(No Model.)

J. A. TURNER.

RACER FOR BRAIDING MACHINES.

No. 397,153. Patented Feb. 5, 1889.

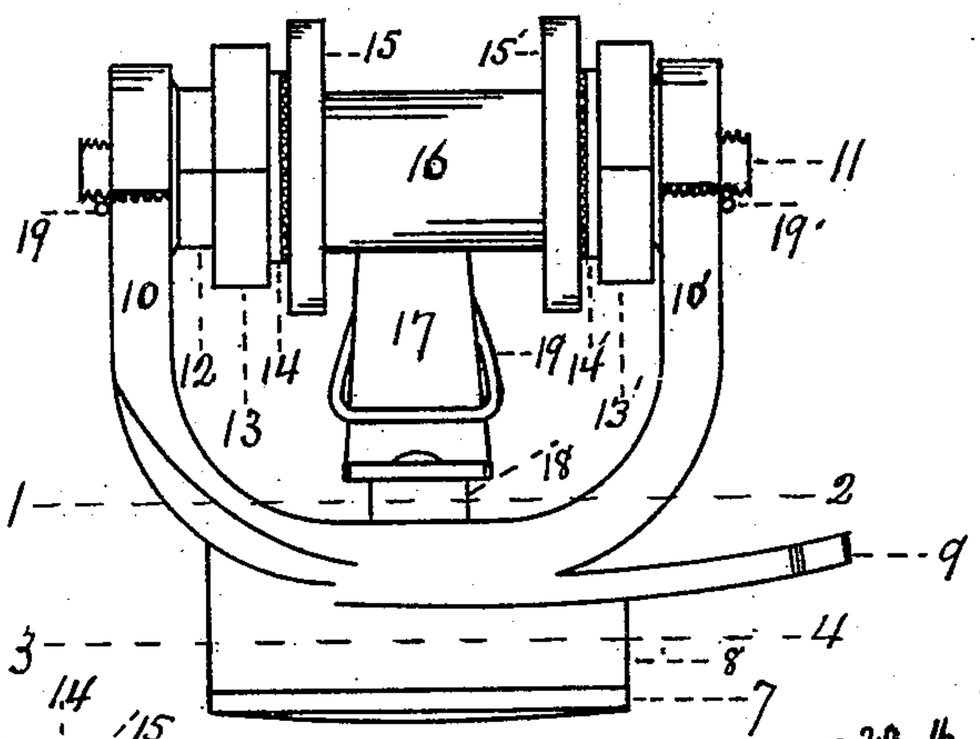


FIG. I.

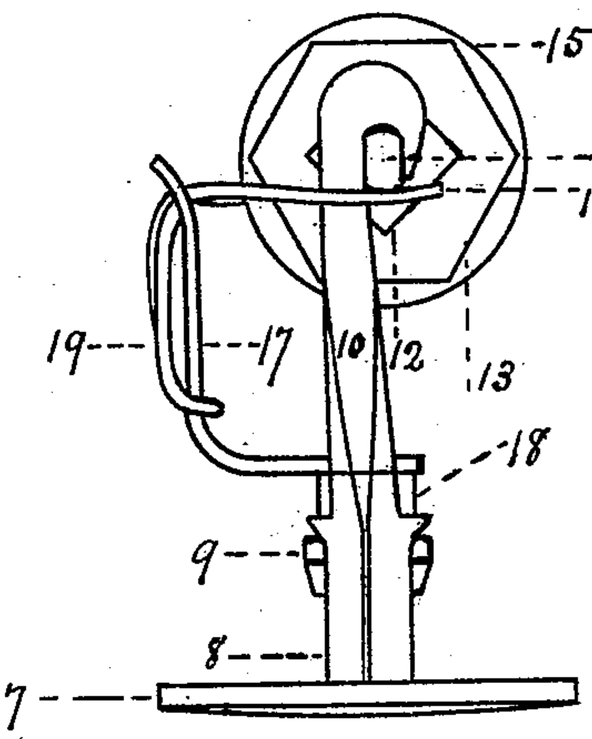


FIG. II.

