# Pearl & Chandler.

## Spinning.

No. 8,675. Patented Jun. 20, 1852.

Fig. 1.

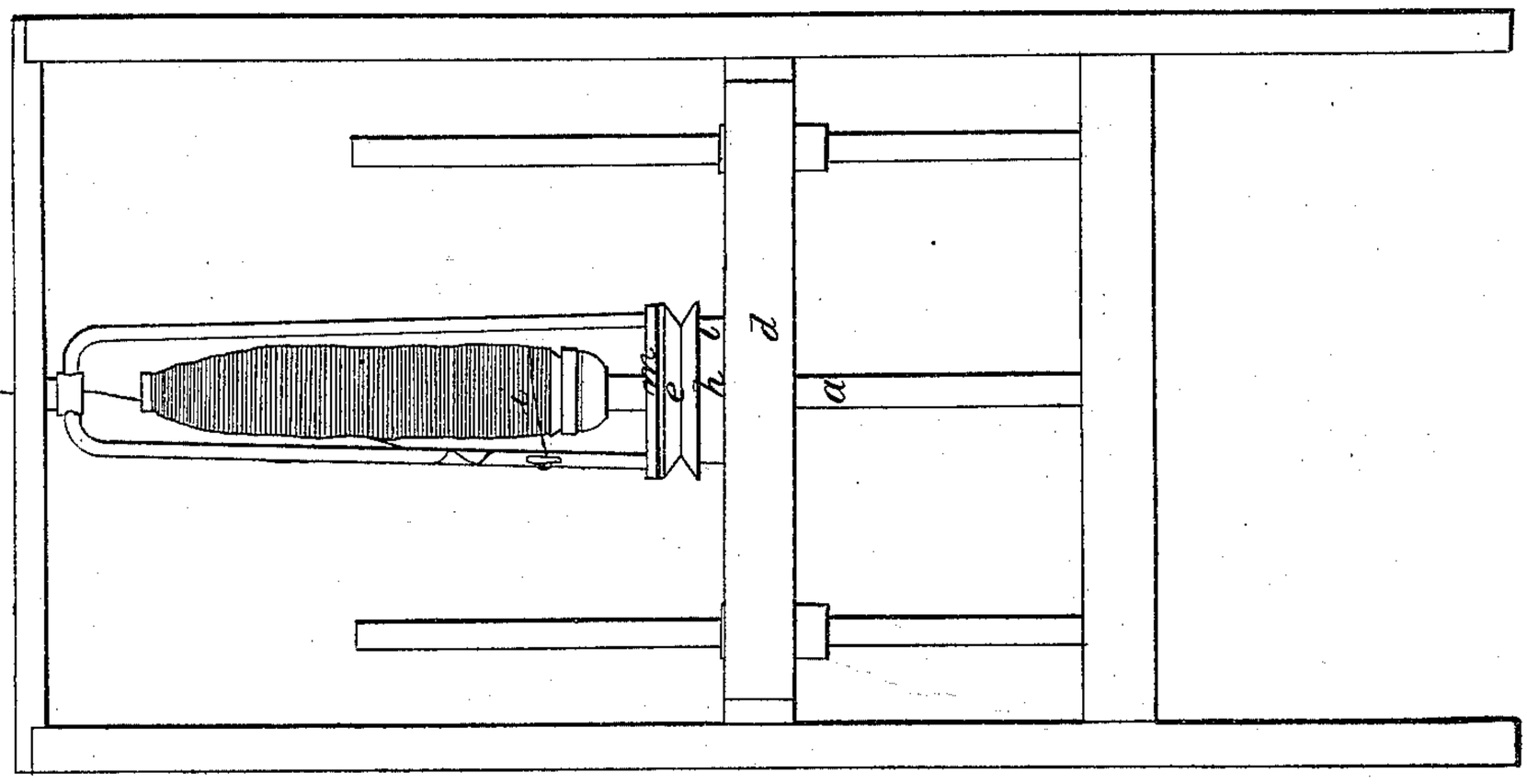



Fig. 2.

