

H. MOORE.

ACTUATING MECHANISM FOR SEWING MACHINE SHUTTLES.

No. 520,759.

Patented May 29, 1894.

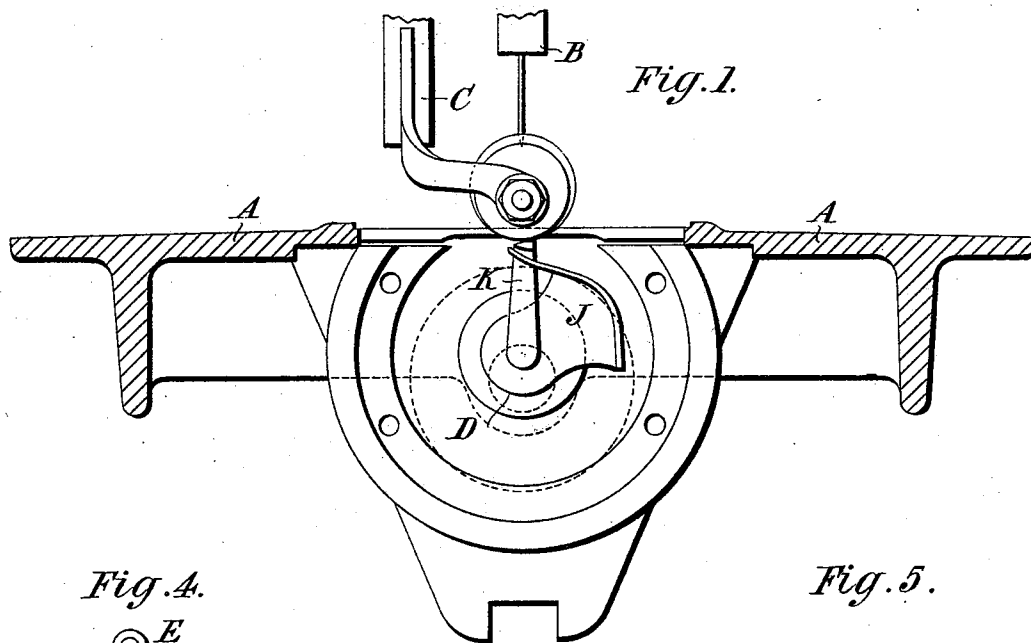


Fig. 4.

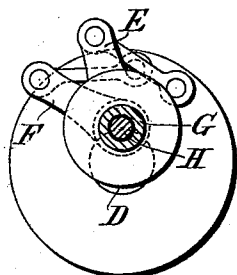


Fig. 5.

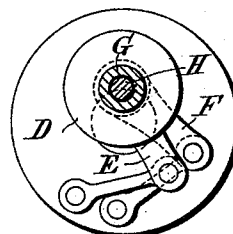


Fig. 8.

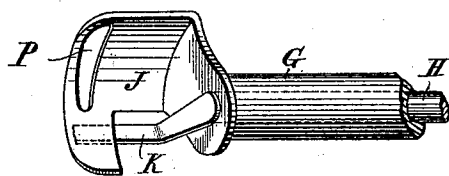


Fig. 6.

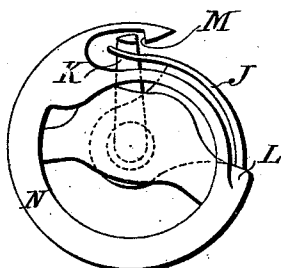
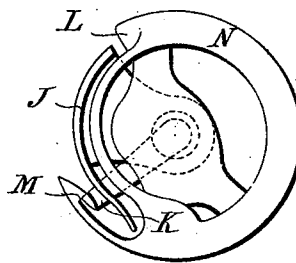


Fig. 7.



WITNESSES.

Albert Jones.
John F. Gairns.

INVENTOR.