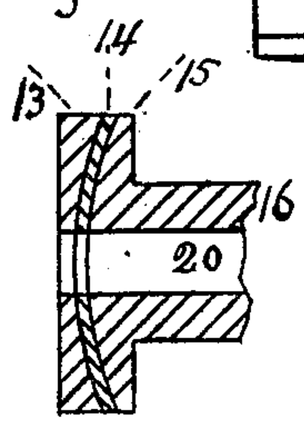


FIG. III.

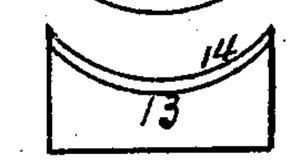
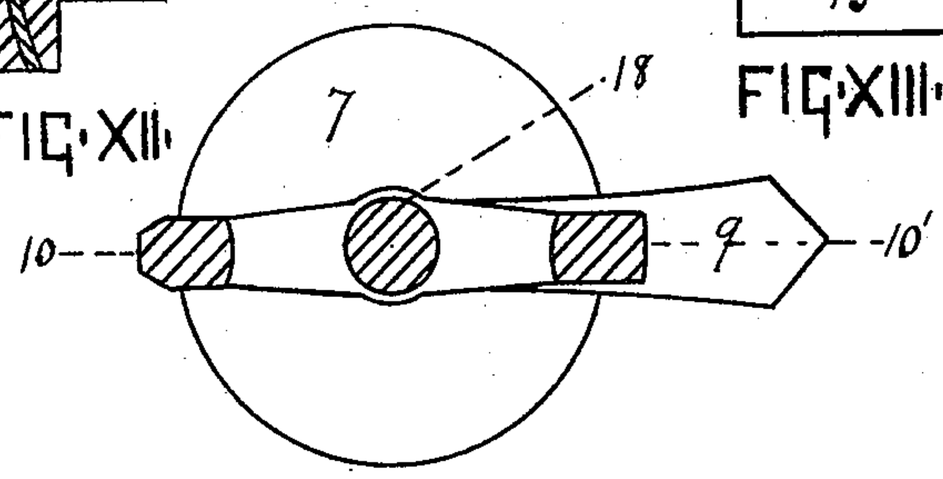
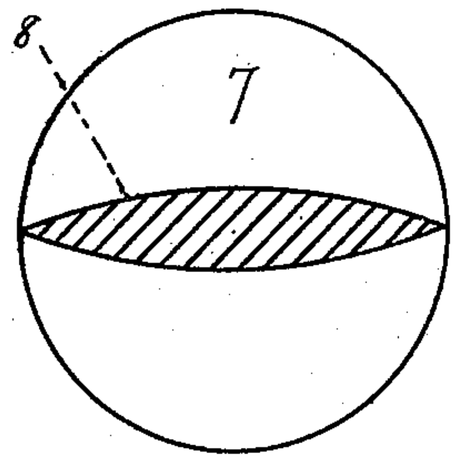


FIG. XII.

FIG. XIII.

FIG. IV.





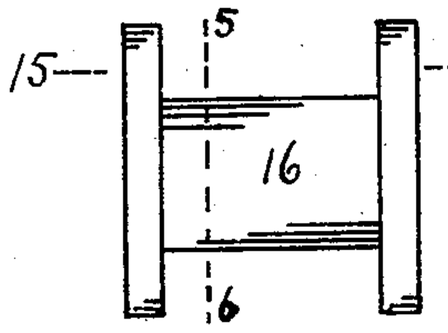


FIG. V.

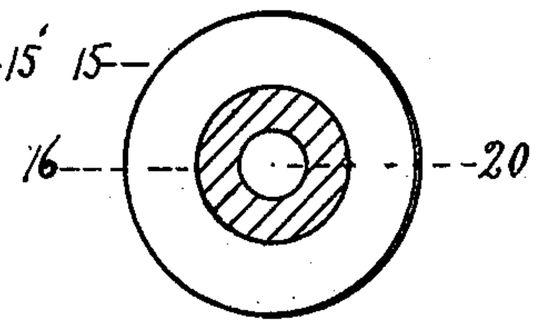


FIG. VI.

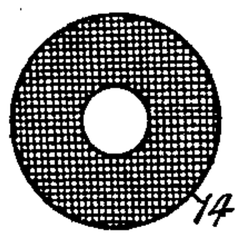


FIG. VII.

