

(No Model.)

A. W. HART.
ELECTRIC SHAFT CONTROLLER.

No. 423,245.

Patented Mar. 11, 1890.

Fig. 1.

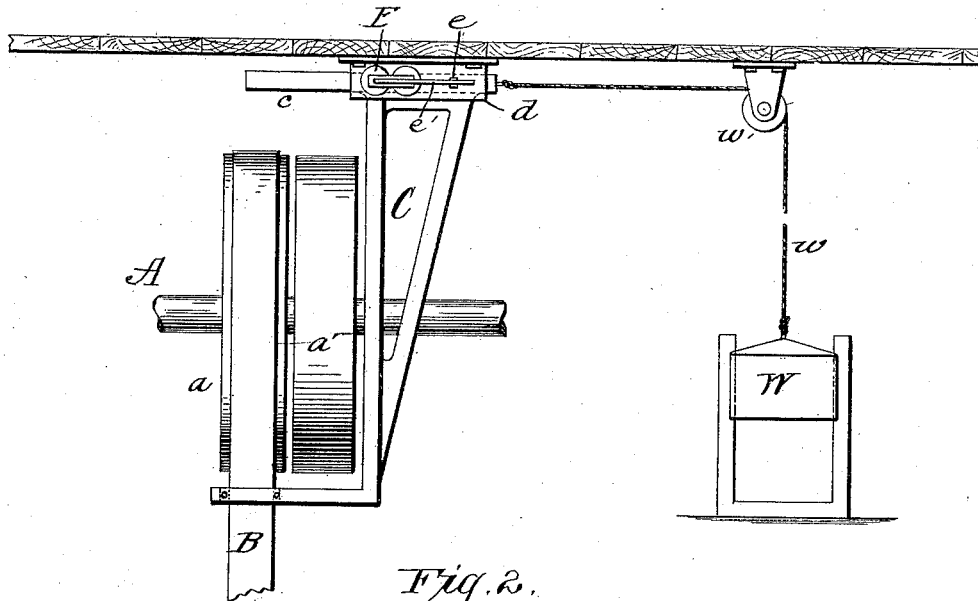


Fig. 2.

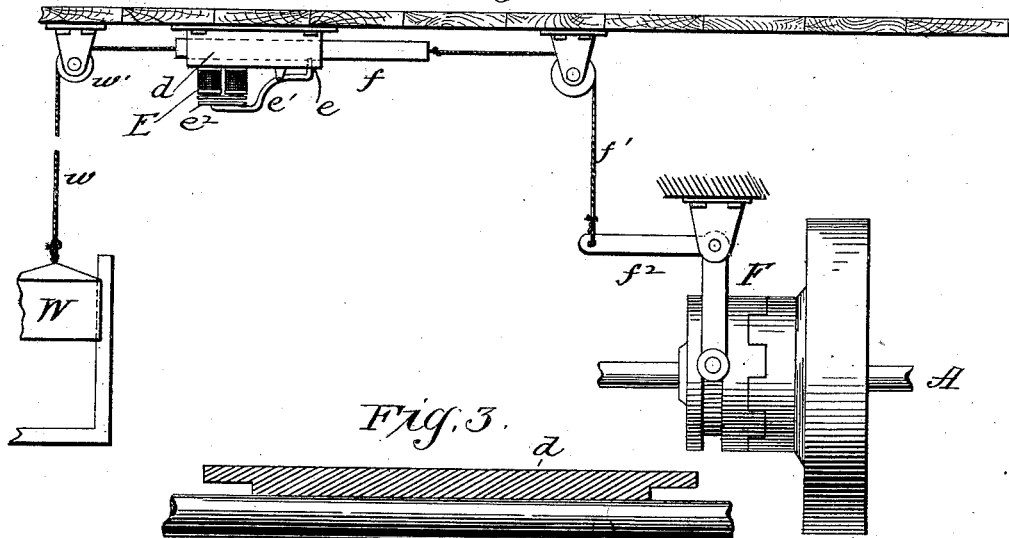
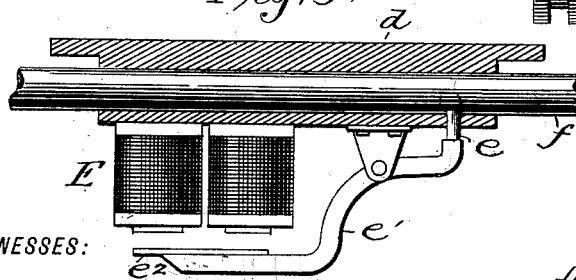


Fig. 3.



WITNESSES:

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ELECTRIC SHAFT-CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 423,245, dated March 11, 1890.