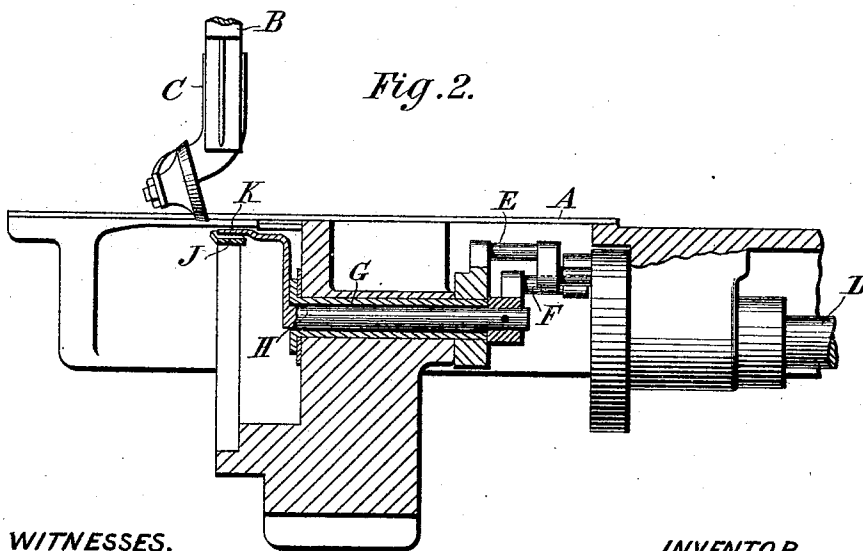
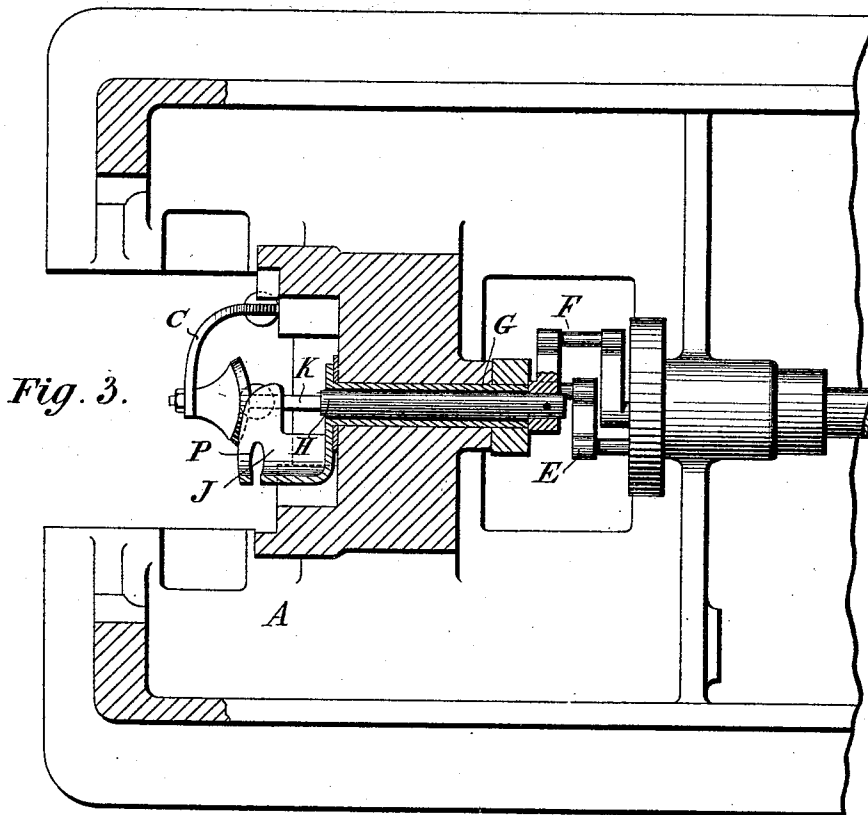
Harvey Moore
By his Attorneys.
Wheatley & Mackenzie.

H. MOORE.

ACTUATING MECHANISM FOR SEWING MACHINE SHUTTLES.

No. 520,759.

Patented May 29, 1894.



WITNESSES.
Albert Jones.
John F. Cairns.

INVENTOR.
Harvey Moore
By his Attorneys.
Wheatley & Mackenzie

UNITED STATES PATENT OFFICE.

HARREY MOORE, OF WELLINGBOROUGH, ENGLAND.

ACTUATING MECHANISM FOR SEWING-MACHINE SHUTTLES.

SPECIFICATION forming part of Letters Patent No. 520,759, dated May 29, 1894.

Application filed March 30, 1891. Serial No. 387,065. (No model.) Patented in England February 12, 1891, No. 2,514; in Germany March 6, 1891, No. 58,713; in France May 11, 1891, No. 213,367, and in Belgium May 11, 1891, No. 94,860.

To all whom it may concern:

Be it known that I, HARREY MOORE, a subject of the Queen of Great Britain, residing at Wellingborough, in the county of Northampton, England, have invented new and useful Improvements in Driving Mechanism for Rotary Hooks of Sewing-Machines, (for which I have obtained patents in Great Britain, dated February 12, 1891, No. 2,514; in Germany, dated March 6, 1891, No. 58,713; in France, dated May 11, 1891, No. 213,367, and in Belgium, dated May 11, 1891, No. 94,860,) of which the following is a specification.

