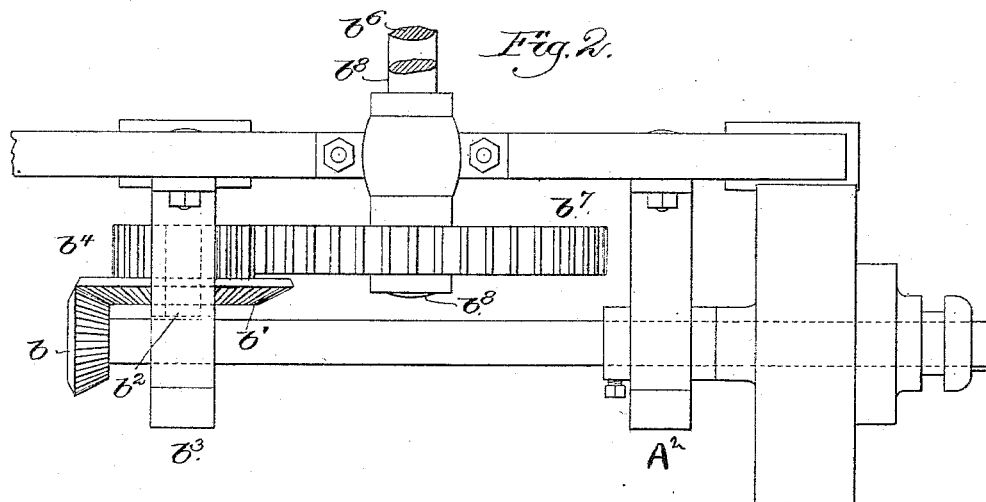
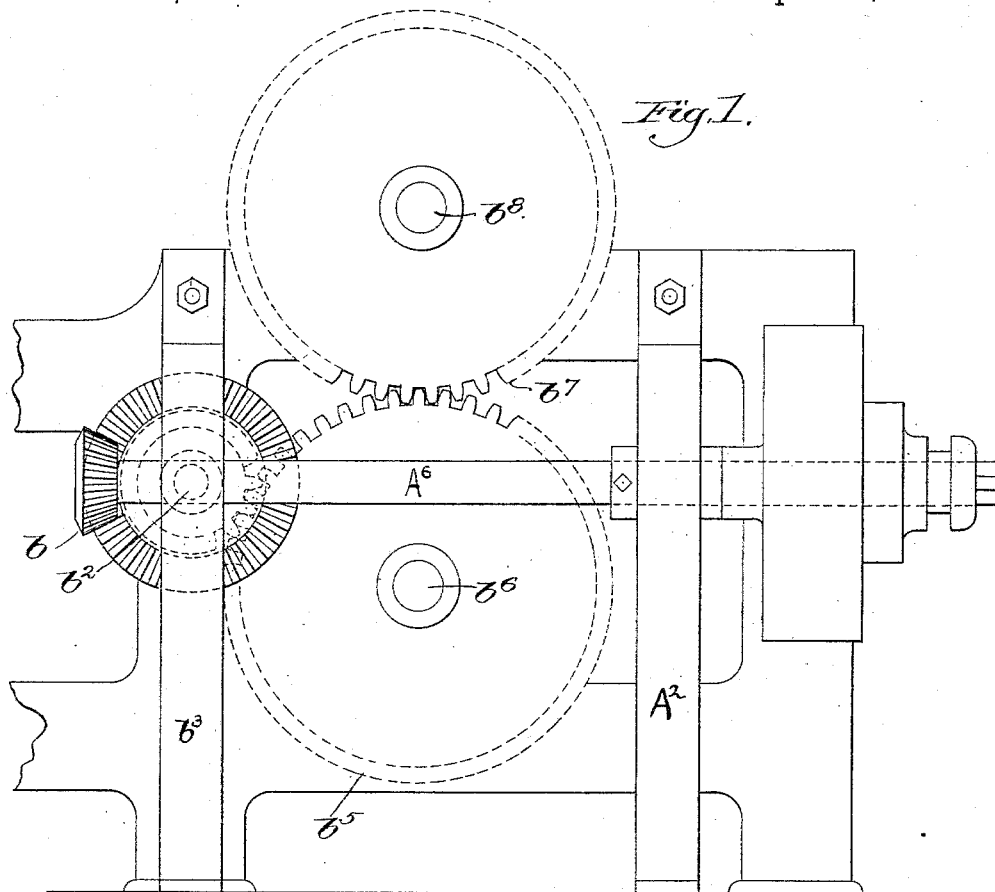


(No Model.)

H. WYMAN.
LOOM DRIVING GEAR.

No. 381,518.

Patented Apr. 17, 1888.



Witnesses.
Fred. S. Shurt of
Fred L. Emery.

