

(No Model.)

G. S. FOLLANSBEE.

DROP WIRE FOR WARPING MACHINES.

No. 278,327.

Patented May 29, 1883.

Fig. 1.

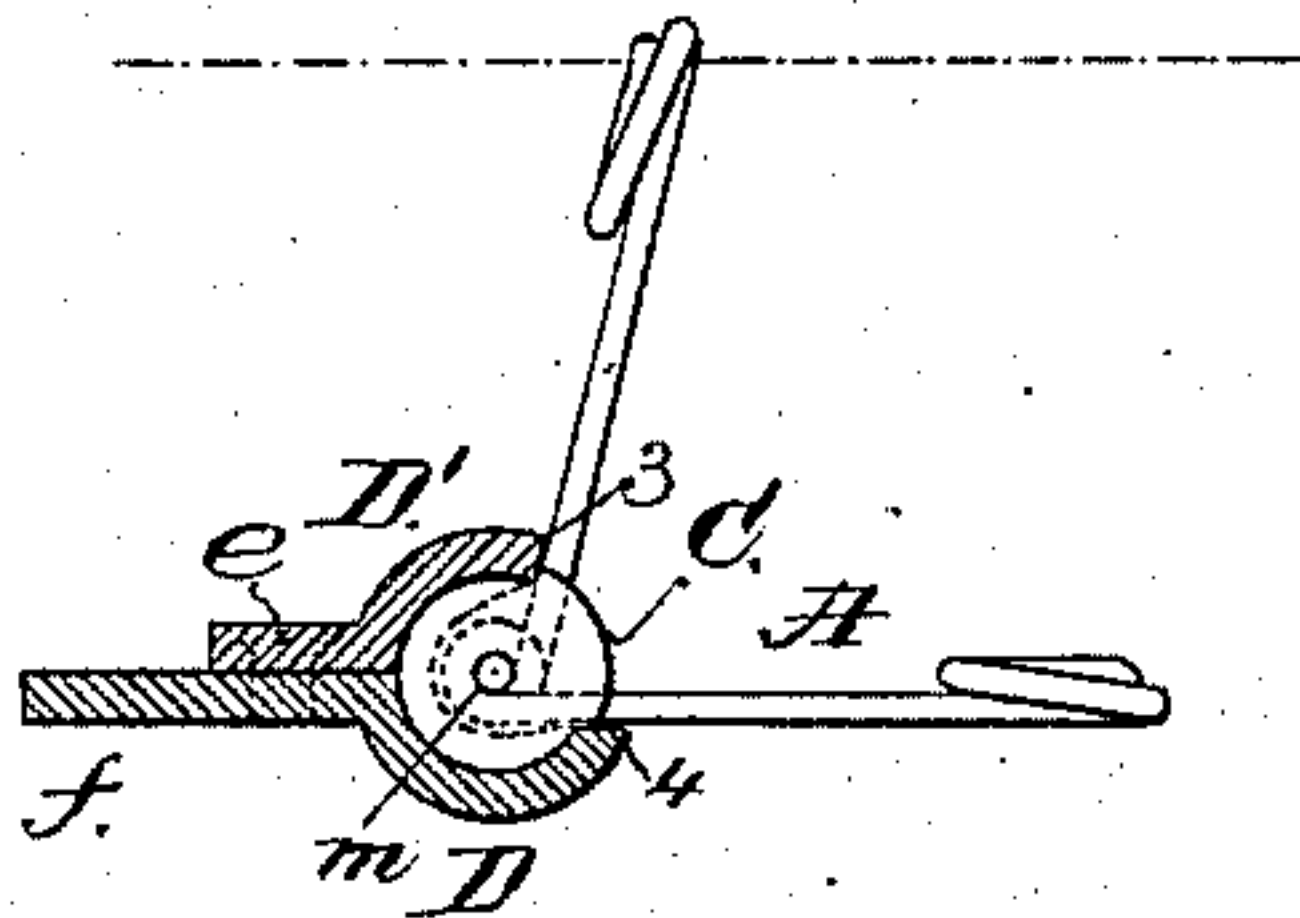


Fig. 2.