FIG. VIII.

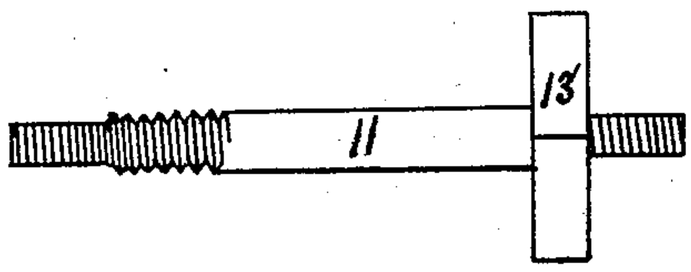


FIG. IX.

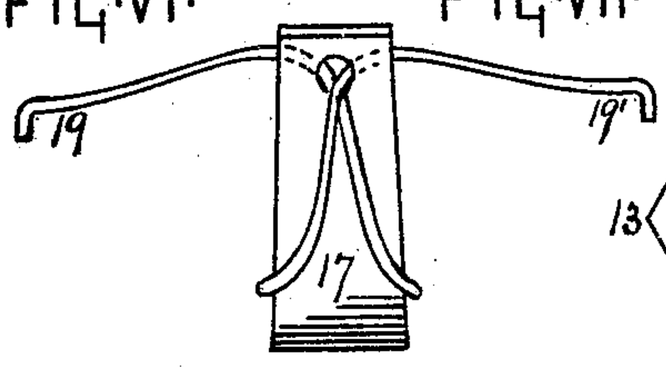


FIG. X.

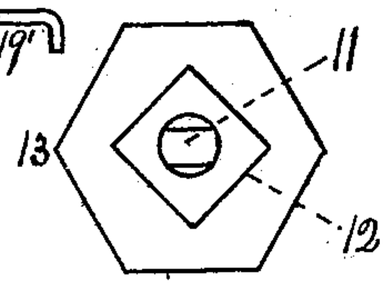


FIG. XI.

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UNITED STATES PATENT OFFICE.

JULIUS AUGUSTINE TURNER, OF SOUTHFIELD, MASSACHUSETTS.

RACER FOR BRAIDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 397,153, dated February 5, 1889.

Application filed May 12, 1888. Serial No. 273,706. (No model.)

To all whom it may concern:

Be it known that I, JULIUS AUGUSTINE TURNER, a citizen of the United States, residing at Southfield, in the county of Berkshire and Commonwealth of Massachusetts, have invented a new and useful Improvement in Racers for Braiding-Machines for the Braiding of Whip-Lashes, of which the following is a specification, reference being had to the accompanying drawings, wherein—

Figure I is a front elevation of my improved racer; Fig. II, an end elevation of the same; Fig. III, a horizontal section of the same through line 1 2 of Fig. I; Fig. IV, another horizontal section of the same through line 3 4 of Fig. I; Fig. V, a side elevation of the spool; Fig. VI, a vertical cross-section of the spool through line 5 6 of Fig. V; Fig. VII, a side elevation of one of the friction-washers; Fig. VIII, an edge elevation of such washer; Fig. IX, an elevation of the spindle and one washer-block; Fig. X, a rear elevation of the chair and spindle-spring; Fig. XI, an end elevation of the spindle set-nut and washer-block, and Figs. XII and XIII modifications in form of the spool-head and tension device.

My invention relates to the racers used in Sacket's braiding-machine as improved by Ephraim Sizer and others, described in their patent of March 28, 1854, and numbered 10,718, the object thereof being to adapt such machine to the braiding of whip-lashes, more especially leathern whip-lashes—a kind of work usually carried on by hand, and, so far as my knowledge extends, heretofore found impossible or impracticable by machinery.

The obstacles to be overcome in adapting the machine to the braiding of lashes relate, mainly, to the tension device. The tension in the machine as improved by Sizer and others is obtained by means of a spiral spring attached to the chair-seat and covered or surmounted by a concave cap, which presses upward against the thread and spool, and so retards their revolution; but the tension so obtained is quite too weak and variable for my purposes, which require a very firm, even tension; and, besides, I find the old device impracticable on account of the gumming and clogging which result from the pressure of the concave cap against the lash-strands as treated and prepared before being wound upon the spool.

