

(No Model.)

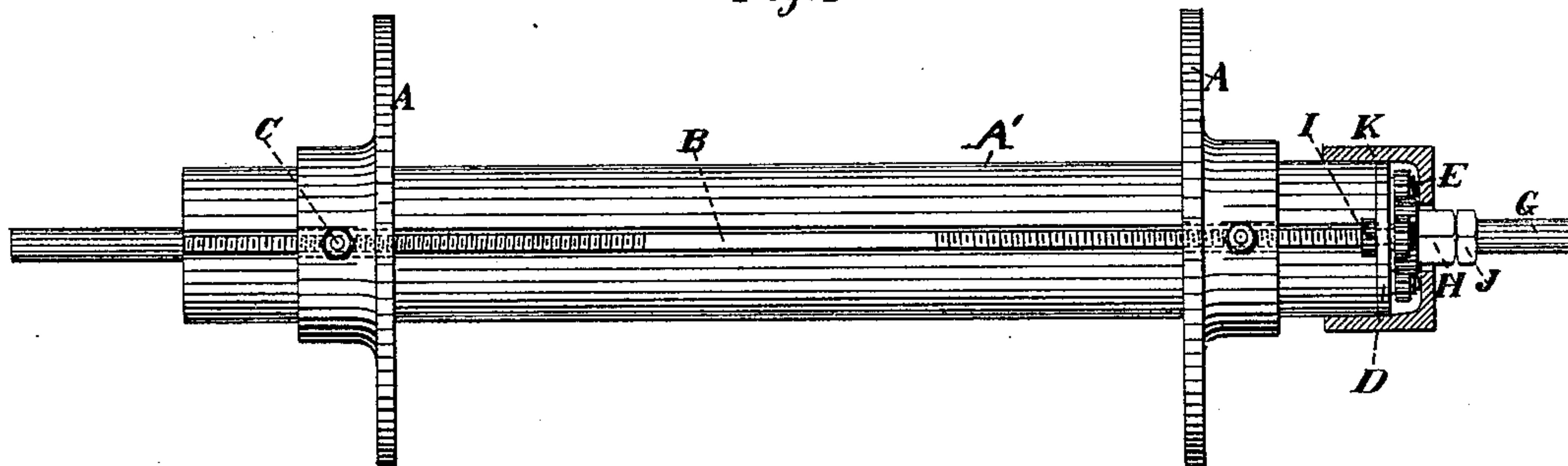
T. BURNS, A. AKEROYD & J. FOWLER.

WARP BEAM FOR LOOMS.

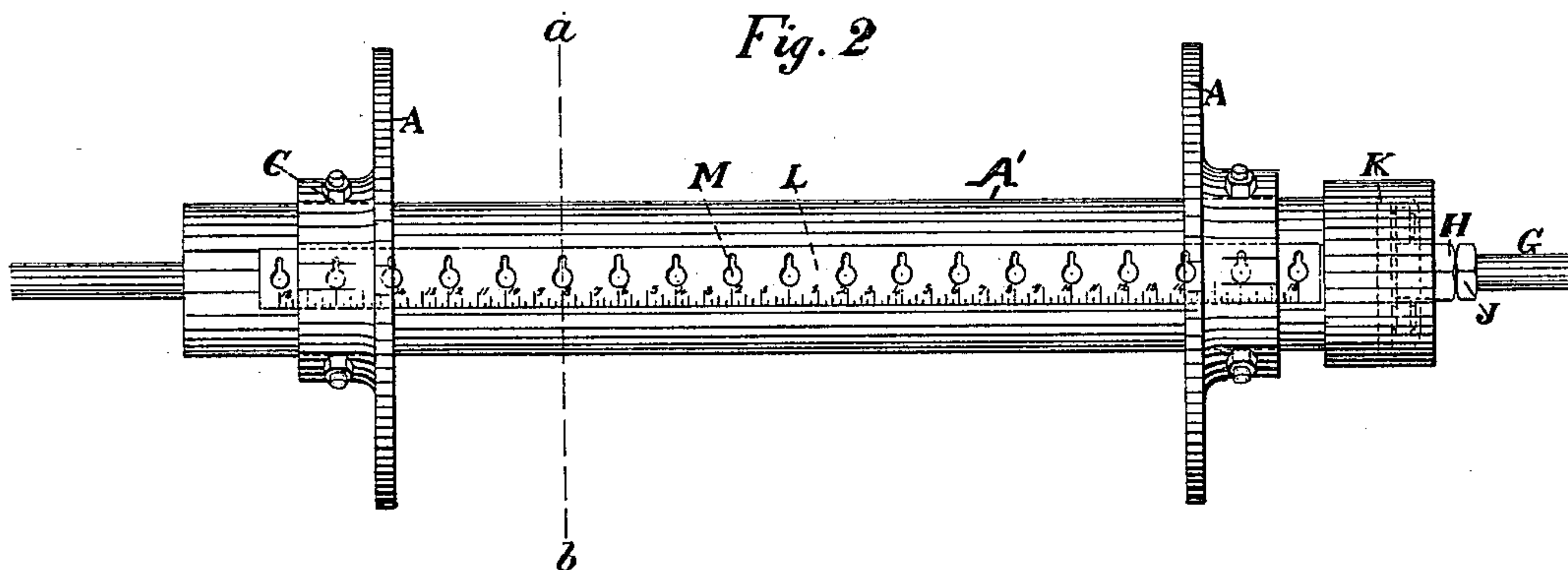
No. 353,538.