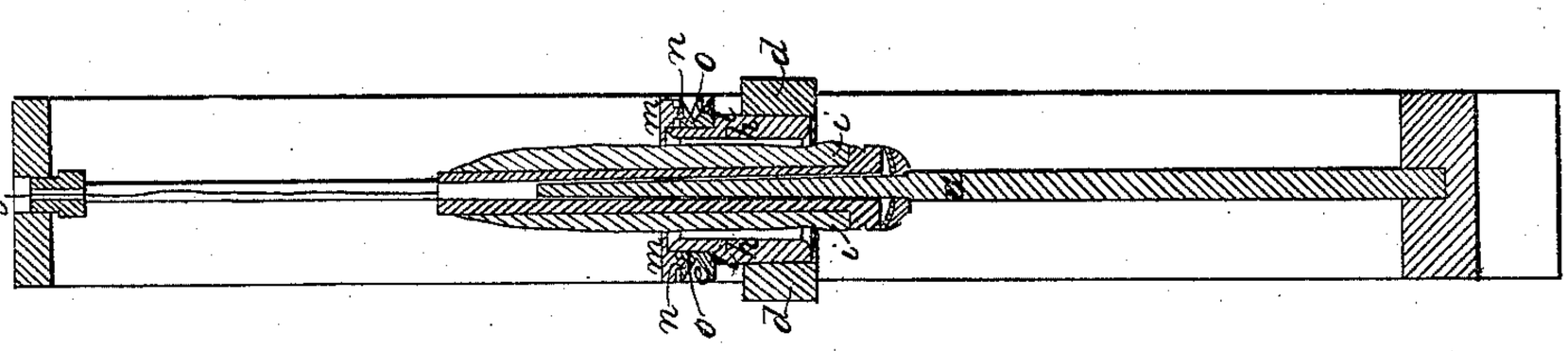
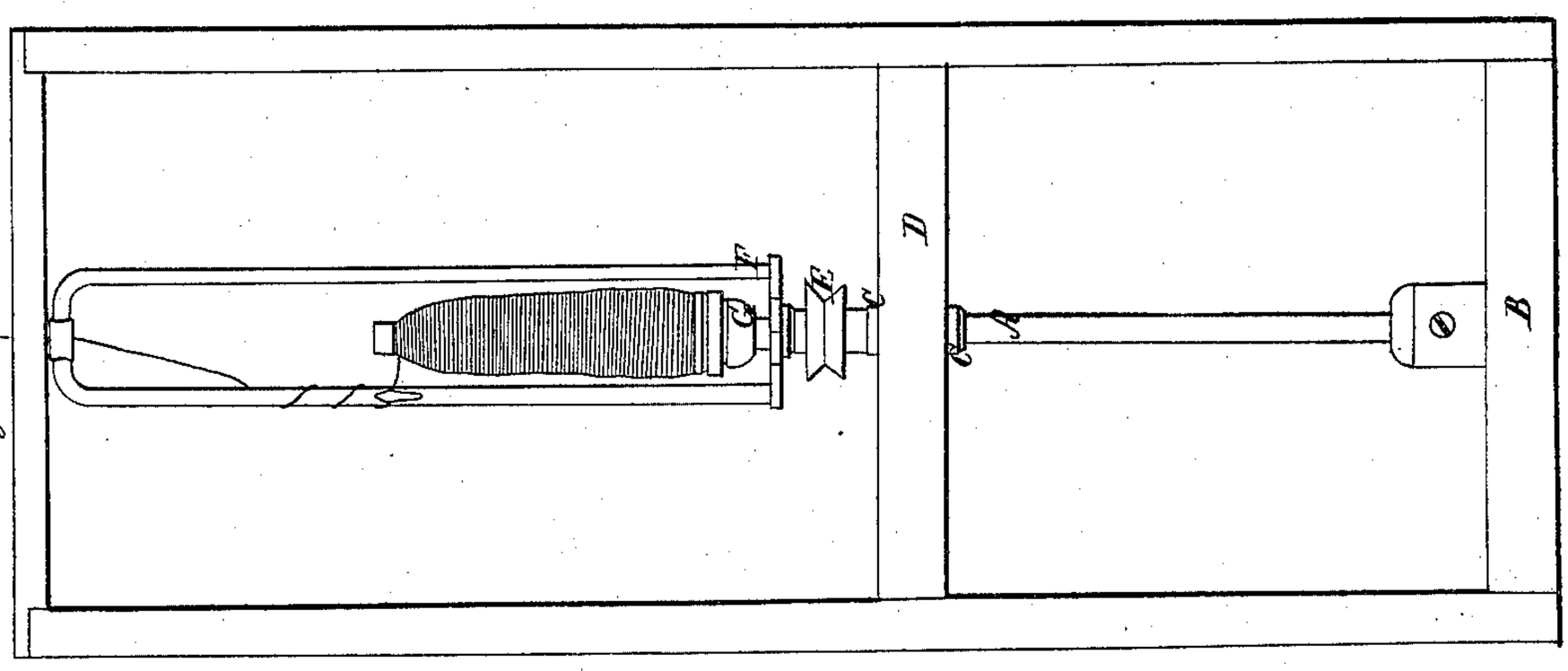



Fig. 3



# UNITED STATES PATENT OFFICE.

O. PEARL AND H. P. CHANDLER, OF LAWRENCE, MASSACHUSETTS.

## IMPROVEMENT IN SPINNING MACHINERY.

Specification forming part of Letters Patent No. **8,675**, dated January 20, 1852.

*To all whom it may concern:*

Be it known that we, OLIVER PEARL and HENRY P. CHANDLER, of Lawrence, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Throstle Spinning Machinery; and we do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1 denotes an external front elevation of a flier and spindle constructed on our improved plan. Fig. 2 is a vertical and central section of the same. Fig. 3 is an external elevation of a flier and spindle made in the ordinary way.

