

No. 685,857.

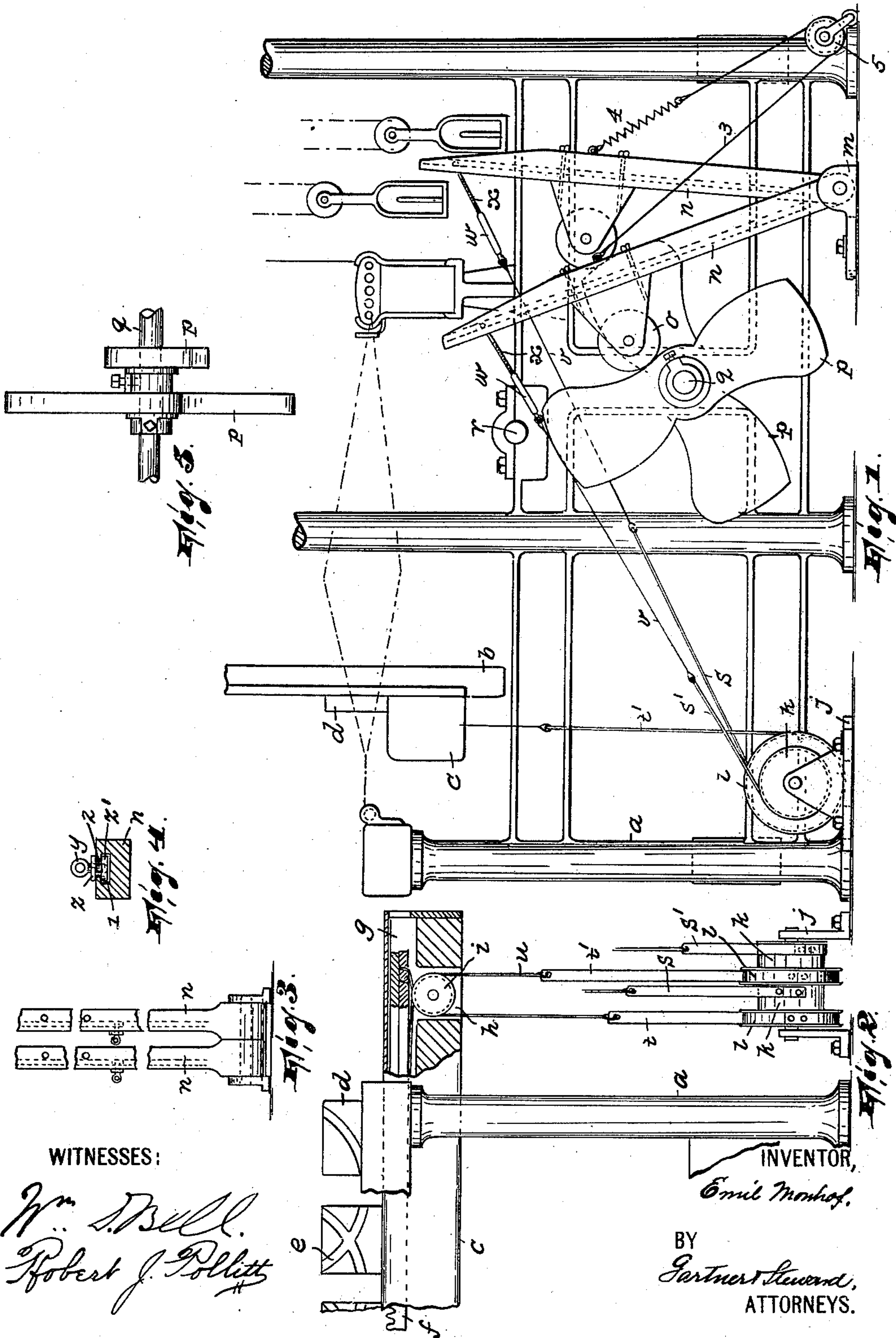
Patented Nov. 5, 1901.

E. MONHOF.

SHUTTLE ACTUATING MECHANISM FOR LOOMS.

(Application filed Apr. 6, 1901.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

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SHUTTLE-ACTUATING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 685,857, dated November 5, 1901.

Application filed April 6, 1901. Serial No. 54,584. (No model.)

To all whom it may concern:

Be it known that I, EMIL MONHOF, a citizen of the United States, residing in Brooklyn, city of New York, and State of New York, have invented certain new and useful Improvements in Shuttle-Actuating Mechanism for Looms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and numerals of reference marked thereon, which form a part of this specification.

This invention relates to shuttle-driving mechanisms for looms, and especially to shuttle-driving mechanisms for narrow-ware looms of high-speed type; and the object of the invention is to provide a loom with a shuttle-driving mechanism whereby the maximum speed may be attained and the parts of which shall be so constructed and arranged that they may be adjusted so as not only to vary the throw of the part, such as the rack-bar, which immediately engages the shuttle, but also the velocity of this part.

