

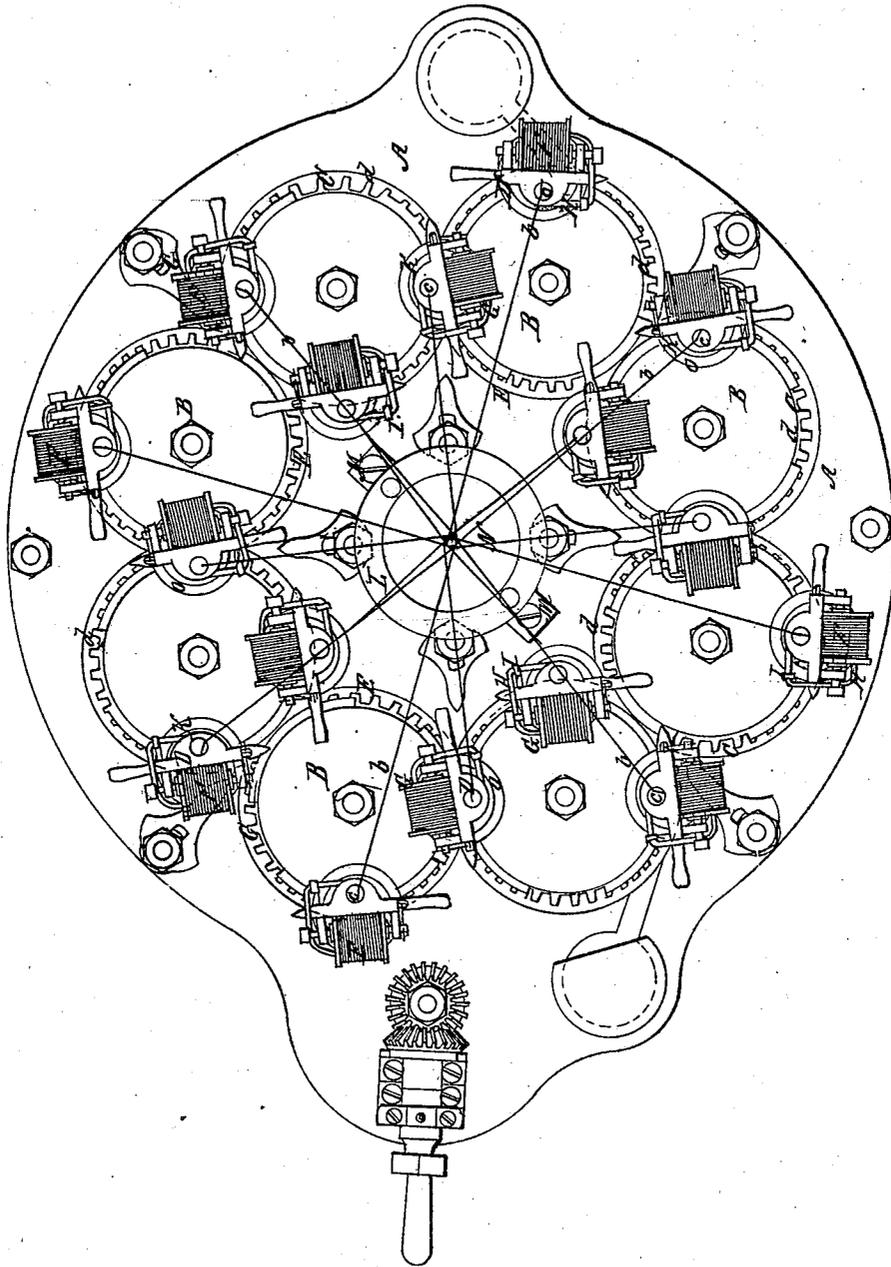
No. 13,391.

PATENTED AUG. 7, 1855.

L. HULL.
BRAIDING MACHINE.

2 SHEETS—SHEET 1.

Fig. 1.



