(No Model.)

G. K. WINCHESTER & A. S. HOOD.

BRAIDING MACHINE.

No. 468,432. Patented Feb. 9, 1892.

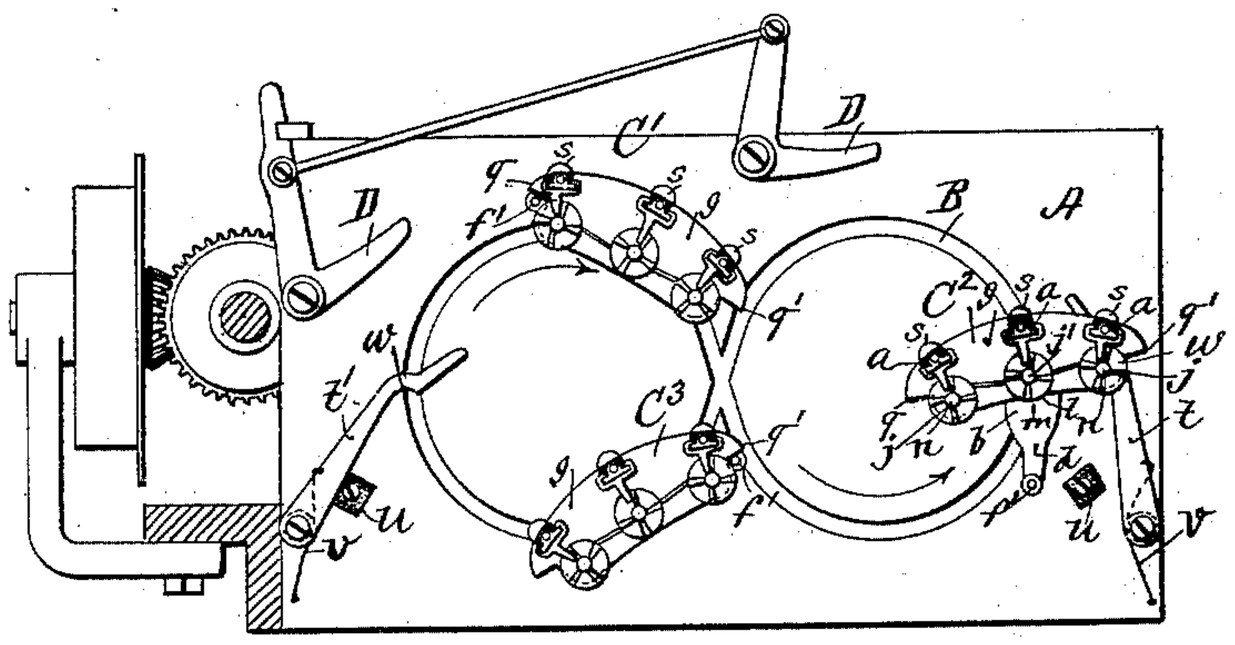

Fig. 1.

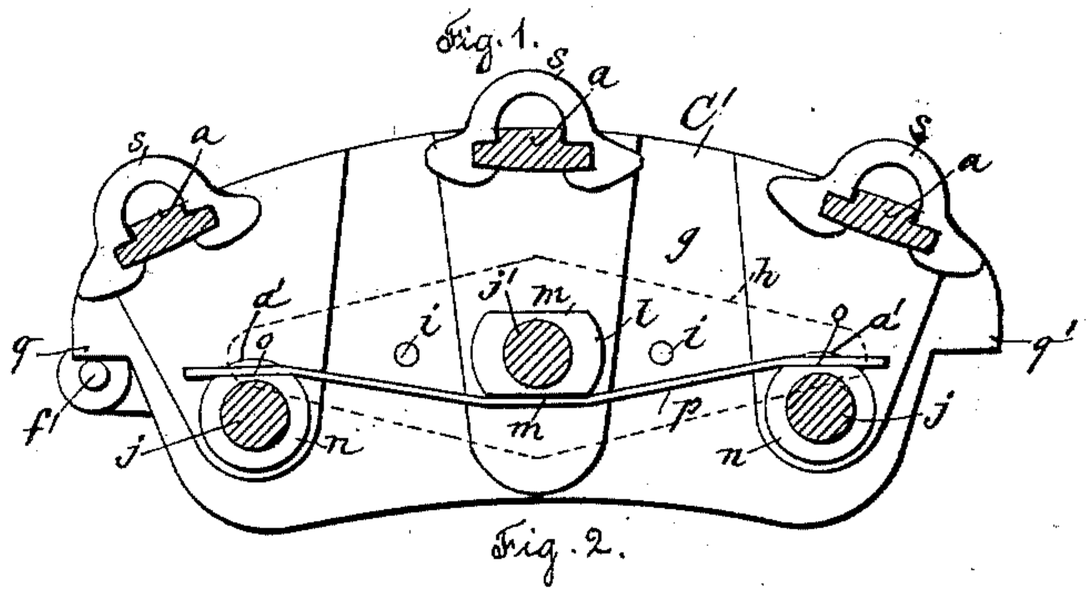

Fig. 2.