Application filed June 29, 1889. Serial No. 316,055. (No model.)

To all whom it may concern:

Be it known that I, ANTHONY W. HART, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Electric Belt-Shifters, of which the following is a specification.

My invention relates to electric belt-shifting devices.

It has been found desirable in factories, shops, and similar places to stop the machinery or portions of it throughout the building from a distance—that is, from the main office, the office of a foreman, or other similar location. This desideratum arises in case of fire, accidents, or irregularity in the working-hours, and from other reasons.

The object of this invention is to provide such a device which shall be simple in construction and efficient in operation.

To this end the invention consists of certain mechanical connections with the shafts or pulleys, in combination with an electro-magnetic device for releasing a latch to allow a weight or equivalent device to shift the belt or unclutch a pulley, or to throw the belt from the pulley.

The details of the construction will now be described in connection with the accompanying drawings, in which—

Figure 1 represents a side elevation of the device for shifting a belt. Fig. 2 represents a similar view of a device for throwing out a clutch; and Fig. 3 is a detail, partially in section, of the electro-magnetic latch.

Referring to Fig. 1, A represents a shaft carrying the usual tight and loose pulleys *a* and *a'*, respectively. The belt B is shown upon the tight pulley. This belt is adapted to be shifted onto the loose pulley by means of a shifting-bracket C. This bracket is provided at its lower end with the usual fork for embracing the belt, and at its upper end is formed into a sliding bar *c*, which is adapted to slide in two guides or brackets *d*. Only one of these guides is shown; but their form is simply that of the angle-irons bolted to the ceiling or any other suitable support. Normally the bracket is held in a stationary position by means of a detent or latch *e*, which passes through an opening in the guide *d* and

into a notch in the bar *c*. The detent or latch *e* is fixed to the end of the pivoted lever *e'*, carrying an armature *e²* of the electro-magnet E. This magnet is located and supported in any suitable position adjacent to the bracket. Its function, when energized, is to tilt the lever *e'* and withdraw the detent *e* from the notch in the sliding bar, thus leaving the bar and bracket free to be moved. The method which I employ for accomplishing this movement consists, preferably, of a weight W, which is suspended by a cord *w*, passing from a guide-pulley *w'*, and connected with the bracket or sliding bar. When the bar is released by the magnet, the weight falls, and, drawing the bracket through the guides, shifts the belt from the tight pulley to the loose one in an obvious manner.

In Fig. 2 the invention is shown adapted to throw out of gear a clutch. The mechanism is essentially the same as in Fig. 1, except the specific details necessary for the slightly-different operation. Instead of the sliding bracket *c* and its attachments there is used simply a bolt *f*, which slides in suitable bearings. One end of this bolt is connected through a cord *f'* with one arm of the bell-crank lever *f²*, which is adapted to slide one portion of a clutch F upon the shaft when the cord is pulled. The opposite end of the bolt *f* is connected with the weight W through cord *w*. When the circuit is closed, (through the electro-magnet, in this instance,) the bolt *f* is released and the weight swings the bell-crank on the pivots, and thus throws the clutch out of engagement.

The circuit-wires of the magnet may be run to any desired location—for instance, to the main office, to certain places on each floor of the building, or to points adjacent to the machinery which the device controls. At the several points push-buttons or other form of circuit-closer are to be located. If for any reason it becomes desirable to quickly stop a machine, this may be accomplished by operating the push-button controlling the circuit of that particular machine.

The apparatus which I have described is possibly somewhat crude, but is only described to point out one way of accomplishing the object. It is obvious, therefore, that

many changes may be made without departing from the spirit of my invention.

I am aware that the weight W will develop more or less friction between the detent and the sliding bar or bolt; but this may be overcome by providing a trigger, which, when operated by the magnet, causes a hammer or falling weight to force the detent out of the notch.

10 Having thus described my invention, I claim—

15 1. The combination, with the bracket C, provided with belt-shifting fork and sliding bar, of the guides or ways, one of them provided with an opening, a detent passing through said opening and adapted to engage with a notch in said sliding bar, an electromagnet adapted to withdraw said detent, and

a weight for moving the bracket, substantially as described. 20

2. An apparatus for shifting a belt consisting of a sliding bolt, a weight tending to move the bolt, connections between the bolt and belt, a latch for retaining the bolt, an electromagnet adapted when engaged to release the 25 latch, and an electric circuit or circuits including said magnet and running to push-buttons conveniently located for operation.

In witness whereof I have hereunto affixed my seal and signed my name in the presence 30 of two subscribing witnesses.

ANTHONY W. HART. [L. s.]

Witnesses:

RICHARD JUSTICE,
JOHN Q. A. WALDRON.