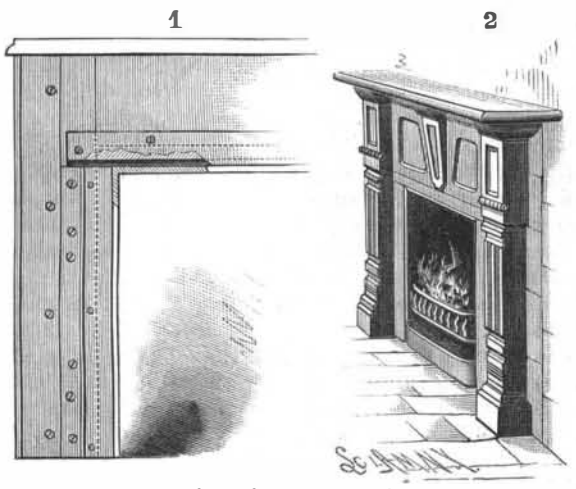
AN IMPROVEMENT IN MANTEL CONSTRUCTION.

A method of constructing mantel frames whereby one size may be readily and accurately fitted to fireplaces of different sizes has been patented by Mr. Robert B. Thompson, and is shown in the accompanying illustration. A wooden or other lintel having a longitudinal groove in its lower edge is fastened along the back of the frieze, with its lower edge extending enough below it to make the opening the desired height, as shown in Fig. 1. Jambs having tongues on their upper ends to fit the groove in the lintel are cut to the desired length, and fastened to the backs of the side columns at the desired distance from the center line of the fireplace. The inner edges of the jambs and lintel, when properly adjusted, are lined with fire strips.

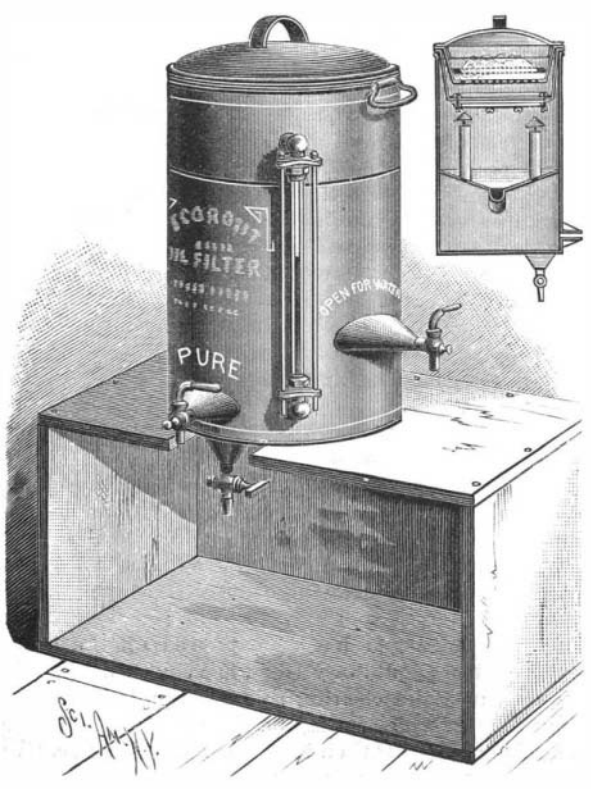


THOMPSON'S MANTEL.

For further information relative to this invention address Messrs. Schuette & Co., corner of 18th and Mary Streets, Pittsburg, Pa.

AN IMPROVED FILTER FOR WASTE OIL.

A convenient filter for oil as it drips from bearings, or oil that has been made impure by the admixture of any foreign substance, has been patented by Mr. George W. Gallaway, of No. 322 Pearl Street, New York City, and is illustrated herewith, the main view also showing the shipping box, which is adapted to serve as a stand on which to set up the filter. As shown in the sectional view, there are two removable filtering pans in the top of the can, the bottom of the upper pan being perforated and covered with cotton, held in place by a metallic ring. Around the bottom edge of the lower pan are two flanges, adapted to hold in connection with rings two parallel layers of felt in position, the felt being firmly secured by thumb nuts and bolts. A partition with central depression separates the upper part of the can from the bottom, a central bottom opening in such partition leading through a pipe to an outer cock for the discharge of water settling to the bottom of the filtered oil. Two stand pipes in this partition allow for the overflow of oil into the lower compartment of the can, when the oil rises sufficiently. The pure oil is withdrawn through the lower cock in front, the bottom cock being for the removal of water, should any pass into the lower compartment, or for cleaning the filter. A glass gauge at the side indicates the amount and purity of the filtered oil standing in the filter. As the waste oil is poured on the cotton in the upper filtering pan, all the larger foreign particles of matter are retained there, the remaining finer particles being removed by the felt. The construction allows for the ready removal of the filtering material for cleansing.



