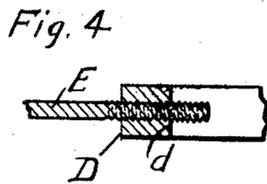
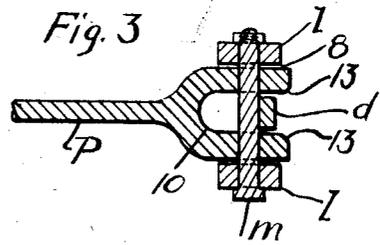
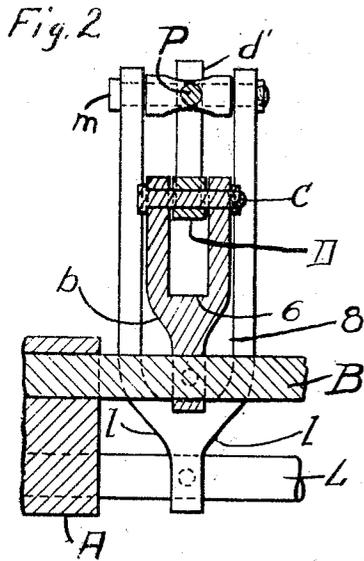
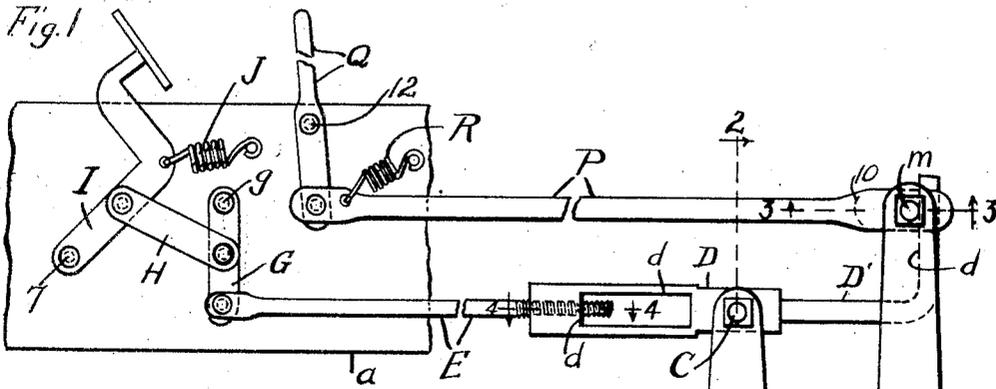


H. JOSEPHSON.
 SHAFT OPERATING MECHANISM.
 APPLICATION FILED DEC. 4, 1916.

1,227,796.

Patented May 29, 1917.



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UNITED STATES PATENT OFFICE.

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SHAFT-OPERATING MECHANISM.

1,227,796.

Specification of Letters Patent.

Patented May 29, 1917.

Application filed December 4, 1916. Serial No. 134,885.

To all whom it may concern:

Be it known that I, HENRY JOSEPHSON, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Shaft-Operating Mechanism; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in mechanism for actuating rock-shafts, and pertains more especially to improved shaft-operating mechanism comprising a foot-lever operatively connected with the arm of a shaft for effecting the actuation of said arm in one direction against the action of a spring, a hand-lever arranged near the foot-lever and operatively connected with the arm of another shaft for effecting the actuation of said arm in one direction against the action of a spring and independently of the first-mentioned shaft, and means independent of said hand-lever for effecting said actuation of the arm of the second-mentioned shaft simultaneously with and during the aforesaid actuation of the arm of the first-mentioned shaft by the foot-lever.

One object of this invention is to provide simple and reliable shaft-operating mechanism of the character indicated in which an arm of a rock-shaft is positively actuated in the direction required to rock said shaft in one direction simultaneously with and during the rocking of another shaft, and free to be rocked in said direction independently of the other shaft.

Another object is to have the arm of the aforesaid second-mentioned shaft free to rock said shaft by the actuation of said arm by the hand-lever in one direction and independently of the aforesaid first-mentioned shaft against the action of a spring acting to rock said arm in the opposite direction upon releasing said lever upon said actuation of said arm by said lever, and to provide means for effecting the actuation of said arm against the action of said spring simultaneously with the actuation of the arm of said first-mentioned shaft by the foot-lever so that both shafts are operated simultaneously during said actuation of the arm of said first-mentioned shaft by the foot-lever.