The invention is fully illustrated in the accompanying drawings, wherein—

Figure 1 is a view in end elevation of a loom provided with my improved shuttle-driving mechanism, enough only of the loom being shown to illustrate the invention. Fig. 2 is a view in front elevation of a portion of what is seen in Fig. 1, a part of the batten being shown in section to illustrate its internal mechanism; and Figs. 3, 4, and 5 are views illustrating details of the invention.

In said drawings, *a* designates the frame of the loom, while *b* and *c* designate, respectively, the suspended lay-swords and the batten carried by said lay-swords. On the batten is mounted the usual series of blocks *d*, having curved grooves *e*, in which the shuttles move, and arranged in the batten for longitudinal movement is the usual rack-bar *f*, which is adapted to engage and drive the shuttles through the usual pinions. (Not shown.) The rack-bar works in a longitudinal channel *g* in the batten, and with this channel and situated at one end of the batten communicates a vertical opening *h*, in which are arranged pulleys *i*. Preferably

mounted on the floor under the end of the batten in which is formed the opening *h* is a stand *j*, in which are journaled pairs of drums *k l*, the drum *k* in each pair being of smaller diameter than the drum *l*.

At the same end of the loom as the drum-carrying stand *j*, but at the back thereof, is mounted another stand *m*. In this stand is fulcrumed a pair of levers *n*. Each of these levers carries a roller *o*, which bears against the periphery of one of a pair of cams *p*, that are mounted upon a shaft *q*, which may take its power from the main drive-shaft *r* of the loom through any suitable power-transmitting mechanism. (Not shown.)

Secured to the peripheries of the drums *k* and *l* are straps or bands *s s' t t'*, which extend in opposite directions from the drums. To the ends of the straps or bands *t* are secured cords *u*, one of which passes up over one of the pulleys *i* into the channel *g*, to be then secured at one of the ends of the rack-bar, while the other one of which extends up over the other pulley *i* into the channel, to be secured to the other end of the rack-bar. These cords pass over the pulleys on relatively opposite sides thereof, as best seen in Fig. 2. *v* denotes other cords, which are secured to the ends of the straps or bands *s*. They connect said straps or bands with couplings, each of which consists of a tubular portion *w* and a threaded spindle portion *x*, which is screwed into said tubular portion. The spindle portion of each coupling has its free end connected with an eyebolt *y*, carrying on its threaded portion two nuts *z z'*, the nut *z'* being arranged in a longitudinal groove 1 in the lever *n* and the nut *z* taking against the outer face of said lever, the shank of the bolt extending through a longitudinal slot 2, which communicates with the groove. It should be remarked that the arrangement is such that when the roller *o* is bearing against a low portion of its corresponding cam the other roller *o* is bearing against the high portion of its corresponding cam. Thus when the shaft is driven an alternate oscillating movement is imparted to the levers *n*, which transmit their power through the various flexible connections and drums to the rack-bar to reciprocate the same in an obvious manner.

My invention permits of a variety of adjustments. Not only may the couplings between the cords *v* and the levers *n* and the points at which the bands are secured on the drums be altered to effect alterations of the throw of the rack-bar, but an adjustment of the velocity at which the rack-bar moves may be produced by interchanging the bands so that those which have connection with the levers will be connected with the larger drums instead of with the small ones, as shown.

As a counterbalance for the levers *n* I provide a flexible device 3, which is at one end connected to one of the levers and at the other end connected to a spring 4, carried by the other lever, said flexible device being at an intermediate point extended around a suitably-disposed pulley 5.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a loom, the combination, with the frame and with the batten, of a reciprocating shuttle-driving rack-bar arranged in said batten, a pair of levers, a drive-shaft, cams on said drive-shaft engaging said levers, revolvable drums disposed one side of the fulcrum of said levers, flexible connections between said drums and the levers, said flexible connections being secured to said levers for adjustment longitudinally thereof, flexi-

ble connections between said drums and the rack-bar, said last-named flexible connections extending into the batten and being secured to the opposite ends of the rack-bar, a pulley arranged the other side of the fulcrum of said levers, and an elastic flexible connection secured at its ends to said levers and passing over said pulley, substantially as described.

2. In a loom, the combination, with the frame and with the batten, of a reciprocating shuttle-driving rack-bar arranged in said batten, a pair of levers having longitudinal grooves, eyebolts adjustably arranged in said grooves, a drive-shaft, cams mounted on said drive-shaft and engaging said levers, revolvable drums, flexible connections between said drums and the bolts, and flexible connections between said drums and the rack-bar, said last-named flexible connections extending into the batten and being secured to the opposite ends of the rack-bar, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of March, 1901.

EMIL MONHOF.

Witnesses:

JAMES B. NEWTON,
ALFRED GARTNER.