The flue may be constructed in such a manner as to pass or wind upon the outside of the cylinder, and apply its heat exteriorly to the boiler, and then communicate with the chimney. The boiler may be sheathed on the outside with pine staves, or any other non-conductor.

The dotted line, *w*, represents the surface of the water in the boiler, the space above serving as *steam-room*. The tube through which the water is conveyed into the boiler, may enter the latter, at any convenient point below the surface *w*.

F, represents a prolongation of the ring *a*, adapted to the use of anthracite, which cannot readily be ignited, in contact with a conductor at a low temperature. The depth of the ring should be about one foot. It must be lined with fire-bricks, or lute of suitable thickness, as represented at *ff*, resting upon the grates *g*, or otherwise supported. The fire-place, in this instance, will be situated below the boiler, and included within the ring F. The whole of the heat that may be generated, must ascend through the boiler, and a large portion of it be applied to the production of steam.

The flanch, or step, for the support of the grates, will be circular, and may be inserted within the ring *a*, and sustained by screw bolts or rivets passing through it and the ring, as represented in the figure.

Any number of boilers of the description above given may readily be combined, and made subservient to the production of steam sufficient for the supply of the most powerful engines.

If we assume three feet for the height of the frustum, 34 inches for its greatest, and 30 inches for its least diameter, (and three feet for the diameter, and 4 feet for the height of the cylinder A,) the surface exposed to the action of the heat will be about 28 square feet, nearly equal to that of a locomotive engine of the ordinary construction, while the weight of water contained in the boiler, will be less than one third of that required for the common cylindrical boiler.

Very respectfully, &c.

S. H. LONG.

Philad. July 4th, 1827.

Description of an Improvement in Clocks, intended to show the day of the Month. By ALEXANDER YOUNG.

TO THE EDITOR OF THE FRANKLIN JOURNAL.

Sir,—The annexed drawing, represents an improvement in the construction of clocks, by which the day of the month is shown, without the attention that is usually required, to put the hand forward at the end of a short month. After a trial of more than five years, it is found to be a very useful addition, easily made, and ap-

plicable to any clock: if you think it worth publishing, you can give it a place in your Journal.

Yours, respectfully,

ALEXANDER YOUNG.

Camden, S. C., June 20th, 1827.

Description.—Fig. 3, plate 2, represents the improved movement. The wheel of 31 teeth for moving the month-hand is in the usual form, only it has a small wheel of 12 teeth on its side, which makes a revolution in 12 months, by having to pass a fixed pin K, as it is carried round by the month wheel; there are pins on its side at F, A, J, S, and N, which limit the motion of a lever, round a screw or centre at B; there is a pin at G, which limits its motion on the other side. The month wheel is moved by a pin C, projecting from a wheel, which, by the motion of the clock, makes a revolution in 24 hours. There is another pin in the same wheel at D, so short that it will pass under the month wheel. At the end of every month, the lever will come in the way of that pin, and if it be held to its greatest distance from the small wheel, by the pin at F, the lever, and wheel, will be moved round a distance equal to three teeth, and cause the month hand to advance 3 days, as will be required at the end of February; if the lever rest on any of the pins A, J, S, or N, it will be two days later in coming to the pin D, which will cause a motion of only one day; but if the arm of the lever fall between two of the pins, it will be 3 days longer out of the way of the pin D, which will move the lever up to G only, where it will remain until the small wheel has been carried round past the pin K, and moved one tooth, and has begun to rise on the other side, when the lever will fall by its own weight towards the small wheel, until it is stopped by one of its pins, which will make it project as much as is required for that particular month.

The dotted lines represent the lever held in different situations, by the pins in the side of the small wheel.

FOR THE FRANKLIN JOURNAL.

Remarks on the kind of boat most suitable for the transportation of coal, &c., on the Schuylkill navigation, and other canals. By JAMES STOTT, Mineral Surveyor.

MR. EDITOR,

I have lately had occasion to visit Mount Carbon, and could not but notice the very defective manner in which the excellent coal there, is brought down the navigation, to the city of Philadelphia; I see three men and one horse, are generally employed to bring a boat of coal, containing twenty-five tons, along the canal; they do not insist that *all* the hands are wanted, while passing along the canal,