With these objects in view, and to the end

of attaining any other advantage herein-after appearing, this invention consists in certain features of construction, and combinations and relative arrangement of parts, hereinafter described in this specification, pointed out in the claims, and illustrated in the accompanying drawings.

In said drawings, Figure 1 is an elevation of shaft-operating mechanism embodying my invention and shows two rock-shafts in cross-section. Fig. 2 is a vertical section on line 2-2, Fig. 1, looking in the direction indicated by the arrow. Fig. 3 is a horizontal section on line 3-3, Fig. 1, looking upwardly. Fig. 4 is a horizontal section on line 4-4, Fig. 1. Portions are broken away in the drawings to reduce their size.

Referring to said drawings, A and a indicate portions of the stationary framework of a machine having shaft-operating mechanism embodying my invention. B indicates a suitably supported substantially horizontally arranged shaft having an upwardly projecting arm b which has its upper portion provided with a slot 6 extending to the upper extremity of the arm and centrally through said portion of said arm at a right angle to the shaft. A pivotal bolt or member C extends and has bearing in the slotted or upper portion of the shaft-arm b and is parallel with the shaft B. A rigid link D has one end-portion thereof loosely embracing the pivotal member C, and a rod E has one end-portion thereof screw-threaded and screwed into the other end-portion of said link. The rod E is employed in operatively connecting said link and the connected shaft B with the lower end of an upright lever G which is fulcrumed at its upper end, as at g, to the support a and is operatively connected centrally between its ends by a link H with a foot-lever I which is fulcrumed, as at 7, to said support. A spiral spring J, connected at one end to said lever and at its opposite end to the support a, acts to retain said lever in its normal position in which the shaft-arm b is arranged substantially vertically, as shown. The link D is provided at the screw-threaded end-portion of the rod E with a slot d which extends laterally through the link, and said screw-threaded portion of said rod extends into said slot and longitudinally of said link so that said rod before its attachment to the lever G can be manipulated to

extend more or less into said slot to accurately adjust the relative arrangement of the members of the operative connection between the shaft-arm *b* and the foot-lever I.

5 By the construction hereinbefore described, it will be observed that the link D is rigid with the rod E, and that said rod and the connected lever I are arranged at one side of the rock-shaft B. At the opposite
10 side of and spaced from said shaft is a substantially horizontal rock-shaft L which is shown arranged somewhat lower than but substantially parallel with the shaft B. The shaft L has an upwardly projecting arm *l* having a slot 8 which extends to the upper
15 extremity of the arm and through the arm at a right angle to the shaft. The link D is provided with an arm D' which extends into the slot 8 and within said slot has an upwardly projecting member *d'*. By the construction hereinbefore described it will be
20 observed that the member *d'* is rigid with the rod E and of course connected to and movable with the arm *b* of the shaft B. The upwardly projecting outer end-portion or
25 member *d'* of the arm D' is arranged substantially at a right angle to the rod E and extends transversely of a substantially horizontally arranged pivotal bolt or member *m*
30 which is substantially parallel with the shaft L and extends loosely through and is carried by the slotted or upper portion of the arm *l*.

The pivotal member *m* is arranged between the member *d'* of the arm D' and the
35 inner end of said arm, but contiguous to,—that is, in contact with,—said member *d'* of the arm D'. Loosely mounted on and embracing the pivotal member *m* is one end-portion of a rod P, and said end-portion of
40 said rod extends through the upper portion of the slot 8 in the shaft-arm *l* and is slotted vertically, as at 10, and the slot 10 extends to the adjacent extremity of said rod.

The upwardly projecting member *d'* of
45 the arm D' is not only shown in contact with the pivotal member *m* but as extending between the side walls of the slot 10, as shown in Fig. 3, so that said walls operate to retain said upwardly projecting member *d'* of
50 the arm D' in position centrally between the ends of the pivotal member *m*. The rod P is operatively connected with the lower end of a hand-lever Q which is fulcrumed, as at 12, to the support *a* in proximity to the foot-lever I, and a suitably applied spiral spring
55 R acts to retain the hand-lever Q and the connected shaft-arm *l* in their normal position in which said shaft-arm is arranged substantially vertically as shown and the
60 pivotal member *m* is in contact with the member *d'* of the arm D'. The side walls of the slot 10 are preferably beveled, as at 13, at the adjacent extremity of the rod P so as to participate in guiding said rod into
65 proper position relative to the member *d'* of

the arm D' during return movement of said rod by the spring R after actuation of said rod by the hand-lever Q independently of the shaft B and in the direction required to actuate the shaft-arm *l* in the direction of
70 the shaft B.