Patented Nov. 30, 1886.

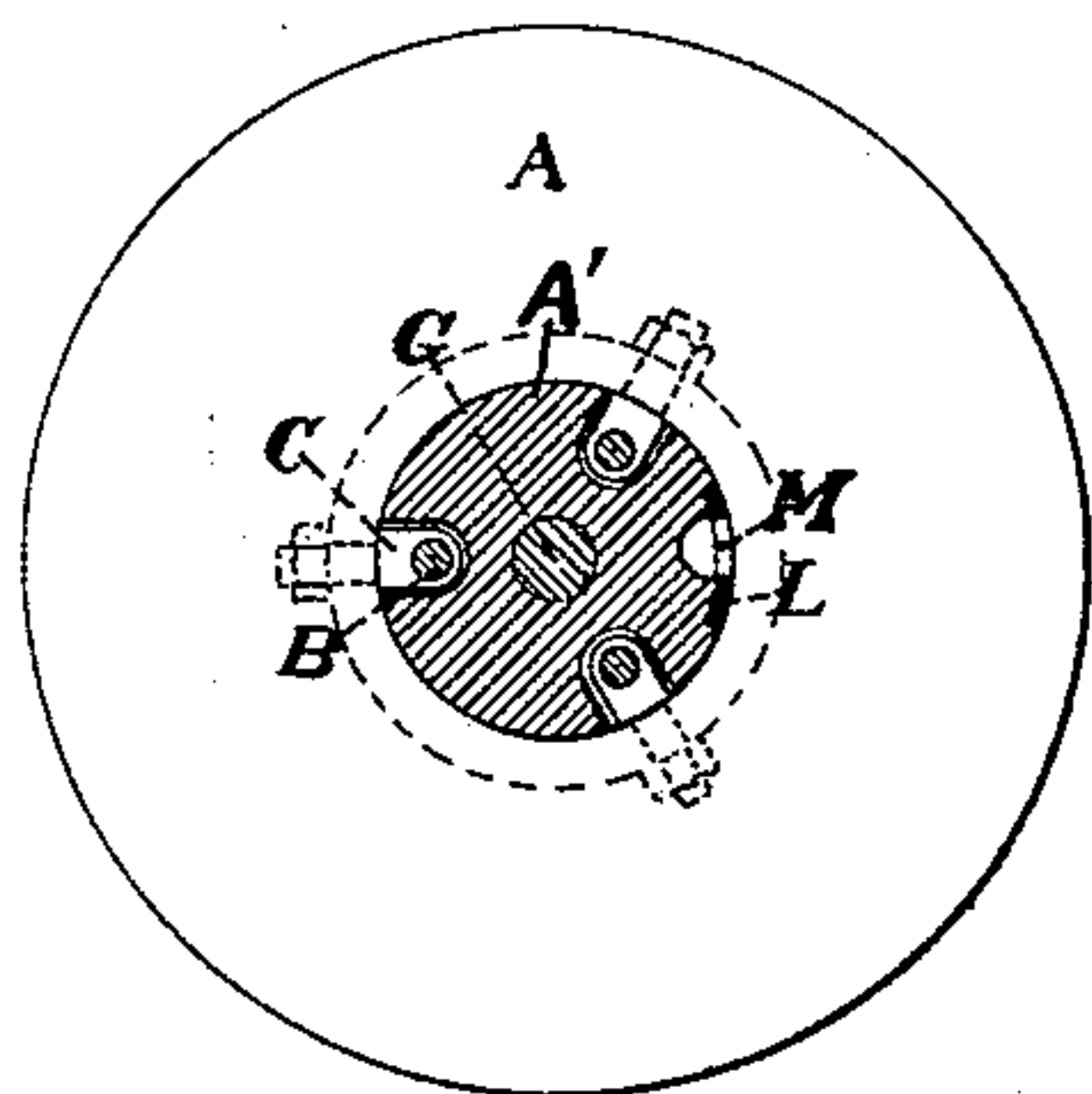
*Fig. 1*



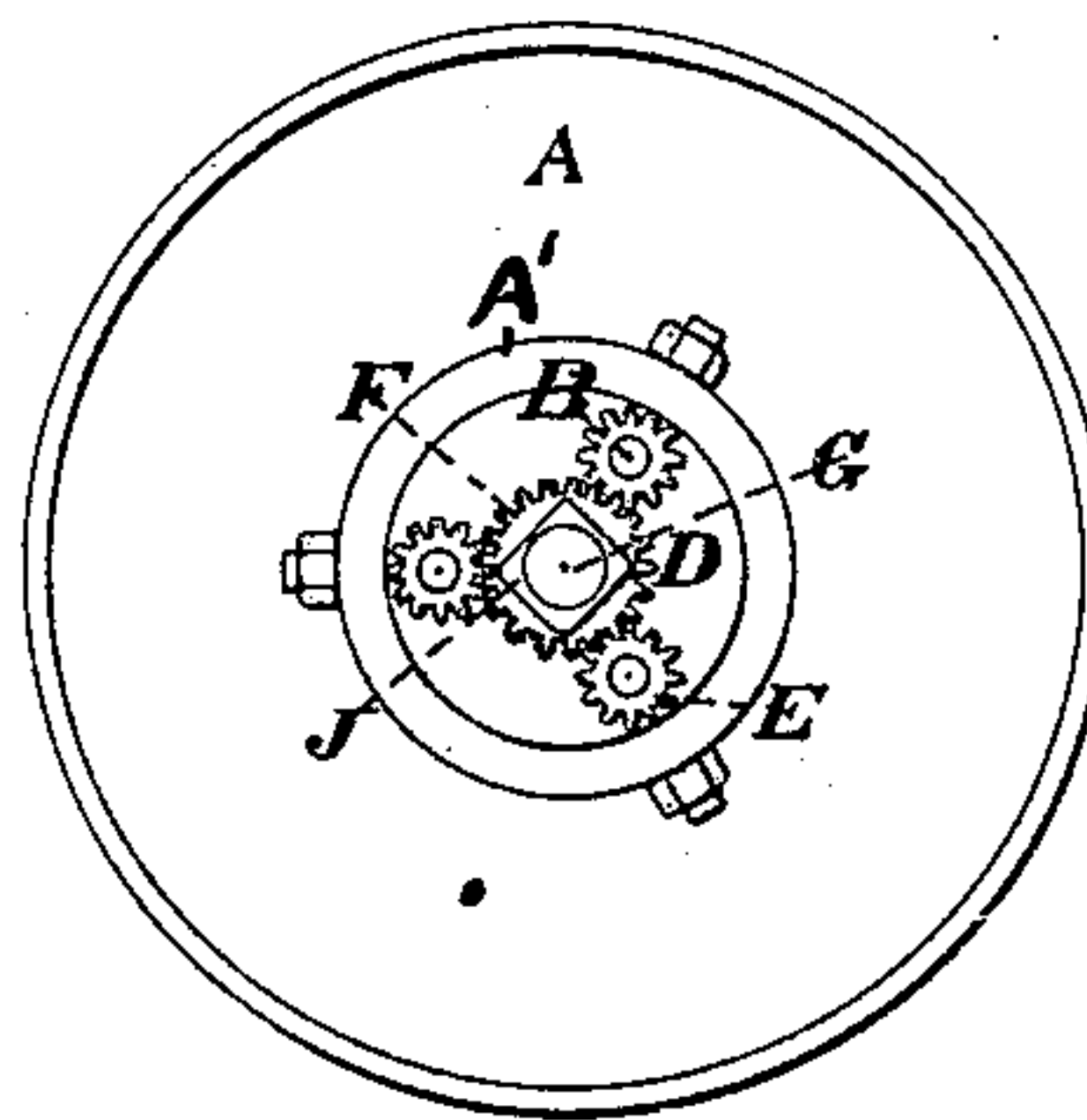
*Fig. 2*



*Fig. 3*



*Fig. 4*



Witnesses  
Wm R. Davis.  
S. M. Knobloch

Inventors.  
Thomas Burns  
Abraham Akeroyd  
James Fowler  
by Henry Oth Attorney.

# UNITED STATES PATENT OFFICE.

THOMAS BURNS, ABRAHAM AKEROYD, AND JAMES FOWLER, OF BRADFORD, ENGLAND.

## WARP-BEAM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 353,538, dated November 30, 1886.

Application filed August 25, 1886. Serial No. 211,731. (No model.)

*To all whom it may concern:*

Be it known that we, THOMAS BURNS, ABRAHAM AKEROYD, and JAMES FOWLER, all subjects of the Queen of England, residing at Bradford, England, have invented certain new and useful Improvements in Warp-Beams for Looms, of which the following is a specification.

The object of this invention is to enable the flanges regulating the width of the warp on the warp-beam employed in looms for weaving to be simultaneously adjusted, and also to provide means of securing the ends of the warp to such beam.

Figure 1 represents a longitudinal elevation, partly in section, of a warp-beam fitted with our improvements. Fig. 2 is a diametrically-opposite view to Fig. 1. Fig. 3 represents a transverse section of the beam at the line *a b* in Fig. 2, and Fig. 4 is an end view of such beam.

