

(No Model.)

2 Sheets—Sheet 1.

J. H. STONE.

WARPING REEL.

No. 389,862.

Patented Sept. 18, 1888.

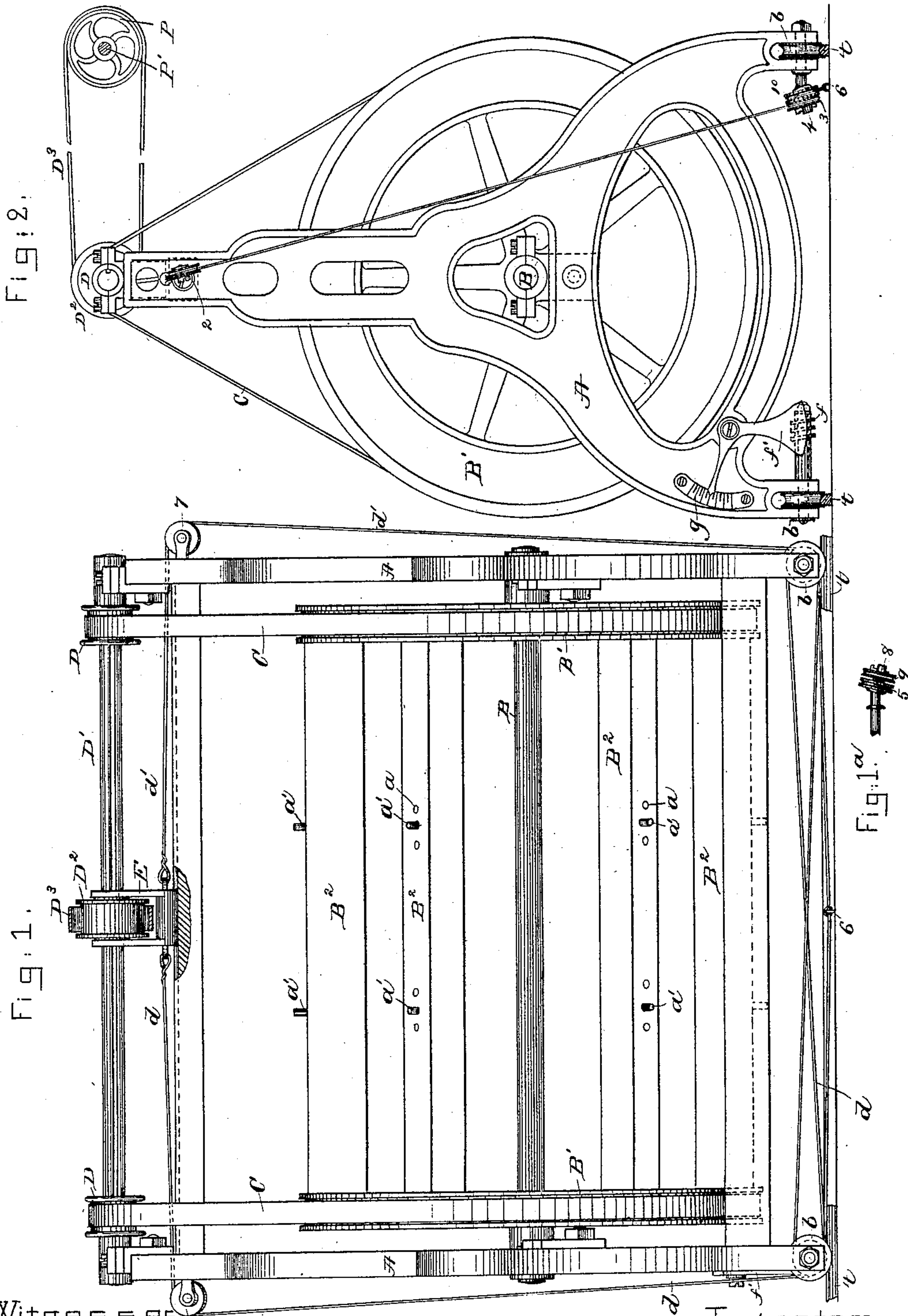


Fig. 1.

Fig. 2.

Fig. 1.

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(No Model.)

