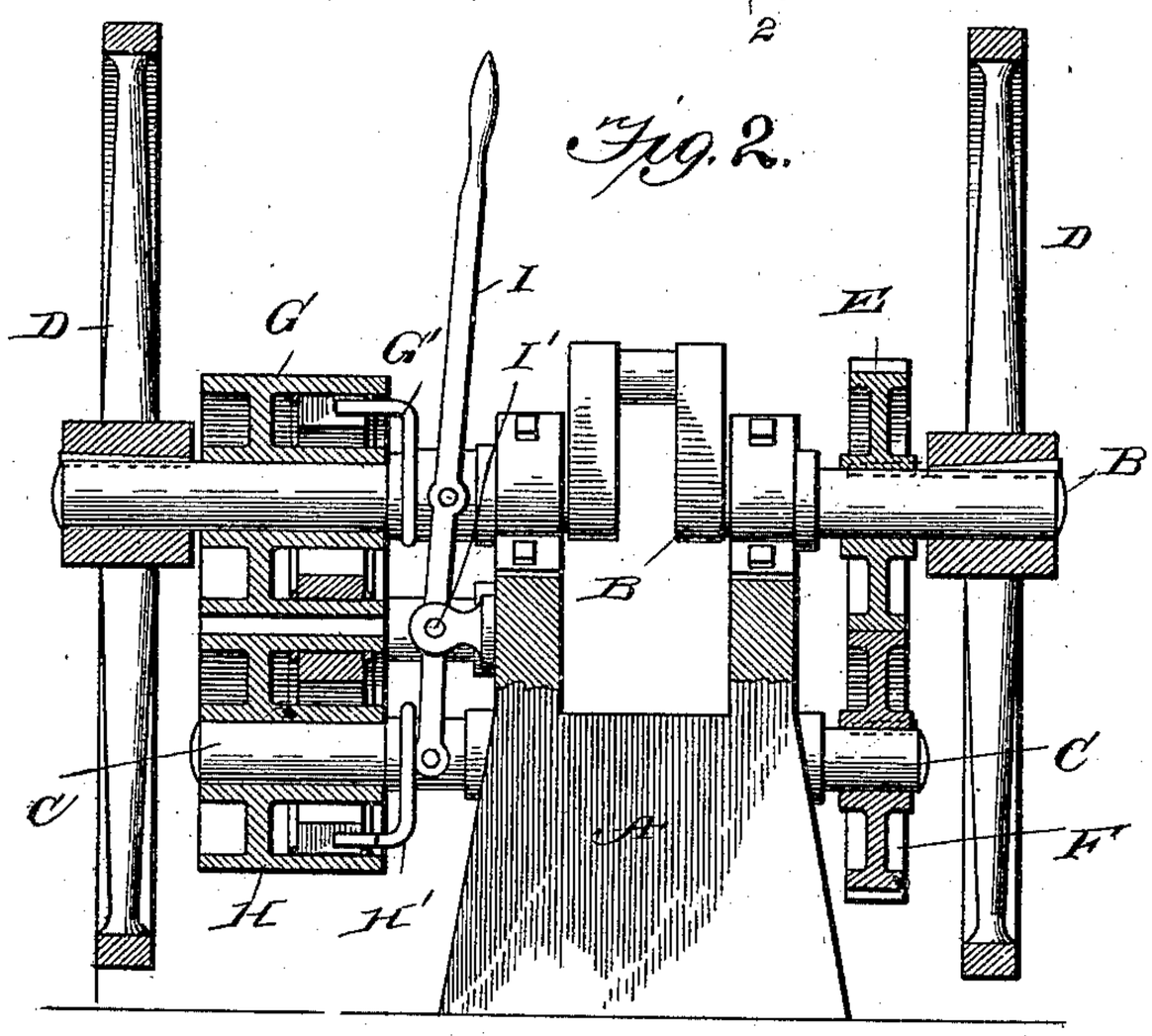
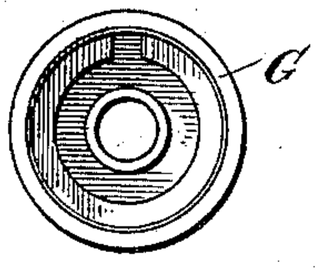


Fig. 3.



Witnesses
J. C. Shaw
Chas. E. Brock

Inventor
S. Logan,
by Dinsmore & Co
Attorneys

UNITED STATES PATENT OFFICE.

SYLVESTER LOGAN, OF EMLENTON, PENNSYLVANIA.