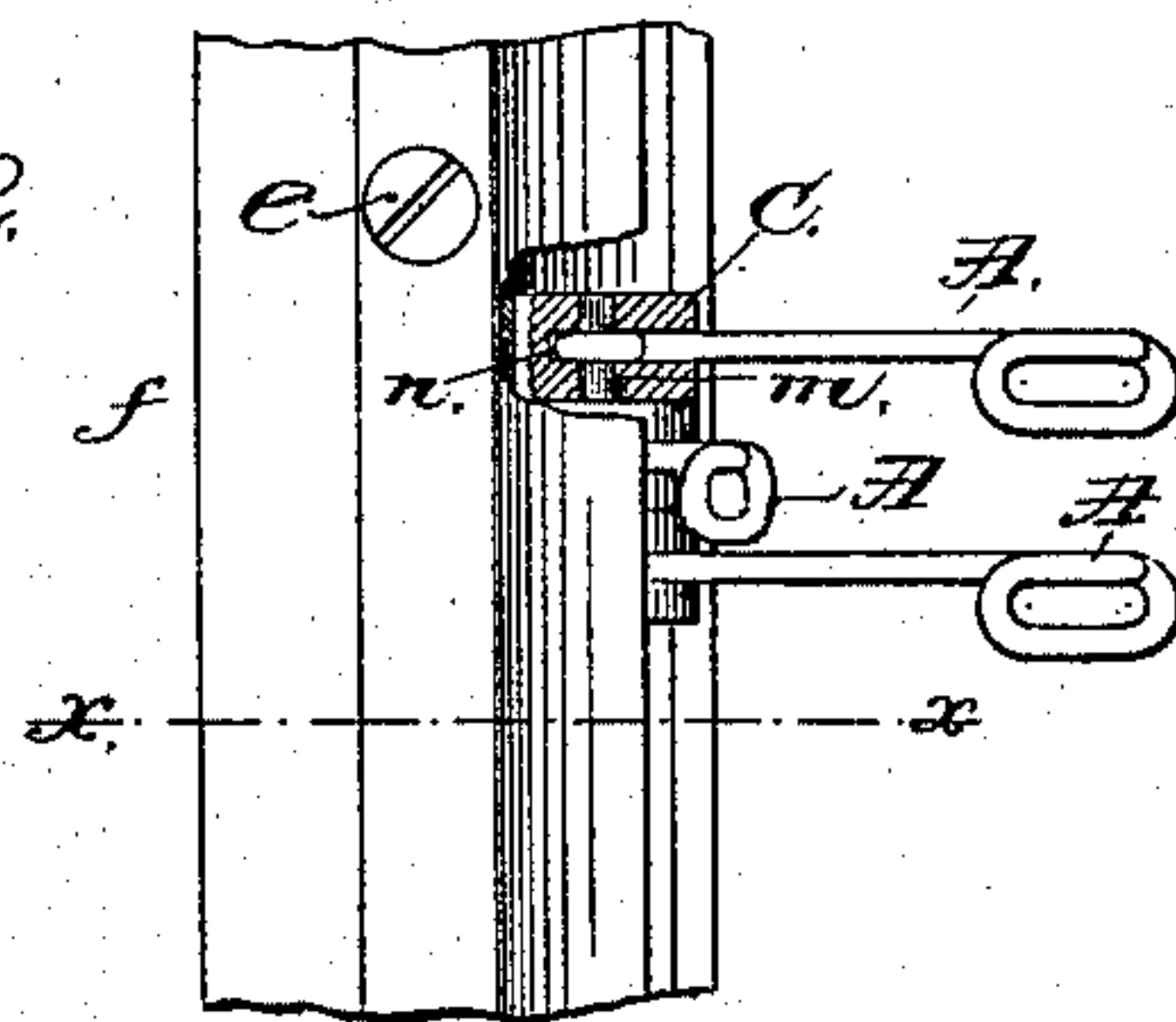


Fig. 3.

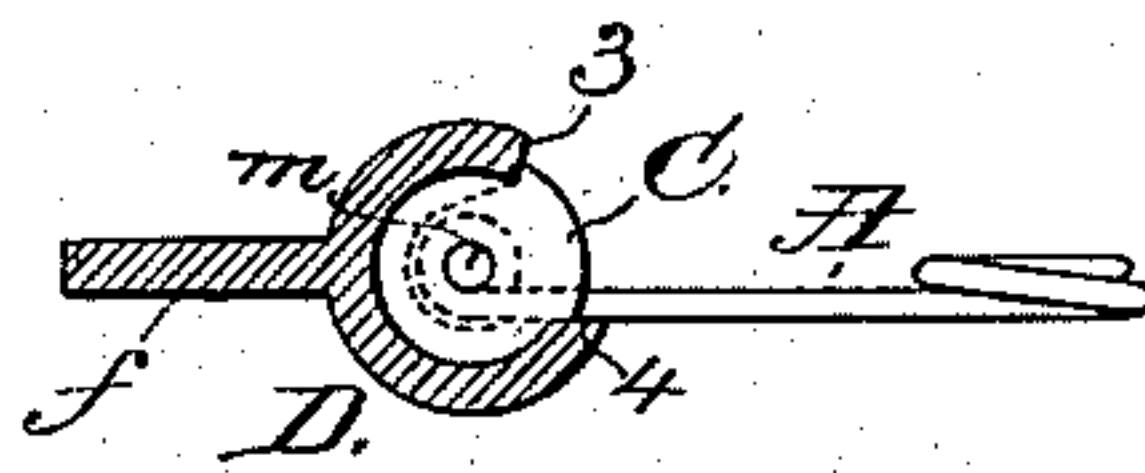
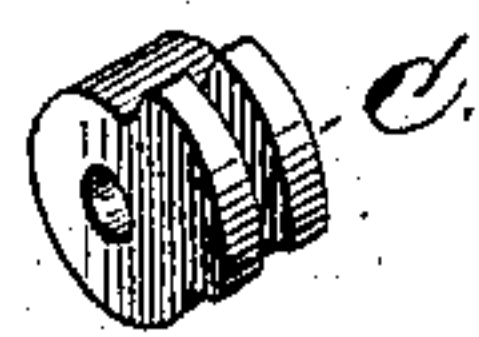


Fig. 4.