L. HULL.
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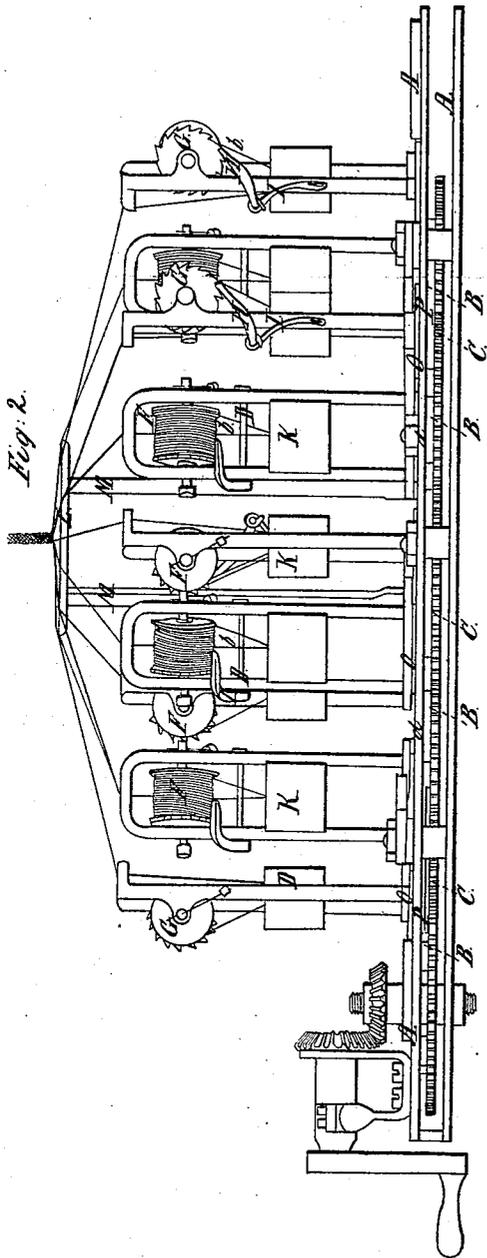


Fig. 2.

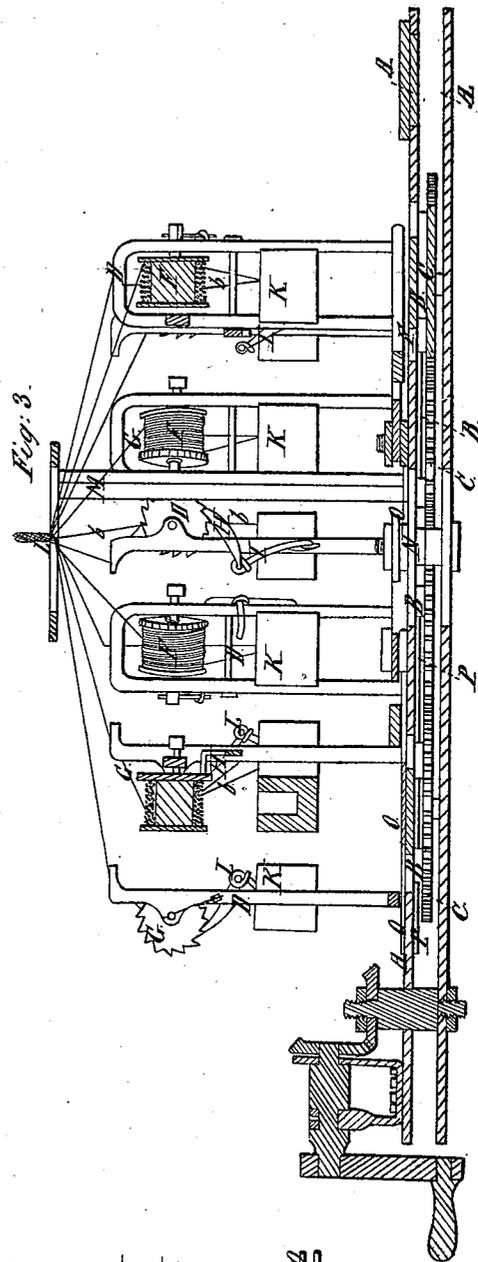


Fig. 3.

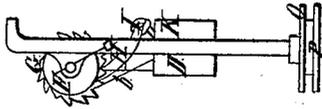


Fig. 4.

UNITED STATES PATENT OFFICE.