The flanges A are connected together by the rods B, which are respectively cut with left and right screw-threads to engage with the female threads cut in the lugs C, secured to and projecting from the inside of the boss of each of the flanges A. Longitudinal grooves are cut in the periphery of the beam for the reception of the rods B, and one end of each of the rods passes through a plate, D, secured to the end of the beam *a'*, where they are geared together by the pinions E, fitted on the ends of such rods, engaging with a spur-wheel, F, mounted on the arbor G of the beam. The spur-wheel F is provided with a square boss, H, for the application of a key, by which means it may be rotated, thus actuating the pinions E, and the rods B engaging the lugs C, thereby simultaneously moving the flanges A along the beam away from or toward each other, according to the direction the wheel F is rotated. The collars I, secured on each of the rods B, bear against the plate D and prevent the rods moving longitudinally, and the lock-nut J, screwed on the arbor G, fixes the wheel F. A cap, K, (shown in section in Fig.

1,) fitted over the end of the beam, covers the gearing.

The plate L, let into the beam so as to be flush with its surface, is divided into inches or other convenient linear measure, and indicates the distance the flanges A are from each other or from the center of the beam.

Holes M are cut through the plate L, the form of which adapts them to receive and retain the knotted ends of cords secured to the ends of the warp. The beam is recessed under the plate L in order to allow the knotted ends of the cords to pass through the wide circular end of the holes M when they are drawn into the narrow part of the holes, and retained by the knots bearing against the back of the plate.

We claim—

1. The combination, with the beam-body having an arbor, and the flanges A, loosely mounted on said beam-body, of screw-rods passing longitudinally through the beam-body, operating to move the flanges toward or from each other when turned in one or the other direction, and a spur-wheel mounted loosely on the beam-arbor, provided with a square boss, and meshing with gear-wheels rigidly mounted on the ends of the screw-rods, whereby the latter may be simultaneously rotated, for the purpose specified.

2. The combination, with the beam-body having an arbor, and the flanges A on said beam-body, movable toward and from each other, of a plate, graduated as described, let into the beam-body and flush with its outer surface, and provided with slots M for retaining the ends of the warp-cords, as described.

In witness whereof we have hereto set our hands in the presence of the two subscribing witnesses.

THOMAS BURNS.  
ABRAHAM AKEROYD.  
JAMES FOWLER.

Witnesses:

SAMUEL ALBERT DRACUP,  
DAVID NOWELL.