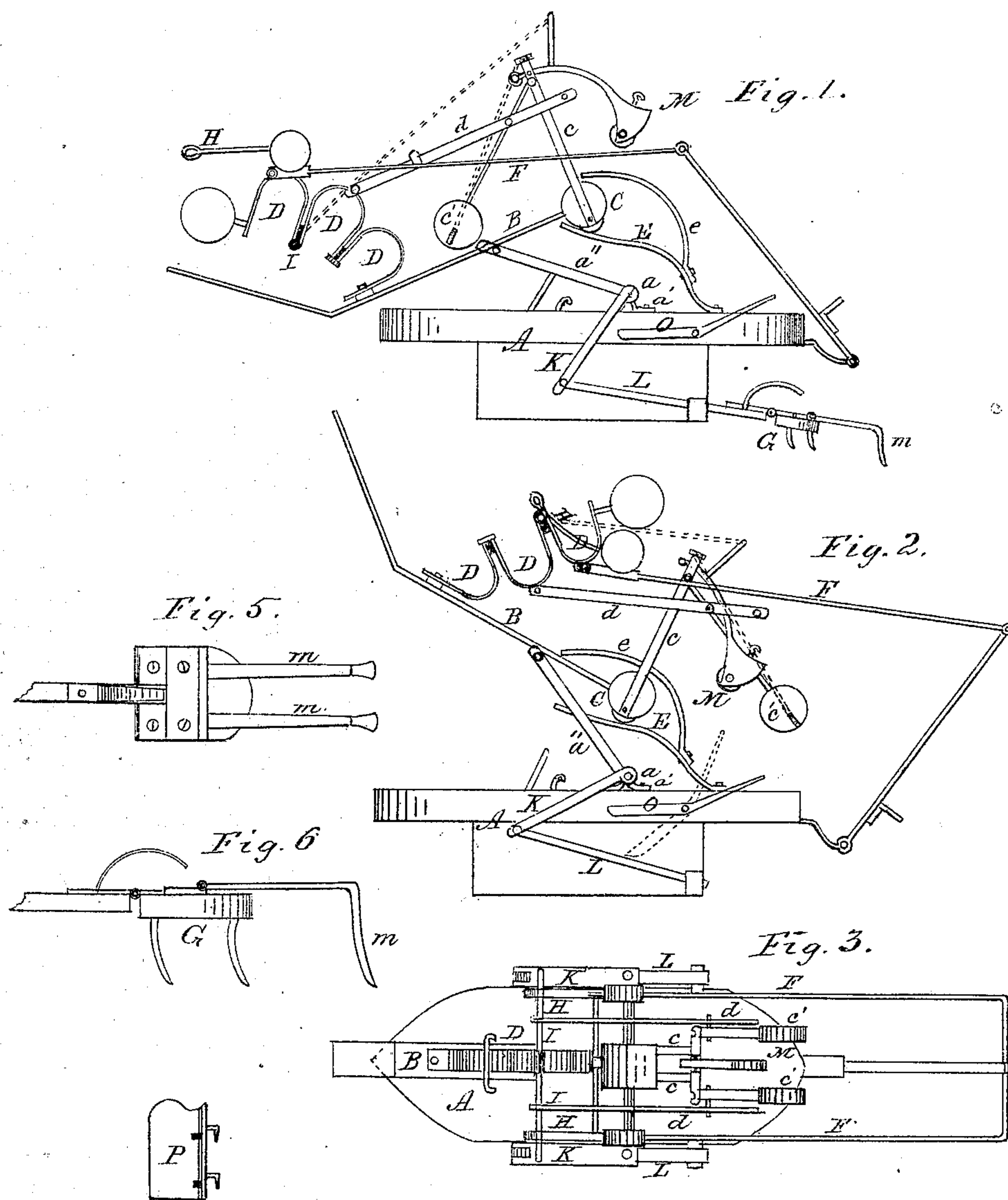


Harvey Fowler's *Hand Propeller for Canal Boats*

No. 121,714.

Patented Dec. 12, 1871.



Witnesses

A. DuBois
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Inventor

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UNITED STATES PATENT OFFICE.

HARVEY FOWLER, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN PROPULSION OF CANAL-BOATS.

Specification forming part of Letters Patent No. 121,714, dated December 12, 1871.