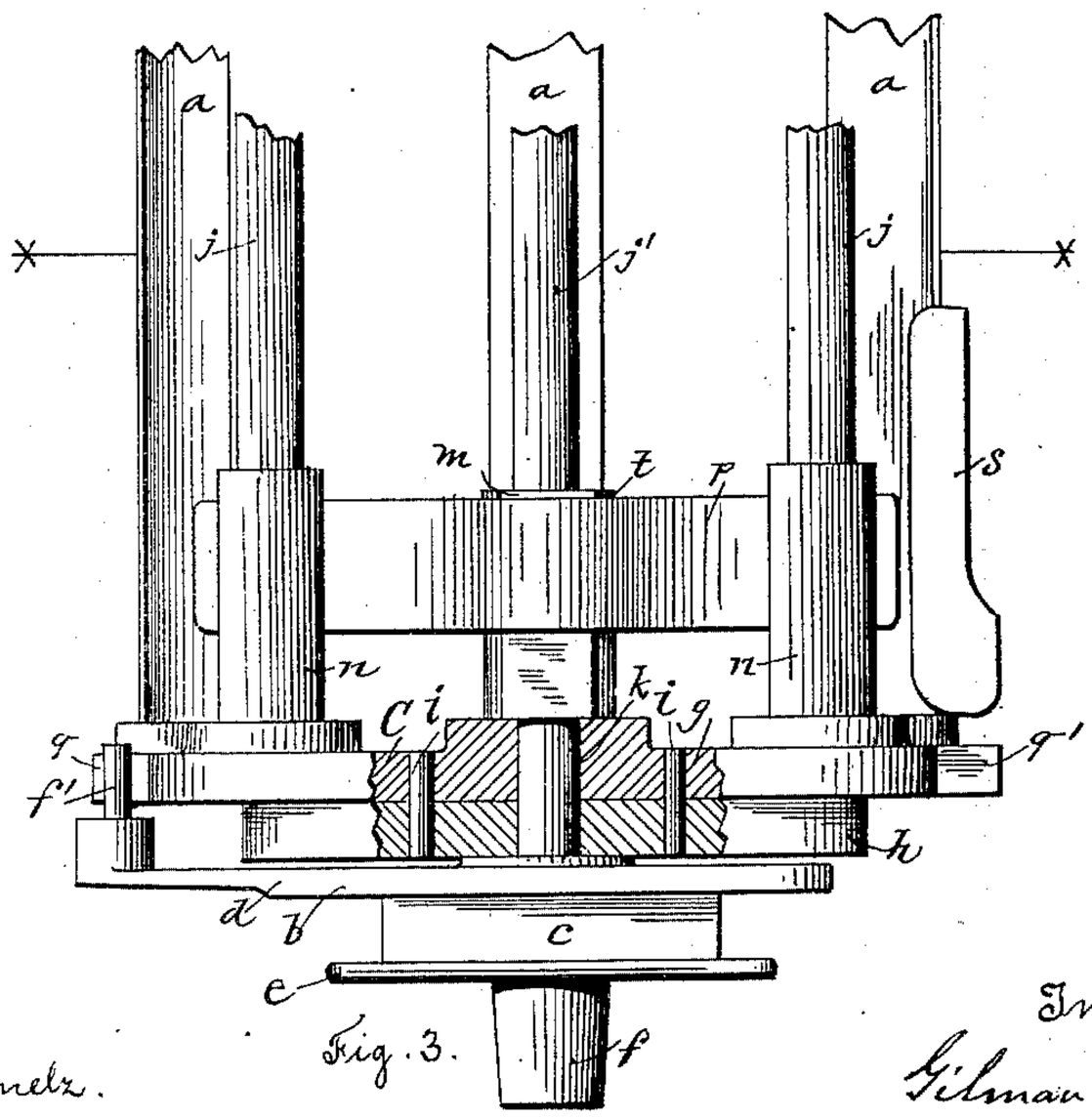

Fig. 3.

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UNITED STATES PATENT OFFICE.

GILMAN K. WINCHESTER AND ARNOLD S. HOOD, OF PROVIDENCE, RHODE ISLAND.

BRAIDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 468,432, dated February 9, 1892.

Application filed August 7, 1891. Serial No. 402,039. (No model.)

To all whom it may concern:

Be it known that we, GILMAN K. WINCHESTER and ARNOLD S. HOOD, citizens of the United States, and residents of Providence, in the State of Rhode Island, have invented a new and useful Improvement in Braiding-Machines, of which the following is a specification.

Our invention consists in improved devices for reversing the position of two or more spools upon the same carrier at the turning end of the raceway-track, as hereinafter fully set forth.

