E. L. HOWARD.

Sewing-Machine Brake.

No. 223,228. Patented Jan. 6, 1880.

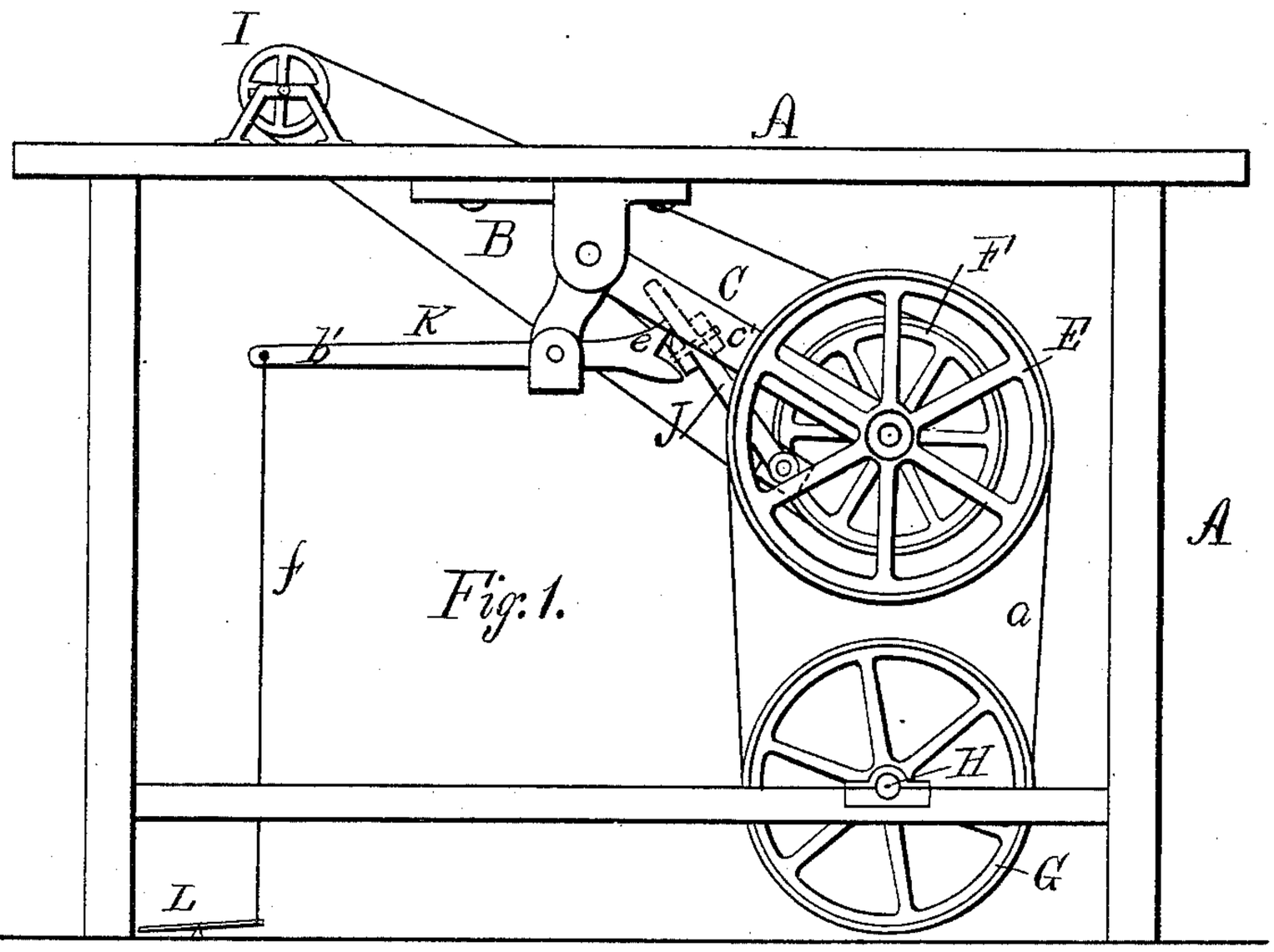

Fig. 1.