To all whom it may concern:

Be it known that I, HARVEY FOWLER, of the city of Washington, District of Columbia, have invented certain Improvements in Propellers for Canal-Boats, of which the following is a specification:

In the accompanying drawing, Figure 1 is a side elevation of the boat with the apparatus for propelling it attached; Fig. 2, the same with the propelling apparatus in a different position; Fig. 3, a plan of the whole in the position shown in Fig. 2; Figs. 5 and 6, the plan and side elevation of the foot attached to the setting-pole.

The shaft or roller *a* is placed transversely across the forward part of a boat or barge, *A*, and supported in adjustable sockets or bearings, *a' a'*, with a crank-shaped center or a fixed arm, *a''*, extending upward and forward. Upon said crank or (if it be an arm) upon the upper extremity of said arm is jointed or pivoted a horizontal bar or beam, *B*, extending fore and aft, supporting at its rear or after end a weight, *C*, and, also, one or more fixed vertical standards *c c*. From the top of said standard or standards are suspended two swinging weights or pendulums, *c' c'*, one on either side, each having superadded an elastic support, as described in a patent granted to me on the 20th day of September, 1870. On the forward part of said bar or beam *B* is placed a vertical standard, *D*, weighted at its top; said standard being composed of a series of curved springs or otherwise, so as to be in a very high degree flexible, and being connected with the shafts or stems of said pendulums by means of the jointed rods *d d* or otherwise, said standards to be duplicated if required. A flat support or platform, *E*, is provided for the weight *C*, upon which it moves forward and backward, a roller or caster being placed underneath the same. A guard, *e*, is placed above the platform *E* to keep the weight *C* within a proper limit when lifted from its said support. A frame, *F*, is jointed upon the rear of said weighted oscillating spring standard *D*. Said frame is weighted near its point of junction with the vertical weight-bearing spring *D*, and carries a flat spring or springs *H H*, protruding forward so as to bear at a particular part of the oscillation upon an arm or arms, *I I*, extending from the opposite side of the said vertical weighted spring; said last-mentioned arms are connected by an elastic ligature, as shown by dotted lines, with the top of standards *c c*, and also with the depending weight *M*, which is pivoted at the rear of standards *c c*.

The above aggregated weights are brought to bear upon the crank or fixed arms *a a* at intervals measured by the swing of the pendulums *c' c'*, depressing the same and giving motion to stilts, setting-poles, or jointed levers in the fashion of grasshopper-legs *K L*, affixed upon the extremities of said transverse roller *a*, which are described as follows: The ends of said shaft or roller *a* extend beyond the gunwales or sides of the boat and carry each a flexible arm or beam, *K*, extending obliquely downward and forward. To the lower end of each of said arms *K K* is hinged or otherwise jointed another beam, arm, rod, stilt, lifter, or setting-pole, *L*, reaching sternward and downward with its free end armed with iron teeth resting upon the ground at the bottom of the canal; or, the extremity of said stilt or pole may be furnished with a hinged foot, *G*, armed with teeth slightly curved backward, protruding underneath, and having also hinged upon said foot a series of projecting tilting-teeth, *m m*. Said stilt or pole may also be supplied with a collar or cushion for service when the nature of the ground at the bottom of the canal requires its use, and this is to be applied and removed at pleasure by raising the end of the stilt or pole with a hook having a handle, which is to be kept on board for this purpose.

For the purpose of stopping or checking the speed of the boat, the end of an arm, lever, or rod, *o*, is hinged to the gunwale of the boat, to be forced down upon the stilt or pole *L*; and for backing, lift the stilts *L L* and suspend them from the gunwale and insert reversible paddles *P P* in sockets affixed upon the beams or arms *K K*, and shift the reversible paddles for a forward movement where the water is deep.

I claim as my invention—

1. The horizontal-weighted bar or beam *B* and the vertical oscillating weighted spring standard *D* connected with the pendulums *c' c'*, substantially as described.

2. The supporting platform *E* and guard *e*, rollers, casters, elastic ligatures, and other spring-braces, or their equivalents, substantially as described.

3. The foot, with its projecting teeth hinged or otherwise, in combination with the setting-pole; also the brace *o* and the reversible paddle connected with the flexible oscillating bar *K*, substantially as and for the purpose indicated.

Witnesses:

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