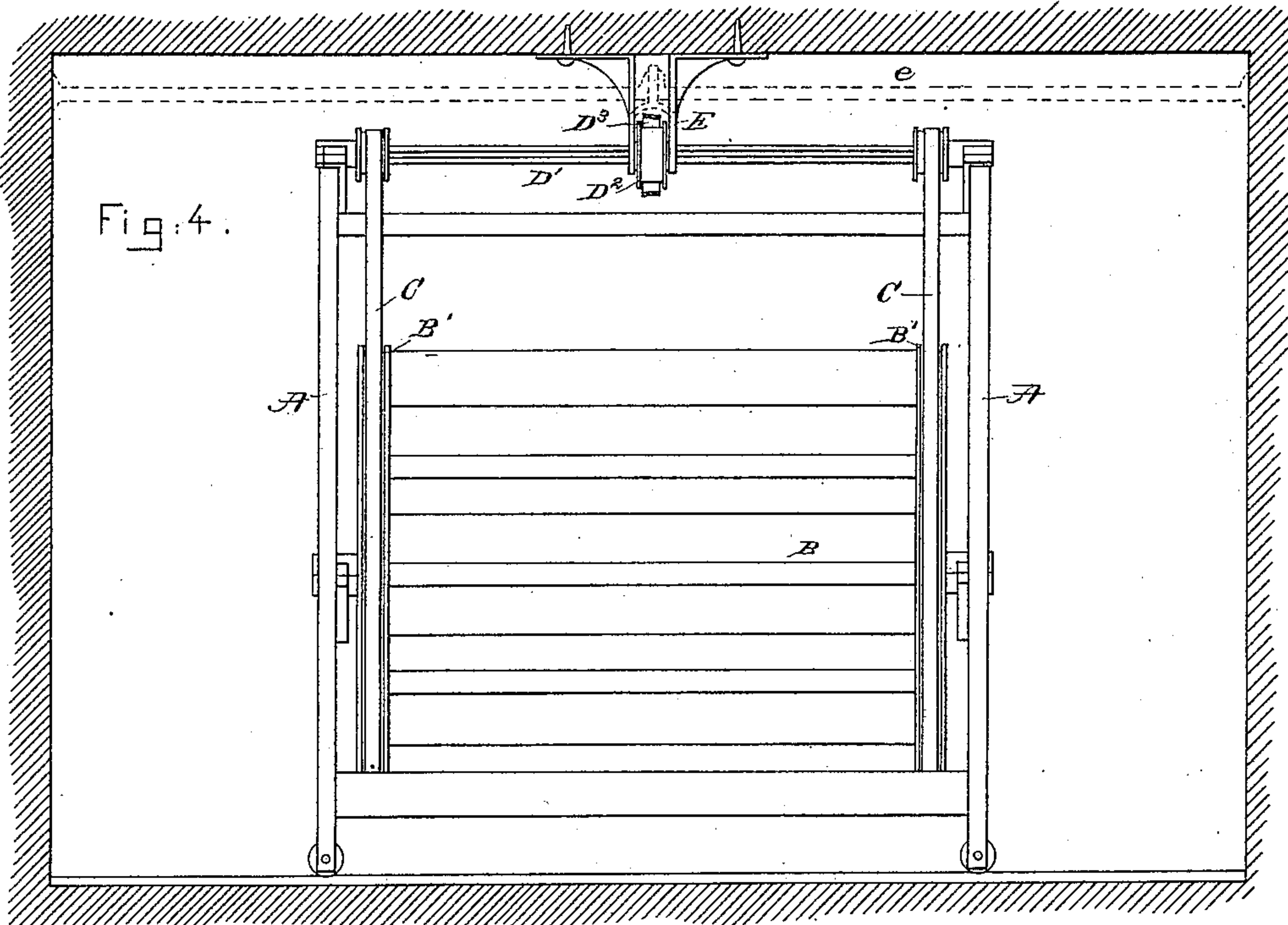
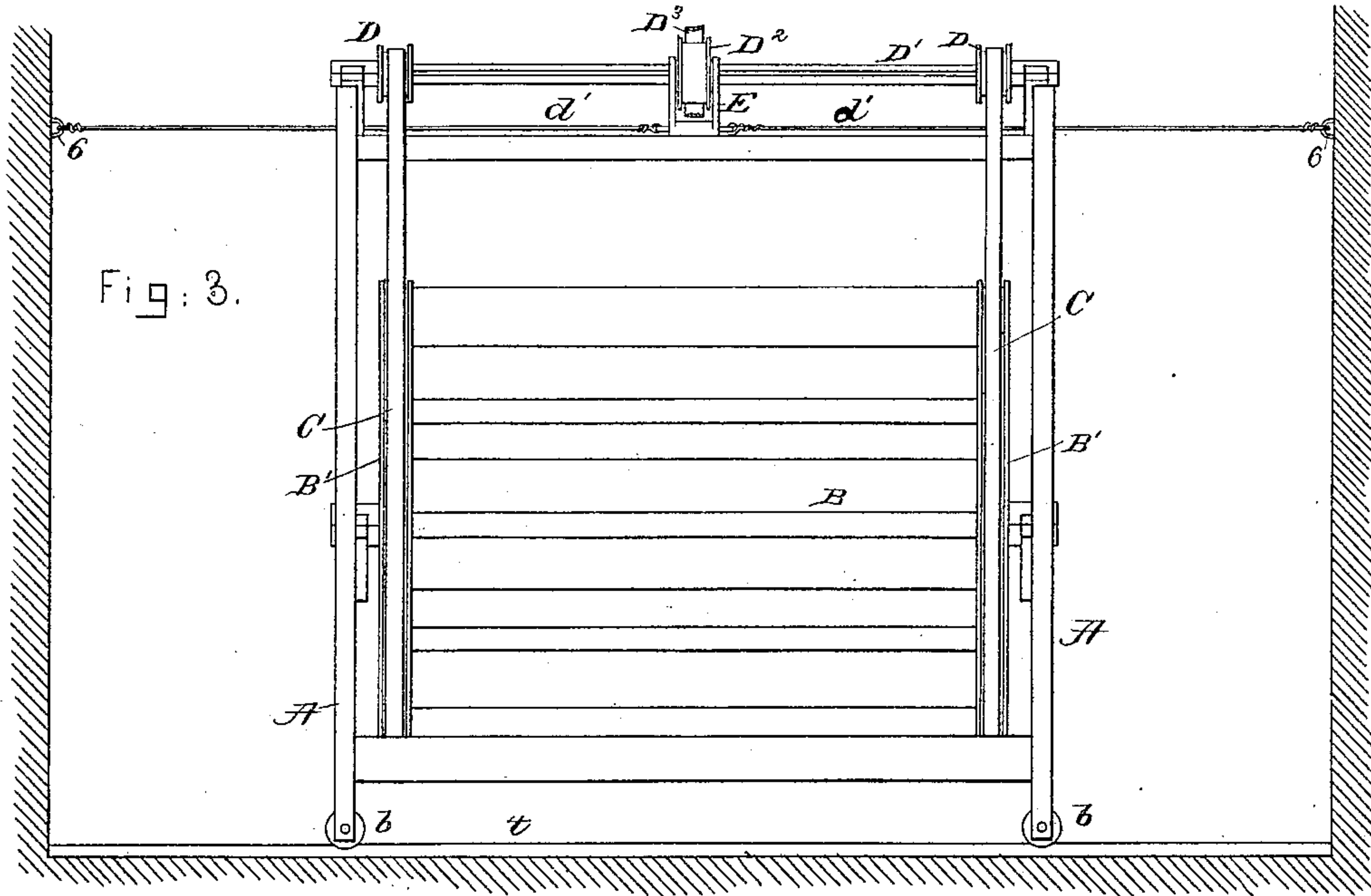
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# UNITED STATES PATENT OFFICE.