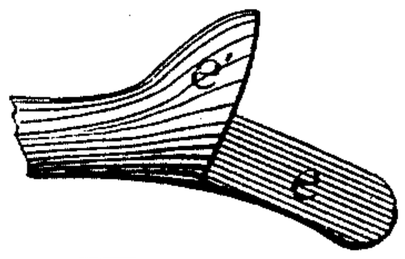

Fig. 3.

Fig. 2.

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ELIJAH L. HOWARD, OF HINGHAM, MASSACHUSETTS.

SEWING-MACHINE BRAKE.

SPECIFICATION forming part of Letters Patent No. 223,228, dated January 6, 1880.

Application filed July 3, 1879.

To all whom it may concern:

Be it known that I, ELIJAH L. HOWARD, of the town of Hingham, county of Plymouth, and State of Massachusetts, have invented certain Improvements in Brake Mechanism for Sewing-Machines, of which the following is a specification.

This invention relates to brake mechanism for starting and stopping sewing-machines and other light machinery; and it consists in the employment of a swinging frame or carriage suspended by a hanger from the under side of the table or bench upon which the machinery to be driven is placed, the free end of the carriage bearing a shaft upon which two pulleys are mounted, one of which receives the belt from the driving-pulley below and serves to drive the other, which, in turn, drives the sewing-machine or other machinery placed upon the table above, while operating with the first-named pulley is a brake or drag, which consists of a lever pivoted to one side of the carriage and operating at one end with the perimeter of the said pulley to bear against and arrest motion of the latter or move away from and permit it to rotate, the motions of the said lever-brake toward and away from the pulley being governed by a shipper-bar, which, in turn, is pivoted to the extreme front of the carriage, and by its nose wipes against the outer end of brake-lever and crowds the latter against the pulley, the nose of the shipper-bar further bearing against and supporting the weight of the free end of the carriage at such times as the brake is free from contact with the pulley, the arrangement of parts, as hereinafter more particularly explained, being such that as the inner end of the shipper-bar is depressed by a treadle the free end of the carriage is raised slightly, the belt of the driving-pulley is tightened, and the brake is forced away from the adjacent pulley, and the latter permitted to revolve, the foot of the operator being retained upon the treadle so long as it is desired to drive the machine which he tends, the weight of the suspended carriage upon the base of the shipper serving to crowd the front end of the brake-lever against the shipper, and thereby force the rear end of such lever against the driving-pulley.

The drawings accompanying this specification represent in Figure 1 a side elevation of a table intended to support two or more sewing-machines, and containing my brake or stop mechanism. Fig. 2 in said drawings represents a plan of the brake or stop mechanism. Fig. 3 is a representation of the furcated end of the shipper-bar.

In said drawings, A represents a table or bench adapted to support one or more sewing-machines or other light machinery, the motions of which it is desirable to frequently start and stop, while depending from the under side of such table is a hanger, B, to the lower part of which the front end of a swinging frame or carriage, C, is pivoted, such carriage being composed of side bars, *b b*, and end limbs, *c d*, the rear and free end or hub, *d*, of such carriage bearing a horizontal shaft, D, while upon each end of such shaft is affixed a pulley, E or F, the first being the driving-pulley, and receiving, by means of a belt, *a*, motion from a main pulley, G, carried by a shaft, H, located at the lower part of the table, as shown in Fig. 1 of the drawings.

A belt from the pulley F passes about the pulley of the sewing-machine, and, for illustration, the latter pulley may be shown at I in the drawings.

