

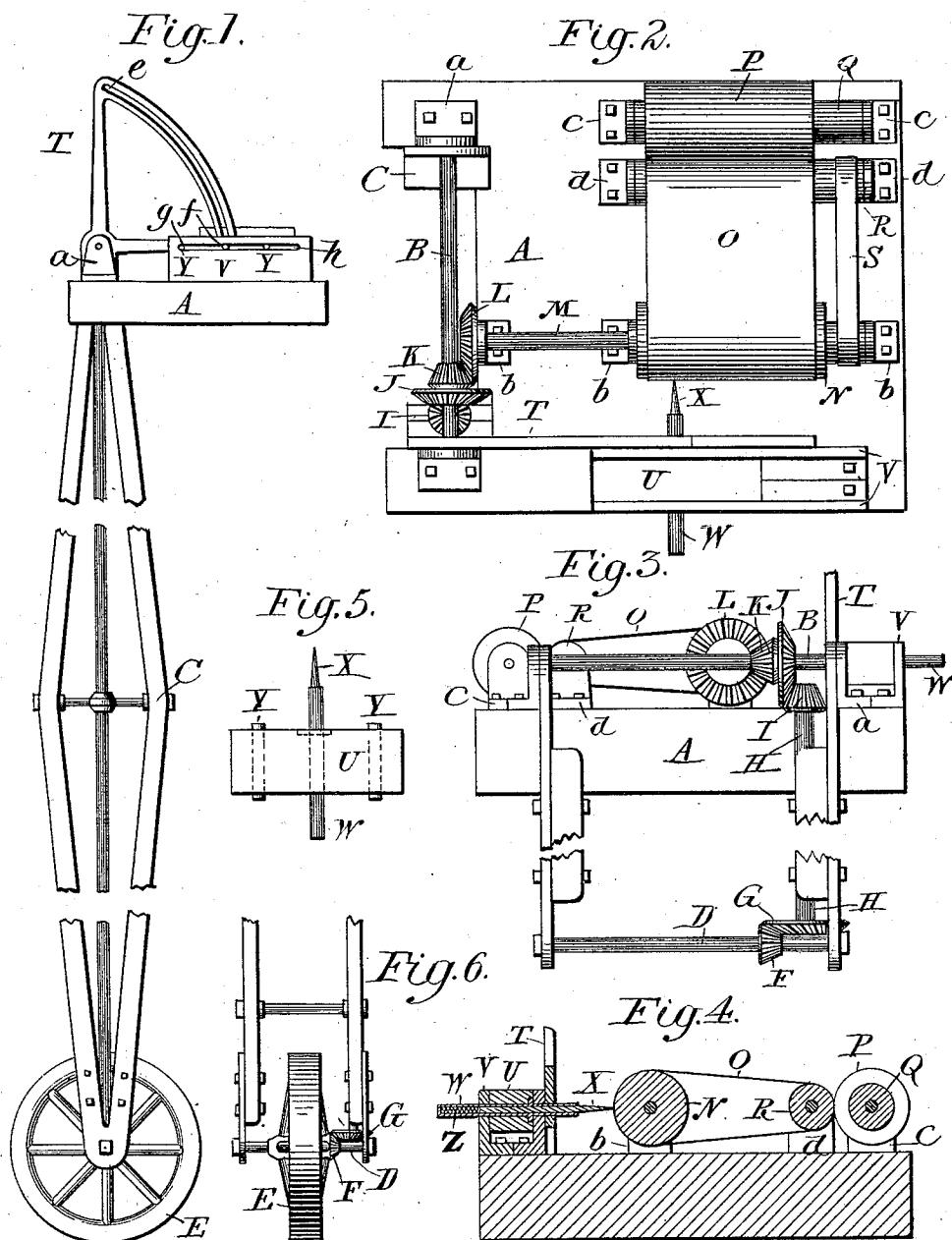
(No Model.)

R. McDOWALL.

MACHINE FOR SOUNDING AND DRAWING PROFILES OF BEDS OF RIVERS, &c.

No. 572,610.

Patented Dec. 8, 1896.



Witnesses:
 N. P. Horton
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 Robert McDowall

UNITED STATES PATENT OFFICE.

ROBERT McDOWALL, OF OWEN SOUND, CANADA.

MACHINE FOR SOUNDING AND DRAWING PROFILES OF BEDS OF RIVERS, &c.

SPECIFICATION forming part of Letters Patent No. 572,610, dated December 8, 1896.

Application filed January 27, 1896. Serial No. 577,092. (No model.)