REVERSING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 635,073, dated October 17, 1899.

Application filed February 21, 1899. Serial No. 706,342. (No model.)

To all whom it may concern:

Be it known that I, SYLVESTER LOGAN, a citizen of the United States, residing at Emlenton, in the county of Venango and State of Pennsylvania, have invented a new and useful Reversing Mechanism, of which the following is a specification.

My invention relates to mechanism especially adapted to engines, although capable of being applied to all kinds of machinery in which it may be necessary or desirable to reverse the motion with ease and rapidity, the object being to improve the construction and operation of such reversing mechanism.

With this object in view my invention consists in the improved construction, arrangement, and combination of parts, hereinafter fully described and afterward specifically pointed out in the appended claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, having reference to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view in side elevation of so much of an engine as is necessary to illustrate the application of my invention thereto. Fig. 2 is a vertical sectional view taken on the plane indicated by the broken line 2 2 of Fig. 1. Fig. 3 is a detail view of the expanding ring of clutch.

Referring to the drawings by letters, A indicates the frame of an engine, in which are journaled the usual driving-shaft B and a parallel counter-shaft C, the main shaft carrying fly-wheels D D and being geared to the counter-shaft by keyed gear-wheels E F, so that the two shafts run in opposite directions.

G and H indicate pulleys loosely mounted on shafts B and C, respectively, and G′ H′ clutches by which these wheels may be clutched to their respective shafts when desired, said clutches being provided with a single operating-lever I, pivoted at I′ to a fixed part of the engine, so that when the pulley G is clutched to the shaft A the pulley H will be loose on shaft C, and vice versa.

J indicates an idler-pulley mounted on a shaft J′, journaled in a slot K in the frame of the engine, said slot being horizontal and in a line cutting centrally through the space between pulleys G and H.

L indicates a belt engaging around pulleys G H and the idler-pulley J and extending to any shaft which it may be desired to drive, such as a line-shaft or the shaft of any kind of machinery, the purpose of the idler being to serve as a belt-tightener and to cause the belt to lap a greater portion of the peripheries of the pulleys G and H.

The operation of my invention as described may be explained as follows: The engine being started, shafts B and C, as before explained, will rotate in opposite directions—say the shaft B to the right and the shaft C to the left—and obviously either of the pulleys G and H when clutched to its shaft will rotate with it. Should it be desired to drive a shaft over which the belt engages to the right, the pulley G will be clutched to shaft B and will become the driving-pulley, while the pulley H, loose on shaft C, will act as an idler, and to reverse the motion of the driven shaft the lever I will be thrown to the left to the position shown in Fig. 2, the first part of said movement unclutching pulley G from shaft B and the last part clutching pulley H to shaft C, whereby H becomes the driving-pulley and G an idler causing the driven shaft to be reversed and rotated to the left.

While I have illustrated my invention as applied to an ordinary type of gas-engine, it will be readily understood that it may be applied to any other class of engines and to any parallel reversely-driven shafts, and, further, that the pulleys and belt may be dispensed with and cog or other well-known form of driving-gear substituted.

While I have illustrated and described what I consider to be efficient means for carrying out my invention, I do not wish to be understood as restricting myself to the exact details of construction shown and described, but hold that any slight changes or variations, such as might suggest themselves to the ordinary mechanic, would properly fall within the limit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with two parallel shafts driven in opposite directions, of a pulley loose

on each shaft, a belt engaging around both pulleys, a lever and clutch mechanism arranged to loosen one pulley and clutch the other by a single movement of the lever, substantially as described.

2. The combination with two parallel shafts driven in opposite directions, of a pulley loose on each shaft, a belt engaging around both pulleys, an idler mounted in a line extending centrally between the pulleys and encircled by the belt, a lever and clutch mechanism arranged to loosen one pulley and clutch the other by a single movement of the lever, substantially as described.

3. The combination with the frame of an engine, of a main shaft and a parallel counter-shaft journaled in the frame and driven in opposite directions, of a pulley loose upon each shaft, an idler journaled in a slot in the frame lying in a line centrally located with reference to the two shafts, a belt encircling the idler and the two pulleys and adapted to drive a line or other shaft, a clutch for each loose pulley, and a lever centrally pivoted to a fixed part of the frame and attached to each clutch, whereby, by a single movement of said lever, one pulley is loosened from, and the other clutched to its shaft, substantially as described.

SYLVESTER LOGAN.

Witnesses:
W. F. CAMP,
J. M. SLOAN.