Figure 1 represents a top view of the track-plate of a braiding-machine for three carriers, each carrier carrying three spools. Fig. 2 represents a horizontal section, taken in the line *x x*, of the enlarged carrier shown in of Fig. 3. Fig. 3 represents a partial elevation the carrier broken away at its base to show the connection of the parts.

In the accompanying drawings, A represents the top plate of a braiding-machine, and B the raceway-track, the carriers C′ C² C³ being driven around the track by means of gears provided with a suitable number of horns, as usual in braiding-machines.

D D are bell-crank levers connected with the stop mechanism and adapted for engagement with a fallen weight located upon either of the tension-weight-supporting standards *a* of the carrier.

The carrier C′ is provided with the base *b*, having the raceway-guide *c*, the upper and lower flanges *d* and *e*, and the driving-stem *f*, adapted for engagement with the horns of the driving-gear, and the carriers C² C³ are constructed and operated in the same manner. The flange *d* of the base *b* is elongated in one direction and provided with the stop-pin *f′*. The tension-weight standards *a a a* are preferably cast integral with the plate *g*, to the bottom of which is attached the flat oppositely-tapered piece *h* by means of the rivets *i i* or otherwise, and to the plate *g* are attached the outer spool-supporting standards *j j*, the middle spool-supporting standard *j′* being inserted into a perforation in the base *b* of the carrier, and firmly attached thereto and passing loosely through the central perforation *k*, made in the plate *g*, so that the said plate *g* and standards *j j* will be pivoted upon the standard *j′*, and upon the spool-standard *j′* is either secured or formed the enlargement *l*, which is provided with the opposite flattened surfaces *m m*. The enlargements *n* of the spool-standards *j j* are also provided with the flattened surfaces *o*, against which and one of the flattened surfaces *m* of the middle standard the flat spring *p* is made to rest, the said spring being supported in proper position when the carrier is rotated about its center by means of its curved or angular form and the shoulders *a′ a′*, formed at the lower side of the flattened surface *o* of the standards *j j*, and by this construction the end *q* of the plate *g* will be held snugly against the side of the stop-pin *f′* until the proper time for the reversal of the plate *g* and the attached standards, and upon the said reversal the end *q′* of the plate *g* will be caused to bear against the opposite side of the stop-pin *f′*, as shown in carrier C³ in Fig. 1.

The standards *a a a* are set upon an arc the radius of which is about the distance of the said standards from the center of the circle of the track B, so that upon the falling of either of the tension-weights *s* the proper engagement will be made with the lever D of the stop mechanism to disengage the clutch of the driving mechanism.

Upon the plate A are pivoted the hook-arms *t t′*, which are actuated against the rubber buffer *u* by means of a spring *v*, which is coiled around the hub of the said hook-arm and located between the said arm and the plate A. Now when the machine is being turned, so that the carriers C′ C² C³ are caused to move in the direction of the arrows, then upon the movement of the carrier C′ to the position of the carrier C² the forward end of the turning plate *h* will engage with the hook *w* of the spring-actuated hook-arm *t*, the continued forward movement of the carrier in its track causing the end *q* of the plate *g* to be carried away from the side of the stop-pin *f′* and the ends of the said plate reversed, so that the end *q′* will be brought into engagement with the opposite side of the stop-pin, as shown in carrier C³, the carrier C² showing the turning plate *h* when in engagement with

the hook-arm and the plate *g* in the intermediate position of its turning movement, and when the plate *h* of the carrier C³ comes into engagement with the hook *w* of the hook-arm *t'* the plate *g* and the attached standards will be brought around to their original positions, as shown in the carrier C', thus serving to form a braid in which the threads from each carrier are laid parallel and not turned over each other at the edge of the braid.

The employment of the stop-pin *f'* is not deemed essential to the proper working of the carrier; but the said pin will serve to check the momentum of the turning plate when the carrier is driven rapidly around the track, and it is not necessary to taper the ends of the piece *h*, which engages with the hook-arms, as the sides of the same may be made parallel, if desired.

We claim as our invention—

1. In a braiding-machine, the combination, with the grooved plate and the spring-actuated hook-arms, of the carrier-base adapted to travel in the groove of the plate, the pivoted plate carrying the spool and tension-weight standards above the carrier-base and provided with means for engagement with the hooks of the hook-arms to effect the reversal of the standard-supporting plate, and the spring for holding the said plate in its turned position, substantially as described.

2. In a braiding-machine, the combination, with the grooved plate and the spring-actuated hook-arms, of the carrier-base adapted to travel in the groove of the plate, the pivoted plate carrying the spool and tension-weight standards above the carrier-base and provided with means for engagement with the hooks of the hook-arms to effect the reversal of the standard-supporting plate, the spring for holding the said plate in its turned position, and the stop upon the carrier-base to limit the turning movement of the standard-supporting plate in either direction, substantially as described.

3. A braiding-machine carrier provided with the base adapted to travel in the track-groove of the machine, a pivoted plate-carrying spool and tension-weight standards above the carrier-base, and a spring adapted to hold the said plate in oppositely-turned positions, substantially as described.

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