

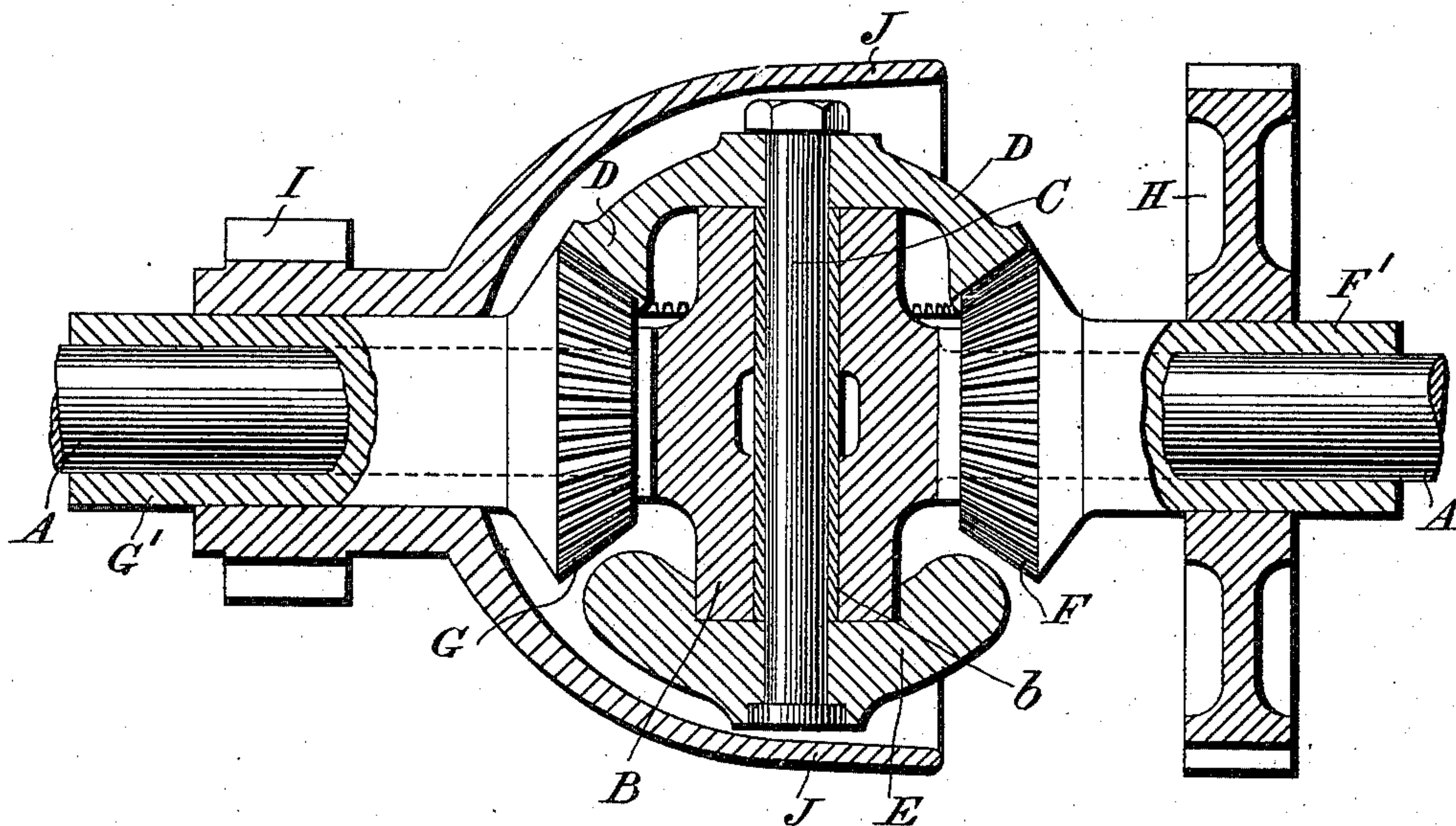
(No Model.)

E. & S. TWEEDALE & J. SMALLEY.

JACK OR APPARATUS FOR INSURING DIFFERENTIAL MOTION ON  
SLUBBING AND ROVING FRAMES.

No. 572,917.

Patented Dec. 8, 1896.



WITNESSES.

Frederick A. Verity.  
Samuel Jackson

INVENTORS.

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# UNITED STATES PATENT OFFICE.

EDMUND TWEEDALE, SAMUEL TWEEDALE, AND JOSEPH SMALLEY, OF  
MANCHESTER, ENGLAND.

JACK OR APPARATUS FOR INSURING DIFFERENTIAL MOTION ON SLUBBING OR ROVING FRAMES.

SPECIFICATION forming part of Letters Patent No. 572,917, dated December 8, 1896.

Application filed March 7, 1896. Serial No. 582,286. (No model.) Patented in England March 5, 1892, No. 4,342.

*To all whom it may concern:*

Be it known that we, EDMUND TWEEDALE, SAMUEL TWEEDALE, and JOSEPH SMALLEY, subjects of Her Majesty the Queen of Great Britain, residing at Castleton, Manchester, in the county of Lancaster, England, have invented a certain new and useful Improvement in Jacks or Apparatus for Insuring Differential Motion on Slubbing or Roving Frames, (for which we have obtained Letters Patent in Great Britain under date of March 5, 1892, No. 4,342 of 1892,) of which the following is a specification.