As the arm *l* of the shaft L is free to be actuated in the direction of the levers I and Q it will be observed that, during the actuating of the hand-lever Q as required to
75 move the connected rod P in said direction and against the action of the spring R, said arm *l* is actuated in said direction independently of the member *d'* of the arm D' and consequently the shaft L is actuated inde-
80 pendently of the shaft B. When, however, the foot-lever I is actuated against the action of the spring J and in the direction required to effect the movement of the connected rod E toward the foot-lever the link D and its
85 arm D' and the shaft-arm *b* are actuated in said direction so that not only is the shaft B actuated but the shaft-arm *l* is at once and positively actuated in said direction through the medium of the member *d'* of the arm D' and the pivotal member *m* carried by the
90 shaft-arm *b*. It will be observed therefore that the arm *l* of the shaft L is provided at its upper end with a member, such, for instance, as the pivotal member *m*, and that
95 said member *m* and the engaging member *d'* of the arm D' have such relative arrangement that the arms *b* and *l* of the shafts B and L are simultaneously actuated in the same direction during the actuation of the
100 foot-lever I in said direction, and that the arm *l* of the shaft L is free to be actuated in said direction so as to rock the shaft L independently of the shaft B.

What I claim is:—

1. The combination, with a shaft having
105 an arm, a rod operatively connected with said arm; another shaft which is substantially parallel with the first-mentioned shaft and having an arm adapted to be rocked in one direction independently of said first-mentioned shaft, of a rigid projecting member
110 connected and arranged at an angle to the aforesaid rod and extending into proximity to the arm of the second-mentioned shaft, and a member carried by the arm of said second-mentioned shaft and arranged to be pushed by the aforesaid projecting member during the actuation of said rod
115 endwise in the required direction.

2. The combination, with a shaft having an
120 arm, a rod operatively connected with said arm, another shaft which is substantially parallel with and spaced laterally of the first-mentioned shaft and having an arm, and a lever operatively connected with said arm of the second-mentioned shaft for actuating
125 said arm in the direction of the first-mentioned shaft, of a rigid projecting member connected and arranged at an angle to the
130

aforesaid rod and extending into proximity to the arm of the second-mentioned shaft, and a member carried by the arm of the second-mentioned shaft and arranged to be pushed by the aforesaid projecting member during the actuation of said rod endwise in the required direction.

3. The combination, with a rock-shaft having an arm, a member carried by said arm and substantially parallel with said shaft, and another shaft which is substantially parallel with the first-mentioned shaft and having an arm, of an endwise shiftable rod operatively connected with the last-mentioned arm, and a rigid member connected to said rod and extending transversely of the aforesaid member of the first-mentioned arm and arranged to push said member of said first-mentioned arm during movement of said rod endwise in the required direction.

4. The combination, with a rock-shaft having an arm, a pivotal member carried by said arm and substantially parallel with said shaft, an endwise shiftable rod loosely embracing said pivotal member, and another shaft which is substantially parallel with and arranged at one side of the first-mentioned shaft and has an arm, of an endwise shiftable rod operatively connected with the last-mentioned arm, and a rigid member connected to the last-mentioned rod and extending transversely of and in contact with the aforesaid pivotal member.

5. The combination, with a substantially horizontally arranged rock-shaft having an upwardly projecting arm, a pivotal member which is substantially parallel with said

shaft and carried by said arm, an endwise shiftable rod loosely embracing said pivotal member and provided with a slot extending vertically through said rod, and another shaft which is substantially parallel with and arranged at one side of the first-mentioned shaft and has an upwardly projecting arm, of an endwise shiftable rod operatively connected with the last-mentioned arm, and a rigid projecting member connected to the last-mentioned rod and extending transversely of the aforesaid pivotal member and into the aforesaid slot.

6. The combination, with a substantially horizontally arranged shaft having an upwardly projecting arm, a rod operatively connected with said arm, another shaft which is substantially parallel with the first-mentioned shaft and having an upwardly projecting arm adapted to be rocked in one direction independently of said first-mentioned shaft, of an upwardly projecting rigid member connected to the aforesaid rod and extending into proximity to the arm of the second-mentioned shaft, and a member carried by said arm of said second-mentioned shaft and arranged to be pushed by the aforesaid projecting member during movement of said rod endwise in the required direction.

In testimony whereof, I sign the foregoing specification, in the presence of two witnesses.

HENRY JOSEPHSON.

Witnesses:

B. C. BROWN,
EMIL W. KRZY.