In Fig. 3 the spindle, which is what is generally termed a "dead-spindle," is seen at A. It is supported on the elevating-rail B, and plays up and down through a tubular bearing, C, fitted through the stationary or bearing rail D of the throttle-frame. The whirl E of the flier F rotates freely on the spindle, and has the flier resting upon it, and so applied to it that the two will rotate together when whirl is rotated. The flier in this case has to be made in length or altitude at least, and generally more than twice, that of the bobbin, which rests on the button G. In this construction of the whirl the vertical cylindrical hole made through it is only made of a diameter just sufficient to receive the spindle, and allow it to play up and down and the whirl to rotate in the spindle.

In our improved plan or mode of constructing the parts the whirl *e*, Figs. 1 and 2, is made much larger in diameter and supported by and made to rotate on a vertical tube, *h*, whose internal bore or diameter is made large enough to allow the bobbin *i* to play freely up and down through it. The said tube *h* is supported by the stationary bearing-rail *d* of the throstle-frame, and it has a shoulder, *l l*, upon which the whirl rests. The bottom *m* of the flier rests upon the top surface of the whirl, and is also made with an orifice through it sufficiently large to allow the bobbin to freely pass up and down through it. In our representation of it it is shown as surrounding and concentric with the upper part of the tube *h*. A small pin or stud, *n*, is made to project from the said bottom of the flier and enter a corresponding cavity, *o*, made down in the top of the whirl, the same being for the purpose of causing the flier to revolve with the whirl. The spindle *a*, supported by suitable bearings and lifting-rails, is to be moved up and down in the usual manner in order to enable the flier to lay the yarn upon the bobbin. The flier is made only about the length of the bobbin, instead of double, or more than double, its length, as it is in the old way represented in Fig. 3.

Ordinary throstle spinning-fliers are usually constructed in length from one and a half to two inches more than twice that of the bobbin, and the bobbin and the button on which it rests has to travel within the same. The length of the flier is limited on account of the curving or spreading of its arms when driven at the requisite speed for successful operations.

The average amount of yarn wound upon the ordinary throstle filling-bobbins as made at the present time is from five hundred and fifty to six hundred yards. By our improvement we are enabled to increase the length of the bobbin and, of course, increase the amount of yarn wound on it. In other words, we can use with the same length of flier a bobbin double or nearly double the length of that which can be employed under ordinary circumstances, or by the construction of flier and spindle, as represented in Fig. 3; consequently the amount of yarn wound on the bobbin will be greatly increased by increasing its length. The increased length wound on the bobbin makes less changes of the shuttle necessary in the process of weaving, and consequently creates a saving of time and labor. The enlarged capacity of the bobbin enables the throstle-frame to be operated a much longer time without doffing, or, in other words, changing the bobbins while spinning, thereby producing on the frame a greater amount of yarn per day.

Another very important advantage gained by our improvement is, that we are enabled to run the flier at a great increase of speed beyond what is safe with the ordinary throstle-flier, as represented in Fig. 3. The flier-legs in our improved mode of making the flier being much shorter than those of the kind of flier denoted in Fig. 3, there is not that danger that the old plan presents of their being bent or broken by the action of the centrifu-

gal force during the revolution of the fl
Consequently the flier can be run at a grea
speed, and thus produce more work in a given time.

Many of the above-enumerated advantages result from using a short flier, and making the lower bearing of the flier open, as described. We, however, do not wish it understood that the making the lower part of the flier open so as to so receive the flier constitutes our invention; but as great advantages are gained by such we have combined with such an arrangement of the driving-whirl, and the bearing of such whirl, by which we are not only enabled to run the flier with less friction and with a great saving of wear and tear, but with greater steadiness of motion than is the case when the whirl is arranged at the top or nose of the flier. The friction of the enlarged whirl under the new arrangement and combination of it and its bearings is found by practice to be not so great as that of a smaller whirl and its bearings, as the band by which the former or large whirl is driven is not required to be so tight, but may be run very loosely on it. Thus the wear of the rubbing-surfaces is very much diminished, and much of or nearly all that unsteadiness of motion of the flier that comes from such wear is avoided. The vibrations of the flier being thus prevented, we consequently prevent the unpleasant noise that usually results therefrom. Steadiness of motion is further gained.

The principle of our invention is also applicable to the warp throstle-frame, and it is intended to apply to the open or leg flier, whose driving-whirl is situated below its legs; and in such a flier we do not claim to arrange the whirl below the nose of the flier; but

What we do claim as our improvement is—

The arrangement of the whirl at the base of the flier, in combination with making the said whirl and the bearing on which the whirl is placed and rotates with a passage through them large enough to allow the bobbin to play within the same and up and down between the flier-legs, substantially in manner and for the purpose as specified.

In testimony whereof we have hereto set our signatures this 30th day of October, A. D. 1851.

OLIVER PEARL.
HENRY P. CHANDLER.

Witnesses:
W. HARMON,
GEOR. P. BRIGGS.