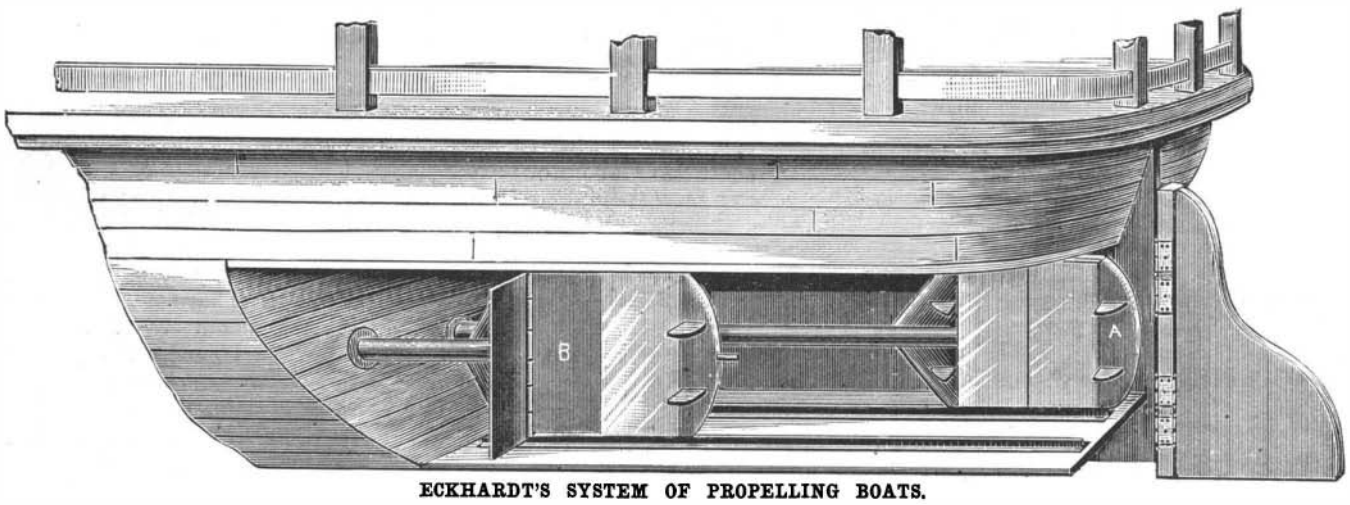
GALLAWAY'S OIL FILTER.

Ballooning with Natural Gas.

The first balloon inflated with natural gas ever sent up arose from Riverside Park, near Anderson, Ind., August 14. It has been a question as to whether or not natural gas would float a balloon to any considerable height, says a writer from that town. This one was filled from a pipe from a well until the gauge indicated that the silk, which was inclosed in a strong netting, was bearing twenty pounds pressure, when George Ayers, an amateur aeronaut, climbed into the basket, and the balloon was cut loose. It rose steadily until an altitude of about 2,500 feet was reached, when a current of air was struck which bore the balloon and its single passenger away to the southeast, since when nothing has been seen or heard from him.—*Progressive Age.*

A NEW METHOD OF BOAT PROPULSION.

The system of propelling boats herewith illustrated has been devised by Mr. J. Eckhardt, corner of 25th and Palm Streets, St. Louis, Mo. Four cylinders, each connected with an engine in the vessel, are mounted to be reciprocated through a waterproof packing in recesses made below the water line in each side of the hull, and extending a short distance forward from the stern. There are two of these cylinders on each side of the vessel, and on their outer ends are up and down flanges, on which vertical steel paddles are hinged, one on each cylinder for forward and one for backward movement. The cylinders are each coupled to a crosshead running on slides in a horizontal direction the full length of the stroke, the connection being such that with every revolution of the driving shaft the two outside cylinders, with square open paddles, pass out, while the other two cylinders, with closed paddles, pass in, and *vice versa*. There is a rod in each cylinder, by which the paddles may be reversed as desired, without stopping the engine, whereby the vessel may be turned in about its own length.



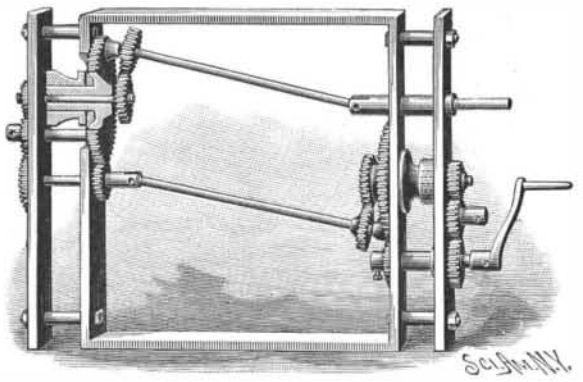
ECKHARDT'S SYSTEM OF PROPELLING BOATS.