This invention relates to mechanism for driving rotary hooks of sewing machines such as are usually mounted in a race to be rotated by a driver extending from a rotating shaft. In operation the thread of the loop is formed by the rotating hook and has to pass between the driver and the point of contact thereof with the rotary hook and in this manner an uncertain strain is put upon the thread during the formation of the stitch.

The object of my invention is to avoid the necessity of passing the thread between the contact surfaces of the rotary hook and its driver. For this purpose I provide a double driving mechanism making contact with the rotary hook at two points alternately and thereby creating release from contact of the double driving mechanism with the parts of the rotary hook upon which the same operates alternately at the required time for allowing the passage of the thread of the loop without hindrance.

Rotary hooks for sewing machines are ordinarily rotated at a speed variable in the course of each revolution in order that they may move the slower while the hook takes the thread from the needle and then recover the lost time during the remainder of their revolution. This variable speed is obtained by connecting two lengths of shaft situated in parallel lines, by means of a link, the variation in speed at different parts of the revolution being due to the eccentricity of the centers of the shafts so linked as each to perform a complete revolution in the same period of time, though the shaft which derives its motion from the other by means of the link

rotates at a speed variable throughout each complete revolution.

My invention consists in deriving from the main shaft by means of double link mechanism, movement for two shafts one of which being hollow is traversed by the other placed concentrically therein. At the extremities of these two shafts I provide projections constituting the double driving mechanism hereinafter more fully described by reference to the accompanying drawings in all the figures of which the same part is indicated by like reference letters.

Figure 1 is an end view of parts of a sewing machine showing the double driving mechanism for the rotary hook. Fig. 2 is a sectional elevation and Fig. 3 is an under plan of the machine shown in Fig. 1, parts being in section. Fig. 4 shows the position of the links when the two members of the driving mechanism are at their greatest distance apart. Fig. 5 shows the position of the links when the two members of the driving mechanism are at their point of nearest approach. Fig. 6 shows the driving mechanism one member of which engages the rotary hook to drive the same the other being removed from contact at the point where the hook receives the thread loop from the needle. Fig. 7 shows the driving mechanism engaging the rotary hook at its point and removed from contact at the other driving end. Fig. 8 is a perspective view of the parts J K of the driving mechanism.

A represents the cloth plate of a rotary hook sewing machine to which my invention is applicable, B being the needle bar and C the presser foot.

From the main shaft D I communicate a variable motion by means of links E F to the shafts G H of the two drivers which are both supported in the same bearing the one H traversing the one G made hollow for that purpose. The shafts G H being set in a line parallel with the axis of the main shaft D but not in the same plane and deriving their motion from the said main shaft by the intervention of links E F each make one complete revolution in the same period of time as that occupied by one revolution of the main shaft

but the speed of the shafts G H as compared with the speed of the main shaft varies at different points of the revolution. As the links E F are connected with the main shaft
 5 D one in advance of the other the variable speed of the shafts G H is not equally timed in both cases and consequently the driving arm J projecting from the shaft G and the driving arm K projecting from the shaft H
 10 during each complete revolution advance toward or recede from each other. This want of uniformity in the period of greatest acceleration and of greatest retardation in speed of the shafts G and H respectively causes the
 15 driving arms J and K alternately to make contact with the driving abutments L and M leaving an opening free between the driver and the driving abutment upon the rotary hook N first to admit the thread loop upon
 20 the rotary hook and then to allow it to be released therefrom without hindrance. The driving arm J is slotted at P to allow the required dip for the needle.

It will be seen by reference to Fig. 6 that
 25 the rotary hook N shown in position to receive the thread loop from the needle is driven by the driver J making contact with the driving abutment L and leaving a clear space for entrance of the thread loop between the driver

K and the hook which receives the thread loop 30 from the needle. Likewise it will be seen by reference to Fig. 7 that the rotary hook N shown in position to release the thread loop for the completion of the stitch by take up mechanism usually employed is driven by the 35 driver K making contact with the driving abutment M and leaving a clear space for the escape of the thread loop between the driver J and the driving abutment L.

What I claim as my invention, and desire to 40 secure by Letters Patent, is—

The combination in a sewing machine of a rotary shuttle working in a race and provided with two driving abutments, of a shuttle race, of a main shaft, of two coaxial driving shafts 45 eccentric to the main shaft, of two crank arms and links connecting the main shaft with the two driving shafts and arranged one set in advance of the other, and of two drivers mounted on the driving shafts and adapted to en- 50 gage alternately with the two driving abutments substantially as set forth for the purpose specified.

HARREY MOORE.

Witnesses:

SAMUEL BELL,

Oxford Street, Wellingborough.

WILLIAM FISH.