Witnesses.
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GEORGE S. FOLLANSBEE, OF CHARLESTOWN, MASSACHUSETTS.

DROP-WIRE FOR WARPING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 278,327, dated May 29, 1883.

Application filed November 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. FOLLANSBEE, of Charlestown, county of Suffolk, State of Massachusetts, have invented an Improvement in Drop-Wires for Warping-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention in drop-wires has for its object the production of a simple and durable drop-wire which may be easily applied to its holder, and which may be constructed cheaply. In another application, No. 77,077, filed by me, of even date herewith, I have shown the drop-wire apparatus as containing wires attached rigidly to bases fitted to turn with relation to their holder, it having a curved surface. In this present application the wires are pivoted upon carriages fitted within a trough-like holder, one part of which is made detachable to permit the easy introduction or removal of a carriage.

Figure 1 represents a section of Fig. 2 on the dotted line *x*, Fig. 2. Fig. 2 is a top view of a part of the drop-wire apparatus of a warping-machine sufficient to explain my invention. Fig. 3 is a modification, to be referred to, and Fig. 4 shows a carriage detached.

The wire A, having at its outer end an eye for the reception of the thread, is bent at its inner end, as shown in dotted lines, to form an eye to embrace the fulcrum-pin for the wire. The bent inner end of the eye is extended into a small slot, *n*, (shown in Fig. 2,) left in the carriage C, preferably of type or equivalent cast metal, the slot at right angles to the axis of the carriage being formed when casting the carriage, and being longer than the space between the edges 3 4 of the holder. The inner end of the wire A having been inserted into a slot in the carriage, a small pin, *m*, will be driven through holes in ears of the carriage and the eye at the inner end of the wire, the pin serving as a fulcrum for the wire as it moves in the arc of a circle. The carriage shown in the drawings is nearly circular and fits the holder D, and has suitable shoulders or parts, which, by their action against the holder, prevent the carriage from being rotated.

I prefer to make the holder in two parts, D D', the cap part D' being attached to the part D by screws *e*, such construction permitting the cap part D' to be readily detached to enable a carriage to be inserted or removed at will.

The wire A, when supported by an unbroken thread, will be held up as in Fig. 1. The edges 3 4 serve as stops for the wire A to strike against as the wire reaches its extreme positions shown in the drawings.

The carriages, being very small, may be cast cheaply, and will require but little metal to produce them.

The extension or plate *f* stiffens the holder.

If the holder is not divided, as in Figs. 1 and 2, the carriages will be inserted, one at a time, at the end of the holder, and be pushed laterally into position. In use the carriages remain at rest and only the wires turn.

I do not broadly claim a pivoted wire.

Warping-machines are commonly provided with expansion-combs, to evenly space the threads according to the number employed in the space allotted in the machine. To enable the threads extended through wires pivoted upon a carriage to run in proper direct line the carriages holding the drop-wires, as now commonly constructed, are adjusted by hand. To obviate this difficulty I have placed the carriages loosely within a trough-like holder, and to enable them to be moved automatically, to thereby adapt them to the positions demanded by the comb, I have pivoted the drop-wires to the carriages at their centers, so that the latter are easily moved in either direction and adjust themselves correctly in position by the slight strain or pull of the threads on the wires.

I am aware that hook-shaped carriages made of type-metal are opened, sprung over, and pinched upon a guide-bar having a rib, the drop-wire being pivoted between ears formed at the lower end of the said carriage, instead of at the center, as herein provided for, and the pull of the thread on the drop-wires is in such instance very different from that in my invention, wherein the pull of the thread does not cause the carriages to bind in the holder.

I claim—

1. The drop-wire and a carriage having a

central pivot, upon which the drop-wire is pivoted, combined with the trough-like holder, within which the said carriage is fitted loosely, to operate substantially as described.

5 2. The drop-wire and a carriage with which it is connected, combined with the holder having a removable cap to permit the carriage to be placed in the holder, substantially as described.

10 3. The carriage provided at its front with a slot at right angles to its axis, and the holder to embrace and retain the said carriage, combined with a drop-wire extended through the

opening in the holder and the slot of the carriage and pivoted upon the said carriage, the holder acting as a stop for the drop-wire on its extreme positions, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEO. S. FOLLANSBEE.

Witnesses:

G. W. GREGORY,
W. H. SIGSTON.