My invention, which is intended to remedy these defects and give the firm, even tension required for the braiding of lashes, consists in, first, a new tension device, and, second, a device for holding the spindle and spool thereon in the racer, the details of which are as follows:

In the drawings, the part marked 7 represents the foot of the racer; 8, the shank thereof; 9, the guide; 10 10′, the arms; 11, the spindle; 12, the set-nut; 13 13′, the washer-blocks; 14 14′, the friction-washers; 15 15′, the spool-heads; 16, the spool; 17, the chair; 18, the base or chair-leg; 19 19′, the bifurcated spindle-spring, and 20 the eye of the spool.

The foot, shank, guide, and arms form or constitute the frame or body of the racer. I construct them in one piece, of the form and relative proportions shown in Figs. I, II, III, and IV. I provide the ends or outer extremities of the arms 10 10′ with recesses adapted to receive and hold firmly the flattened ends of the spindle 11, as shown in Figs. I and II.

I make the body or central part of the spindle round and adapted to receive the spool. The ends thereof, which are provided with a thread or male screw, I make flat and adapted to fit into the recesses with which the outer ends or extremities of the arms 10 10′ are provided, as shown in Figs. I, II, IX, and XI. By this device I prevent the spindles revolving with the spool, while I keep it readily detachable from the frame of the racer.

I provide the washer-blocks 13 13′, which are in the nature of nuts, with an interior thread or female screw adapted to be screwed upon the ends of the spindle, where they become the rests or back supports of the friction-washers 14 14′. These washers may be made of any suitable material adapted to produce friction and not unduly wear or injure the spool or other part of the racer; but I prefer to make them of a combination of cloth or felt and rubber, so as to present one side or face of felt and the other of rubber, as shown in Figs. VII and VIII, and when so made I arrange them with the rubber sides against the washer-blocks and the felt sides

against the spool-heads, as shown in Fig. I. The rubber adheres slightly to the washer-blocks, and thereby prevents the washers turning with the spool, so that the friction or tension is obtained wholly from the pressure of the felt against the spool-heads.

I prefer to make the spool of the form shown in the drawings, Figs. V and VI, provided with eye 20, adapted to fit the spindle 11, and with heads 15 15′, whose exterior faces are smooth and as nearly as may be in parallel planes, whereby the tension is the more readily kept even and firm. The set-nut 12 is the usual nut used for such purposes, but necessary to set block 13 and preserve the proper tension when once attained. I also provide what I term the "chair" 17, and make the same fast to the boss or leg 18, and further provide the bifurcated spring 19 19′, which I pass around and through the chair, as shown in Figs. I, II, and X. The ends of spring 19 19′ pass around outside the arms 10 10′ and under the extremities of spindle 11, and it is by means of this spring that the spindle and spool thereon are held in the frame of the racer, and that in such a manner that an empty spool and spindle may be detached and a spindle with a full spool inserted without disturbing any other part of the racer or machine.

It is obvious that the chair 17 and spring 19 19′ may be constructed in one piece; but I prefer the construction shown and described.

I make all parts of iron, steel, or other metal by the usual processes of metal-working, except the washers 14 14′, which are as above described. The washer-block 13′ is turned so firmly to place as to be practically stationary on the spindle, and hence no set-nut thereto is required. The other parts being arranged as already described, the requisite tension for braiding lashes is obtained tentatively—that is, by successively turning up the block 13 and set-nut 12 till good work is produced.

As stated above, the object of my invention is to adapt the braiding-machine to the braiding of whip-lashes. To accomplish this, I am obliged to seek what I term a "positive" tension—that is, a tension obtained without the use of springs, one in which the degree of tension attainable is practically unlimited. This is the kind of tension I have devised, and it accomplishes my purposes, and this, with the means and method devised for holding the spindle and spool thereon in the frame or body of the racer, constitutes my invention, and

I claim—

In combination with the body or frame of the racer having the recessed arms 10 10′, the spindle 11, nut 12, blocks 13 13′, washers 14 14′, chair 17, and bifurcated spring 19 19′, all arranged, combined, and operating in the manner and for the purpose specified.

JULIUS AUGUSTINE TURNER.

Witnesses:

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JUNIUS POTTER ADAMS.