LIVERAS HULL, OF CHARLESTOWN, MASSACHUSETTS.

BRAIDING-MACHINE.

Specification of Letters Patent No. 13,391, dated August 7, 1855.

To all whom it may concern:

Be it known that I, LIVERAS HULL, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented
5 an Improved Braiding-Machine; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

10 Of said drawings Figure 1, denotes a top view of the said machine. Fig. 2 is a side elevation of it. Fig. 3, is a vertical and longitudinal section of it.

15 The object of my machine is to braid the external covering of a whip stock or handle, said machine being equally adapted to braiding cord, or for covering threads of caoutchouc.

20 In its general features, it is very similar to other braiding machines in use, although it differs from them in some essential particulars, as will be hereinafter described.

25 In the drawings, A, exhibits the main frame or base of the machine; B, B, B, the several forms or circular disks, which in this machine are arranged horizontally and applied to their respective carriers or gears, C, C, C, and so as to rotate with them; such carriers also being arranged horizontally
30 within their frame and made to mesh into one another, so that when any one of them is put in revolution, all the rest of them will be simultaneously set in rotation.

35 D, D, D, are the several racers, one of which is exhibited in side view in Fig. 4. They run or travel in serpentine paths, (as seen at E E,) which cross one another and are formed between the several "forms" and concentric openings made through the
40 upper plate of the main frame. In this respect, the machine does not differ from others whose "forms" are stationary and disposed in one horizontal plane. Each racer has its bobbin F, arranged in it so
45 that its axis shall stand horizontally or nearly so, and in the upper part of the frame of the racer. The bobbin has a ratchet, G, with which a bent lever pawl, H, operates, such pawl being pressed toward the
50 ratchet by the elastic action of the spring I disposed as seen in the drawings. Underneath each bobbin and applied to the racer frame so that it may play freely upward or downward is a weight K, which has a hook,
55 by which it is suspended to the thread, b,

that proceeds downward from the bobbin. Such thread after leaving the hook is pressed up through an eye, c, (made in the upper part of the frame of the racer) and thence toward the central part of a sup-
60 porting annulus or ring L, which is elevated on posts, M, M, and directly over a passage, N, made downward through the frame A, as seen in Fig. 3. Each racer is provided with an extra or upper head, o,
65 which during its movements rests, upon the upper surfaces of the forms and the top plate of the frame and serves to give steadiness and support to the racer.

The lower head of the racer is seen at, P, 70 the same being received within recesses, d, d, made in the usual way between the forms and their carriers.

75 The object of the weight which is carried by each racer is to maintain an equality of tension upon the thread during the eccentric movements of the racer. It is not new to apply a weight to a racer for such purpose, but when it has been so applied, it has been disposed within the bobbin or made to
80 play in a tube or case, which not only gave support to the bobbin, but was encompassed by it; the axis of the bobbin being made to stand vertically. Under this latter arrangement of the bobbin, it became necessary to
85 carry the thread through two or more eyes or guide holes, before it could be passed through the eye at the head or upper end of the racer. So many guides to the thread not only produces great friction and wear upon
90 it, but the peculiar arrangement of the bobbin renders it liable to be lifted off its seat by the action of the thread while the latter is being unwound from near the lower head
95 of the bobbin an operation which is injurious to the action of the machine.

100 By my improved arrangement of the bobbin and weight no thread guides between the former and latter are necessary. Besides this, there is no lifting action upon the bobbin, while it and the weight are freely exposed in order to enable an attendant to piece or mend the thread with facility whenever it may be broken. During the elevation
105 against the tail or lower arm of the lever pawl H and be caused to move said pawl so as to release it from the ratchet and thereby permit the bobbin to revolve and give out thread, the revolution of the bobbin being 110

effected by the gravitating power of the weight. As soon as the weight falls away from the pawl the latter will be forced against its ratchet by the contractile power
5 of the spring I.

What I claim as my invention is—

The arrangement of the bobbin, the pawl, and the weight within the racer, or with respect to one another therein, substantially

as specified, the same presenting advantages 10 as stated.

In testimony whereof I have hereunto set my signature this twenty fifth day of May, A. D. 1855.

LIVERAS HULL.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.