To all whom it may concern:

Be it known that I, ROBERT McDOWALL, a British subject, residing at Owen Sound, in the county of Grey and Province of Ontario, in the Dominion of Canada, have invented new and useful Improvements in Machines for Sounding and Drawing the Profiles of the Beds of Rivers, Harbors, or Other Shallow Waters, of which the following is a specification.

My invention relates to a machine to be placed on a boat, raft, or float which can be propelled at a fair rate of speed. By means of mechanism the profile of the bottom of the river, &c., over which the boat may be directly passing is transmitted to paper on a proportionate scale.

The object of my invention is to facilitate the taking and recording of soundings of rivers, &c., rapidly and accurately. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the entire machine. Fig. 2 is a plan of the entire upper portion of the machine. Fig. 3 is a rear elevation of a portion of the machine. Fig. 4 is a vertical section through the pencil of the upper portion of the machine. Fig. 5 is a plan of the pencil-carriage. Fig. 6 is a rear elevation of the lower portion of the machine. Similar letters refer to similar parts throughout the several views.

A is a wooden platform which is secured to the side or deck of a boat. To A are bolted the iron bearings *a a*, *b b b*, *c c*, *d d*, V V.

B is a shaft journaled in bearings *a a*.

C is a wooden or iron trussed arm which swings from B at its upper end. Connected to the lower end of C is the shaft D, upon which revolves the wheel E. To E is connected the beveled cog-wheel F, which meshes with beveled cog-wheel G, which is connected to the lower end of the shaft H. To the upper end of shaft H is connected the beveled cog-wheel I, which meshes with beveled cog-wheel J, which is connected to beveled cog-wheel K. Both J and K revolve about shaft B. K meshes with beveled cog-wheel L, which is connected to shaft M, which revolves in the bearings *b b b*. To shaft M is connected the wooden roller N. A sheet of paper O passes off the roll of paper P, wound on

wooden roller Q, which revolves in bearings *c c*, under wooden roller R, which revolves in bearings *d d*, thence under, around, and above roller N, back to roller R, upon which it is rewound.

S is an endless friction-belt connecting the rollers N and R to keep the paper taut upon the rollers.

The beveled cog-wheels F, G, I, J, K, and L are so designed and arranged as to give to the periphery of the roller N a velocity proportional to that of wheel E, say, for instance, one to forty.

Connected to arm C at its upper end is the iron elliptical-shaped quadrant T, having the elliptical-shaped slot *e f*.

V is a wooden pencil-carriage having the iron arms Y Y and the hollow iron pencil-case W projecting from its sides, and these projecting ends Y Y and W slide in the slots *g h g h* of frame V V. In pencil-case W is the lead-pencil X, which is held to the paper O by the helical spring Z at the back of the pencil-case.

When the wheel E rises in following the contour of the bed of a river, the quadrant T descends, and in its descent the slot *e f* pushes pencil-case W, which slides within it, along slots *g h g h* a distance proportional to the perpendicular rise of wheel E, say, for instance, one to forty-eight.

The machine above described is used as follows: The platform A is secured to a boat, and the arm C and wheel E are led down into the water and drawn along at the stern at a fair rate of speed. The wheel E, resting on the bottom of the river over whose surface the boat is moving, will revolve and will transmit its motion by means of beveled cog-wheels F G, shaft H, beveled cog-wheels I J K L, shaft M, roller N to the paper O. At the same time if rises or depressions occur in the bottom of the river the wheel E, following the contour of that bottom, will also rise and descend and will transmit this vertical motion, by means of arm T, slot *e f*, and pencil-carriage U, to pencil X.

The horizontal motion of the pencil X and the motion of the paper O will cause a profile of the bottom of the river, &c., to be produced to an actual scale upon the paper O.

I am aware that machines have been made

and patents granted to C. Van Horn, February 10, 1863, No. 37,650, and to Haagensen and Sonne, May 23, 1886, No. 342,351, for a similar purpose as the one above described, 5 and I therefore do not claim such combinations broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

10 The combination in a machine for sounding and drawing the profile of the beds of rivers &c. of a platform A, bearings *a, a, b, b, b, c, c, d, d*, shaft B, arm C, shaft D, wheel

E, beveled cog-wheels F, and G, shaft H, beveled cog-wheels I, J, K, and L, shaft M, rollers N, Q, and R; the elliptical quadrant 15 T, containing elliptical slot *e, f*, frame V, V, containing slots *g, h, g, h*, pencil-carriage U, with arms Y, Y, pencil-case W, with pencil X, and spring Z all substantially as set forth.

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Witnesses:

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