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## WARPING-REEL.

SPECIFICATION forming part of Letters Patent No. 389,862, dated September 18, 1888.

Application filed March 17, 1888. Serial No. 267,473. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH H. STONE, of Andover, county of Essex, and State of Massachusetts, have invented an Improvement in Warping - Reels, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The reel herein described is intended to be used chiefly in connection with a machine called the "dresser." The yarn leaving the dresser has to be wound upon a reel. The reel in common use is divided up into sections of various widths—say, from five to twenty-five inches, more or less, according to the class of yarn being dressed. This reel is generally from ninety to one hundred and twenty inches in length. These sections referred to are defined on the reel or upon the longitudinal bars forming part of the periphery of the reel by means of pins or in other usual manner. In practice it is customary to fill a single space or section with the entire quantity of yarn to be put upon that section, after which the reel is moved along in the direction of its own length and parallel with relation to a cross-shaft of the dresser until a new or empty space or section is brought opposite the dresser to be filled in its turn. To facilitate this movement of the reel it is provided with rollers, which are mounted upon tracks. The reel or cylinder to receive the yarn upon it is revolved by power received from a flanged or other pulley fixed on the said dresser-shaft, the belt driven by the said pulley surrounding a sliding pulley loosely keyed upon a shaft at the upper end of the reel-frame, the said shaft having two other pulleys, which by belts are made to rotate the reel or cylinder. Heretofore this sliding pulley has been pushed along upon the said shaft by hand after the reel-frame has been moved longitudinally, and to insure the proper operation of parts care has to be taken that the fast and sliding pulleys after the adjustment of the reel to its new position are in line.

In accordance with my invention I have provided means whereby the sliding pulley is automatically held stationary or restrained from moving longitudinally with the shaft at the top of the reel-frame when the reel-frame

and reel are changed in position longitudinally with relation to the dresser to enable the yarn coming from the dresser to be applied to any desired section of the reel. Restraining the pulley from moving longitudinally with the reel relieves the operator from giving any attention to the adjustment of the pulley on the said shaft after the reel has been put in its new position.

My invention consists, essentially, in the combination, with the driving-shaft of a longitudinally-movable reel-frame and a sliding pulley loosely keyed on the said shaft, of a stationary pulley-controller to maintain the said sliding pulley in position while the reel-frame and shaft are being moved longitudinally.

My invention also consists in a reel, its longitudinally-movable reel-frame and rollers, combined with a short shaft attached to one of the rollers, a worm-gear on the said shaft, and a sector-lever, the latter being shaped to also constitute a pointer to indicate the extent of longitudinal movement of the reel.

In the drawings forming part of this application I have shown different ways in which my invention may be practically carried out.

Figure 1 in side elevation shows a sufficient portion of a reel for use with a dresser to enable my invention to be understood; Fig. 1<sup>a</sup>, a detail to be referred to. Fig. 2 is a left-hand end elevation of Fig. 1, the said figure also showing one of the shafts of the dresser, the said shaft being brought close to the reel to save space in the drawings; and Figs. 3 and 4 are modifications of my invention.

Referring to the drawings, the reel-frame, composed of two end pieces, as A, the driven shaft B, carrying heads B', between which are extended the bars B<sup>2</sup>, constituting the surface of the reel, the reel-driving belts C, entering grooves in the periphery of each head B' and deriving their motion from the flanged pulleys D fast on the driven shaft D', and the sliding pulley D<sup>2</sup>, loosely keyed upon the shaft D and receiving upon it the belt D<sup>3</sup>, supposed to be driven from a fixed pulley, P, fast upon a shaft, P', of the dresser, (not shown, but of usual construction,) the said shaft being parallel to the shaft D, are and may be all as usual in reels now commonly employed in connection with dressers.



In practice the bars  $B^2$  will receive in the holes  $a$  suitable pins,  $a'$ , thus dividing the reel up into sections, each section of which will be filled separately by yarn taken from the dresser, all in usual manner.

In accordance with my invention, I have applied to the reel a pulley-controller,  $E$ , which engages the sliding pulley  $D^2$  or co-operates therewith in such manner that the said pulley is restrained from movement longitudinally with the reel and its frame when the latter or the rollers  $b$  thereof are made to run upon the tracks  $t$  or upon the floor of the mill, in usual manner. In the drawings, the pulley-controller  $E$  engages and holds the said sliding pulley in such manner as to prevent it moving longitudinally with the reel, the hubs of the pulley  $D^2$  entering parts of the pulley-controller.