The brake or stop-lever, to which allusion has before been made, is shown at J in the drawings as pivoted to a boss, *c'*, cast upon the inside of one of the side bars of the carriage C, as shown at *a'*, the rear end of such lever, which may be provided with a shoe, of leather or other semi-adhesive material, being disposed opposite and operating in connection with the perimeter or tire of the driving-pulley E, to engage or disengage the latter, as the case may be.

The rear end of the brake-lever J slopes away from the bar of the carriage, to which it is pivoted, to permit the reception between the two of the nose *e* of the shipper lever or bar, before mentioned, such shipper-bar being shown at K as pivoted near its rear end to the extreme lower end of the hanger B, while the front end, *b'*, of such shipper-bar extends forward to the front of the table A, and is connected by a wire, *f*, to a pedal or treadle, L, pivoted to the floor of the apartment below the table, as shown in the drawings.

The rear end or nose of the shipper-lever is forked or furcated, as shown at *e e'* in the drawings, the spur *e* wiping against the brake-lever, as before explained, while the lowermost spur, *e'*, bears against the under side of the boss *c'*, before mentioned as cast upon one side of the bars of the carriage C. When the said carriage is free from the control of the shipper-lever its weight is exerted to crowd the spur *e* and bar K against the front end of the whole lever J, and thereby crowd the rear end of such lever forcibly against the band of the driving-pulley E, and thereby arrest rotation of the latter and of the machine upon the table.

When it is desired to put the sewing or other machine in motion the attendant places his foot upon the pedal L and lowers it and the outer end of the shipper-bar K, and thereby, by means of the spur *e* of said shipper-bar against the boss *c'*, lifts the rear end of the carriage C and pulley E, the spur *e* of the shipper-bar K in the act being forced away by contact with the front end of the brake-lever J, and permitting the rear end of the latter to fall away from the band of the pulley E, thus leaving the latter free to be driven by the main pulley below.

As the carriage C is raised, as last stated, the belt *a* is tightened, the tension of this band and the friction of the brake-lever against the pulley E being determined by the extent to which the operator depresses the pedal and the outer end of the shipper-lever. For this reason the operator is enabled to change, by means of the pedal, the speed of rotation of the pulley E and of the machine upon the table.

My device is very strong and durable, simple, and inexpensive, and constitutes both a stop-motion to control the driving-pulley and a frictional brake to determine the speed of such pulley.

Having thus described the nature, purposes, and advantages of my device, I claim as my invention the following:

1. The combination, with the table or bench and machine to be driven, of the carriage pivoted to a hanger of such table, and carrying the two pulleys, the brake or stop lever pivoted to the carriage, and operating at one end with the band of the driving-pulley and at the other with the shipper-bar, the shipper-bar as pivoted to the hanger of the table, and operating at its rear end with the front end of the brake-lever, and at its front end connected by a wire with a pedal pivoted to the floor of the apartment below the table, the said shipper-bar being forked and wiping against both the brake-lever and carriage, and serving to support the weight of such carriage when the brake is free from contact with the pulley, the whole being arranged and operating substantially as described.

2. The combination, with the table and machine to be driven, of the swinging frame or carriage carrying at its free end the two pulleys, and raised by the shipper-bar and falling by its own weight, substantially as hereinbefore stated.

3. The combination, with the table and machine to be driven, of the swinging frame or carriage, carrying the two pulleys and the brake-lever, and exerting its own weight to crowd the lever against the driving-pulley, substantially as stated.

4. The shipper-bar, in combination with the carriage and its driving-pulley and the brake-lever, and adapted both to raise the free end of the carriage and the driving-pulley and tighten the belt and free or lessen the hold of the brake-lever upon the said pulley, substantially as and for the purposes stated.

5. The combination, with the swinging carriage and its driving-pulley and the hanger, of the brake-lever and shipper-bar, the lever operating to exert a frictional drag or dead-stop upon the pulley, and the shipper-bar operating to raise the carriage, tighten the driving-belt, and release or lessen the hold of the brake upon the pulley, substantially as hereinbefore described.

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