Inventor.
Horace Wyman.
by Lemby & Gregory attys

UNITED STATES PATENT OFFICE.

HORACE WYMAN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE
CROMPTON LOOM WORKS, OF SAME PLACE.

LOOM DRIVING-GEAR.

SPECIFICATION forming part of Letters Patent No. 381,518, dated April 17, 1888.

Application filed July 28, 1887. Serial No. 245,509. (No model.)

To all whom it may concern:

Be it known that I, HORACE WYMAN, of Worcester, in the county of Worcester and State of Massachusetts, have invented an Improvement in Loom Driving-Gears, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to drive the main cross-shafts of a loom in the most steady manner possible, notwithstanding irregularity in the resistance to be overcome by the said shafts, and at the same time I have also had in view such a construction and arrangement of the gearing as to gain the maximum of power and to economize space.

In this my invention I am enabled to place the driving-shaft of the loom, or the shaft employed to rotate the two cross-shafts, at a greater distance than usual from the mill or counter-shaft arranged along the floor and employed to actuate the driving-belt of the machine, even a slight increase in distance from the floor enabling the belt to work with greater efficiency.

By the use of two small bevel-gears and a larger toothed or spur gear and the pinion, as shown, to convey power from the driving-shaft to one of the usual cross-shafts of the loom located at right angles to it, instead of employing a small bevel-gear driving a large beveled gear fast on one of the usual cam-shafts, as now commonly done, it is possible to do away with the side-thrust exerted against the said large beveled wheel, the said side-thrust being increased with the strain put on the shaft to which the large bevel-wheel is attached.

In some instances the spring of the large bevel-wheel, due to side-thrust and strain, is such as to greatly lessen the efficiency of the loom.

The smaller the diameter of bevel-wheels the less the side-thrust of one on the other, and the more nearly like in diameter the bevel-wheels in mesh one with the other the less the liability of slipping the one with relation to the other.

Figure 1, in side elevation, represents a suf-

ficient portion of a loom to illustrate my invention; and Fig. 2, a top or plan view of Fig. 1.

The loom-frame A has at its end suitable bearings in stands A^2 b^3 for the driving-shaft A^6 , extended transversely of the machine, the said shaft being provided with a friction-pulley to receive the driving-belt. The said pulley may, and preferably will, be such as shown in United States Patent No. 363,507.

The driving-shaft A^6 is provided at its inner end with a small bevel-pinion, b , which engages an intermediate bevel-gear, b' , secured to a pinion, b^4 , free to rotate on a short stud, b^2 , having suitable bearings in both the frame and the stand b^3 . The bevel-pinion b^4 engages the teeth of and rotates the toothed gear b^5 , fast on the usual cam-shaft, b^6 , the said gear b^5 engaging the gear b^7 , of equal diameter, fast to the end of the crank or lay shaft b^8 and rotating it at the same speed as the cam-shaft. By introducing the intermediate bevel and spur gears, b' and b^4 , between the bevel-gear b and toothed wheel b^5 , it is possible to gain power and at the same time rotate the driving-shaft A^6 at a much faster speed than usual as compared with the shafts b^6 and b^8 , and even with an addition in speed—as, for instance, as six to one—it is possible to keep the parts within practical limits of space, and with gears of the diameter shown and arranged as shown end-thrust is practically done away with.

The construction and arrangement of parts shown and described enable the driving-shaft to be placed at any desirable position between the shafts b^6 b^8 , thus elevating it away from the floor farther than in other usual plans wherein a small bevel-gear on a driving-shaft engages a large bevel-wheel on the lower cross-shaft, as b^6 .

I claim—

1. The two shafts b^6 and b^8 , with their gears b^5 and b^7 , of equal diameters, and the driving-shaft A^6 , provided with a driving-pulley and a pinion, as b , combined with the intermediate bevel-gear, b' , and spur-gear b^4 , connected together and mounted upon a stud, the combination being and operating substantially as and for the purpose described.

2. The driving-shaft A^6 , its driving-pulley and bevel-pinion b , bevel-wheel b' , and its at-

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tached spur-pinion b^4 , stud b^2 , and the main frame having an attached stand, as A^2 , provided with a box for the driving-shaft, and the stand b^3 , provided with a box for the driving-shaft, and also to support the stud, combined with two shafts, b^6 and b^8 , having gears b^5 and b^7 of equal diameter, to operate substantially as described.

3. The two shafts b^6 and b^8 , their gears b^5 and b^7 , of equal diameter, and a driving-shaft, A^6 , provided with a pulley and with a pinion, b , and bearings for the said shaft, combined

with the intermediate bevel and spur gear, whereby the said driving-shaft may be located at a point between the two shafts b^6 and b^8 , substantially as described.

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

HORACE WYMAN.

Witnesses:

JOHN B. SYME,

JUSTIN A. WARE.