In Figs. 1 and 2 the pulley-controller is restrained from longitudinal motion by a restraining device,  $d$   $d'$ , shown as cords. One part,  $d$ , of the restraining device (shown in Figs. 1 and 2) is extended over a pulley or sheave, 2, thence down over a sheave, 3, on a stud, 4, near the lower end of the said frame, under said sheave, and over a pulley, 5, (see detail, Fig. 1<sup>a</sup>,) and thence back to a stud or eye, 6, secured to the floor. The other part,  $d'$ , of the restraining device is extended in like manner over sheaves 7, 9, and 10 to the stud or eye 6. By or through restraining devices  $d$   $d'$ , extended, as described, about the sheaves carried by the frame-work of the reel and attached to the fixed stud or eye 6, secured to the floor, it is possible to move the reel and its frame longitudinally, together with the shaft  $D'$ , yet leave stationary the pulley-controller  $E$ , co-operating with the pulley  $D^2$ , so that the said sliding pulley will always be retained operatively in line with the usual pulley,  $P$ , on one of the shafts,  $P'$ , of the dresser, notwithstanding the reel and its frame are adjusted or moved longitudinally to bring one section after another of the reel in position to receive yarn from the dresser.

In Fig. 3, showing a modification of my invention, I have attached the portions  $d$   $d'$  of the restraining devices to the pulley-controller and to eyes 6, fixed outside the reel-frame, but not to the floor. The portions  $d$   $d'$  of the restraining devices shown in Fig. 3 may be flexible or rigid, as preferred. In Fig. 4 I have shown the pulley-controller as directly attached to the ceiling of a room, the restraining devices holding the pulley-controller in position being shown as screws; but instead of the screws I might employ restraining devices composed of stiff or rigid metal rods, as shown by dotted lines  $e$ , said rods being attached to the walls or to usual studding.

In Fig. 2 I have shown a pulley,  $P$ , which is supposed to be fast upon some positively-driven shaft  $P'$  of the dresser-frame, the said pulley

being fixed upon the said shaft, and the shaft having fixed bearings in the frame of any usual dresser.

The wheel or roller  $b$  at the left-hand end of the frame, (shown in Fig. 1 as running upon the track  $t$ ,) is fixed to a short shaft having a worm,  $f$ , which engages worm teeth upon a sector-lever,  $f'$ , one end of which constitutes a pointer which co-operates with a scale,  $g$ , fixed to the frame of the reel, the said sector-lever, worm-shaft, and scale forming an index to show the extent of movement of the reel in a longitudinal direction.

From the foregoing it will be understood that I do not desire or intend to limit my invention to the exact form of devices employed to hold the yoke in fixed position.

I have herein shown several plans for restraining the longitudinal movement of the pulley  $D^2$  when the reel and its shaft  $D'$  are moved longitudinally, and this without any attention or care on the part of the operator; but in another application, Serial No. 269,467, filed concurrently herewith, I have shown a like reel, pulley  $D^2$ , shaft  $D'$ , and yoke or pulley-controller  $E$ ; but in that application the restraining devices are free to move longitudinally with the reel-frame unless the operator holds the said restraining device while the reel is being moved longitudinally by the operator, so that herein I do not broadly claim the said pulley, shaft  $D'$ , and pulley-controller, except when restrained from movement automatically as the reel-frame is being moved longitudinally.

I claim—

1. The reel, the longitudinally-movable frame-work carrying the shaft of the reel, the shaft  $D'$ , means to connect it with and to rotate the said reel, a pulley, as  $D^2$ , free to slide but not to rotate on the said shaft  $D'$ , a driving-pulley, as  $P$ , and a belt to connect the said pulley  $P$  with the said sliding pulley  $D^2$  to rotate it, and the shaft  $D'$ , combined with a pulley-controller and a restraining device to restrain the said pulley from moving longitudinally with the reel-frame and reel as the latter are moved longitudinally, for the purposes described.

2. The reel, the longitudinally-movable reel-frame and its rollers, combined with a short shaft attached to one of the rollers, and having a worm-gear upon its inner end, and with a sector-lever engaged by the said gear and having one end shaped to constitute a pointer to indicate the extent of longitudinal movement of the reel, substantially as described.

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

JOSEPH H. STONE.

Witnesses:

EBEN A. BALDWIN,  
CHAS. E. STILLINGS.