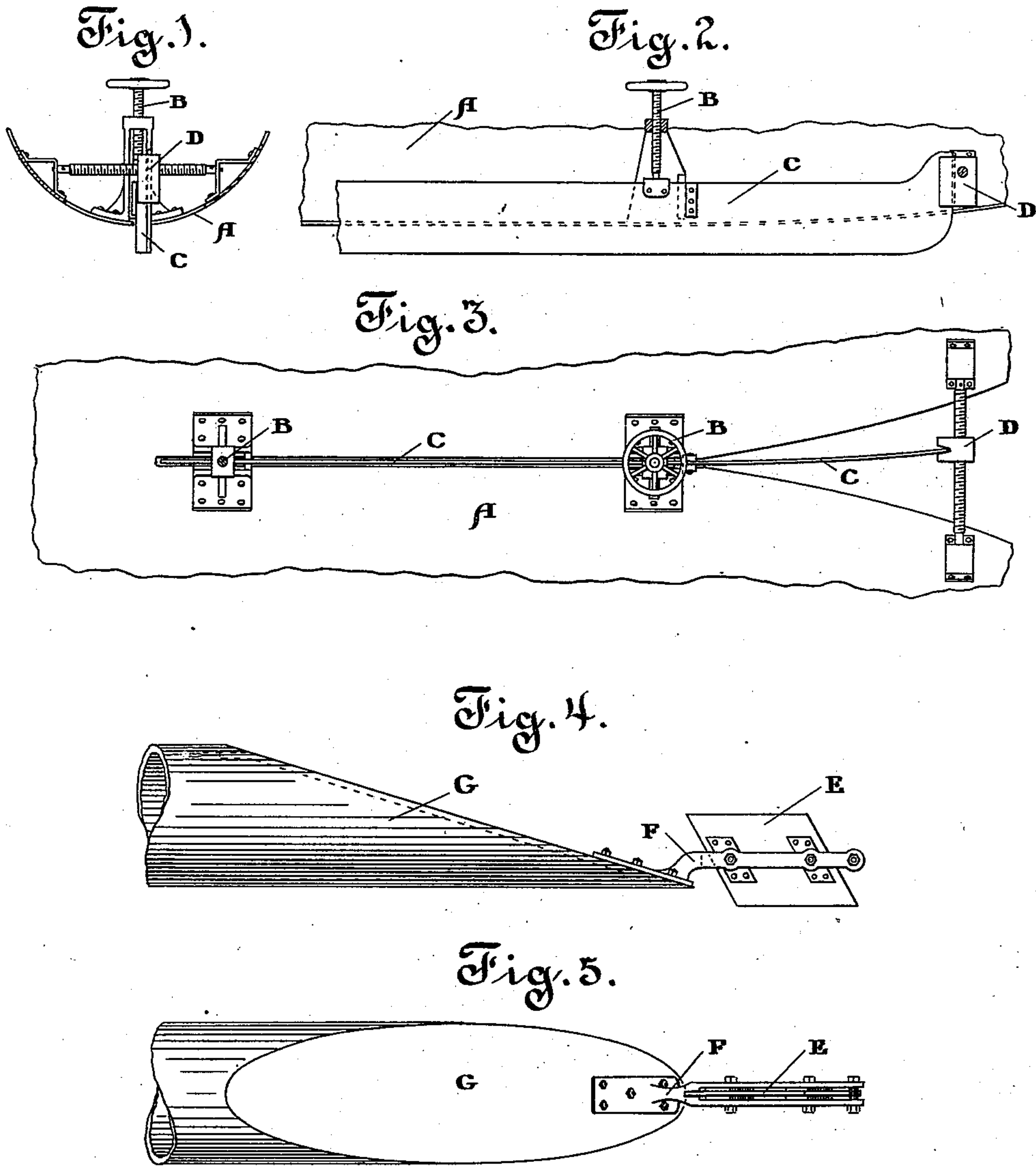


(No Model.)

E. L. RANSOME.  
MOLD.

No. 512,662.

Patented Jan. 9, 1894.



Witnesses  
Geo. J. Kelley  
Harry A. Ingerson.

Inventor

Ernest Leslie Ransome

# UNITED STATES PATENT OFFICE.

ERNEST LESLIE RANSOME, OF OAKLAND, CALIFORNIA.

## MOLD.

SPECIFICATION forming part of Letters Patent No. 512,662, dated January 9, 1894.

Application filed March 28, 1893. Serial No. 468,047. (No model.)

*To all whom it may concern:*

Be it known that I, ERNEST LESLIE RANSOME, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented a new and useful Improvement in Molds, of which the following is a specification.

My invention relates to an improvement in the molds and the method for which Letters Patent No. 353,500 were granted me on November 30, 1886, and the object of my improvement is to prevent the molds from rolling in their beds. In making pipe by this method of continuous or monolithic molding in which the mold is continually moving forward, the shaper and the main mold are apt to roll or turn in their bed. To prevent this I attach a keel to the shaper or to the main mold, which burying itself in the ground by the forward movement of the mold resists and overcomes the tendency to turn and keeps the mold in required position. This keel is illustrated by the accompanying drawings in which—

Figure 1, is an elevation of a sliding keel. Fig. 2, is a side elevation of the same. Fig. 3, is a plan thereof. Fig. 4, is an elevation of a colter keel. Fig. 5, is a plan of the same.

Similar letters refer to similar parts throughout the several drawings.

This keel may be attached in several ways. When a shaper is used and the ground is of uncertain quality, I prefer using a sliding

keel ("C") passing it through the mold and moving it in or out by screws (B) at will, the object of the sliding movement being to regulate its depth according to the character of the ground and to withdraw it altogether at times when passing a rock or stone.

When no shaper is used and when it is inconvenient to pass the keel through or fasten it under the mold, it may be placed in advance by being bracketed out after the manner of a colter or plow-share as shown in Figs. 4 and 5.

In order to assist in steering the mold I sometimes give an independent lateral movement to the nose of the keel, this to cause the mold to roll to the right or to the left at will. This I accomplish by means of a sliding block "D."

Having fully described my invention, what I desire to claim and secure by Letters Patent is—

1. In combination with a concrete subway mold an earth keel substantially as described.

2. In combination with a concrete subway mold a sliding earth keel substantially as described.

3. In combination with a concrete subway mold an earth keel having independent lateral movement substantially as described.

ERNEST LESLIE RANSOME.

Witnesses:

F. LESLIE RANSOME,  
HARRY F. INGERSON.