This invention relates to an improved construction and arrangement of apparatus for insuring differential motion on slubbing and roving frames in which one of the usual bevel-wheels is dispensed with, the weight of the apparatus lessened, and centrifugal action reduced to a minimum.

According to our invention we construct a boss on the driving-shaft which forms a bearing for a stud or shaft, on one end of which is secured a bevel-wheel gearing with the bevel-wheel driven from the cone-drums on one side and on the other side with a similar bevel-wheel, on the boss of which is secured a spur-wheel employed to drive the bobbins. The opposite end of the stud or shaft to which the bevel-wheel is attached, or it may be the opposite end of the boss to that carrying the bevel-wheel, is made the requisite weight to counterbalance the centrifugal force of the bevel-wheel when revolving.

In order that our invention may be better understood, we will make reference to the accompanying drawing, which is a sectional elevation of our improved "jack" or apparatus for insuring the differential motion.

A represents the driving-shaft, provided with a boss B, having a sleeve *b* extending therethrough at right angles to the shaft A, through which is placed a shed or cross-shaft C. A bevel-wheel D is secured on one end of the said shed, while on the opposite end of same, or secured in some way to the opposite end of the boss B, is a balance-weight E for neutralizing the centrifugal action of the bevel-wheel D, whereby the parts are evenly balanced. Two bevel-wheels F and G are mounted on sleeves F' G', loose on the main

shaft A, both of which wheels gear with the bevel-wheel D. The former bevel-wheel F is driven by a spur-wheel H, fixed on the sleeve F', from the ordinary cone-drums, which regulate the winding of the yarn. The bevel-wheel G, through the intervention of spur-wheel I, which is secured to the sleeve G', and the ordinary swing-wheels of a slubbing or roving frame, drives or gives rotary motion to the bobbins. The part marked J projects from the boss of the toothed wheel I, and may be formed in one piece therewith, and is employed as a shield or cover to the series of bevel-wheels.

The action is as follows: On the driving-shaft A commencing to rotate it carries the boss B, together with the bevel-wheel D, around with it, and (supposing the bevel-wheel F, which is driven from the cone-drums, to be stationary) one revolution of the driving-shaft A will cause the bevel-wheel D on the cross-shaft C to give two revolutions to the bevel-wheel G and spur-wheel I (which drives the bobbins) in the same direction as the driving-shaft, so that the diameter of the said spur-wheel may be reduced to one-half its usual diameter and the number of bevel-wheels be lessened by one. The wheel H, however, will be also driving the bevel-wheel F, and therefore any variation of the speed of wheel H, which is driven from the cone-drum, as stated, is transmitted in relative proportion to the spur-wheel I, which drives the bobbins, whereby their speed is regulated in accordance with the varying speed of the wheel I.

What we claim is—

1. In a slubbing or roving frame, the combination with the driving-shaft, a boss fast on the said shaft, a cross-shaft through the said boss, a bevel gear-wheel D fast on one end of the said cross-shaft, and a concave weight fast on the other end thereof, of a bevel gear-wheel F having a sleeve loosely mounted on the driving-shaft, and meshing with the bevel gear-wheel D, a driving-wheel connected to the sleeve of the said bevel gear-wheel F, and adapted to drive the latter, a second sleeve G' loosely mounted upon the driving-shaft, a bevel-gear G thereon also meshing with the bevel gear-wheel D, and a



gear-wheel I on the said sleeve G', substantially as described.

2. In a slubbing or roving frame, the combination with the driving-shaft, a boss fast  
5 on the said shaft, a cross-shaft through said boss at right angles to the driving-shaft, a bevel gear-wheel on one end of the said cross-shaft, and a weight fast on the other end thereof, of a bevel gear-wheel F having a  
10 sleeve loosely mounted on the main shaft, and meshing with the bevel gear-wheel D, a driving-wheel H connected to the sleeve of the said bevel gear-wheel, and adapted to drive the latter, a second bevel gear-wheel G  
15 revolubly mounted on the driving-shaft and also meshing with the bevel gear-wheel D, and a gear-wheel rigidly connected to said bevel gear-wheel G, substantially as described.

20 3. In a slubbing or roving frame, the combination with the driving-shaft, a boss fast on the said shaft, a cross-shaft through the

said boss, a saucer-shaped bevel gear-wheel D fast on one end of the said cross-shaft, and a saucer-shaped counterbalance-weight fast  
25 on the other end thereof, of a bevel gear-wheel F loosely mounted on the driving-shaft, and meshing with the bevel gear-wheel D, a driving-wheel connected to said bevel gear-wheel F and adapted to drive the latter, a  
30 second bevel gear-wheel G loosely mounted on the driving-shaft and gearing with the bevel gear-wheel D, and a gear-wheel driven by said bevel-gear G, substantially as described.

35 In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

EDMUND TWEEDALE.  
SAMUEL TWEEDALE.  
JOSEPH SMALLEY.

Witnesses:

FREDERICK A. VERITY,  
SAMUEL JACKSON.