Frieze from Susa.

The frieze of the archers of the guard which M. and Mme. Dieulafoy brought from Susa is composed of bricks 14 inches by 7 and 9 inches thick. They were cast in moulds, and perhaps worked on while still moist. The glaze on their faces has not always held, and it was necessary to subject them to treatment, or they would never have reached Europe. The frieze once decorated a wall in a side porch of the throne room of the palace of Darius. A correspondent of the *Athenæum* writies: "The warriors are portrayed marching in single file, each holding a spear, as in the attitude of 'attention,' and having large quivers slung at their backs, and their bows at their left arms. Their close-fitting helmets are bound round with a roll of green linen. They wear tunics reaching to the ankles, also an inner garment with long sleeves, and laced shoes. The color of the dresses varies, a white tunic and yellow underdress alternating with a yellow tunic and manganese purple underdress. The tunics are elaborately ornamented, the point of special interest being that the white tunics are sprinkled with a design representing a castle (the citadel of Susa ?), the triangular battlemented towers being yellow on a purple ground. The guards wear gold earrings and bracelets. They are brown-skinned. Their curled black beards, bush of black hair pushing out below the helmet, and strongly accentuated features combine to form an appearance singularly resolute and martial."

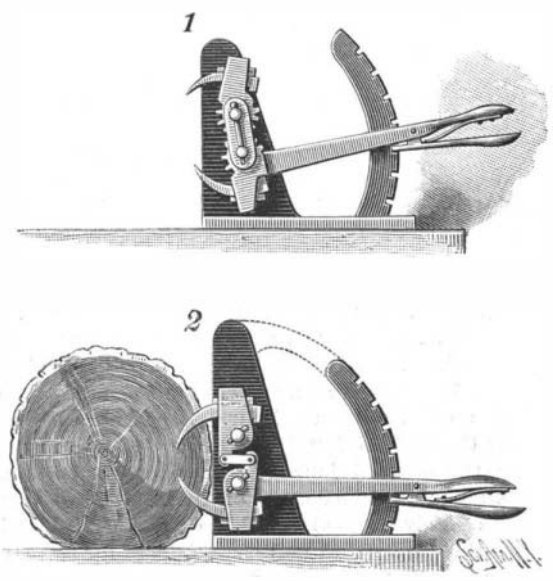
AN IMPROVED GEARING FOR TRANSMITTING MOTION.

In the gearing herewith illustrated, which has been patented by Mr. Ole O. Kravik, of St. Carl, Dakota Ter., a short shaft, having on its outer end a crank arm, is mounted in a suitable frame, a gear wheel on the shaft and next to the crank meshing into an intermediate gear wheel mounted above on a stud, the latter wheel meshing into a higher gear wheel on a shaft rotating in the end standards, and carrying on its inner end a bevel gear wheel. The latter meshes into a bevel gear wheel secured to the lower shaft held in inclined position and secured at its outer end to another shaft mounted to rotate in suitable bearings. The inner end of the lower inclined shaft has its bearing in a lug secured to the face of a large gear wheel rotating loosely on the shaft carrying the higher gear wheel above the crank arm, this large gear wheel meshing in a gear wheel secured to the inner end of the shaft operated by the crank arm. A very rapid rotary motion can by this construction be given to the first or lower inclined shaft, to be used for driving suitable machinery, or the same arrangement, as shown to the right in the illustration, may be duplicated as represented in the standards to the left and the upper inclined shaft, giving proportionately accelerated speed to the operating shaft.


KRAVIK'S GEARING.

AN IMPROVED SAWMILL DOG.

The simple and effective device herewith shown, which has been patented by Mr. John B. McRae, of Mount Holly, Ark., has an upwardly projecting knee in the forward end of a suitable base, a segmental rack being attached to the opposite end, or cast integral therewith. Fig. 1 shows aligning blocks pivoted to one face of the knee, their contiguous surfaces having intermeshing teeth, and their outer ends being recessed to receive outwardly extending curved dogs, secured by keys. From the lower block extends a lever arm adapted to slide upon the side of the rack, and having at its handle end a spring latch adapted to engage the recesses of the rack. Fig. 2 shows a modified form of the device, in which the intermeshing teeth on the blocks are dispensed with, and the blocks have on their contiguous portions lugs, between which a link connection is formed.



McRAE'S SAWMILL DOG.